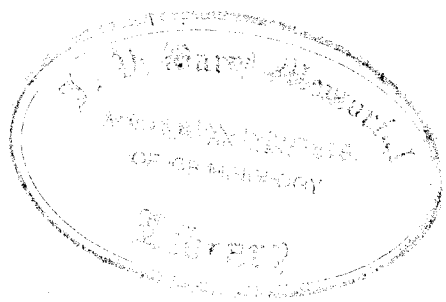
RECIDIVISM IN THE WESTERN AUSTRALIAN PRISON POPULATION

STAGE ONE - FINAL VERSION

JULY 1986



FAILURE RATE ANALYSIS OF ABORIGINAL AND NON-ABORIGINAL RECIDIVISM IN WESTERN AUSTRALIA 1975-1984

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ABSTRACT

Failure rate analysis (Stollmack and Harris 1974, Maltz and McCleary 1977) is used to study the recidivism of all prisoners released for the first time between July 1975 and June 1984 from Western Australian prisons (n = 11,262). Recidivism is defined as reincarceration and excludes convictions involving other penal sanctions. Prisoners serving sentences in police lock-ups, remanded in custody or sentenced to imprisonment prior to July 1975 are also excluded at this stage.

Estimates of the ultimate probability of recidivism for this population and various sub-groups describe recidivism (inclusive of the time criteria) for race, sex, age, offence and other variables, confirming a classic failure profile with strong distinctions by these factors, particularly race.

Overall, the probability of recidivism for Aboriginal male prisoners was 80% (SE 2%) and for non-Aboriginal males was 48% (SE 2%) and the median times to fail (reincarceration) for these groups were 11 months and 18 months respectively. Female Aboriginal recidivism was 75% (SE 6%) and female non-Aboriginal recidivism was 29% (SE 7%) and the median times to fail were 16 months and 19 months respectively. Higher recidivism was observed for male, Aboriginal and young prisoners.

Other variables considered (at first receival) include major offence, actual time served, sentence type, prison (at exit), and marital, educational and employment status. For example, lower recidivism is observed for non-Aboriginal prisoners incarcerated longer and for more serious offences.

The time to fail is consistently much shorter for Aboriginals across all factors than for non-Aboriginal prisoners. A general downward trend in recidivism was found between 1975/76 and 1978/79 although it was less marked for Aboriginal prisoners and did not continue beyond 1980/81.

The contribution of Aboriginal recidivism to high rates of imprisonment in Western Australia is discussed in relation to the utility of imprisonment. The limitations and merits of failure rate analysis in recidivism studies are considered.

INTRODUCTION

Despite continued interest in the relative efficacy of imprisonment, especially compared to the growing use and proliferation of so-called community alternatives to prison, very little is known about the recidivism of prisoners in Australia. Apart from the better known studies of Burgoyne (1979) and the N.S.W. Bureau of Crime Statistics (1979), surprisingly little systematic information has been reported on the subject in Australia. Burgoyne followed up for five years the reconvictions of some 664 prisoners in four discrete offence groups (rape, assault, robbery and homicide) released from Victorian prisons or Youth Training Centres between 1969 and 1974. The N.S.W. Bureau of Crime Statistics followed up for ten years a 1965 sample of 1,365 offenders which included only 185 sentenced to prison. As well, a small sample of break, enter, steal offenders convicted in 1972 was followed up for five years. These studies and others[1] involved; relatively small and varying samples and varied and unclear definitions of recidivism. They were unable to discriminate adequately for race, often were unable to account for the time spent in prison and usually treated prior convictions or imprisonment as a co-variate.

This lack of information and hiatus can perhaps be largely explained by three factors. Firstly, the practical and technical difficulties involved in adequately defining recidivism and following over time a sufficiently large population of offenders are considerable. Secondly, the dominant assumption over the last decade has been that reductionist aims and strategies have failed - therefore little is to be gained by describing yet again recidivism that is invariably high, consisting of the usual marginalised social groups and resilent to all kinds of interventions. This view may be accurate for very persistent offenders but the evidence to support this for all offenders and interventions is exaggerated, perhaps unreliable and almost always exclusively associated with various versions of the rehabilitative aim of imprisonment (Martinson 1976, Palmer 1983, Walker 1983, 1985, Cohen 1985).

In addition those critical of the view that reductionist strategies have failed (i.e. 'nothing works') have emphasised that recidivism as an outcome measure is narrow, misleading and insensitive to instances of less frequent and/or less serious offending as well as qualitative changes in behaviour.

Thus the utility of recidivism research is challenged on the grounds both of relevance as well as accuracy.

Nevertheless, despite the technical debate and polemics about the efficacy of imprisonment, it remains a major penal response in Australian jurisdictions and judicial authorities continue to cite, albeit less enthusiastically, all the traditional aims of imprisonment. Imprisonment in statute and principle,[2] if not always in practice, is held by these same authorities to be the measure of last resort in sentencing. It is also however often evoked to shore up the frequent failures and limitations of apparently less punitive and costly 'community' responses.

As confidence in decarceration (diversion) policies and strategies has decreased (Hylton 1982, Scull 1984, Cohen 1985) there has been renewed interest in the overall effects of traditional penal approaches rather than specific sub- interventions (e.g. such as rehabilitative or 're-entry' programmes). This interest, even "cautious optimism" (Palmer 1983) in the prospect of corrective change through conventional means intensifies the need for improved research on the efficacy of incarceration. Recidivism studies with all their shortcomings continue to provide valuable 'hard' information about the attainment of sentencing aims and irrespective of any predictive capacity enable comparisons to be made between and within various penal strategies and policies.

DATA AND METHOD

(a) General

This paper describes some preliminary results of research on the characteristics of recidivism in the Western Australian prison population between 1 July, 1975 and 30 June, 1984. Recidivism in this instance is defined as reincarceration and excludes convictions involving other penal sanctions. Prisoners serving sentences in police lock-ups or remanded in custody and those prisoners with sentences of imprisonment prior to July 1 1975, were excluded at this stage.[3] Subjects were followed up for a period of 9 years in the case of those prisoners released in 1975 for the first time, 8 years for those released in 1976 and so on. The importance

of selecting this simple, clear and classic definition of recidivism cannot be overstressed. A population of prisoners released for the first time reduces problems of sampling bias but also more importantly avoids confusion over the timing of the events of interest by accounting for all events of recidivism as defined for all cases. Samples or populations that do not clearly distinguish which event is recidivism create artificial and imprecise measures.

A major objective of this study is to provide estimates of the probability of recidivism for the whole population and various sub-groups. This paper focuses on Aboriginal prisoners as they constitute a high proportion of the prison population in Western Australia and their reincarceration behaviour differs markedly from non-Aboriginal prisoners.

The Western Australia Prisons Department computerised record system, consisting of summarised pre-coded prisoner information files, provides the source of the data analysed. The information, based on prison reception history sheets, warrant summary sheets, police property sheets, etc., enables the subjects to be described in relation to the following variables:-

Demographic

Race, sex, age (at first and second receival and at first release), marital status, place of birth, qualifications, occupation (at receival), employment status at arrest for first imprisonment.

Legal

Length of sentence (by most serious offence and actual time served), offence group (by most serious offence) and other offences, sentence type (i.e. finite, parole, default, etc.), for first and subsequent imprisonment.

Institutional

Prison (time spent in - maximum, medium, minimum security), special leave (i.e. participation in home leave, work release, etc.), internal prison offence, money on release, accommodation on release.[4]

Exit and receival information is used to calculate time spent in the community before reimprisonment, if this occurred. Subjects who re-entered the prison system before the cut-off date were classified as recidivists or "failures"; those not returning by the cut-off date were classified as "successes". The variable of interest is "time to failure". The preliminary results reported here refer to the effect of major demographic variables, particularly race and sex on time to first recidivism and probability of ultimate recidivism.[5] Third and subsequent terms of reimprisonment, (in one subject, up to sixty terms of imprisonment) are the topic of a forthcoming report.

(b) Statistical Methods

An important aspect of the time to failure variable is that some observations are censored, i.e. failure has not occurred by the cut-off date. These were called "successes" although their success time may be very short if the prisoner was released just prior to the cut-off date. Obviously, treating such observations as long-term successes would produce serious bias - an over-estimate of the success rate. To describe the time to failure data taking account of the censoring, we use the Kaplan-Meier non-parametric estimate of the cumulative distribution of time to failure (e.g. Kalbfleisch and Prentice, 1980, Kaplan & Meier 1958). The Kaplan-Meier estimator adjusts the observed number of failures at each time by assuming that individuals successful for at least that length of time will fail at the same rate as those who actually failed. For these calculations, it is assumed that individuals fail independently.

The Kaplan-Meier estimator is a descriptive procedure, commonly used in medical contexts for analysis of survival data. The applicability of failure rate analysis to recidivism data was suggested over a decade ago by Stollmark and Harris (1974) yet is still little used despite urging by Flanagan (1982). The former authors discussed the problem of censoring and suggested the use of the exponential distribution (later, Harris and Moitra (1978) - the Weibull) for the distribution of failure times.

A major modification to their methods was proposed by Maltz and McCleary (1977) who realised that the possibility of long-term success should be incorporated in any model of the failure time distribution. They used an exponential model and illustrated its success on the Stollmark-Harris data with its simple censoring pattern. It should be noted that the non-parametric approach [including the Cox proportional hazards model advocated by Barton and Turnbull (1979)] does not permit efficient estimation of long-term success.

To model the data, the approach used here is a mixture of the Weibull model of survival analysis and a parameter representing the probability of long-term success. Failure time T is assumed to have cumulative distribution function;

$$P\left(1 - e^{-(\lambda t)^c}\right) \qquad (1)$$

where and are parameters characterising the Weibull distribution of failures, and 1-P is the probability of long-term success (P is the probability of ultimate failure). Often, in the results to follow, we find

is close to 1 so the Weibull distribution is close to the exponential. The median of the Weibull is:-

$$\frac{1}{\lambda}(\log 2)^{1/c}$$

which is inversely proportional to λ (We use the median of the Weibull in preference to the mean as an estimate of its location). When failure (or success) times and censor indicators (1 for failure, 0 for success) are measured, the distribution (1) can be fitted by maximum likelihood. A Fortran program was written to do this. It allows for grouped (usually into 30 day intervals) or un-grouped data, but all analysis reported in this paper is done on ungrouped data, (i.e. time to fail was accurate to within one day).

THE POPULATION

Eleven thousand, two hundred and sixty-two subjects comprise the population described, of whom 90% are males and 30% are Aboriginal. The median age at first exit is 23.4 years and the mean age is 26.8 years. Half the population (50.5%) were born in Western Australia and 61.6% in all States and the Territory. For the present, incarceration in other States or countries is unaccounted and therefore, some under-reporting of cases is assumed, particularly for non-Aboriginal prisoners.[6] The recidivist rates reported below are thus conservative. In further research, it is hoped to derive estimates of incarceration in other States, juvenile records, arrest and non-custodial dispositions from a sample of this population.

On first release, some 16% of the prisoners were released to parole, 69% were released to freedom after completing finite terms and 10% were released after payment of fines. The remaining 5% were released for various other reasons - extradition, deportation, death, etc. Sixty percent completed only one known term of imprisonment, 18% two terms of imprisonment and twenty-two percent three or more terms of imprisonment over the time considered.

Over half, (59%), had completed 10 years of schooling or less. Twenty percent of the population were employed at the time of their arrest leading to their first term of imprisonment, 45% were unemployed and the employment status of a further 35% was unknown.[7] Ten percent were married, 46% were single at the time of first receival, and the remainder were divorced, separated, widowed or unknown.

The actual time served for the first term of imprisonment by this population was as follows: some 49% of male aboriginals and 44% of non-aboriginals served one month or less, while 74% of female aboriginals and 60% of female non-aboriginals served a similar period; 41% of male aboriginals, 34% of non-aboriginal males, 24% of female non-aboriginals and 23% of female aboriginals served between one and six months; as few as 3% of female aboriginals and 10% of male aboriginals served more than six months, whereas some 22% of male non-aboriginals and 16% of female non-aboriginals served longer than six months.

The results reported below are described for; the ultimate probability of recidivism, i.e., the percentage failing = P; the median time to fail in 30 day periods or 'months', i.e., when 50% of the recidivist population has returned to prison = MD; the standard error (SE) of the probability of recidivism; and the total number of subjects in the subgroup = N. Calculation of the probability of recidivism P, the median time to fail MD and the standard error are not undertaken for subgroups when less than 10 failures have been observed.

RESULTS

(a) General

Overall, the estimated probability of ultimate recidivism for male Aboriginals was 80% (SE 2%), with a median time to fail of about 11 months and a mean time to fail of 16 months. For non-Aboriginal male prisoners, the probability of recidivism was 49% (SE 2%) with a median time to fail of 19 months, and a mean time of 27 months.

