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The specific deterrent effect of custodial penalties on juvenile re-offending

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Abstract

It is widely assumed that placing offenders (juvenile or adult) in custody acts as a deterrent to further offending. Studies of deterrence in the United States and elsewhere provide little support for this assumption, however comparable studies in Australia are comparatively rare. The present study was designed to see whether juvenile offenders who receive a detention sentence are less likely to re-offend, controlling for other factors, than juvenile offenders given some other form of sentence. Two groups of offenders (152 given an detention sentence, 243 given a non-custodial sentence) were interviewed at length about various matters, including their family life, school performance association with delinquent peers and substance abuse. They were then followed up to determine what proportion in each group was reconvicted of a further offence. Cox regression was used to model time to reconviction. The study found no significant association between the type of penalty imposed and time to reconviction.

Introduction

In 2007 just over 10 per cent (10.3%) of the 6,488 juveniles who appeared in the New South Wales (NSW) Children's Court were given a control order (i.e. sentenced to a period in detention). It costs $541 per day to keep a juvenile offender in detention. Forty-eight per cent of the budget of the NSW Department of Juvenile Justice is spent keeping juvenile offenders in custody.[1] To date, however, surprisingly little research has been conducted into the effect of custodial sentences on juvenile recidivism (re-offending). We know that more than two-thirds of the young people who receive a control order from the NSW Children's Court are convicted[2] of a further offence within two years of their custodial order. We do not know what their reconviction rate would have been had they not received a custodial penalty.

This study is concerned with the question of whether imposing a custodial penalty on a juvenile offender reduces the risk of juvenile recidivism. There are three ways in which this might occur. Firstly, juveniles cannot re-offend in the community during the period of their incarceration. This is known as *incapacitation*. Secondly, the existence of custodial penalties might discourage people in general from offending. This is known as *general deterrence*. Alternatively, the imposition of a custodial penalty might reduce the risk of re-offending only among juveniles who receive this kind of penalty. This is known as *specific deterrence*. This bulletin is only concerned with the specific deterrent effect of custodial penalties. The question we seek to address is whether, other things being equal, juveniles who receive a custodial penalty are less likely to re-offend than juveniles who do not receive a custodial penalty.

The remainder of this bulletin is structured as follows. In the next section of this bulletin we briefly discuss the two main theoretical perspectives on specific deterrence. In the third section we discuss some methodological issues in conducting research on the specific deterrent effect of criminal penalties. In the fourth section, we briefly summarise the results of past research on the specific deterrent effect of imprisonment. In the fifth section, we explain the current study. In the sixth section, we present our findings. In the final section we discuss the implications of our findings for future research and policy.

Theoretical perspectives on the specific deterrent effect of prison

The commonsense view of imprisonment is that, because it is both humiliating and unpleasant to lose one's liberty, it should act as a deterrent (both to the person being incarcerated and to others). This idea was first given formal expression in Becker's (1968) economic theory of crime. According to Becker, a person commits an offence if the subjective expected utility (subjective expected benefit) to him exceeds the utility he could get by using his time and resources in legitimate activity (Becker 1968, p. 176). Imposing a prison sentence on persons caught engaging in criminal activity should reduce the frequency of such activity because it reduces its subjective expected utility. By the same argument, long prison sentences should exert a greater specific deterrent effect than short prison sentences.

Contrary to the economic theory of crime, a number of sociologists (and some economists) have argued that imprisonment is, in fact, criminogenic (i.e. it increases the risk of involvement in crime). There are three main variants of this argument. The first contends that prison is criminogenic because it provides an environment which reinforces deviant values and which is conducive to the acquisition of new criminal skills (Clemmer 1940; Sykes 1958). The second contends that prison is criminogenic because it stigmatizes offenders. Social stigmatization, it is argued, prompts those who are stigmatised to adopt the label of criminal and behave in ways that are consistent with this label (Becker 1963; Braithwaite 1988; Lemert 1951). The third contends that prison increases the risk of re-offending because it reduces the offender's capacity (on release) to obtain income by legitimate means (Fagan & Freeman 1999).

Methodological issues in specific deterrence research

Research design issues

A great deal of research has been carried out to determine whether prison is criminogenic or acts as a deterrent. In order to understand this research it is necessary first to discuss a number of important methodological issues.

