



Risk of re-offending among parolees

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This study explored patterns of re-offending among New South Wales (NSW) offenders released to parole supervision in the 2001-2002 financial year (n=2793). The study found that by September 2004 approximately two-thirds of the cohort had reappeared in court, 64 percent had been convicted for a new offence and 41 per cent of the cohort had received a further custodial sentence for re-offending. Survival analyses revealed that the following groups re-offended more quickly: offenders who had a greater number of prior custodial sentences, offenders who had one or more prior drug convictions (i.e. for use or possession of heroin, cocaine or amphetamine), younger offenders, Indigenous offenders, those who had been released with a parole order issued by a court (as opposed to the NSW Parole Authority), offenders who had spent less time in custody during their index custody episode and those who had been serving sentences for violence, property crimes or for breaching justice orders.

INTRODUCTION

Offenders who are released to parole supervision in New South Wales (NSW) are allowed to live and work in the community on the proviso that they adhere to their parole conditions. While the standard conditions are stipulated in Section 215 of the *Crimes (Administration of Sentences) Regulation 2001*, the sentencing court can impose extra conditions during sentencing, as can the NSW Parole Authority¹ prior to their parole release (Section 128 *Crimes (Administration of Sentences) Act 1999*). While a breach of parole conditions does not always result in the offender returning to prison, repeated and/or serious breaches (e.g. re-offending) can result in revocation of the parole order and an immediate return to custody.

Modern parole policies were implemented in NSW in 1966 and the legislative requirements with regard to sentencing and the issuing of parole orders are

currently regulated by the *Crimes (Sentencing Procedure) Act 1999* and the *Crimes (Administration of Sentences) Act 1999*. These two pieces of legislation establish different parole procedures for sentences of six months or less, sentences of three years or less (but more than six months) and sentences of more than three years. Under the *Crimes (Sentencing Procedure) Act 1999*, sentences of six months or less are fixed-term and do not have a parole component. Where the sentence imposed by a court is more than six months but three years or less the court usually sets a non-parole period, which is the minimum time that an offender must spend in custody prior to release on parole. If the court sets a non-parole period for a sentence of three years or less, the court must also make a parole order specifying the conditions (if any) that the offender must adhere to when he or she is released at the expiry of his or her non-parole period. In this report, we refer to these parole orders issued by a court as *court-issued parole*.

The parole procedures for sentences in excess of three years are significantly different and are set out in the *Crimes (Administration of Sentences) Act 1999*. Although a court imposing a sentence of more than three years may stipulate a non-parole period, the Parole Authority determines the offender's release date and parole conditions. In this report, we refer to these parole orders as *Parole Authority-issued parole*. The Parole Authority may refuse to release an offender to parole after their non-parole period has finished if it considers that their release is deemed inappropriate. Indeed, under Section 135(1) of the *Crimes (Administration of Sentences) Act 1999* the Parole Authority is legislatively bound to refuse parole unless the release of the offender is deemed to be appropriate "having regard to the principle that the public interest is of primary importance".

While many factors enter into the Parole Authority's decision, the likelihood that

an inmate will re-offend is usually one of their primary concerns. If an offender is considered to be at particularly high risk of re-offending (i.e. 'recidivism') their parole may be either refused, deferred, or conditions may be adapted to address specific risk factors. This involves careful consideration of all available re-offending risk and protective factors. This information is usually collated and presented to the Parole Authority by NSW Department of Corrective Services Probation and Parole officers in the form of a Pre-Release Report.² Pre-Release Reports canvas factors that could be related to an offender's suitability for parole, including significant social and family history factors, previous parole successes or failures, activities undertaken while in custody, drug and alcohol treatment, psychological assessments, attitudinal information, and post-release accommodation and employment plans. Based on a qualitative assessment of these factors, Probation and Parole officers make a parole recommendation. The Parole Authority takes this recommendation into account – among other information – in coming to its decision.

RE-OFFENDING ON PAROLE IN NSW

While parole orders have been issued in various forms since British convicts were first transported to NSW in the 18th century, surprisingly little is known about offending among parolees in this state. For example, there is currently little statistical information relating to the proportion of offenders who go on to re-offend, how quickly they re-offend, or what factors relate to their re-offending risk. Most NSW-based studies have addressed factors that predict successful completion of probation (Ward 1970) or successful completion of parole (Dewdney & Miner 1976; Gorta 1982). These studies don't directly address re-offending because many people who fail on probation or parole do so because they have breached the technical conditions of their parole orders and not because they have committed a criminal offence. Furthermore, many people who are on probation or parole go on to offend

once that order has expired.

Early work that specifically addressed recidivism in NSW tended to look at convictions among all offenders, not only those who were released to parole. For example, the NSW Bureau of Crime Statistics and Research conducted two such studies in a report published in 1977. In the first study, a random sample of 1365 offenders convicted for both summary and indictable offences was selected from all those convicted for such offences in 1965. Slightly less than half had been convicted for one or more further offences over the following ten years (NSW Bureau of Crime Statistics and Research 1977). Bivariate comparisons revealed that offenders with more prior convictions, younger offenders, male offenders and those who had committed serious offences were more likely than their respective counterparts to be reconvicted for an offence in the following 10 years. The second study examined reconviction among a non-random sample of 200 offenders who had been convicted for break, enter and steal offences in 1972. Nearly three-quarters of the sample had re-offended within the following five years. Being unmarried, young and having prior convictions were related to subsequent offending although, again, no multivariate analyses were conducted.

Both of these studies suggest that re-offending is more common among some sub-populations of offenders. In a more recent study by the NSW Department of Corrective Services, Thompson (1995) assessed recidivism among serious offenders by analysing the reimprisonment rates of all NSW offenders released from prison in 1990 and 1991. Overall, 35 per cent of males and 38 per cent of females had been returned to prison for committing an offence within two years of their release.³ Multivariate analyses revealed that people who had a prior record of imprisonment in an adult prison, younger offenders, people who returned to prison more quickly following a prior period of imprisonment, people with higher security classification at discharge and offenders who had been imprisoned for property offences were more likely to be reimprisoned.

These early studies, while very useful, did not specifically focus on parole populations. In the only NSW study to do so, Thompson (1989) assessed the re-offending patterns of 202 offenders randomly selected from all those released to parole between July and November 1981. Overall, 38 per cent of the sample had been reimprisoned for committing offences within two years and 68 per cent had been reconvicted for an offence or for breaching a parole order within two years. Survival analysis revealed that offenders who were younger at their first arrest episode were reimprisoned more quickly. There was no relationship between the length of an offender's prison sentence and time to re-offend. Nor was there any relationship between age at release and the subsequent risk of reimprisonment.