The female probability of recidivism was less than their male counterparts. For non-Aboriginal female offenders it was substantially lower but female Aboriginal recidivism was even higher than male non-Aboriginal recidivism. (See Figure 1).

Table II shows recidivism sub-classified by race, sex and age at first exit. Figures 2 and 3 show the cumulative probability of recidivism for males by age as a function of time since first exit. For non-Aboriginal males, the estimated probability of ultimate recidivism shows a downward trend as prisoners become older, with the exception of those 30-35 years of age. Consistent with this, the median time to fail in 30 day periods (or months) increases with the age of the prisoner. For example, this varies from around 1 year for those released under the age of 20 to nearly 2 years for those male non-Aboriginals released at the age of 40 years or over. The same, but less pronounced trend, is also evident with Aboriginal prisoners, although the size of the Aboriginal population over the age of 30 is quite small.[8]

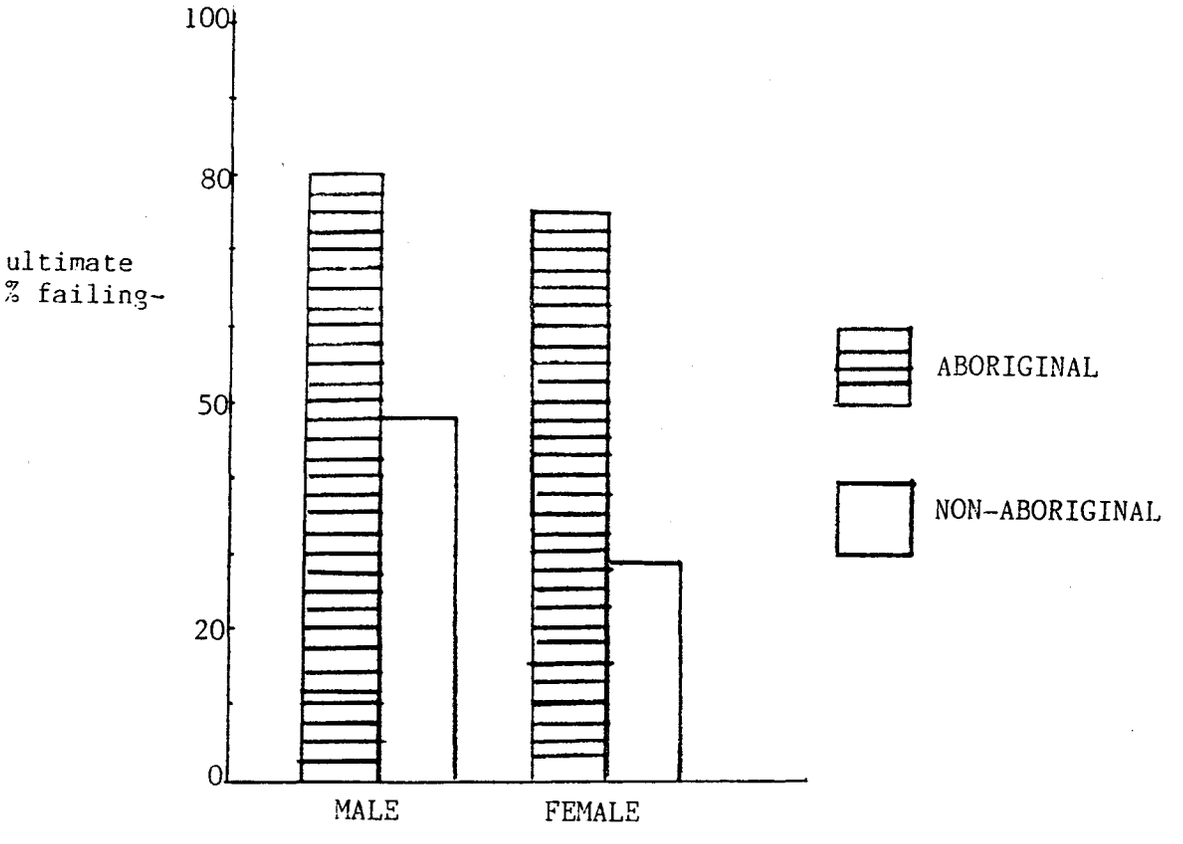
TABLE I - RECIDIVISM BY RACE AND SEX

MALES	ABORIGINAL	NON-ABORIGINAL
- Percentage failing P	80%	48%
- Standard Error of percentage	1.5%	1.5%
- Median time to fail in 'months' (30 days periods) no	11.2	18.2
- Number of subjects N	2705	7478

FEMALES	ABORIGINAL	NON-ABORIGINAL
- Percentage failing P	75%	29%
- Standard Error of percentage	6.0%	7.2%
- Median time to fail in 'months' no	16.0	19.1
- Number of subjects N	678	401

HISTOGRAM

RECIDIVISM X SEX AND RACE



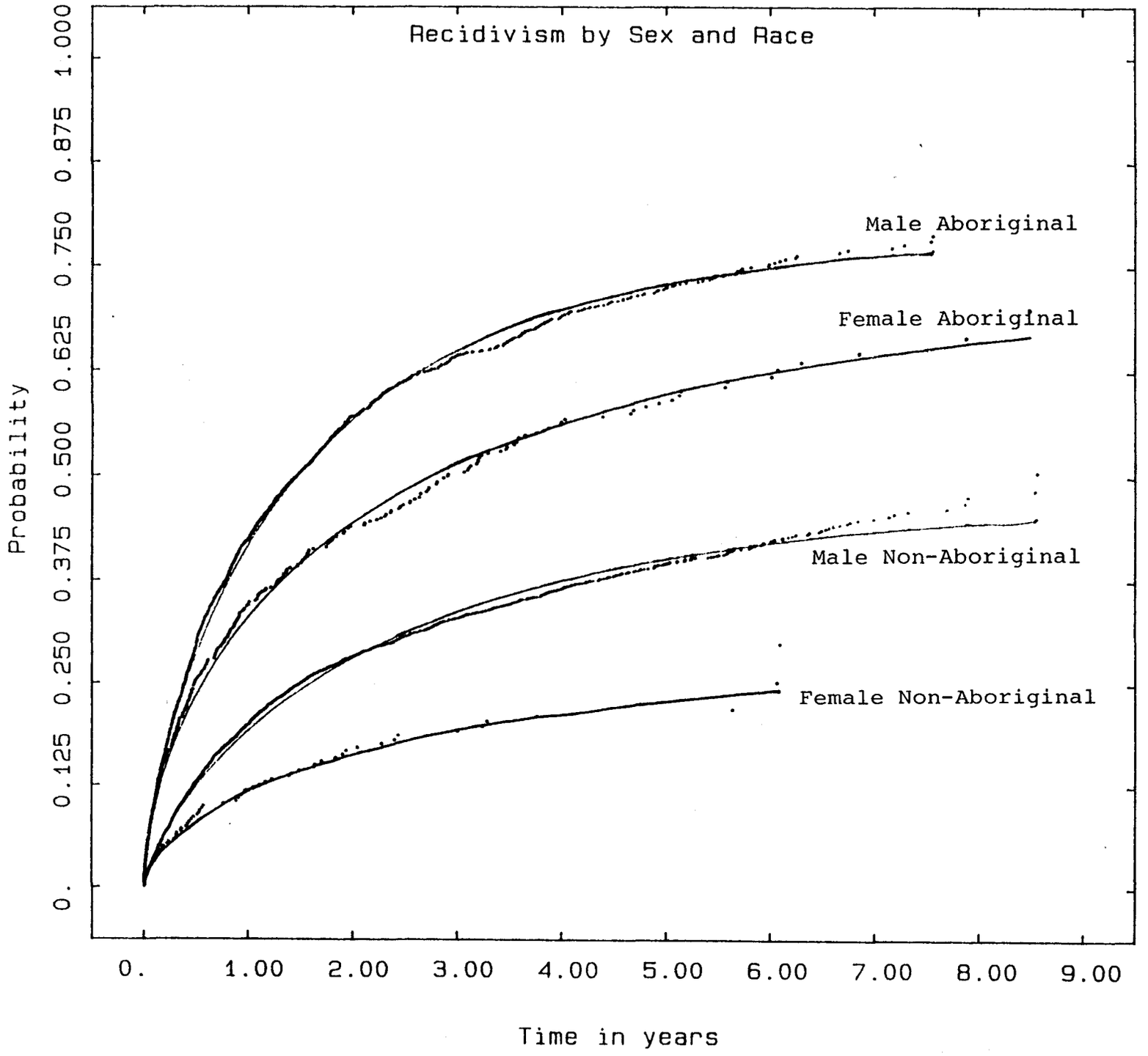


FIGURE 1

"CUMULATIVE DISTRIBUTION OF RECIDIVISM BY SEX AND RACE"

actual time to fail (dotted lines = Kaplan-Meier estimator) and estimated time to fail (full lines) from the model(1) for the major sex and race groups

In most categories, Aboriginal prisoners on average fail more quickly than other prisoners and this persists for most offence categories (see Table III). Recidivism is uniformly high for Aboriginal prisoners across all major offence categories, in some cases, more than doubling the amount for non-Aboriginal prisoners. Female Aboriginal failure rates are lower than Aboriginal male recidivism and their median time to fail is generally longer.

Similarly, where sufficient subjects are present for analysis, female non-Aboriginal recidivism is lower than that of their male counterparts and the time to fail is generally longer.

Table IV shows that the probability of recidivism varies with the actual time served for the first imprisonment. It follows a downward trend for male non-Aboriginal prisoners as longer sentences are served. This trend is not present for male Aboriginals, although the number of subjects serving sentences greater than 2 years is very small. A trend of decreasing probability of recidivism with increasing seriousness of offence for male non-Aboriginals is also present (Table III) but not so clear. On the other hand, the median times to recidivate in Table IV show little trend with actual time served.

Substantial differences also can be seen when employment and marital status are considered (see Appendix Tables 2 and 3). Married or employed subjects are more likely to avoid ultimate reincarceration or to avoid it for longer periods of time irrespective of race. Nevertheless, differences between the races remain very substantial with either factor.

The probability of recidivism also varies with educational qualifications obtained for non-Aboriginals (decreasing with higher education) but insufficient numbers of Aboriginal and female prisoners held qualifications beyond junior high school for this trend to be ascertained for these prisoners.

TABLE II - RECIDIVISM BY RACE, SEX AND AGE (AGE AT FIRST EXIT)

	MALE		FEMALE	
AGE GROUP	ABORIGINES	NON-ABORIGINES	ABORIGINES	NON-ABORIGINES
LESS 20 YEARS				
P	.88(.02)	.63(.02)	.87(.08)	.46(.23)
MD	8.3	11.6	10.4	14.0
N	1003	1379	150	58
20-25 YEARS				
P	.72(.03)	.52(.03)	.81(.16)	.23(.05)
MD	10.5	22.4	23.8	11.3
N	761	2536	191	154
25-30 YEARS				
P	.86(.08)	.38(.02)	.76(.20)	-*
MD	19.0	15.6	17.1	-
N	350	1333	130	78
30-35 YEARS				
P	.88(.11)	.46(.06)	.76(.33)	-
MD	20.0	25.0	33.4	-
N	225	823	79	48
35-40 YEARS				
P	.64(.06)	.42(.08)	.70(.50)	-
MD	15.1	20.6	27.1	-
N	117	476	52	20
40 YEARS +				
P	.82(.21)	.41(.8)	.52(.07)	-
MD	26.7	29.7	6.9	-
N	234	922	71	43