The fundamental problem in evaluating the impact of prison on recidivism is the establishment of a counterfactual. We need to find a way to determine what the re-offending rate of those who are sent to prison would have been had they not been sent to prison. The most reliable means by which to achieve this is through a randomised controlled trial. This would mean taking a large group of offenders and randomly allocating them to one of two groups (treatment and comparison). If all members of the treatment group received a custodial penalty and all members of the comparison group received a non-custodial penalty, any difference in recidivism between the two groups could be safely attributed to the difference in treatment they each received.

Experiments in specific deterrence research are comparatively rare and with good reason. Another way to create a counterfactual is through direct matching. In this approach, each person in the prison (treatment) group is directly matched with someone in the non-prison (comparison) group on variables such as age, gender, race, prior criminal record etc. The aim of this approach is to eliminate differences between the two groups that would otherwise account for any differences in re-offending. Direct matching is perhaps the next best alternative to a randomised controlled trial but, as there is no consensus on the factors that influence recidivism, it is not always clear what factors to match offenders on. Another major problem with direct matching is that the larger the number of variables on which we try to match offenders, the harder it becomes to find an exact match.

The most commonly used alternative to direct matching in specific deterrence research is some form of multivariate regression technique, such as ordinary least squares, logistic, negative binomial or Cox regression. These methods compare

recidivism rates between those who receive a custodial sentence (the treatment group) and those who do not (the comparison group) while controlling statistically for differences between the two groups in other factors that may affect recidivism, such as age, gender, prior criminal record etc. To control for gender for example, these methods compute separate estimates of the association between penalty type and recidivism for males and females. Although these methods are quite powerful, they also have their limitations. One limitation, shared with direct matching, is the difficulty of determining what factors to include as controls.

Measurement and control issues

Two other major issues that must be addressed in any study of specific deterrence effects are how best to measure the outcome (recidivism) and what factors to control for when analysing the impact of a custodial sentence on recidivism.

The principal challenge in measuring the impact of a penalty on recidivism is that only a fraction of an individual's offences come to official attention. Studies of specific deterrence usually try to get around this problem by assuming that the record of arrests or court appearances after the date of the index court appearance is a random subset of the offences actually committed after that date. Recidivism is then measured in one of three ways:

1. *Likelihood of re-offending*: defined as the proportion of offenders who are either re-arrested, re-appear in court or are reconvicted during some fixed period after the index court appearance.
2. *Rate of re-offending*: defined as the number of arrests, court appearances or conviction episodes[3] after the index court appearance.
3. *Time to re-offend*: defined as the time between the index court appearance and the date of the first (known) offence, arrest, court appearance or conviction after the index court appearance

Likelihood of re-offending is simple and easy to understand; however, in most studies on specific deterrence, offenders are usually followed up for variable lengths of time. If we want to measure the likelihood of re-offending, we therefore have to fix the follow up period. In practice, the fixed interval between sentence completion and the end of the follow-up period can be no longer than the shortest follow-up period for any offender. This wastes a large quantity of data (thereby weakening the power of the analysis). *Rate of re-offending* is perhaps the most powerful measure but meaningful measures of rates of re-offending require long follow up periods. *Time to re-offend* avoids the problems mentioned in connection with likelihood of re-offending as it does not require uniform follow-up periods.

The question of what controls to include in any analysis is a particular challenge for two reasons. Firstly, there is no generally accepted theory of recidivism to guide the selection of control variables. Secondly, many of the variables that have been shown to influence recidivism are often not available for inclusion in the analysis. In their discussion of this issue, Nagin et al. (2009) argued that the minimum necessary set of control variables comprises prior criminal record, conviction offence type, age, race and sex. All these variables are known to exert strong influences on the choice of penalty, recidivism or both. Indeed, once they have been included in the analysis, other variables are often found to

exert little or no effect (see, for, example, Weatherburn, Cush & Saunders 2007).[4] Even so, a large range of factors has been found to influence juvenile recidivism. We discuss this issue in more detail below.