CURRENT STUDY

The current study builds on this early work by exploring the relationship between a limited set of potential covariates and patterns of re-offending among a large cohort of offenders released to parole in the 2001-2002 financial year (n=2793). The aim of the study was to explore three fundamental questions relating to re-offending among parolees in NSW:

- (a) What proportion of parolees go on to re-offend within a given time period?
- (b) How quickly do parolees re-offend following their release from prison?
- (c) What parolee characteristics, if any, are associated with differences in time to re-offend following release from prison?

METHOD

THE COHORT

Parole orders registered with NSW Community Offender Services in 2001-2002 were identified in the Department of Corrective Services Offender Integrated Management System (OIMS). Initially, 2904 parole orders – consisting of 2817 unique offenders – were extracted from the OIMS database. If an offender had served more than one episode of custody

in 2001-2002 and therefore had more than one unique parole order relating to their release, only their first episode was selected and the remaining records were removed (n=63 records). This episode of custody will be referred to as their 'index' custody episode. There were also a small number of cases where the offender had more than one parole order issued for the same episode of release. Where the orders had been issued by different authorities (i.e. court and Parole Authority) both were removed (n=30 records, n=15 persons). There was one exception to this rule. Until 2003, some offenders were identified by the Parole Authority as 'special category' if they had characteristics of special interest (e.g. prior violent, drug-related or sex offences). These offenders were supervised more closely and specific conditions were routinely attached to their parole orders so that their unique risk factors could be monitored. In this study, all offenders with this type of order were retained in the sample and any concurrent orders were removed (n=3 records). In cases where two orders had been issued from the same authority (e.g. for concurrent sentences) and where there was uncertainty about the actual custody release date (n=6), the parole order with the earliest release date was selected.

MATCHING

Removal of these records left a cohort of 2802 supervised parolees, with one episode of custody and one type of parole order relating to each offender. These offenders were then matched by first name, second name(s), surname and birth date against all unique individuals held on the Bureau's re-offending database (ROD)⁴ at the end of September 2004. This provided a minimum follow-up period of 27 months (for offenders released at the end of the financial year) and a maximum follow-up period of 39 months (for offenders released at the beginning of the financial year). The mean follow-up time was 33 months (1007 days).

If name and date of birth information were identical on both OIMS and ROD, the

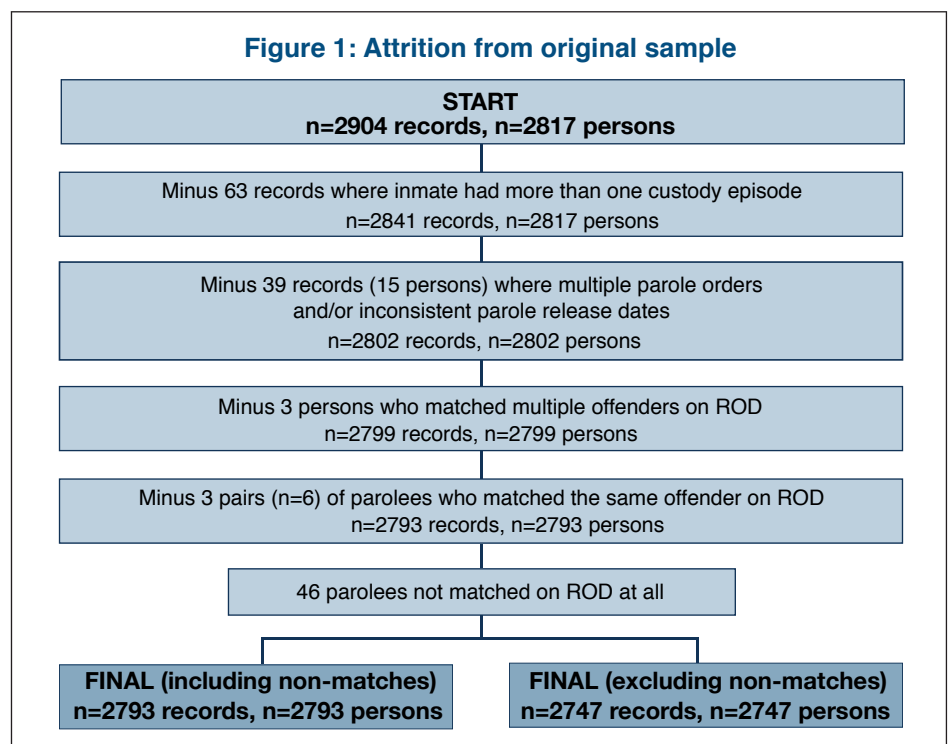
offender was considered to be a match. However, because data entry errors sometimes occur when entering personal information into each database, it was important to match on the basis of similar sounding names with different spellings (using Soundex codes). Similarly, the day and month components of birth date information sometimes get transposed and needed to be included in the matching algorithm. While it was necessary to include inexact matches, one side effect was that in a small number of cases multiple records from one database matched only one record on the other. This usually occurred when offenders had very common names and we could not determine which of the records actually matched the person on the database of interest.

Three offenders were removed because they matched multiple records on ROD and three pairs of offenders (n=6 persons) were excluded because each pair matched only one record on ROD. A further 46 offenders could not be matched on ROD at all. While most of these non-matches occurred because their index sentence began prior to the first court appearance records on ROD (i.e. before 1993), a small proportion may also have occurred as a result of data

entry errors that could not be reconciled by our matching process. If all 46 records were excluded, the cohort would almost certainly be biased by the removal of serious offenders who had been released from long sentences. On the other hand, if all 46 records were left in the cohort and it was assumed that none of them had re-offended, a small proportion would almost certainly be incorrectly identified as non-recipient (i.e. type II errors would occur). To overcome this problem, these 46 offenders were left in the final cohort but sensitivity analyses were conducted with the 46 non-matches removed. This left a final cohort of 2793 offenders with the non-matches included and 2747 with the non-matches removed. Full details of the sample attrition can be seen in Figure 1.