NB Missing cases (ages unknown or unstated) = 29
* Insufficient follow up time

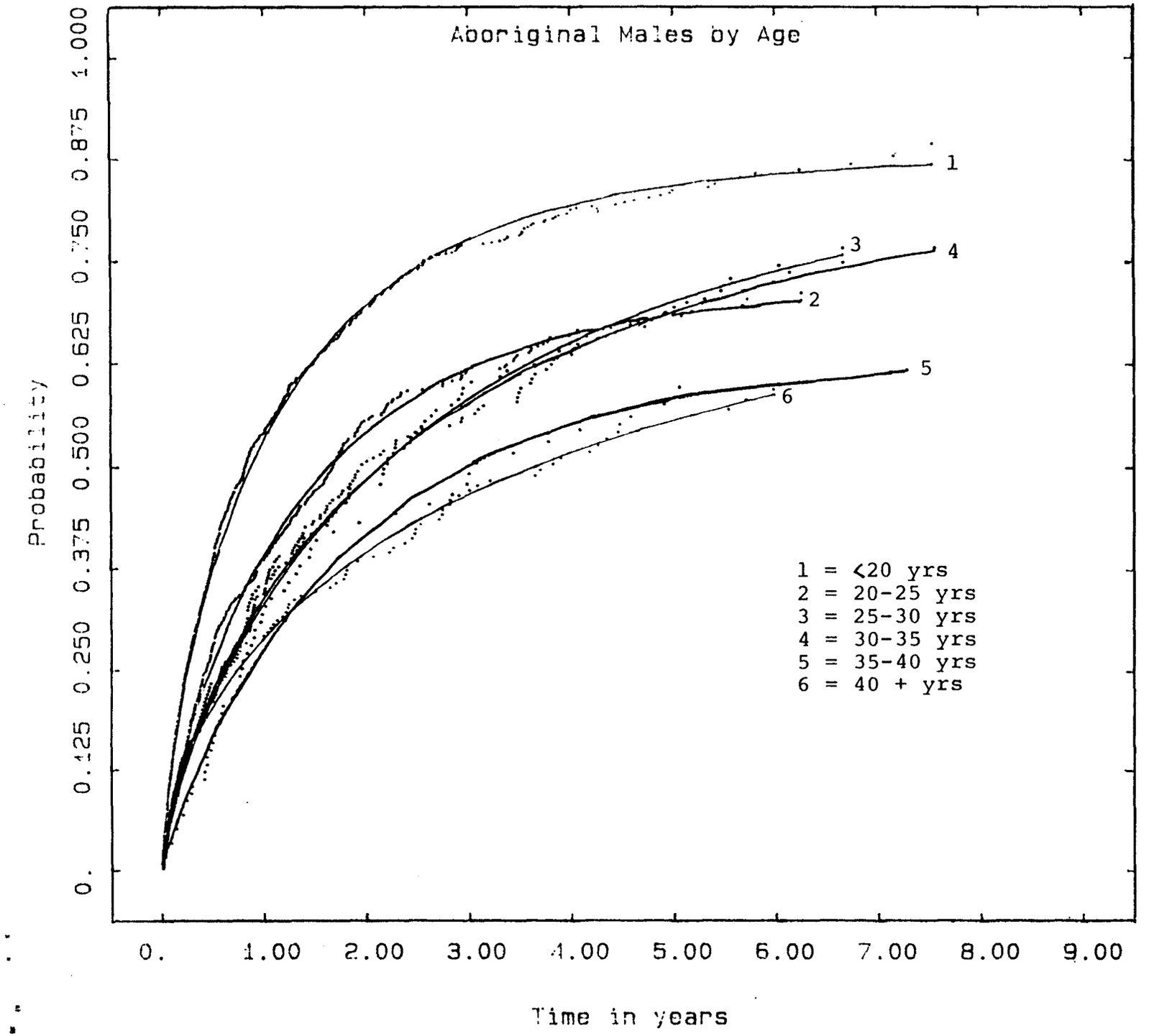


FIGURE 2

"CUMULATIVE DISTRIBUTION OF MALE ABORIGINAL RECIDIVISM BY AGE"

actual time to fail (dotted lines = Kaplan-Meier estimator) and estimated time to fail (full lines) from the model(1) for age and race groups

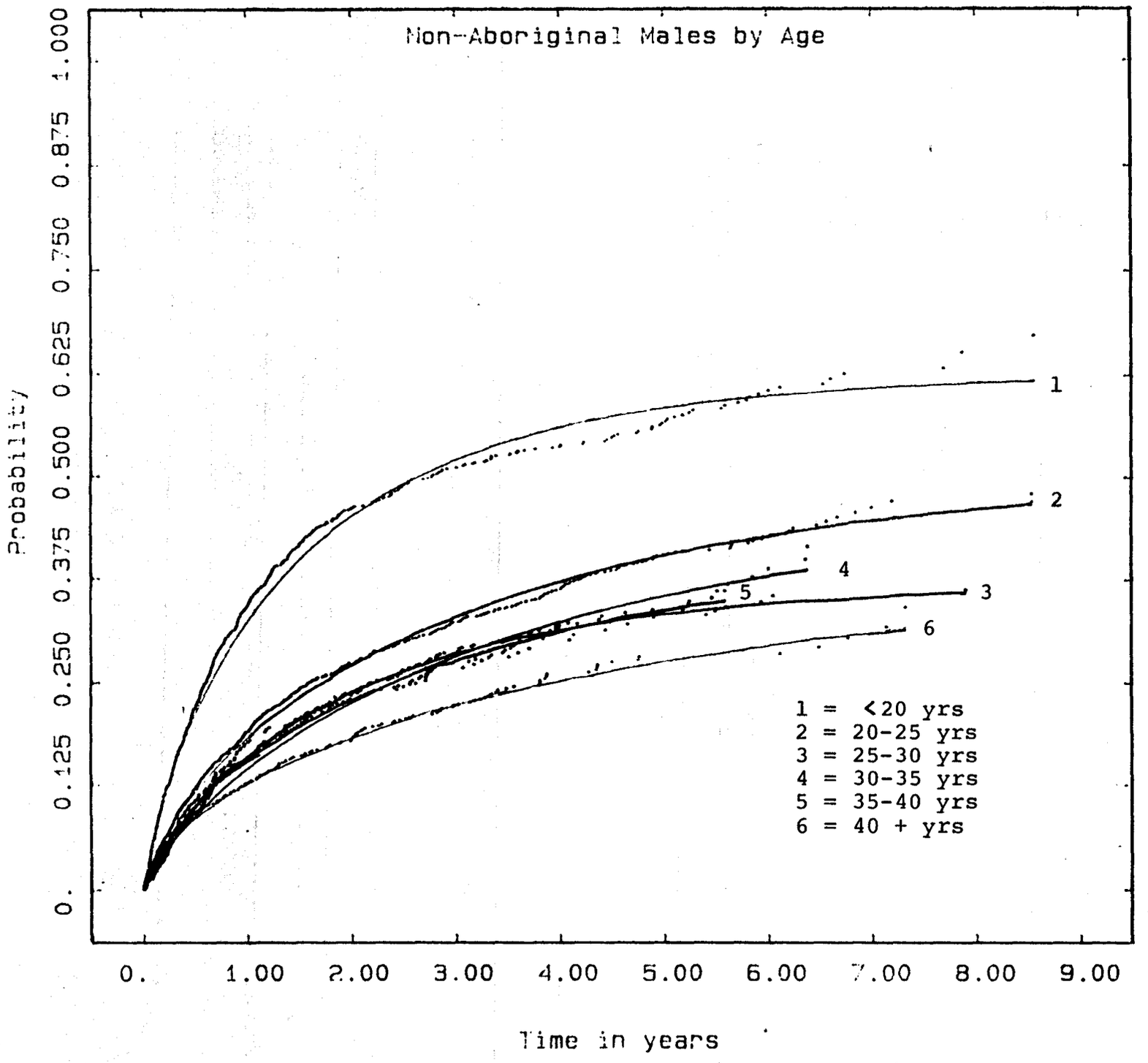


FIGURE 3

"CUMULATIVE DISTRIBUTION OF MALE NON-ABORIGINAL RECIDIVISM BY AGE"

actual time to fail (dotted line = Kaplan-Meier estimator) and estimated time to fail (full lines) from the model(1) for age and race groups

TABLE III - RECIDIVISM BY RACE, SEX AND OFFENCE
(FIRST RECEIVAL)

OFFENCE CATEGORY	MALE		FEMALE	
	ABORIGINES	NON-ABORIGINES	ABORIGINES	NON-ABORIGINES
HOMICIDE				
P	-	.19(.07)	-	-
MD	-	18.1	-	-
N	20	99	4	2
SEX OFFENCES				
P	.75(.07)	.30(.07)	-	-
MD	12.2	18.2	-	-
N	107	184	4	1
AGAINST PERSON (assault, robbery)				
P	.75(.04)	.39(.04)	.56(.16)	-
MD	10.4	18.6	16.2	-
N	363	622	63	19
MOTOR VEHICLE (theft, etc.)				
P	.87(.03)	.60(.05)	.70(.15)	-
MD	9.9	11.4	15.1	-
N	339	232	48	5
AGAINST PROPERTY (B & E, Fraud, Arson)				
P	.81(.03)	.47(.02)	.85(.18)	.51(.72)
MD	8.5	15.3	16.2	41.9
N	467	1876	123	117
GOOD ORDER (Drunkenness, Disorderly)				
P	.82(.04)	.55(.05)	.70(.05)	.58(.22)
MD	10.7	12.1	9.3	8.9
N	471	292	250	26
TRAFFIC ACT (Alcohol, licence, etc.)				
P	.76(.03)	.58(.04)	.75(.40)	.34(.14)
MD	14.2	22.8	34.2	22.6
N	734	2855	95	87
DRUGS (Use, supply)				
P	-	.39(.20)	-	-
MD	-	52.8	-	-
N	10	684	3	70
AGAINST JUSTICE (Breach of parole, escape)				
P	.82(.05)	.53(.05)	1.0*	-
MD	9.9	13.8	-	-
N	146	405	52	37
MISCELLANEOUS (Firearms, licensing, debt)				
P	.64(.20)	.27(.07)	1.0*	-
MD	15.9	18.1	-	-
N	48	229	36	37

* "boundary" estimate of 100% failing

TABLE IV - RECIDIVISM BY RACE, SEX AND ACTUAL TIME SERVED

ACTUAL TIME SERVED IN PRISON	MALE		FEMALE	
	ABORIGINES	OTHER	ABORIGINES	OTHER
less than a week				
P	.87(.09)	.50(.04)	.61(.05)	.51(.51)
MD	18.5	17.1	11.2	59.4
N	501	1404	281	159
1 week - 1 month				
P	.80(.03)	.51(.03)	.74(.09)	.35(.19)
MD	12.7	14.9	14.9	11.7
N	843	1923	233	74
1 month - 2 months				
P	.79(.03)	.70 (.11)	1.0*	-
MD	9.7	30.0	-	-
N	439	868	88	29
2 months - 3 months				
P	.79(.03)	.54(.04)	-	-
MD	9.0	15.9	-	-
N	387	759	50	15
3 months - 6 months				
P	.83(.04)	.52(.05)	-	-
MD	9.4	19.6	-	-
N	268	823	17	36
6 months - 1 year				
P	.79(.06)	.31(.03)	-	-
MD	9.9	18.8	-	-
N	121	812	-	45
1 year - 2 years				
P	.83(.06)	.39(.05)	-	-
MD	9.0	24.9	-	-
N	78	545	6	24
2 years - 3 years				
P	.80(.06)	.36(.09)	-	-
MD	14.0	18.9	-	-
N	35	159	3	7
3 years - 4 years				
P	-	.24(.06)	-	-
MD	-	12.3	-	-
N	15	103	0	5
4 years - 5 years +				
P	-	-	-	-
MD	-	-	-	-
N	18	84	2	2

* "Boundary" estimate of 100% failing

The prison from which subjects were released revealed little variation in recidivism for non-Aboriginal prisoners but some differences were evident for Aboriginals. Those Aboriginals released from northern prisons (i.e. Roebourne, Broome and Wyndham) have significantly lower recidivism (for either sex) than those released from Metropolitan, Southern and Goldfield prisons. The common gaol at Geraldton has the highest male Aboriginal recidivism (94%) although subject to a standard error of 10%.

Aboriginal males released to freedom (mostly having served short "finite" terms of imprisonment) have a 80% (SE 2%) chance of ultimate recidivism with a median time to fail of 9 months, whereas for non-Aboriginal males the chance is 49% (SE 2%) with a median time to fail of 17 months. Female recidivism for this category is lower, 79% (SE 8%), 37% (SE 15%) for Aboriginals and non-Aboriginals respectively, and their time to fail is longer. Aboriginals released after payment of fines have a lower chance of recidivism but the numbers involved are small and the standard error high.

Some 10% of prisoners released on parole were Aboriginal. Their ultimate recidivism was lower than for those released to freedom. The same is true for non-Aboriginals but the difference is much more marked.

TABLE V - RELEASED TO PAROLE (SENTENCE TYPE)

MALE	ABORIGINAL	NON-ABORIGINAL
Percentage failing	77%	34%
Standard error of percentage	5%	3%
Median time to fail (months)	12.0	23.5
Number of Subjects	183	1683

A more definitive analysis of these effects would be a comparison of prisoners eligible for parole (generally, prisoners serving "head" sentences of greater than 12 months) with those released for parole, and this will be the topic of a subsequent report.