The evidence on specific deterrence

There have been four major reviews of the evidence on deterrence over the last ten years (Doob & Webster 2003; Nagin et al. 1998; 2009; Villettaz, Killias & Zoder 2006) but only the Villettaz et al. (2006) and Nagin et al. (2009) reviews focussed on specific deterrence. As the latter is the more recent review and reaches essentially the same conclusions as Villettaz et al. (2006), we base our summary of the evidence around Nagin et al. (2009). They summarise the evidence bearing on these theoretical perspectives under four different headings: experimental and quasi-experimental studies, matching studies, regression based studies and 'other' studies. We will adopt the same framework here. Rather than recapitulate their observations in detail, however, we will illustrate each of the types of study they reviewed and then summarise their observations in relation to that type of study.

Experimental studies

As noted above, the best way to determine whether custody exerts a specific deterrent effect would be to take a large group of juvenile offenders and randomly allocate half to a custodial sentence and the other half to some other sentencing option. Killias, Aebi & Ribeaud (2000) took advantage of a facility in Switzerland under which offenders sentenced to short (14 day) periods of imprisonment could opt to serve the sentence as a form of community service order. Swiss law at the time allowed for testing, on an experimental basis, of innovative forms of correctional treatment, including alternatives to imprisonment. Normally most offenders opt for community service rather than prison, although some apparently do prefer to spend their 14-day sentence in custody. The Directors of Corrections in the Swiss canton of Vaud agreed to conduct an experiment in which eligible offenders were randomly allocated to prison or community service. The justification given for this seemingly inequitable treatment of offenders was that the resources available to manage offenders on community service orders were strictly limited.

The treatment (community service) group (n = 84) was compared with the randomised control (prison) group (n = 39) and another comparison group of 36 offenders who had been chosen for community service by correctional staff prior to the experiment. Measures were taken for each group of the prevalence and frequency of police recorded offending (police contacts) and court convictions before the index court appearance (i.e. the appearance at which they were allocated to groups) and after that appearance. The follow-up period was two years. The prevalence of police contact and conviction declined post allocation for all three groups, as did the frequency of police contacts and court convictions. No difference was found between the three groups in relation to the changes in prevalence of police contact. When the frequency of police contact was examined, however, the control (custody) and comparison groups were found to have had slightly more contacts after the index court appearance whereas members of the treatment group had significantly fewer.

Nagin et al. (2009) reported that all five experimental studies they reviewed found at least one criminogenic effect of incarceration, most of which were statistically significant. Two of these studies (Killias, Abei & Ribeaud 2000; Schneider 1986) involved juvenile offending. Three reported at least one deterrent effect. However only one of these effects was statistically significant and that study failed to separate deterrence from incapacitation effects.

Matching studies

Kraus (1974) provides a good example of a matching study and his study is especially interesting for our purposes because he used Australian data. Kraus (1974) drew the first 50 consecutive entries from each of seven categories of offence from the probation register of the NSW Department of Child Welfare. He then used the Child Welfare Department's 'Institutional Index' to match each one of the 350 probationers with a comparable offender who was committed to an institution during the same period (1962-63). The matching was done on date of birth, age at current sentence, type of current offence, age at time of first offence, number of previous offences, category of previous offences and number of previous committals to an institution. Offenders were followed up for five years. Recidivism was measured in terms of rate of offending and the number of episodes of imprisonment, both overall and in relation to specific types of offences. Recidivism was found to be higher after detention for all but two offences: 'behaviour problems' and 'take and use motor vehicle'. There was no difference between the two groups in relation to 'behaviour problems'. Offenders who had served time in detention were less likely to commit the offence 'take and use motor vehicle', post release, than offenders who had been sentenced to probation.

Regression studies

Regression methods are the most common technique used to 'control' for the influence of extraneous factors in studies on the specific deterrent effect of penalties on recidivism. Cain (1996) examined 52,935 offenders convicted in the NSW Children's Court between January 1982 and June 1992 and who had reached the age of 18 by the end of 1994 (this ensured that each juvenile was followed up until the end of their juvenile criminal career). He used logistic regression to determine whether juveniles who received a custodial penalty were more likely to re-offend after controlling for a variety of other factors (e.g. age at first court appearance, gender, offence type, place of residence). The results of his study suggested they were more likely to reoffend; however, as he acknowledges, several key factors that should be controlled for (e.g. length of prior criminal record, race) were omitted from his analysis.