DEFINITION OF RECIDIVISM

Recidivism in the current study was defined as re-appearance in a court for an offence that was allegedly committed subsequent to release on parole.⁵ It should be noted at this point that, while only a fraction of offences come to official attention, measures of contact with the criminal justice system tend to correspond quite closely with self-reported rates of offending (Farrington 1989; Hindelang, Hirschi & Weis 1979). It is also important



to note that this measure of recidivism is only sensitive to breaches of the criminal law. It is not sensitive to technical breaches of parole that do not involve a further criminal offence (e.g. failing a drug test, failing to report, failing to attend treatment, failing to obey non-association order or failing to stay away from a certain area).

SURVIVAL ANALYSIS

When looking at the results on time to re-offend (aims (b) and (c)), one problem that must be accounted for is data censoring. Censoring occurs when some people have not re-offended at the end of their follow-up period, even though they might have if they had been observed for longer. This problem is particularly pertinent when offenders are followed up for differing lengths of time because longer follow-up periods allow greater opportunity to re-offend. Data are also censored if the offender has been lost to follow-up due to death, moving interstate or because they were unable to offend in NSW for any other reason. Survival analysis techniques were employed to account for these censored observations. Survival analysis accounts for censoring by using exact survival times to calculate the *probability* that a particular group of offenders would not have re-offended at a given point in time, had none of them been censored.

The first step in building a survival model is to describe the survival time for the entire cohort and for particular groups of offenders, while accounting for data censoring. The non-parametric (or 'distribution-free') Kaplan-Meier estimation procedure was used for this purpose. The log-rank test was employed to test for statistically significant differences between survival curves for different groups of offenders (e.g. between men and women). However the Kaplan-Meier estimation and log-rank tests will potentially give a misleading indication of the magnitude of the difference between groups because no adjustment has been made for other factors that predict survival times. In fact, an observed difference in time to re-

offend between groups (according to age at release, for example) might be explained entirely by the relationship between some other factor and time to re-offend (e.g. prior offending history). Multivariate survival models were fitted to the data to estimate the survival rates between groups while adjusting for other risk factors. We used Cox Proportional Hazards regression for this purpose. The *hazard ratio* expressed in the output of the regression analysis represents the failure probability (i.e. re-offending probability) for one group relative to another at any point in time following release from prison.

MEASURES

The main outcome measure was time to re-offend. As mentioned above, this was measured as the time to their first offence (in days) following parole, conditional on the offence date occurring after their release from prison and the offender having a finalised court appearance associated with that offence.⁶ The following potential predictors of survival time to re-offend were obtained from ROD:

- *Prior convictions.* Count of convictions for any criminal offence in Children's Courts, Local Courts or Higher Courts during the eight years prior to their release from the index custody episode;
- *Prior full-time custody.* Count of full-time custody episodes in either juvenile or adult prisons during the eight years prior to their release from the index custody episode;
- *Prior drug offences.* Any conviction for use or possession of heroin, amphetamine or cocaine during the eight years prior to their release from the index custody episode (0=no, 1=yes);
- *Age.* Age at release from the index custody episode;
- *Sex.* Gender of offender (0=female, 1=male); and
- *Indigenous status.* Whether the offender had identified as being Aboriginal, Torres Strait Islander, or both at one or more court appearances since 1993 (0=no, 1=yes).

For the three variables relating to offending history (prior convictions, prior

full-time custody, prior drug offences), a period of eight years was defined to ensure that all offenders would have had an equal opportunity of being convicted or incarcerated. This was necessary because the youngest offenders in the cohort could only have been convicted for an offence or sentenced to custody during the previous eight years (since 10 is the age of criminal responsibility in NSW).

In addition to the potential covariates extracted from ROD, the following potential predictors were extracted from the OIMS database:

- *Parole type.* Type of parole issued for the index offence (0=court, 1=Parole Authority-ordinary, 2=Parole Authority-special category);
- *Time in custody.* Length of time spent in custody for the index prison sentence (1=less than six months, 2=six-less than 18 months, 3=18 months or more); and
- *Index offence.* Most serious offence for which they had been imprisoned during their index custody episode (1=violence, 2=sexual assault, 3=robbery, 4=property, 5=breach order, 6=drug, 7=driving, 8=other).

With the exception of 'index offence', each of the predictor variables were coded as indicator variables, where one level of the variable acted as the referent and the other level(s) were compared against that referent group. The variable 'index offence' was coded differently because this was an exploratory analysis and it was more sensible to compare each index offence type against the mean survival time across all other offence categories. 'Deviation from means coding' was employed for this purpose (Hosmer & Lemeshow 1989).

DATA LIMITATIONS

There are two limitations associated with the data that should be mentioned at this point. The first problem is that some offenders had spent time in gaol for technical breaches of parole conditions between release from the index custody episode and either the subsequent offending episode (for recidivist offenders) or the end of the follow-up (for offenders

whose data were censored). This is important because offenders who spent periods in custody during the follow-up period were unable to re-offend and, as a result, their survival times would have been artificially inflated compared with offenders who had not had their parole orders revoked. However, using OIMS data it was possible to determine whether the offender had been returned to prison with ‘parole order revoked’ as their most serious offence during the follow-up period.⁷ Sensitivity analyses were conducted with these parole-revoked offenders removed from the cohort to see whether and to what extent they were biasing the survival time estimates.

The second problem is that we were unable to account for data censoring as a result of loss to follow-up. While we acknowledge that there would have been some loss to follow-up – particularly due to mortality and interstate movements – it was impossible to account for these factors. However, it is likely that the mortality rates, at least, were quite low. Victorian estimates suggest that the unnatural death rate per 1000 ex-prisoners per year is about five for males and six for females (Graham 2003). While this mortality rate is much higher than that among the general population, the impact in relation to loss to follow-up would be negligible. It is also worth noting that there was no *a priori* reason for expecting loss to follow up to differ amongst the groups whose re-offending rates were being compared.

RESULTS

OFFENDER CHARACTERISTICS

Table 1 summarises the characteristics of the cohort. Most offenders were less than 35 years old at the time of release from the index custody episode (72% v 28%; mean=31, median=29, range=18-73). The majority of the cohort was male (92% v 8%), non-Indigenous (73% v 27%), had received their parole order from a court (65%), had spent less than 18 months in custody (69% v 31%) and were being released from an episode of custody

where their most serious offence was for property/deception (33%), robbery (12%) or another violent offence (31%). In the eight years before release from prison, offenders had a mean of 5.7 previous convictions for any offence (median=5, range=0-36) and 1.8 prior full-time custody episodes (median=1, range=0-18). A relatively small proportion (6%) had a prior conviction for using or possessing heroin, cocaine or amphetamine in the eight years prior to their release from custody.