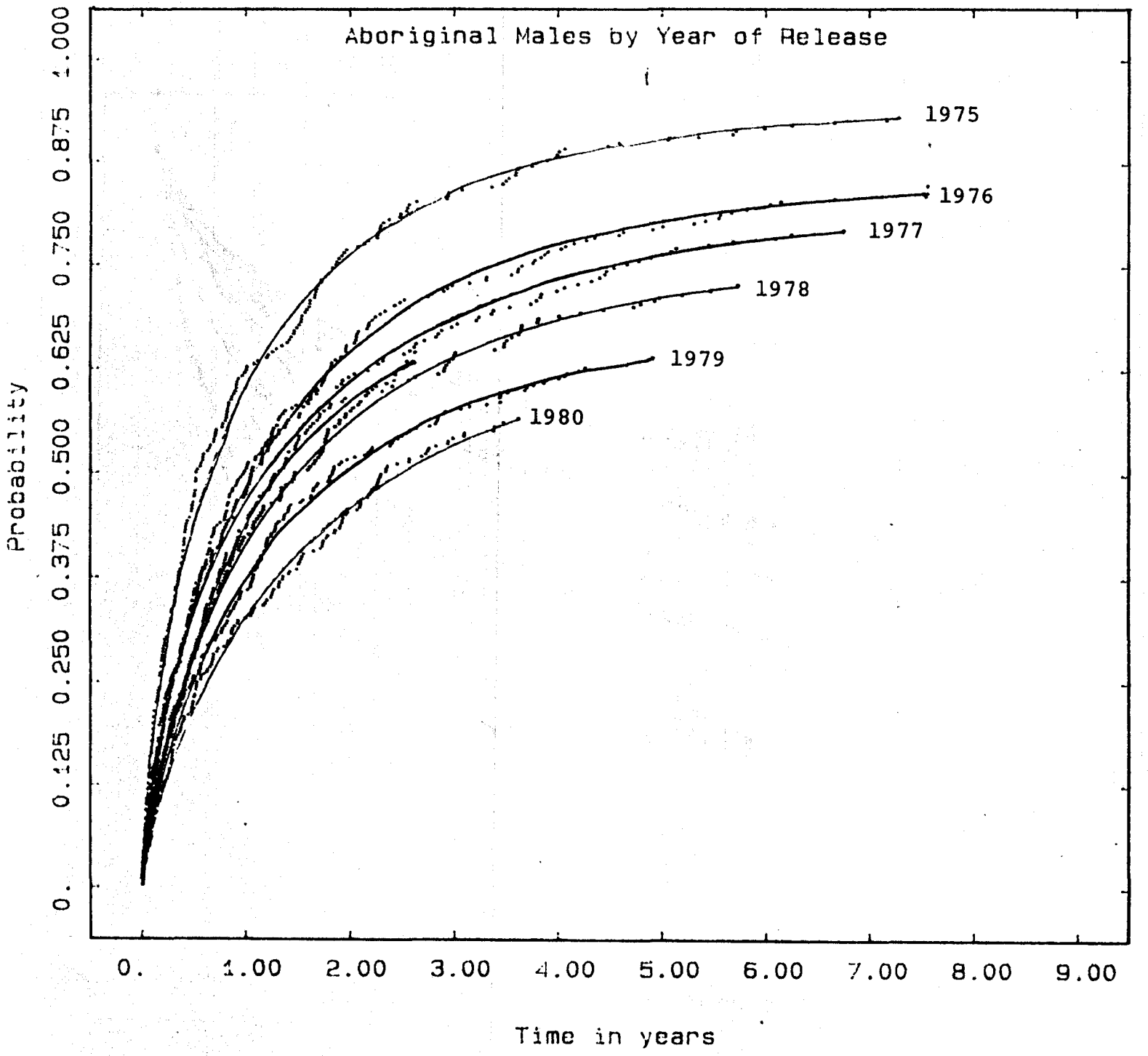


FIGURE 4

"CUMULATIVE DISTRIBUTION OF MALE ABORIGINAL RECIDIVISM BY YEAR OF RELEASE"

actual time to fail (dotted lines = Kaplan-Meier estimator) and estimated time to fail (full lines) from the model(1) for race and year and release

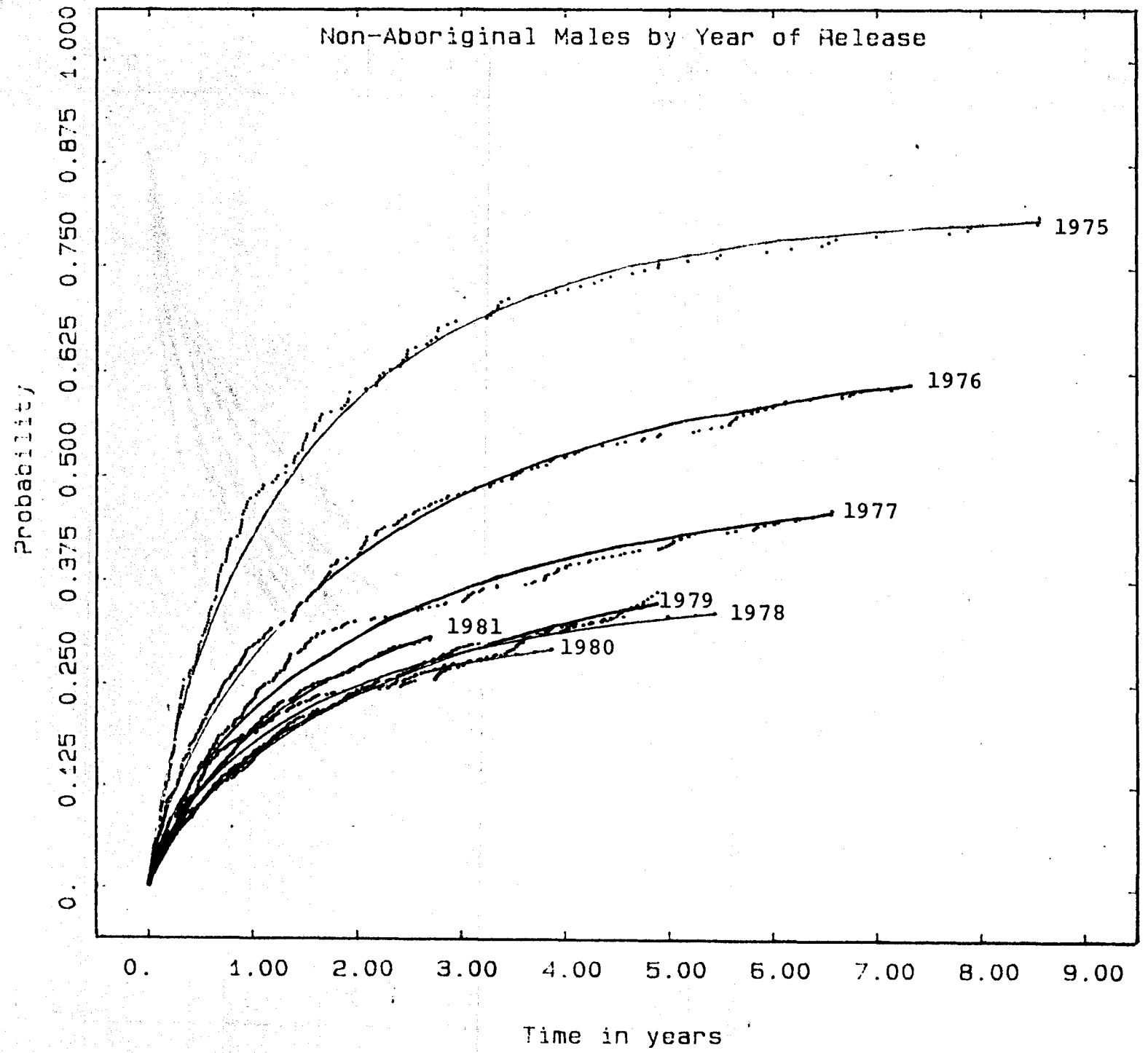


FIGURE 5

"CUMULATIVE DISTRIBUTION OF MALE NON-ABORIGINAL RECIDIVISM BY YEAR OF RELEASE"

actual time to fail (dotted lines = Kaplan-Meier estimator) and estimated time to fail (full lines) from the model(1) for race and year of release

Figures 4 and 5 (See Table 5 Appendix) describe recidivist distributions for the population by race, sex and year of release, illustrating an overall downward trend in rates from 1975/1976 to 1980/1981. It is observed that the downward trend has been less marked for Aboriginal prisoners and that for all prisoners, the trend has not continued beyond 1978/1979. Two further checks on the accuracy of this trend were undertaken; firstly failure rate analysis was conducted for each year of release for a follow-up period of 30 months only, and secondly conventional cumulative frequencies by year of release were calculated for up to 36 months follow-up, in order to compare subjects over like periods - the trend remained clear in each analysis. Further analysis of this trend was undertaken by offence group and year of release. This indicated that the downward trend in recidivism was also reflected in the offence groups examined (i.e. good order, driving, motor theft, against property and persons), however, the number of subjects in some years and offence categories was too small to be reliable. As the follow-up period for those released since 1981 is usually less than 3 years, caution is required in interpreting recidivism for those prisoners.

It is possible to advance several explanations for these observations. For example, differences in types of prisoners incarcerated in 1975/1976 compared with those imprisoned later; changes in prison regimes and programmes; changes in sentencing policy, legal definitions, and treatment of some categories of prisoners (e.g. changes in the law regarding drunkenness, mandatory prison for drink driving, etc); changes in economic conditions; and the provision of legal aid. These factors are outside the scope of this study and therefore our explanations are speculative.

(b) Recidivist Offences

It is frequently assumed by scholars and practitioners that many recidivists specialise in offences and progress on subsequent re-conviction to more serious offences. Empirical support for these assumptions is not clear. The literature does not readily support the suggestion that the number of previous convictions or the type of previous offence predicts the seriousness of subsequent offence, or that continued offending correlates with an increase in seriousness. Nor is it apparent that the

TABLE VI - FIRST MAJOR OFFENCE BY SECOND MAJOR OFFENCE (MALES)

		HOMICIDE	SEX OFFENCES	AGAINST PERSON	DRUGS	UNLAWFUL USE M/V	PROPERTY	AGAINST JUSTICE	GOOD ORDER	TRAFFIC	MISC.	NO RECORD
HOMICIDE	non-abors	2(2.9)	0	2(0.41)	0	0	6(0.73)	0	0	3(0.93)	2(1.0)	84
	abors	0	0	2(0.44)	0	2(2.15)	0	3(0.87)	0	3(0.35)	1(0.29)	9
SEX OFFENCES		0	9(0.71)	5(1.1)	2(1.0)	0	5(1.0)	9(0.58)	3(1.1)	5(0.61)	3(0.95)	143
		1(0.66)	8(1.5)	11(0.78)	0	5(1.24)	9(1.05)	8(1.63)	9(0.93)	10(0.47)	3(1.6)	43
AGAINST PERSON		1(0.74)	3(1.74)	43(0.87)	3(0.25)	3(1.5)	36(0.67)	41(0.81)	4(0.62)	32(0.70)	19(0.70)	437
		0	8(0.84)	60(1.05)	0	24(1.5)	27(0.85)	21(1.01)	36(1.04)	40(0.74)	9(0.81)	138
DRUGS		1(0.77)	0	7(1.46)	36(0.55)	0	19(0.93)	11(1.25)	2(0.82)	27(0.65)	14(0.86)	567
		0	0	0	1(0.88)	0	0	0	0	2(0.47)	0	7
UNLAWFUL USE M/V		0	0	15(1.1)	0	13(1.45)	40(1.0)	9(0.60)	3(1.76)	35(0.74)	7(0.62)	110
			6(2.02)	18(0.97)	0	67(1.37)	46(1.01)	19(1.01)	34(1.12)	54(0.60)	6(0.73)	89
PROPERTY		2(4.2)	16(0.83)	33(0.54)	28(0.49)	35(1.98)	265(1.1)	94(0.90)	30(0.74)	132(0.60)	70(0.85)	1171
		2(0.90)	7(0.57)	30(1.14)	1(0.28)	41(1.42)	114(1.37)	21(1.47)	34(1.2)	60(0.68)	9(0.87)	148
AGAINST JUSTICE		0	4(0.80)	12(0.58)	2(1.01)	5(0.96)	46(1.14)	27(0.82)	8(0.82)	51(0.83)	13(1.3)	237
		1(9.0)	3(1.1)	12(1.03)	0	10(1.45)	12(0.65)	12(1.63)	22(1.3)	24(0.75)	0	50
GOOD ORDER		0	4(0.80)	9(1.2)	3(1.33)	5(1.63)	30(0.88)	14(0.81)	28(2.2)	29(0.48)	8(0.60)	162
		5(1.56)	8(0.63)	45(0.82)	0	28(1.2)	47(0.88)	19(2.93)	115(1.01)	34(0.75)	11(0.51)	159
TRAFFIC		4(0.90)	7(1.0)	57(0.98)	37(0.92)	20(0.78)	131(0.90)	39(0.71)	20(1.54)	613(0.77)	57(0.77)	1870
		4(0.94)	8(2.1)	35(0.75)	1(0.51)	43(1.54)	40(1.28)	24(1.15)	24(0.65)	215(0.74)	14(1.06)	326
MISC		0	0	5(2.3)	1(25.7)	1(4.6)	7(2.7)	4(0.83)	4(0.45)	11(0.61)	11(0.52)	185
		0	1(3.30)	4(0.58)	0	1(3.75)	3(1.63)	4(0.93)	5(0.44)	3(4.95)	0	27

Row 1 = Non Aboriginal: Row 2 = Aboriginal: ( ) = Time at Risk, Offence/Person Years at Risk