Spohn and Holleran (2002) compared 735 convicted drug offenders given probation sentences with 301 drug offenders sentenced to prison. The study controlled for age, sex, race, employment and type of drug offender. Rather than restrict themselves to these controls, however, Spohn and Holleran (2002) first constructed a model of the factors that influenced whether or not an offender was given a custodial sentence. This model included a number of factors likely to influence the choice of sentence but not likely to affect the risk of recidivism. The predicted probability of a prison sentence obtained in this first stage of the analysis was then added to the controls included in the second stage of the analysis. The advantage of this strategy is that it purges the penalty variable of any association with other

factors correlated with both penalty choice and recidivism. The results of their study suggested that offenders who were given a prison sentence were more likely to re-offend and took less time to re-offend.

Nagin et al. (2009) found 31 regression studies measuring the impact of custodial sentences on recidivism. Only 16 of these studies, however, controlled for age, race, sex, prior record and conviction offence type. The coefficient measuring the effect of prison was positive (suggesting a criminogenic effect) in 13 of these studies and 12 reported at least one significant positive effect. Only three reported at least one significant negative (deterrent) effect. Nagin et al. (2009; p. 42), however, expressed concern about the crudeness of the controls for age in these studies. As they pointed out, re-offending risk is extremely age-sensitive. Small differences in the age distributions of offenders who were given custodial and non-custodial sentences could easily produce spurious differences in measured rates of re-offending.

Other studies

Nagin et al. (2009) found seven studies that did not fit into the experimental, matching or regression study categories. Four of these are identified as having methodological problems (e.g. failure to separate deterrence from incapacitation effects; inclusion of non-convicted offenders in the comparison group). The remaining two studies were conducted by Drago, Galbiati and Vertova (2007) and Helland and Taborrok (2007).

The Drago, Galbiati and Vertova (2007) study is best thought of as a natural experiment. These authors examined the effect of a new bill passed by the Italian Parliament in July 2006. The *Collective Clemency Bill* was designed to address the overcrowding in Italian prisons and provided for a three-year reduction in detention for all inmates who had committed a crime before 2 May 2006. This resulted in the release of all those with a residual prison sentence of less than three years (some 22,000 inmates). Crucially for this study, the Bill stated that if a former inmate recommitted a crime within five years following his release from prison, he would be required to serve the residual sentence suspended by the pardon in addition to the prison time incurred as a result of the new offence.

The effect of the Bill was to create a situation where the sentence for any future offence effectively varied randomly across prisoners released from custody as a result of the pardon. An individual who entered prison one year before the pardon, for example, would have one year extra to serve for any future offence plus whatever sentence was imposed for the new offence. An individual convicted of exactly the same offence and with exactly the same case particulars that happened to enter prison two years earlier would have two years to serve on top of any prison time required to be served for the new offence. The sentence for any future offence, in other words, depended only on when an offender entered custody for the last offence. When Drago et al. (2007) analysed the effect of this natural experiment, they found that each additional month in the expected sentence reduced the propensity to re-offend by 1.24 per cent. The effect depended however, on the time previously served in prison. The longer the time already spent in prison, the weaker the relationship between the residual sentence and recidivism.

Helland and Tabarrok (2007) examined the effect of California's 'Three strikes and you're out' sentencing legislation. Under this legislation, an offender with two 'strikes' (convictions from a prescribed list of serious offences) who is convicted of another felony faces a prison sentence of 25 years to life and cannot be released prior to serving 80 per cent of the 25-year term. An offender with only one conviction for a strikeable offence who commits another felony faces a doubling of the length of the last sentence and no prospect of release until 80 per cent of the sentence is served. The second penalty in practice is much less severe then the first.

Because the factors that determine whether a defendant ends up convicted of only one strikeable or two strikeable offences (strength of evidence, competence of prosecutor etc.) are effectively random in nature, Helland and Tabarrok (2007) argued that the only systematic difference between the two groups was the penalty hanging over them for their next offence. To estimate the deterrent effect of the three-strikes sentencing legislation, then, they compared the re-offending rate of offenders released after conviction for two strikeable offences with the re-offending rate of offenders released after two trials for strikeable offences but only one conviction for a strikeable offence. They found that California's three-strike legislation reduced felony arrests among 'two strike' offenders by 17-20 per cent. No such effect was found in States that did not have three-strike sentencing legislation. This pattern of results suggests a deterrent effect.