PROPORTION RE-OFFENDING

Figure 2 shows the proportion of the cohort who, over the entire follow-up period (a) reappeared in court, (b) were convicted for an offence and (c) were reimprisoned. Overall, 68 per cent of the cohort had a finalised court appearance for committing one or more offences, 64 per cent were reconvicted for committing an offence and 41 per cent were reimprisoned for offending within the 27 to 39 month follow-up period.

Table 1. Demographic characteristics, prior offending and custody-related characteristics of offenders in the cohort (n=2793)

Characteristic	N	%
Age		
18-24	824	29.5
25-29	680	24.3
30-34	522	18.7
35+	767	27.5
Sex		
Male	2560	91.7
Female	233	8.3
Indigenous status		
Indigenous	768	27.5
Non-Indigenous	2025	72.5
Parole type		
Court	1801	64.5
Parole Authority-ordinary	764	27.4
Parole Authority-special	228	8.2
Length of time spent in custody		
< 6 months	840	30.1
6 to <18 months	1091	39.1
18+ months	862	30.9
Index offence type		
Violence	865	31.0
Sexual	141	5.1
Robbery	334	12.0
Property/deception	913	32.7
Breach order	233	8.4
Drugs	171	6.1
Driving	93	3.3
Other	43	1.4
Prior convictions		
0	363	13.0
1-3	685	24.5
4-6	675	24.2
7-9	534	19.1
10+	536	19.2
Prior full-time custody		
0	1103	39.5
1	564	20.2
2-3	598	21.4
4+	528	18.9
Prior conviction for use/possess heroin/cocaine/amphetamine?		
No	2629	94.1
Yes	164	5.9

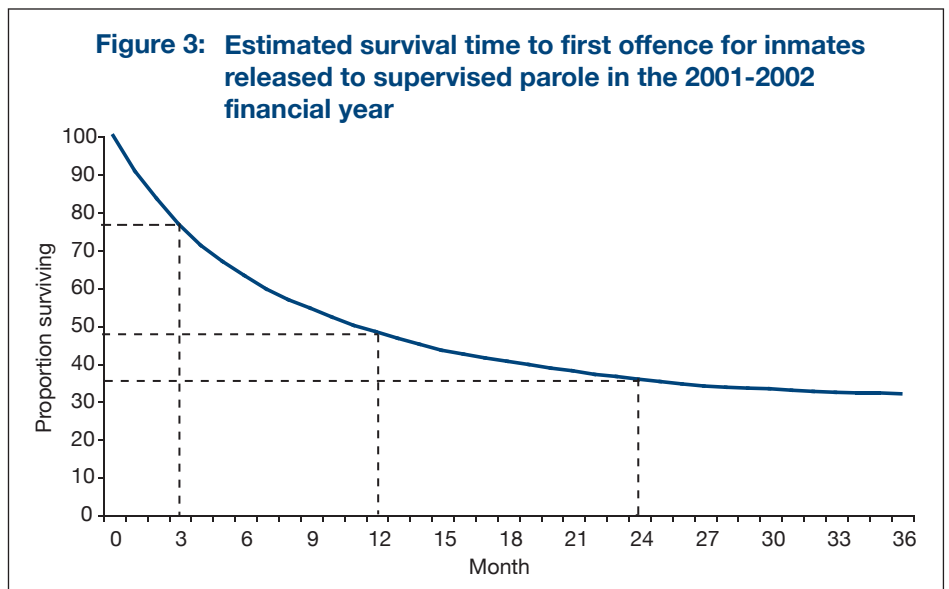
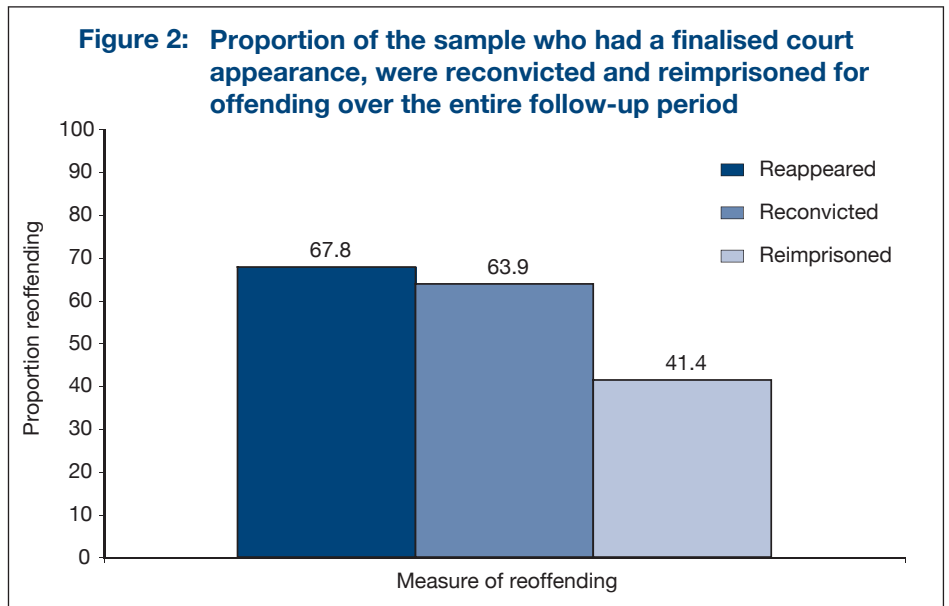
TIME TO RE-OFFEND

Figure 3 shows the Kaplan-Meier estimate for the survival function of the entire cohort. The x-axis shows the time to the first recorded offence for which court proceedings had been finalised, while the y-axis shows the proportion of the cohort who had ‘survived’ (i.e. had not reappeared in court) as a function of time since release to parole. It was estimated that 23 per cent of the cohort had re-offended within three months of release, slightly more than half (52%) had re-offended within one year and 64 per cent had re-offended within two years of release.