TABLE VII - FIRST MAJOR OFFENCE BY SECOND MAJOR OFFENCE (FEMALES)

		HOMICIDE	SEX OFFENCES	AGAINST PERSON	DRUGS	UNLAWFUL USE M/V	PROPERTY	AGAINST JUSTICE	GOOD ORDER	TRAFFIC	MISC.	NO RECORD
HOMICIDE	non-abors	0	0	0	0	0	0	0	0	0	0	2
	abors	0	0	0	0	0	0	0	0	1(1.03)	1(0.26)	2
SEX OFFENCES		0	0	0	0	0	0	0	0	0	0	1
		0	0	1(25.7)	0	0	0	0	0	0	1(0.2)	2
AGAINST PERSON		0	0	1(6.0)	0	0	2(0.29)	1(0.58)	1(1.06)	0	0	14
		0	0	8(1.62)	0	3(0.56)	3(2.80)	1(0.32)	8(0.70)	2(0.51)	1(4.0)	37
DRUGS		0	0	0	0	0	1(1.85)	0	1(60)	1(2.77)	0	67
		0	0	0	0	0	0	0	0	0	0	3
UNLAWFUL USE M/V		0	0	1(5.3)	0	0	0	0	1(6.54)	0	1(20.0)	2
		0	0	3(0.73)	0	3.(2.32)	6(2.66)	0	5(0.72)	6(0.45)	0	25
PROPERTY		0	0	0	2(1.98)	0	15(0.77)	5(2.8)	1(7.5)	0	4(1.24)	90
		0	1(0.51)	3(0.33)	0	12(0.80)	26(1.00)	6(1.76)	13(1.00)	5(1.89)	1(32)	56
AGAINST JUSTICE		0	0	0	0	0	2(4.93)	1(22.5)	0	1(0.80)	1(7.2)	32
		0	1(40.0)	9(0.84)	0	0	4(1.59)	4(0.78)	6(0.95)	5(0.28)	1(18.0)	22
GOOD ORDER		0	0	0	0	1(15.0)	0	4(0.83)	5(1.33)	2(1.03)	1(1.80)	13
		0	1(2.67)	7(0.82)	0	6(0.45)	19(1.41)	6(2.06)	84(1.08)	7(0.40)	15(0.92)	105
TRAFFIC		1(60)	0	1(2.25)	4(0.53)	0	1(0.52)	3(0.60)	0	5(1.07)	1(0.48)	71
		0	0	2(0.56)	0	2(0.47)	3(0.68)	1(0.38)	4(0.63)	21(0.69)	2(0.35)	60
MISC		0	0	0	0	0	3(0.33)	0	0	0	2(1.0)	32
		0	0	0	0	0	1(0.70)	0	9(2.14)	0	7(0.52)	19

Row 1 = Non Aboriginal: Row 2 = Aboriginal: ( ) = Time at Risk, Offence/Person Years at Risk

patterns of offences are particularly specialised. (Klein 1984; Farrington 1979; Petersilia and Greenwood 1978). There is clear evidence however, that the number of previous terms of imprisonment is important for predicating if an offender is more or less likely to be re-imprisoned. The data below shows substantial versatility in offence patterns and perhaps supports the view that recidivist behaviour is "primarily unpatterned" (Klein 1984: 183).

Tables VI and VII describe the offence patterns for the first and second offence for which subjects were imprisoned. The first row distributes the number of offenders for each general offence category, and the number in brackets shows this number divided by the total time at risk (i.e. the time the offender was at large between the end of the first term of imprisonment and commencement of the second term). This ratio of offenders to the number of person years at risk provides a crude rate of offending for equal times at risk. Generally, the average rate is approximately one offence (term of imprisonment) per person year (i.e. 1.00), although considerable variation is noted. As the number of female recidivists is very low, the rate is very unpredictable. The rates of reoffending were analysed by the method of Frome (1983) and Holford (1980) for a grouped version of the data. Significant differences were observed between Aboriginal and non-Aboriginal recidivists. Aboriginal recidivists showed higher ratios (more risk) across all groups in this analysis.

Table VIII summarises Table VI and VII by indicating the proportion of recidivists who repeat their first offence at the second term of imprisonment. It is clear from this table that certain categories of offence are prone to higher levels of repetition or specialisation. Traffic offenders (due largely to the mandatory penalties) show the greatest tendency to be reimprisoned for the same offence, followed by property offenders; good order offenders (Aboriginals); drug offenders (non-Aboriginal); and offenders against the person. With the exception of traffic offenders and property offenders, less than one-third of recidivists in these categories returned to prison for the same offence.

Caution should be exercised in interpreting the relative or progressive seriousness of offences committed at the second term compared with those at the first term of imprisonment, by reference to these tables, as the

categories are very general. For example the category SEX OFFENCES includes:- rape, incest, indecent assault and wilful exposure, all under the same heading.

TABLE VIII - RECIDIVISM BY FIRST AND SECOND OFFENCE
(% Recidivists repeating first offence at second imprisonment)

OFFENCE	MALE		FEMALE	
	ABORIGINES	OTHER	ABORIGINES	OTHER
HOMICIDE	0	15.4	0	0
SEX OFFENCE	12.5	22.0	0	0
AGAINST PERSON	26.7	23.2	30.8	20.0
DRUGS	33.3	30.8	0	0
THEFT MOTOR VEHICLE	26.8	10.6	13.0	0
PROPERTY	35.7	37.6	38.8	55.6
AGAINST JUSTICE	6.1	16.1	13.3	20.0
GOOD ORDER	36.8	21.5	57.9	30.8
TRAFFIC	52.7	62.2	60.0	31.2
MISCELLANEOUS	14.3	25.0	41.2	40.0

Overall, the proportion of offences committed at the first term of imprisonment does not greatly differ from the proportion of offences committed at the second term of imprisonment. (See Table 4 Appendix). However, good order offences, especially for female Aboriginal offenders; motor vehicle theft (for male Aboriginals) and to a lesser extent, offences against justice (usually breach of parole) all show a greater incidence than at first imprisonment. Homicide is even more rare in this recidivist population than for the population at first release. The proportion of Aboriginals in the recidivist population was substantially higher than in the population at first release. The proportion of male Aboriginals in the recidivist population was substantially higher than in the population at

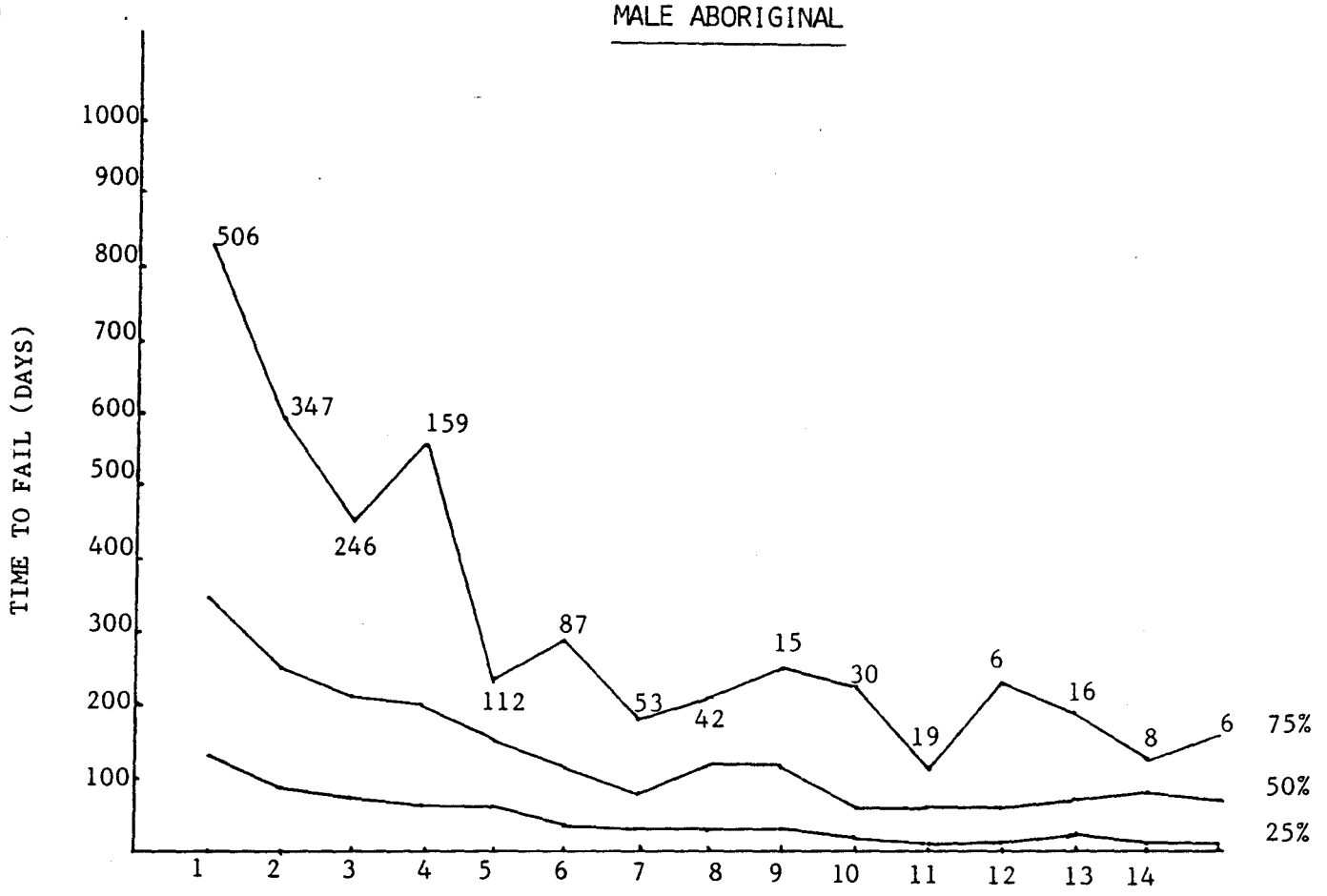


FIGURE 6 NO. OF RETURNS TO PRISON
(+1 for number of terms of imprisonment)

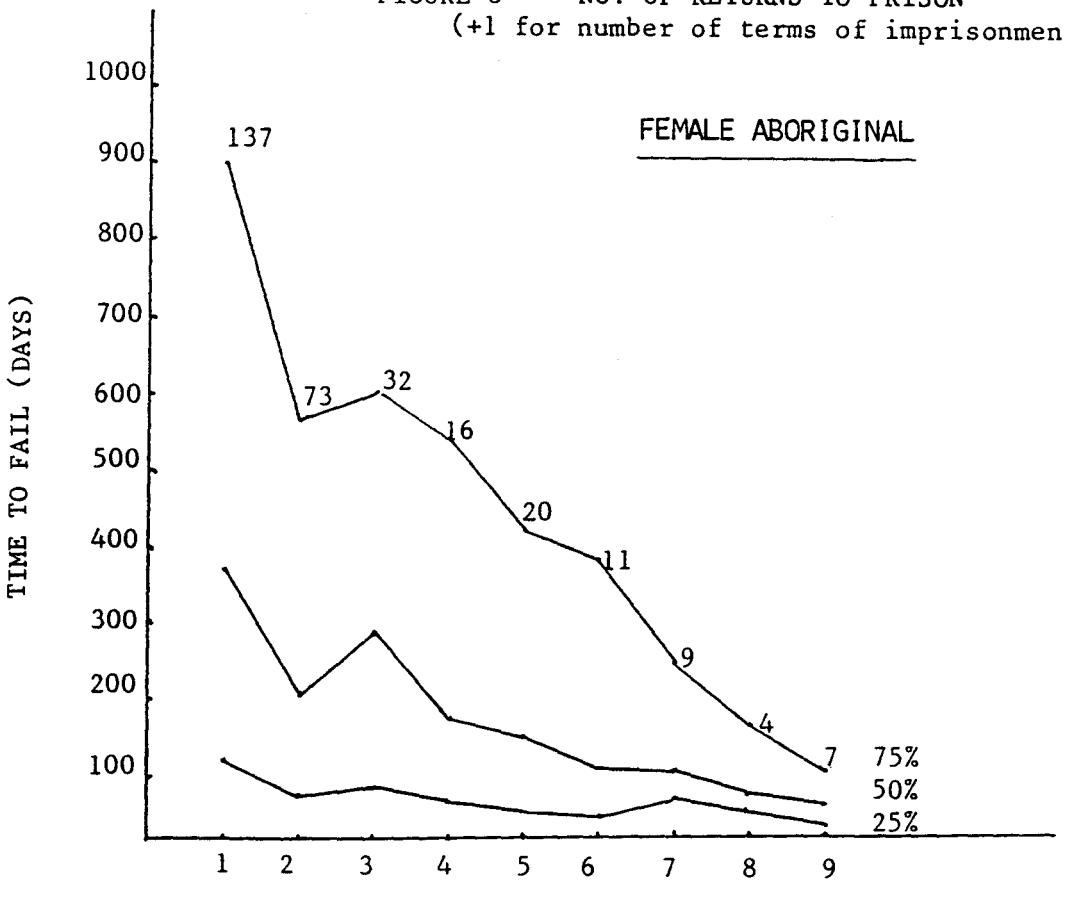


FIGURE 7 NO. OF RETURNS TO PRISON
(+1 for number of terms of imprisonment)