Summary of previous studies on the specific deterrent effect of imprisonment

Nagin et al. (2009) observed that most studies on the specific deterrent effects of custodial sanctions find these sanctions have a criminogenic effect. Nonetheless, given the many shortcomings among studies they reviewed, they felt bound to conclude that 'the jury is still out on … [custody's] effect on re-offending'. Villettaz et al. (2006) drew much the same conclusion. They restricted their review to studies that, on the Sherman et al. (1997) scale would be considered to be very reliable (i.e. level 4 and above). In their review of the 27 studies published between 1961 and 2002 that met this requirement, only two obtained evidence favourable to the specific deterrent effect of imprisonment. Ten of the remainder found no effect of imprisonment, four found mixed effects of imprisonment (some statistically non-significant, some favourable to the criminogenic hypothesis) and 11 found evidence uniformly supportive of the criminogenic effect of imprisonment. Five of the studies that found either no effect or a criminogenic effect were randomised controlled trials.

The present study

Survey design

The data for the current study were obtained from a longitudinal cohort study of juvenile offenders. A sample of juvenile offenders who received custodial and non-custodial sanctions were surveyed and then followed up to determine whether, after controlling for other factors likely to influence recidivism, juvenile offenders who

received control (custody) orders re-offended more quickly than juvenile offenders who received non-custodial sentences.

The survey took the form of an interview using a written questionnaire comprising 95 closed-ended questions. The questionnaire (see Appendix 1) was designed in large part to test certain theories about the relationship between recidivism and juvenile reactions to the court process (McGrath 2007). As such, many of the questions included in the questionnaire are not of interest here. Some of the questions included in the questionnaire, however, are of interest because of their potential relevance as controls. They include questions covering the respondents' demographic and social background; questions relevant to child development (including the type of family the participant lived in, the level of parental supervision, household discipline style and the quality of attachment between the participant and their parents); questions measuring school performance and deviant peer influence; and questions measuring binge drinking and illicit drug use. Further detail on the design of the questionnaire can be found in McGrath (2007). We discuss the variables used in the present study in more detail below.

Recruitment procedure

The interviews took place between 1 December 2004 and 30 June 2007 at Children's Courts and Juvenile Justice Centres in NSW. Two researchers randomly attended four Children's Courts in NSW on days of the week that these courts were due to sentence young people. Young people at the court who were due to be sentenced on the day of the researcher's visit were informed about the interviews by his or her legal representatives (who themselves were briefed about the study by a researcher in advance of study commencement). If the young person gave his or her verbal consent to participate in the interview, he or she was introduced to the researcher either before or after his or her finalised court appearance. The researcher then provided the young person (and their families, if requested) with further details about the study and informed the young person that their individual responses to the interview questions would be kept confidential and would not be shared with the court, police, legal representatives or the young person's family and friends. If the young person was still willing to be interviewed, they were given a written Information Sheet about the study and asked to sign a written consent form. All written consent forms were signed just prior to interview commencement and all interviews were conducted after sentencing, away from the earshot of everyone else in court, including the young person's family and legal representative.

Young people who are sentenced to a custodial order are remanded in custody at court immediately after their finalised court hearing and later taken to a Juvenile Justice Centre. Therefore, unlike young people who received non-custodial orders, they are not free to leave the court. Some months after study commencement, it became apparent that young people given custodial orders were unwilling to participate in the interviews while they were remanded at court. Permission was therefore obtained to interview these young people at Juvenile Justice Centres. One researcher attended seven Juvenile Justice Centres in NSW and interviewed anyone eligible for inclusion in the study that was willing to participate in the interviews. Young people were informed about the study by either a centre Psychologist

or a Youth Worker on the day of the researcher's visit. Each eligible young person was then taken to an interview room out of earshot of anyone else in the Juvenile Justice Centre and introduced to the researcher. The researcher then provided him or her with further details about the study and informed the young person that his or her individual responses to the interview questions would be kept confidential and would not be shared with the court, police, legal representatives or the young person's family and friends. If the young person was still willing to be interviewed, he or she was asked to sign a written consent form before interview commencement.