CORRELATES OF RE-OFFENDING

Estimated survival times differed markedly between groups and the Kaplan-Meier curves are shown in Appendix A. The results of the log-rank tests suggested that offenders with more prior convictions re-offended more quickly than those with relatively few prior convictions (log-rank $\chi^2=734.59$, $df=4$, $p<0.001$), as did offenders with more prior custodial episodes (log-rank $\chi^2=550.23$, $df=3$, $p<0.001$), offenders who had been convicted for using or possessing heroin, amphetamine or cocaine in the eight years prior to release (log-rank $\chi^2=27.32$, $df=1$, $p<0.001$), younger offenders (log-rank $\chi^2=160.89$, $df=3$, $p<0.001$), Indigenous offenders (log-rank $\chi^2=213.32$, $df=1$, $p<0.001$), offenders with court-issued parole orders (log-rank $\chi^2=142.97$, $df=2$, $p<0.001$) and offenders who spent less time in custody before release (log-rank $\chi^2=169.47$, $df=2$, $p<0.001$). Offenders whose index offence was for property/deception offences, violence or breaching orders tended to re-offend more quickly than other offenders, while those whose index offence related to sex or drugs tended to re-offend more slowly (log-rank $\chi^2=237.70$, $df=7$, $p<0.001$). Gender was the only measured factor for which there was no statistically significant difference between groups (log-rank $\chi^2=1.94$, $df=1$, $p=0.16$).

The final Cox Proportional Hazards model is shown in Table 2. Gender was not



included in the final model because it was not statistically associated with re-offending at the bivariate level. Because the number of prior convictions was highly correlated with the number of previous custodial sentences (Spearman’s $\rho=0.69$, $p<0.001$), only one of these variables was entered into the model. The models with prior convictions and prior custody episodes were quite similar and, for the sake of brevity, only the model with prior prison episodes is presented in this report. Because the Kaplan-Meier procedure revealed no apparent differences in the survival times for ‘ordinary’ and ‘special category’ Parole Authority-issued offenders (see Appendix A) these categories were collapsed for the multivariate modelling.

Table 2 shows that all of the remaining covariates were independently predictive of time to re-offend. Controlling for all other variables in the model, offenders with more episodes of custody prior to the index episode re-offended faster than those with relatively few custodial episodes. Offenders with one prior custody episode were estimated to be 1.59 times more likely to re-offend at any time than those with no prior custodial history. Those with two to three prior custody episodes were two times as likely as those with no prior custody episodes to re-offend, while those with four or more prior custody episodes were estimated to be 2.84 times more likely to re-offend at any time than offenders with no prior episodes of custody. Offenders who had

one or more prior convictions for using or possessing heroin, amphetamine or cocaine in the eight years prior to release were 1.34 times more likely to re-offend at any point in time than offenders who had no such convictions. Each of 18-24 year old, 25-29 year old and 30-34 year old age groups were more likely to re-offend than those aged 35 years and over (1.66 times, 1.39 times and 1.35 times, respectively).

Adjusting for other covariates, Indigenous offenders were estimated to be 1.4 times more likely than non-Indigenous offenders to re-offend at any time following release, while offenders with court-issued parole orders were 1.35 times more likely than Parole Authority-issued offenders to re-offend at any time following release from custody. Offenders who had served less than six months, or six to less than 18 months in custody during the index episode of custody were both 1.18 times more likely at any given time to have re-offended than those who had served 18 months or longer in gaol.⁸ Finally, offenders whose most serious offence was for robbery (HR=1.18) or another violent crime (HR=1.38), property/deception (HR=1.39), or breaching orders (HR=1.40) were more at risk of re-offending than the average across other index offence types, while those whose

most serious index offence was for a sex (HR=0.53) or drug offence (HR=0.73) tended to be less likely than average to re-offend at any point in time. The speed with which those imprisoned for driving offences returned to court was not significantly different from the average survival rate.⁹

The estimates shown in Table 2 were robust to sensitivity analyses where non-matched offenders (n=46) and parole-revoked offenders (n=353) were removed from the analysis. However it could also be argued that the observed differences in survival functions for one group relative to another might simply be reflecting detection effects rather than actual rates of re-offending. In other words, some groups of offenders may have been more likely than others to come into contact with police and proceed to court than other groups, irrespective of their rates of offending.¹⁰ This issue is not easy to resolve but it would be reasonable to expect that, if true, it would only apply to offence types that have a high probability of detection by police. As a check on this argument, the survival analyses were re-run with all of the offence types that were thought to be more detectable not counted as offences during the follow-up period (i.e. drug use/possession, weapons, public order and justice offences). There were no

substantial differences between the models when these offence types were either included or excluded.

Figures 4 to 7 show the adjusted survival rates according to four of the possible seven covariates included in the Cox regression model. In order to estimate these adjusted survival rates, the predictor variables of interest were compared against a 'base case' survival function. The base case survival function describes the survival time for a 'typical' offender in the cohort (i.e. one with the most common or 'typical' characteristics). Base case offenders, therefore, had a principal index offence involving property or deception, one prior full-time custody episode, no prior drug use/possession convictions in the eight years before release, were between 25 and 29 years old at the time of release, were non-Indigenous, were on a court-issued parole order and had spent between six and 18 months in gaol during their index custody episode. The base case is represented by the dark blue line (without markers) in each of Figures 4 to 7. To demonstrate the additional risk or protective influence that each covariate added to the base case survival function, the covariate of interest was allowed to vary while keeping the rest of the covariates set to the base case value.

Table 2. Cox proportional hazards model predicting time to re-offend for parolees released to supervised parole in the 2001-2002 financial year