MALE NON-ABORIGINAL

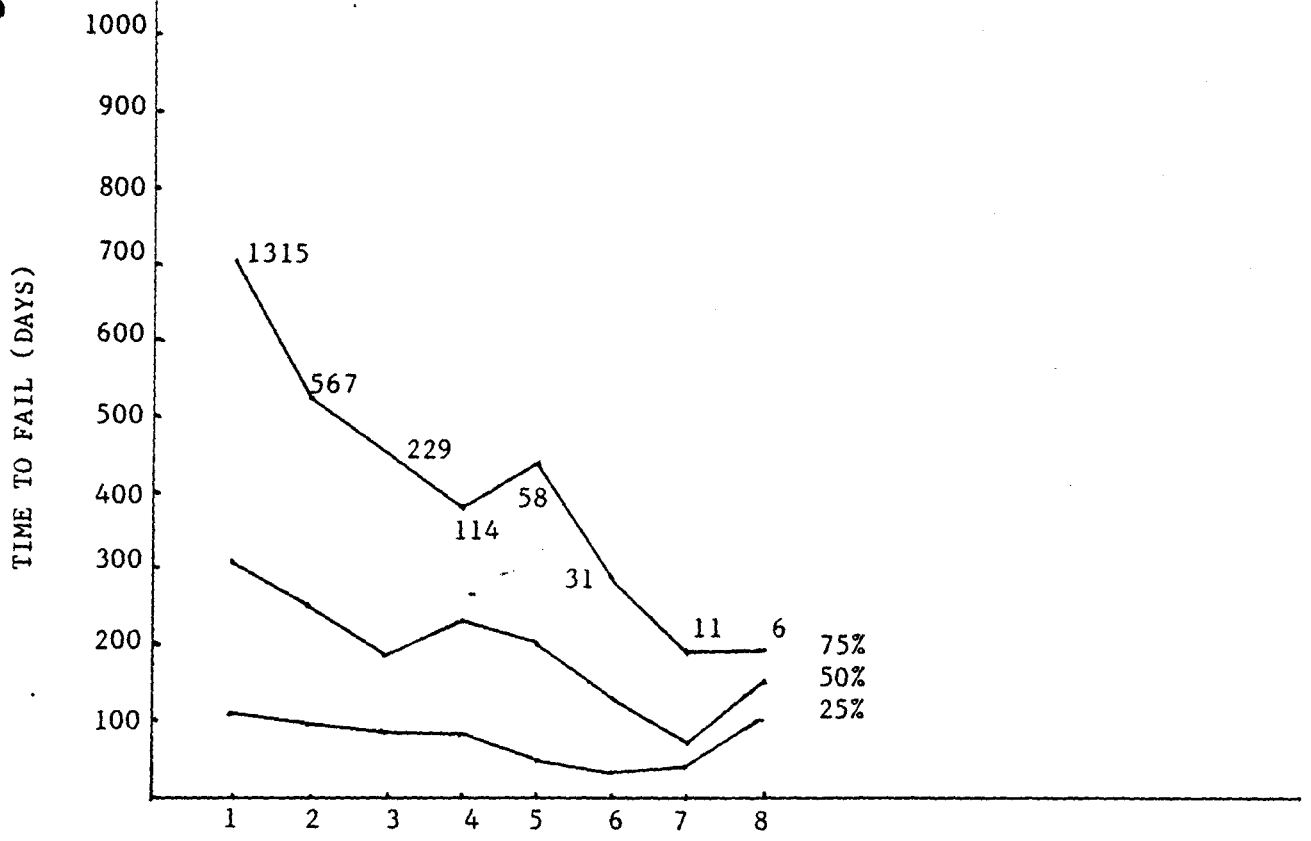


FIGURE 8 NO. OF RETURNS TO PRISON

FEMALE NON-ABORIGINAL

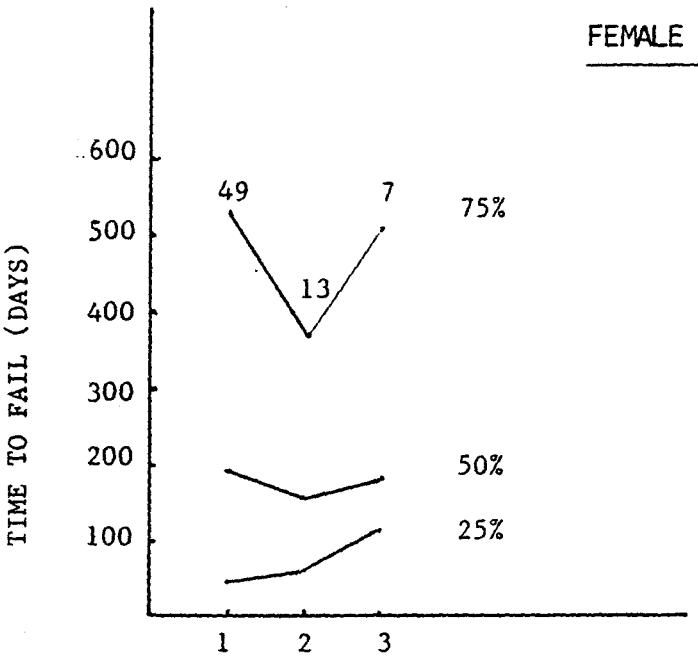


FIGURE 9 NO. OF RETURNS TO PRISON

first exit, rising from 26.5% to 41%, likewise female Aboriginal offenders represented 63% of all female offenders at first exit but rose to 84% of all female recidivists.

While our descriptions of subsequent offence patterns are incomplete at this time, the data described above is not suggestive that offenders generally commit more serious offences on second conviction. This conclusion may not hold for third and subsequent terms of imprisonment.

(c) Time to Fail

Figures 6-9 describe the time to fail for recidivists ('successes' are excluded from the calculation) by the number of times they return to prison. The 75th, 25th and 50th (median) percentiles of the time to fail distributions are shown. The more frequently an offender is incarcerated the more likely the time to fail will be shorter and the less variation is found in the time to fail. For example, the median time to fail for male non-Aboriginal offenders falls from 300 days at first reincarceration to 215 days for the fourth return (or fifth term of imprisonment) and to 70 days for the seventh return (or eighth term). For Aboriginal males and females the same trend is noted with the median time to fail falling from 350 days at first reincarceration, to 200 days at fourth, and 80 days at seventh for male Aboriginals. As Aboriginal offenders continue to be reincarcerated, (due in large part to good order and traffic offences) the median time to fail levels after the sixth or seventh term of imprisonment. In short, these results demonstrate a decrease in the variability of the time to fail with continued reincarceration. This trend is not apparent for female non-Aboriginal offenders although in view of the very small numbers involved, the reliability of this observation is uncertain.

DISCUSSION

(a) General

While the overall aim of this study is to describe recidivism classified by major co-variates for all prisoners, even a cursory glance at the figures reveals a persistent and consistently higher rate of recidivism for Aboriginal prisoners, in contrast to other prisoners. The differential

effect of criminal justice on Aboriginal people is well documented and needs no further elaboration here. In terms of risk of arrest, charge, court appearance and imprisonment, Aboriginals experience very high rates of involvement compared to others.[9] To this list can be added chronic differences in rates of recidivism.

Usually recidivism studies have been utilised to attempt to determine the post-prison effectiveness of a variety of specific treatments or interventions in prisons. Seldom are they applied to entire populations and to the prison as a whole, In this study, the prison as a whole may be regarded as the intervention of interest in the recidivism of prisoners.

Commonsense suggests that the prison has some effect - isolating and evaluating this effect is the traditional goal of recidivist studies. Thus, the traditional question of recidivist studies is - does the experience of imprisonment achieve any of the goals of the sentencer? This study cannot isolate the effect of the prison per se from the myriad of factors that may influence the behaviour of prisoners, nevertheless social marginality (young, Aboriginal, unskilled) is again consistently correlated with this prison and recidivist population.

Therefore, bearing in mind the limitations of our analysis' explanatory power in respect to the question of the effectiveness of prison, it is timely to recall the review of recidivism outcome studies by Lipton, Martinson and Wilks (1975: 627) which concluded, "While some treatment programs have had modest successes, it still must be concluded that the field of corrections has not as yet found satisfactory ways to reduce recidivism by significant amounts." Similarly, Greenberg (1977) in a survey of the research literature on the effectiveness of prison programmes also noted the short-term favourable effects evident in a diversity of treatment programmes; concluding that these transitory effects are overwhelmed once the prisoner returns to the contingencies of the original social environment. Indeed, the permanency of any effects, good or bad, of prison has been questioned (Walker: 1983).

Given these conclusions, it is unlikely that anything that prisons do to offenders has a substantial bearing on the rate at which offenders fail or the proportion that do.[10] Nor is it necessary to argue that differential

treatment of Aboriginals and non-Aboriginals in prison accounts for the substantial differences in their recidivist behaviour. In practise, however, substantial differences are evident in the access Aboriginal prisoners do have to relevant treatment, welfare, education and special leave, particularly over the earlier period of this study. In practise, Aboriginal prisoners tend generally to occupy the same subordinate positions within the prison social structure as they do in the community.[11]

High recidivism challenges defensive aims such as incapacitation and punishment as well as the reductionist aims of correction and deterrence. Yet it is clear that even very modest reductions in recidivism would have significant effects on the size of the prison population. We may at least infer from the results of this study, that the utilitarian pretensions of prison have less face validity for the behaviour of Aboriginal prisoners than for their European counterparts. On the other hand, it can be argued that the results, as they apply to this population's non-Aboriginal prisoners, suggest that conclusions about the failure of deterrence and reform may be overstated.

The results also suggest that imprisonment as a method of control applied out of cultural context is by and large ineffective and despite the growth of alternatives remains the most commonly applied sanction for Aboriginal offenders. Such persistent over-use of imprisonment weakens deterrent, reformative and even punitive aims producing ultimately only institutional dependency.

A significant proportion of prisoners on any given day are Aborigines and this proportion has doubled in a generation from 16% in 1961 to 34% in the 1980's (see Table IX). It is the high rate of imprisonment and recidivism of Aboriginal prisoners that undoubtedly accounts for most of the differences in the rates of imprisonment (per 100,000) between Western Australia and other States.[12] Of the approximately 9,000 Aboriginal males over the age of 16, resident in Western Australia[13] some 15% (1,212) of them were received in prison in 1983/84. Over the 9 years of this recidivist study, over two and a half thousand distinct male Aboriginal persons, (2,705) are involved, corroborating the very high levels of recidivism and recycling observed. Such high rates of incarceration are

TABLE IX - DAILY AVERAGE PRISON MUSTER, WESTERN AUSTRALIA - (1957-1985) - BY RACE AND SEX

	DAILY AVERAGE PRISON MUSTER[1]				
	MALE		FEMALE		RATE OF IMPRISONMENT[2] (per 100,000)
YEAR	ALL PRISONERS	% ABORIGINALS	ALL PRISONERS	% ABORIGINALS	
1957	627.6	12.2	22.6	53.1	94.8
1958	605.2	15.6	22.8	46.5	90.0
1959	596.0	17.8	23.8	53.4	87.0
1960	618.8	17.4	25.5	58.8	89.2
1961	626.0	15.9	30.4	52.1	89.1
1962	679.4	15.7	35.5	55.1	94.6
1963	777.2	16.7	39.8	50.1	105.1
1964	818.5	16.7	38.0	56.1	107.4
1965	837.3	22.7	39.6	63.1	107.7
1966	823.8	24.6	39.0	66.8	101.7
1967	969.5	24.5	47.1	63.9	115.6
1968	1119.9	24.4	68.2	81.0	129.8
1969*	1175.6	26.7	64.5	76.6	129.9
1970*	1170.4	26.8	64.8	76.3	124.6
1971*	1233.0	29.9	81.8	76.2	126.0
1972*	1306.8	-	73.0	-	128.8
1973*	1211.5	-	83.3	-	118.8
1974*	989.2	-	62.8	-	94.1
1975*	913.4	-	42.7	-	83.4
1976*	835.9	-	41.5	-	80.1
1977*	947.0	-	44.7	-	87.8
1978*	1083.8	33.4	50.6	62.6	96.7
1979*	1235.2	33.6	72.9	47.6	110.1
1980	1441.7	33.4	82.6	59.7	120.5
1981	1449.9	37.0	82.4	60.9	119.0
1982	1361.7	34.9	79.2	53.0	108.2
1983	1479.8	36.6	96.7	67.9	117.0
1984	1469.2	34.6	81.2	52.3	112.8
1985	1490.8	34.1	93.7	54.8	113.5

1 STATISTICS NOT COLLECTED BY RACE 1972-1977

* EXCLUDES SUNDRY POLICE LOCK-UPS 1969-1979, LOCK UP STATISTICS NOT BROKEN DOWN BY RACE UNTIL 1980.