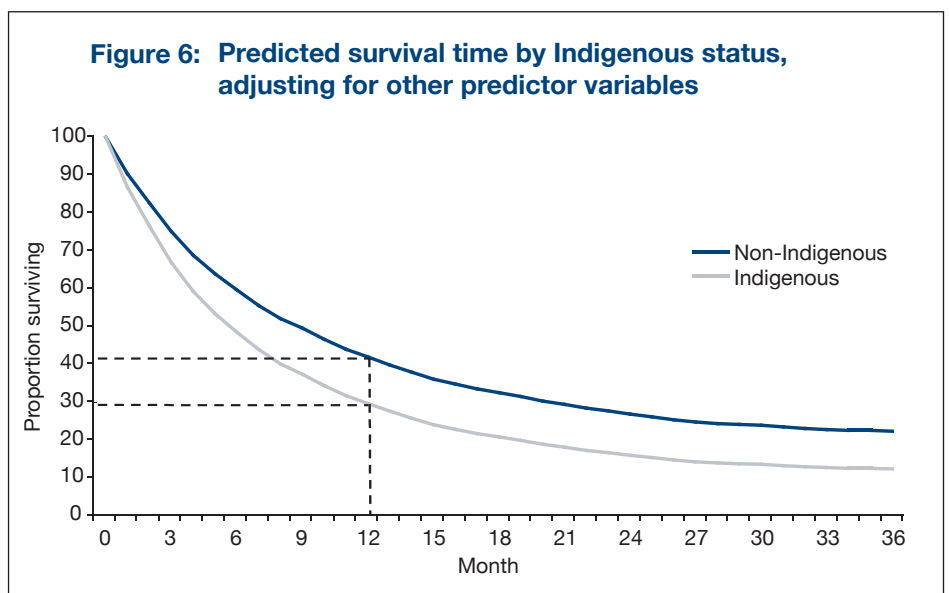
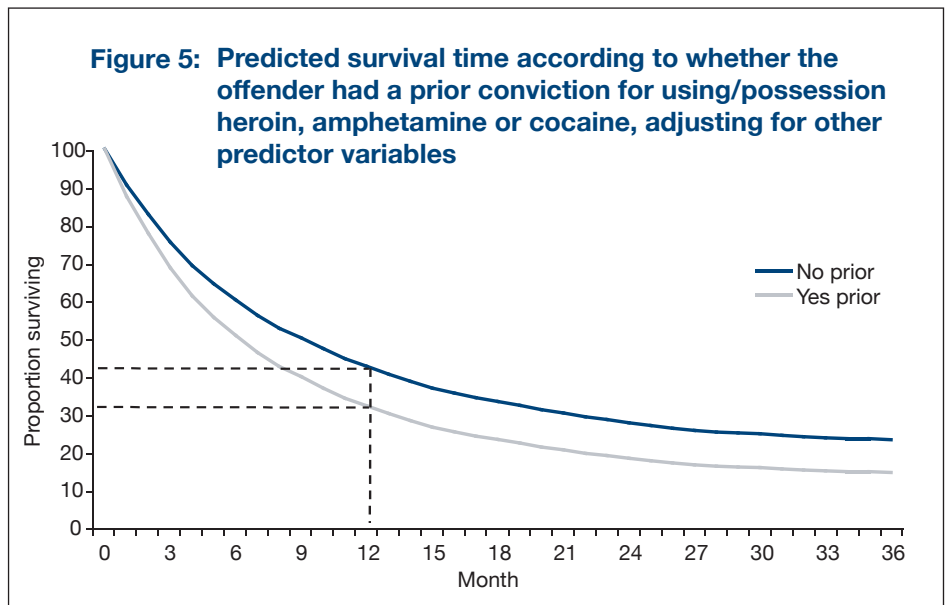
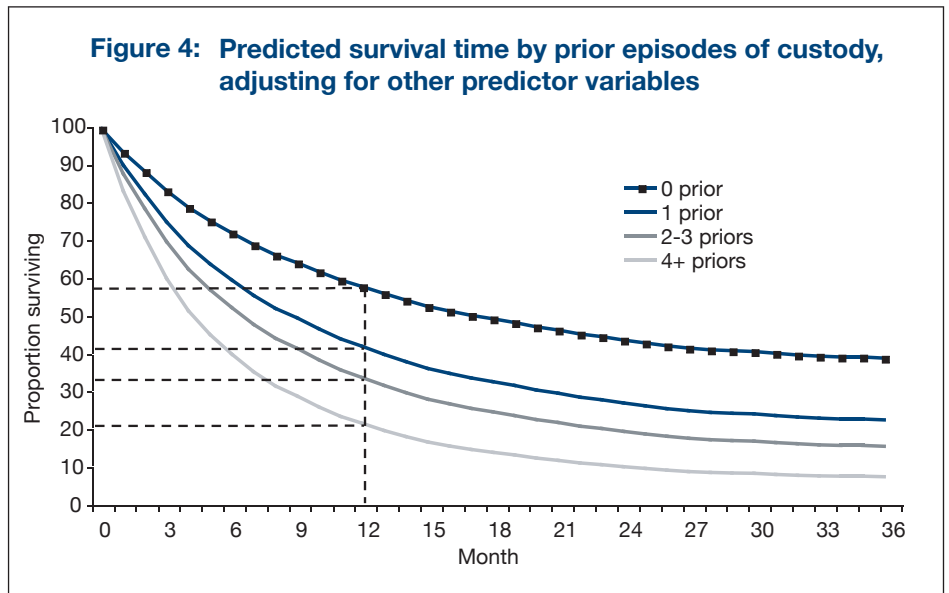
Covariate	Comparison	Hazard Ratio	95% Confidence Interval		p-value
			Lower	Upper	
Prior full-time custody	1 v 0	1.59	1.39	1.82	<0.001
	2-3 v 0	2.00	1.76	2.27	<0.001
	4+ v 0	2.84	2.48	3.24	<0.001
Prior drug conviction	Yes v No	1.34	1.12	1.60	0.002
Age	18-24 v 35+	1.66	1.45	1.89	<0.001
	25-29 v 35+	1.39	1.21	1.59	<0.001
	30-34 v 35+	1.35	1.17	1.57	<0.001
Indigenous?	Yes v No	1.40	1.27	1.55	<0.001
Parole type	Court v Parole Authority	1.35	1.19	1.55	<0.001
Time in custody	<6 v 18+ months	1.18	1.01	1.39	0.042
	6-<18 v 18+ months	1.18	1.02	1.36	0.030
Index offence	Violence v mean	1.38	1.23	1.54	<0.001
	Sex v mean	0.53	0.39	0.74	<0.001
	Robbery v mean	1.18	1.01	1.38	0.039
	Property/deception v mean	1.39	1.25	1.55	<0.001
	Breach v mean	1.40	1.18	1.66	<0.001
	Drug v mean	0.73	0.58	0.92	0.007
	Driving v mean	0.96	0.75	1.23	0.749

Figure 4 shows the adjusted survival functions according to the number of prior custody episodes the offenders had experienced in the eight years prior to their release, while the other predictor variables were set to the base case values for parole type, age at release, Indigenous status, sentence length, index offence type and prior drug offending. Those who had more episodes of custody clearly re-offended more quickly than offenders who had fewer custody episodes in the eight years prior to release. After 12 months, 42 per cent of first-time prisoners had re-offended, compared with 58 per cent of those with one prior custody episode, 67 per cent of those with two to three prior custody episodes and 79 per cent of those with four or more custody episodes. Only nine per cent of those with four or more prior custody episodes were estimated to have survived beyond two years without re-offending. This compares with 43 per cent of those with no prior custodial episodes.

Figure 5 shows the predicted survival times for offenders with one or more prior drug convictions while controlling for other variables in the survival model. After 12 months, 58 per cent of offenders with no prior drug use/possession convictions were estimated to have re-offended while 69 per cent of those with a prior drug use history had re-offended.

Figure 6 shows the adjusted survival functions for Indigenous versus non-Indigenous offenders. Compared with the re-offending rate for non-Indigenous offenders after one year (58%), 71 per cent of Indigenous offenders had re-offended. Only 16 per cent of Indigenous offenders were estimated to have survived beyond two years without committing one or more offences. While still very low, 26 per cent of non-Indigenous offenders survived after two years of follow-up.

Figure 7 shows the adjusted survival rates for court-issued versus Parole Authority-issued offenders. It can be seen that Parole Authority-issued offenders re-offended more slowly than those with court-issued parole. After one year, 48 per cent of Parole Authority-issued



offenders had re-offended compared with 58 per cent of court-issued offenders. At the two-year mark, 26 per cent of court-issued offenders had not re-offended compared with 37 per cent of Parole Authority-issued offenders.

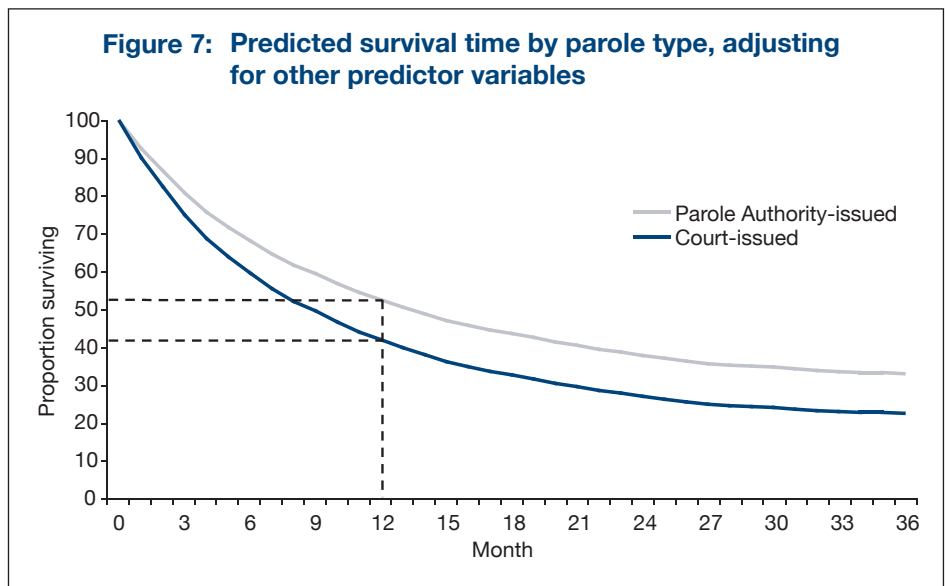
DISCUSSION

The first point to make is that the offenders in this study tended to re-offend fairly rapidly after release on parole. Between 27 and 39 months after their release from prison, around two-thirds of the cohort had reappeared in court (68%) and a similar proportion (64%) had had one or more new convictions recorded

against them. Forty-one per cent of the cohort had been returned to prison for committing further offences. Results of survival analyses indicated that approximately one-quarter of offenders in the study had re-offended within three months of their release. Half had re-offended within one year and slightly less than two-thirds were estimated to have re-offended within two years following their release from prison.

Although these figures are high, they are consistent with previous NSW and British research. Thompson (1989), for example, found that 68 per cent of offenders in her NSW study had been reconvicted and 38 per cent had been returned to prison within two years of their release. Tarling (1993), in a study of 738 men released on parole in Britain, found that approximately 70 per cent had been reconvicted for an offence within 30 months of release from prison. Such high re-offending rates are to be expected, considering that prison is a sanction reserved for the most recalcitrant offenders.

Bivariate analyses failed to find any differences in survival times according to gender. This finding is surprising, given that other studies have found strong gender effects on rates of re-offending among parolees (Broadhurst & Maller 1990, 1991). Furthermore, evidence suggests that males who have been convicted for any offence in NSW tend to re-offend more quickly than females



(NSW Bureau of Crime Statistics and Research 1977). The reasons for the discrepancy between these previous studies and the current findings are not clear. The inconsistency is unlikely to be due to issues of statistical power given the large sample size employed here. One possibility is that, irrespective of gender, judicial officers in NSW reserve sentences of imprisonment only for the most serious recidivist offenders. However this possibility will only be fleshed out by future research. The discrepancy does, however, highlight the importance of assessing correlates of re-offending among local samples of offenders because, for whatever reason, the independent predictors of re-offending are likely to vary between jurisdictions.

Multivariate survival analyses revealed that some groups of offenders were at greater risk of re-offending. These groups are ordered below according to how strongly they predicted time to re-offend in the regression model (i.e. from highest to lowest hazard ratios):

- Having a greater number of prior custodial episodes in the eight years preceding release was the strongest predictor of re-offending; followed by
- Being younger at the time of release;
- Identifying as Indigenous;
- Having a most serious index offence for robbery or another violent offence, property/deception or for breaching a justice order¹¹

- Having been issued with a parole order from a court (as opposed to the Parole Authority);
- Having one or more prior offences for using or possessing heroin, amphetamine or cocaine in the previous eight years; and
- Having spent less time in custody during the index custody episode.

It could be argued that these findings reflect differential rates of detection between groups and not differential rates of offending. Cunneen (2001), for example, has argued that Aboriginal over-representation in prison arises from over-policing of Aboriginal communities and systemic bias against Indigenous people within the criminal justice system. If this proposition were accepted without qualification, it could be argued that the higher rates of re-offending found among Indigenous offenders are just a reflection of systemic discrimination against Aboriginal people. There is good evidence that Indigenous people are indeed more likely than non-Indigenous people to be arrested for some categories of offending (e.g. public order offences, Jochelson 1997). However there is also good evidence that the higher imprisonment rates of Indigenous offenders are not just an artefact of biases in the exercise of police discretion or the operation of the criminal justice system (Weatherburn, Fitzgerald & Hua 2003). In the present case, moreover, reanalysis of the survival data excluding

offence types that were likely to be more susceptible to detection effects still revealed higher risks of re-offending amongst Indigenous offenders.