2 The Australian average imprisonment rate per 100,000 population was at June 1985 67.6 (Reporter Vol. 6.(5) June 1985).

likely to be sustained in view of the high proportion of young males in the Aboriginal population. Such chronic rates of Aboriginal imprisonment and recidivism require more than simple reformative strategies such as the improvement of legal representation, improved training of control agents, or up-graded prison facilities and programs, although these may help.

In previous discussions of the over-involvement of Aboriginal people in the criminal justice system, most commentators have stressed deprivation, usually indicated by substantial differences in health, education, employment and the application of law, as the major cause of endemic Aboriginal involvement with criminal justice.[14] Thus, criminological explanations have tended to emphasis strain and labelling theories to account for this greater involvement. Recent historical accounts[15] have revived interest in conflict and sub-culture theories which place greater emphasis on a lack of consensus of values between the two cultures as the major cause of the disparities in criminal justice processing. Such notions provide impetus for: efforts to reduce blocked opportunities, i.e. affirmative action; concessions to customary law and severe deprivation; and the encouragement of greater involvement by Aboriginal people in law enforcement.

A further explanation suggests that persistent over-involvement of Aboriginals is also a consequence of the development of remoter regions of Australia, notably the north west.

In Western Australia, by the 1960's, the bulk of the remaining traditional Aboriginal population resided in the relatively undeveloped northern parts of the State.[16] In the 1960's, large scale mineral exploration and production began to intensify European settlement throughout the Pilbara extending large scale exploration in the 1970's to the Kimberley and western desert regions. It is in this part of the State that just over half the Aboriginal population resides and for whom the impact of this intensified 'westernisation' was felt greatest. Coupled with significant changes to the management of the pastoral industry, which until the 1960's - 1970's was a major employer of Aboriginal labour, and the removal of alcohol bans on Aboriginal people in the 1960's, the scene was set for a significant re-intensification of conflict.

Table IX shows the increase in Western Australian imprisonment can very largely be seen as an increase in the proportion of Aboriginals incarcerated. The fact that most of this increase coincides with the development of the north beginning in the early 1960's, and the decline in pastoral employment, may suggest that it is also these events and their unremitting impact on traditional Aboriginal lifestyles that contributes to high Aboriginal recidivism and imprisonment in Western Australia.

(b) Statistics

Failure rate analysis, derived from bio-medical statistics and operations research in engineering, was the method of analysis adopted for this data. It allows a more extensive treatment of the measurement of time than the orthodox "frozen time" method commonly applied to samples of a prison population.

The large size of the population studied helps compensate for the disadvantages associated with the specific definition of recidivism employed, and avoids bias in sampling - particularly bias associated with samples based on releases in a given year, month, or day. Nevertheless, the limitations of prison records are noted particularly in regard to the accuracy of a prisoner's general re-offending behaviour.[17] Yet, prison records are reliable and may be representative of a conservative index of reported re-offending. Difficulties nevertheless occur with censoring, the measurement of sentence length[18] and with assumptions about the independence of subjects. The treatment of time, that is, the length of follow-up, as well as the choice of definition is crucial, and accounts for wide discrepancies in recidivism rates and lack of comparability in the published literature (Griswold, 1978). Adequate follow-up is important especially when comparing interventions or the effect of variables.[19] A further difficulty with existing failure rate analysis is the assumption of inevitable failure contrary to the observations reported in the published literature. For example, Kitchener, Schmidt and Glaser (1977) followed-up a sample of U.S. federal offenders released in 1957 for 18 years and found a significant number had no reported subsequent imprisonment. The modified version of the Maltz and McCleary (1977) analysis used in this study does not suffer from this deficiency.

In the present data the modified Weibull distribution of Equation (1) gives a better fit than the modified exponential of Maltz and McLeary. Nevertheless the data departs significantly from the Weibull model for example in Figure 1, because very minute differences between data and model are "significant" due to the large numbers of observations available.

However in all the subsets we have examined the Weibull models the general features of the data sufficiently well to give a good general description of the failure rates. Certainly the correspondence seems close enough to permit the extrapolation required to calculate the long term probability of failure P.

It should be stressed that a useful estimate of P can only be gained with a sufficient length of follow up. What is "sufficient" depends on the number of observations available and the parameters of the Wiebull distribution. In fact if the data has too little follow-up the quantity P cannot be estimated; the likelihood has a maximum on the boundary P=1 (see for example Table III). For this reason users of the method are recommended to examine a likelihood grid if efforts to fit the model (1) fail on their own data. To some extent the "standard error" of P reported in the paper reflects how the amount of follow up affects the precision with which P can be estimated. Incidentally it is reasonable to ask what the "standard errors" of the estimates of λ, P and c mean, since the whole population is enumerated, not sampled. We interpret them as a measure of the reliability of the model in describing the data, to the extent that altering the parameters by an amount of say two "standard errors" would give a "significantly" worse fit.

The method of Equation (1) would be much more useful if it were possible to allow for the proper modelling of the effects of the covariates such as race, age, sex, employment, etc. by which we have tabulated the data. A reasonable model might be that P is a logistic function of a linear function of the covariates, and that the mean value of the Weibull is also a linear function of the covariates. The difficulty here is purely computational - there is no program available to do the calculations.

Finally, a note on grouping. Some of the analyses in this paper were run with the data grouped into 30 days intervals, i.e. in effect failure time

was recorded to the nearest month ('successes' or rather those 'yet to fail' were designated as belonging to the nearest interval below their actual 'success' time, so individuals succeeding for less than 30 days were ignored). The advantage of grouping is that the data is greatly condensed with consequent great savings in computer time. However it was found on comparing estimates of the parameters in the Weibull model(1) from ungrouped data, that quite significant differences could be obtained, especially in the estimate of P, the probability of ultimate recidivism. We decided to use only the more accurate estimates from ungrouped data in this paper.

Conclusion

Following the substantial scholarship in this field, it was expected that characteristics of the present population would be similar to those previously published on the nature, frequency and rate of observed (known) recidivism. For example, the predominance of young unskilled males with a high rate of re-offending (reported as high as 80%+ in some studies) has commonly been noted. It is also evident however, that the characteristics of prison populations vary according to specific historical periods and legal practice and therefore comparability over time and between jurisdictions may be limited for the purposes of evaluation. The tables and figures above describe the recidivism rate (inclusive of the time criteria) for race, sex, age, offence and other categories, confirming a classic failure profile with strong distinctions by these factors, particularly race.

FOOTNOTES

1. Other studies noted:- two small Tasmanian studies which examined variables relating to family background defined recidivists as those serving at least three or more terms of imprisonment, see Dax, (et al) (1980) "A Comparison Between Recidivists from Problem Families and Recidivists Currently in the Tasmanian Prison System" Australian and New Zealand Journal of Criminology 13(2) and Koller and Gosden's (1980) "Recidivists: Their Past and Families Compared with First Time Only Prisoners" Australia and New Zealand Journal of Criminology 13(2); two further studies involving small samples were concerned with prediction, Loftus A.P. (1974) "Predicting Recidivism using the Glueck Social Prediction Scale with Male First Offenders" Australian and New Zealand Journal of Criminology 7(1) and Schumacher M. (1974) "Predicting Subsequent Conviction for Individual Male Prison Inmates" Australia and New Zealand Journal of Criminology 8(2); other studies noted include, Challinger, D. (1975) "Recidivist Youth", Australian and New Zealand Journal of Criminology 8(2); a rare report on female recidivism involved a census of 100 female prisoners in 1972 followed up for three years, The Female Recidivist, Research and Statistics Division No. 9, N.S.W. Department of Corrective Services; a large sample and utilizing an exponential model reports reconvictions for 1,000 drink driving in N.S.W., see Homel R (1980) Penalties and the Drink Driver N.S.W. Bureau of Crime Statistics and Research, Report No. 1. Interestingly Homel (1980) appears to have independently arrived at a similar use of the exponential as Stollmack and Harris (1974), in his sample of 1,000 convicted drink drivers who he followed up for three years. A difficulty for Homel, apart from the limited follow up is that his sample consisted of both first and multiple offenders.

2. See, for example, Section 17A of the Commonwealth Crimes Act; ALRC Report No. 15, The Sentencing of Federal Offenders, A.G.P.S. Canberra 1980; and recently clearly expressed in case law by the Western Australian Court of Criminal Appeal in James v. R. CCA No. 125/1984.

3. Approximately 6,000 subjects in police lock-ups and remand; and approximately 3,300 subjects with convictions prior to July, 1975 are eliminated from the database.

4. The last two categories are the least reliable entries, many cases are unknown.

5. An opportunity to test the validity of this approach and the accuracy of our probability estimates against real observed failure occurs when the 1984/85 prisoner intake is included in the final analysis.

6. Although under-reporting of non-aboriginal subjects is unlikely to seriously effect the contrast with aboriginal prisoners, particularly when police lock-up data is included in later research.

7. Employment status information has only been collected since July, 1979 and this accounts for the high proportion of prisoners whose status is unknown.

8. For a recent example of this persistent observation see, Hoffman B., Beck J. (1984) "Burnout - Age at Release from Prison and Recidivism", Journal of Criminal Justice 12: 617-623.

9. See for example, the details of over-involvement in courts of summary jurisdiction in Western Australia, Martin M., Newby L., (1984) "Aborigines in Summary Courts - Western Australia, A Regional Study: Preliminary Report on Selected Findings:, IN, Swanton B(ed) Aborigines and Criminal Justice, Proceedings AIC Training Project, Canberra.

10. However, this assumption should be the object of further research. For some scholars, Lipton et al's, Greenberg's and other studies have clearly indicated the failure of the so-called individual treatment model - the bankruptcy of the reduction of crime, recidivism and for that matter, the utility of recidivist studies. For others, conclusions about the failure of treatment and the deduction that efforts ought to be abandoned, are premature and misleading. Gottredson M. (1979) "Treatment Destruction Techniques", Journal of Research in Crime and Delinquency 16: 39-52., has argued strenuously; that it is often difficult to distinguish a genuine 'treatment' from a method of control per so; and that all research is vulnerable to attack because the criterion problem (accurate measures of illegal conduct) is unresolved; and that all treatment programs are unfairly equated with a 'medical delusion'.

11. Duckworth A., Foley-Jones C., Lowe P., Maller M. (1982) "Imprisonment of Aborigines in North Western Australia". Australian and New Zealand Journal of Criminology 15: 26-46, have discussed aboriginal responses and adjustments to prison concluding that isolation from family and community is severe punishment but note that because of the high chances of being incarcerated, many young male aboriginals regard such an experience as an accepted rite of passage.

12. For a detailed analysis of the aboriginal component in high rates of imprisonment on W.A. see Dixon (1981), Committee of Inquiry into the Rate of Imprisonment, Western Australian Government Printer, Perth.

13. Estimate derived from 1981 Census ABS.

14. For an interesting review of the literature of a parallel situation in Canada, see Havemann P., et al (1984), Law and Order for Canada's Indigenous People Prairie Justice Research Consortium, School of Human Justice, University of Regina.

15. Stannage T., (1981) (ed) A New History of Western Australia, U.W.A. Press, Nedlands; particularly articles by Neville Green and G.C. Bolton; also see Reynolds (1981) The Other Side of the Frontier, Penguin, Ringwood.

16. That is excluding the impact of first wave European settlement in the 1880's which was never intensive but persistent and perhaps out-shadowed by the effects of capital development of the Pilbara (1960's/1970's) and Kimberley (1970's/1980's).

17. It is proposed in later research to provide estimates of re-convictions involving non-custodial sanctions and juvenile offences on samples of this population.

18. For example, arbitrary accounting for escape, appeal time, multiple convictions, cumulative and part-cumulative sentences, deportation, transfer to mental health, etc.

19. A recent example of the use of failure rate analysis to compare "treatments" or interventions see Boudouris J. (1983) The Recidivism of Releases from the Iowa State Penitentiary at Fort Madison, Iowa Division of Adult Corrections.

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APPENDIX

(SUPPLEMENTARY RESULTS)

TABLE 1 - PRISONERS RELEASED 1975-1984: (FOR FIRST TIME) NUMBER OF TERMS OF IMPRISONMENT

TERMS OF IMPRISONMENT*	MALES		FEMALES	
	ABORIGINES	OTHER	ABORIGINES	OTHER
1	1024	5131	335	332
2	506	1315	137	49
3	347	567	73	13
4	246	229	32	7
5	159	114	16	-
6	112	58	20	-
7	87	31	11	-
8	53	11	9	-
9	42	6	4	-
10	15	2	7	-
11-16	84	13	17	-
16-20+	12	0	12	-

TABLE 2 - RECIDIVISM BY RACE BY SEX AND MARITAL STATUS
(AT FIRST IMPRISONMENT)

MARITAL STATUS	MALE		FEMALE	
	ABORIGINES	NON-ABORIGINES	ABORIGINES	NON-ABORIGINES
SINGLE				
P	.72(.02)	.42(.02)	.71(.11)	.31(.27)
MD	8.5	13.0	12.8	16.4
N	1148	3618	230	182
MARRIED				
P	.51(.09)	.32(.06)	.67(.47)	-
MD	18.8	20.8	16.9	-
N	227	807	59	46
DEFACTO				
P	.62(.06)	.37(.08)	.38(.08)	-
MD	13.5	17.3	9.5	-
N	254	488	103	40
SEPARATED				
P	-	.36(.07)	-	-
MD	-	18.0	-	-
N	34	382	29	37
DIVORCED				
P	-	.26(.03)	-	-
MD	-	11.9	-	-
N	6	276	4	29
WIDOWED				
P	-	-	-	-
MD	-	-	-	-
N	5	30	9	5
UNKNOWN				
P	-	-	-	-
MD	-	-	-	-
N	1031	1877	244	62

* Unknown: data not specified prior to July 1979: follow up period on reported probability and rates less than five years.

TABLE 3 - RECIDIVISM BY RACE BY SEX AND EMPLOYMENT
(AT FIRST ARREST)

EMPLOYMENT STATUS	MALE		FEMALE	
	ABORIGINES	NON-ABORIGINES	ABORIGINES	NON-ABORIGINES
EMPLOYED				
P	.63(.09)	.37(.03)	-	-
MD	13.5	17.3	-	-
N	367	1813	17	38
UNEMPLOYED				
P	.69(.03)	.40(.02)	.55(.06)	.30(.10)
MD	10.0	11.3	10.1	15.4
N	1201	3182	409	274
UNKNOWN				
P	-	-	-	-
MD	-	-	-	-
N	1137	2483	252	89

NOTE: TABLE 2 AND 3 APPLY TO DATA AS FROM 1 JULY, 1979

TABLE 4 - FIRST AND SECOND OFFENCE : FIRST RELEASE AND RECIDIVISM POPULATION

MALES	Homicide	Sex	Against Person	Drugs	Unlaw. M/V	Property	Against Justice	Good Order	Traffic	Misc.	TOTAL	
1st Offence (At Receival)												
OTHER	97	184	672	684	232	1876	405	292	2855	229	7476	(73.4%)
ABORIGINALS	20	107	363	10	339	467	146	471	734	48	2705	(26.6%)
TOTAL	117	291	985	694	571	2343	551	763	3589	277	10181	
%	1.1	2.8	9.7	5.9	5.6	23.0	5.4	7.5	35.2	2.7	100%	
2nd Offence (At re-imprisonment)												
OTHER	10	43	188	112	82	585	248	102	938	204	2502	(59%)
ABORIGINALS	13	49	217	3	221	298	31	279	445	53	1709	(41%)
TOTAL	23	92	405	115	303	883	399	391	1383	257	4211	
FEMALES												
1st Offence (At Receival)												
OTHER	2	1	19	70	5	117	37	26	87	37	401	(37%)
ABORIGINALS	4	4	63	3	48	123	52	250	95	36	698	(63%)
TOTAL	6	5	82	73	53	230	89	276	182	73	1079	
%	0.5	0.4	7.6	6.7	4.9	21.3	8.2	25.6	16.9	6.7	100%	
2nd Office (At re-imprisonment)												
OTHER	1	0	3	6	1	24	14	9	9	10	77	(16.3%)
ABORIGINALS	0	3	31	0	26	62	18	130	46	29	345	(83.7%)
TOTAL	1	3	34	6	27	86	32	139	55	39	412	
%	0.2	0.7	8.2	1.5	6.5	20.9	7.7	33.7	13.3	9.5	100%	

TABLE 5 - MALE RECIDIVISM BY RACE AND YEAR OF RELEASE 1975-1983

(See figures 4 and 5)

	ABORIGINAL			NON-ABORIGINAL		
YEAR OF RELEASE	N	P	MD	N	P	MD
[1]1975-76	276	.95	7.1	260	.82	11.2
1976-77	291	.86	9.6	426	.67	16.6
1977-78	249	.83	9.5	578	.52	17.3
1978-79	270	.77	10.5	744	.37	13.4
1979-80	347	.68	10.2	1057	.45	22.0
1980-81	325	.67	12.7	934	.32	12.0
1981-82	263	.71	8.4	957	.38	11.9
[2]1982-83	358	-	-	1333	-	-
1983-84	318	-	-	1179	-	-

1. Data collected 1 July, 1975.

2. Estimates for probability are deleted as the follow up period is less than 2 years.

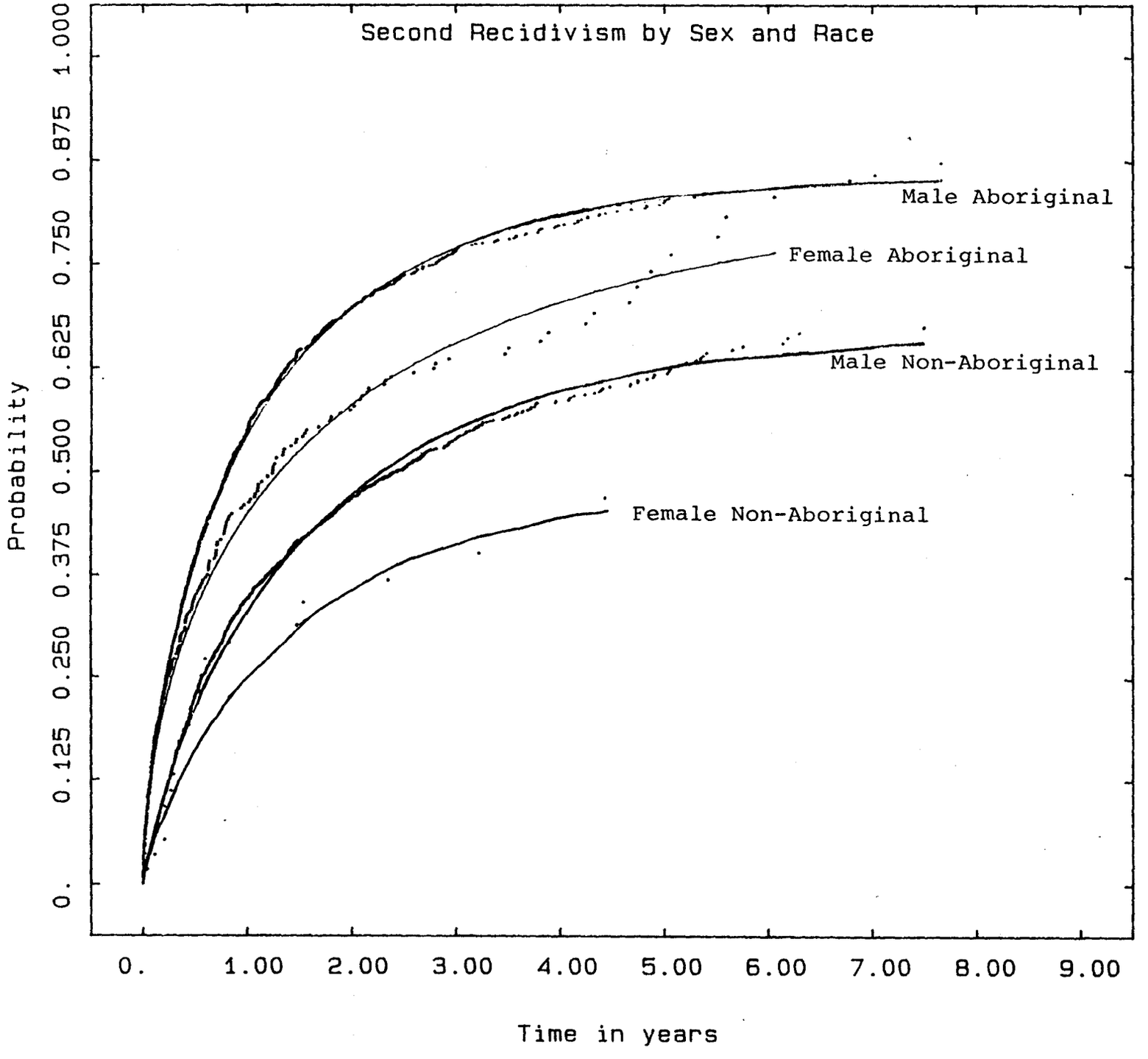

FIGURE A

"CUMULATIVE DISTRIBUTIONS OF SECOND RECIDIVISM BY SEX AND RACE"

actual time to fail (dotted lines = Kaplan-Meier estimator) and estimated time to fail (full lines) from the model(1) for major race and sex groups

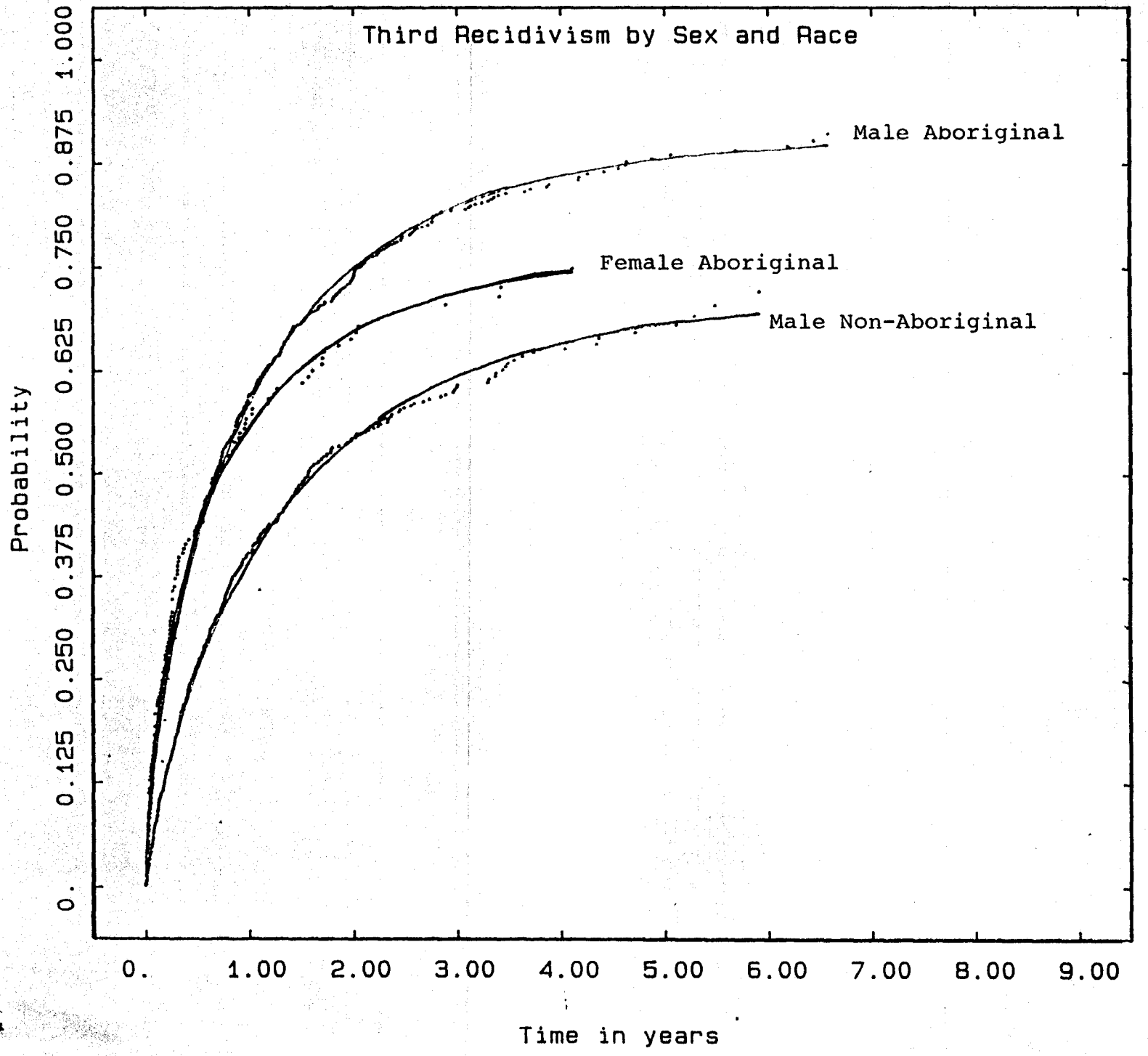

FIGURE B

"CUMULATIVE DISTRIBUTION OF THIRD RECIDIVISM BY SEX AND RACE"

actual time to fail (dotted lines = Kaplan - Meier estimator) and estimated time to fail (full lines) from the model(1) for major race and sex groups; note, no estimate for female non-aboriginals as insufficien subjects available