An interesting finding to emerge from the present study is that Parole Authority-issued parolees re-offended more slowly than court-issued parolees, even after controlling for a wide range of other extraneous variables (i.e. age, gender, Indigenous status, offence type, time spent in custody and prior custodial history).¹² While this is by no means an exhaustive set of controls, *prima facie* it could appear that the Parole Authority is better placed than sentencing courts to assess re-offending risk. This makes intuitive sense given that the Parole Authority is placed more proximately to the end of an offender's non-parole period and is therefore privy to more information about factors that might relate to the parole candidate's risk of re-offending.

However we cannot dismiss the possibility that the slower time to re-offend amongst Parole Authority offenders is merely a manifestation of selection bias. In other words, there could be something about the nature of Parole Authority-issued parole orders that makes them more effective in preventing recidivism than court-issued parole orders. For example, the length and intensity of parole supervision is likely to be much greater among parolees who receive their parole orders from the Parole Authority, given that their crimes were of sufficient seriousness to result in prison sentences greater than three years in length. This supervision intensity, then, might be causing these delays in offending rather than the Parole Authority's superior ability to predict who is likely to go on to commit further offences. Unfortunately we were not able to test this hypothesis in the current study.

Further research will be necessary before the relationship between parole type and time to re-offend can be confirmed. This future research should aim to control for a greater number of potential confounders of this relationship and, in particular, to include important dynamic risk factors for re-offending, such as levels of

parole supervision, drug and alcohol dependence, financial management skills and post-release housing availability. Not only would these risk factors provide important statistical controls, they would also aid in the development of re-offending risk prediction instruments. While such instruments have been developed internationally and one such tool – the Level of Service Inventory Revised (LSI-R) – is currently used by Community Offender Services, its utility among NSW offender populations has not yet been validated. The NSW Department of Corrective Services has plans to conduct such an evaluation.

Also important for future research is an exploration of the reasons why certain offenders (from either source) fail on parole. Answers to these questions would help in designing policies and programs to reduce the risk of re-offending on parole. If it turns out that the Parole Authority is more adept at setting conditions to minimise the risk of further offending, for example, the knowledge that it has on this issue might be able to be made available to the courts. Even if this is not true, however, a better understanding of the conditions or experiences that lead to parole failure would assist the Parole Authority, the courts and the Government in selecting parole procedures that minimise the risk of further offending.

Perhaps the final point to make is that the study findings provide a useful baseline or set of baselines (for different groups of offenders) against which to assess the effectiveness of policies and programs designed to reduce the risk of recidivism. Since we can calculate the expected risk of re-offending for a wide range of offender characteristics, it becomes possible to see whether a particular program, policy or service reduces the risk of re-offending below what would have been expected amongst those placed on it. The data gathered in the present study could be used, for example, to see whether a change in Parole Authority conditions or policies results in a reduction in the expected rates of offending.

The value attached to information on baseline rates of offending will continue

to grow as criminal justice agencies in NSW begin to invest more in evidence-based crime prevention activities. While few Australian programs have yet been evaluated there is much hope to be gained from rigorous evaluation of criminal justice interventions implemented overseas. MacKenzie (2002), for example, cites evidence for the effectiveness of several prison-, court- and community-based programs for reducing rates of re-offending. These programs include rehabilitation efforts that target known re-offending risk factors, cognitive behavioural therapy, community employment, drug treatment and incapacitation of known high-volume offenders. While this list is currently small our knowledge of 'what works' in crime prevention can only be expected to grow as programs and policies are subjected to comprehensive scientific evaluation. The continued investment in such program evaluation is therefore paramount.

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- every individual who has appeared in a NSW court since 1993. For details, see Weatherburn, Lind & Hua (2003).
- ⁵ This addresses one of the major problems faced by past recidivism studies whereby some arrests or court appearances recorded during the follow up period relate to offences committed prior to the index prison sentence (Copas & Marshall 1998).
- ⁶ The outcome variable was measured as time between release and the end of the follow-up period for offenders who had not re-offended by the end of the follow-up period.
- ⁷ These offenders were likely to have been returned to prison for breaching their conditions rather than re-offending because it would be unlikely that their most serious offence would be for 'parole order revoked' if they had committed one or more other offences.
- ⁸ When prior convictions were included in the model in lieu of prior custodial episodes, this effect was no longer statistically significant. This is because the correlation between prior convictions and the amount of time spent in prison (Spearman's $\rho = -0.32$, $p < 0.001$) is much higher than the correlation between prior custodial episodes and time spent in prison during the index custody episode (Spearman's $\rho = -0.09$, $p < 0.001$).
- ⁹ The 'other' index offence category is not presented in the model because one level of the variable necessarily drops out when deviation from means coding is employed. It is possible to estimate the magnitude of the coefficient but it is neither necessary nor of any interest to do so here.
- ¹⁰ There is evidence, for example, that Aboriginal offenders are more likely than non-Aboriginal people to be arrested by police for public order offences (Jochelson 1997).
- ¹¹ The finding of higher re-offending risk amongst those whose most serious index offence was for robbery, violence, property/deception or breaching a justice order, and the lower re-offending risk among offenders whose index sentence was for drug or sex offences needs to be treated with some caution. This is because violent/property/breach offences are probably more easily detected by police than sex or drug offences and they might therefore reflect detection effects rather than patterns of offending.
- ¹² There is some evidence that offenders released from prison re-offend at a lower than expected rate while under parole supervision *per se* (Ellis & Marshall 2000) but, to our knowledge, the current study is the first that has found a difference in offending rates according to the authority that issued the parole order.

NOTES

- ¹ The NSW Parole Board was renamed the NSW Parole Authority on 10th October 2005.
- ² The information in this report is gathered from a variety of sources, including face-to-face interviews with the offender, interviews with program supervisors, remarks made by the sentencing judge, remarks made by other law enforcement and court officers during sentencing, offender case management files and other Department of Corrective Services records.
- ³ The lower re-offending rates reported in this study relative to that conducted by the Bureau of Crime Statistics and Research reflects the different definitions of recidivism employed by the respective studies (i.e. reimprisonment versus reconviction).
- ⁴ ROD contains the detailed court records of

APPENDIX A

KAPLAN-MEIER SURVIVAL CURVES