Each interview took between 10-90 minutes to complete, depending on how intelligible the questions were to the young person at face value[5] and on whether questions provoked thoughts in the young person about other related topics[6]. Most interviews took 15 to 20 minutes to complete. Very few interview participants declined to answer questions despite being given the option to do so. If the question upset the young person, they were asked whether they wanted to discuss what was upsetting them with either the researcher or a Juvenile Justice Officer (no-one took the latter option). If the young person continued to be upset they were not pressed to either answer the question or complete the interview. Only one person ended the interview for these reasons and only a handful of people failed to answer every question. Unanswered questions were recorded as missing values.

All interview participants were compensated for their time and were informed of this in advance of the interview. Young people who were sentenced to non-custodial orders were given two free movie tickets. Young people in custody had $10 placed in their "Property", which they were able to claim on release from custody. The end of the follow-up period for the study was 1 January 2008, six months after the last study participant was interviewed.

Response rate and subject attrition

Of the 177 eligible young people who were approached by one of the researchers at the courts to participate in the interviews, 126 agreed to be interviewed. The response rate for the non-custodial group was therefore 71.2%. The response rate for the second researcher was similar. Of the 173 eligible young people who were approached in custody to participate in the interviews, 160 agreed to be interviewed. The response rate for the custodial group was therefore 92.5%.

After excluding people who were mistakenly interviewed more than once for the study, there were 444 unique individuals who met the eligibility criteria for study inclusion.

Names and dates of birth were obtained from the interview participant, and where possible, verified with court records, legal representatives and/or juvenile justice centres soon after completion of the interviews. Names and dates of birth were matched with the NSW Bureau of Crime Statistics and Research re-offending database (ROD) to determine prior criminal history for each study participant[7] and instances of post index sentence reoffending, if any. As already mentioned, previous studies have shown that prior criminal history is one of the best predictors of juvenile recidivism. If the young person could not be located in ROD, then they were excluded from data analysis. If the participant's first name, last name and date of

birth did not initially correspond with anything found in ROD, then attempts were made to locate this person in the DJJ's Client Information Management System (CIMS) using reported names and dates of birth and known aliases. Successful searches in CIMS led to the identification of the person's unique juvenile ID. This ID was then used in place of names and date of birth to search for the person for a second time in ROD.

Overall, eight people on custodial orders at the time of the interview and 41 people on non-custodial orders at the time of the interview could not be located in both CIMS and ROD (which translates to an attrition rate of 5.0% for custodial interviews and 14.4% of non-custodial interviews). Therefore 49 people were excluded from the data analysis (overall attrition rate equal to 11.0%). As such, 395 people comprised the dataset for analysis – 152 people who were on custodial orders at the time of the interview and 243 people who were on non-custodial orders at the time of the interview.

Independent variables

The primary independent variable of interest is whether or not the juvenile offender received a custodial sentence (penalty type). The remaining independent variables in the current study function as controls for extraneous factors that might also influence recidivism.

With the possible exception of age, sex, race and prior criminal record (Nagin et al. 2009), there is no consensus on what factors to control for when examining the effect of penalties on juvenile recidivism. The selection of controls is further complicated by the fact that a large number of factors have been found to be predictors of juvenile crime and recidivism. Significant factors include gender, race, age and age at first contact with police or the criminal justice system (Blumstein, Farrington & Moitra 1985; Chen et al. 2005; Cottle, Lee and Heilbrun 2001; Luke and Lind 2002; Nagin 2009; Vignaendra and Fitzgerald 2007); offence type (Weatherburn, Cush & Saunders 2007; Vignaendra and Fitzgerald 2006); poor parental supervision/child neglect (Weatherburn, Cush & Saunders 2007; Loeber & Stouthamer-Loeber 1986); placement in out of home care (Weatherburn, Cush & Saunders 2007); association with delinquent peers (Weatherburn, Cush & Saunders 2007; Loeber & Stouthamer-Loeber 1986); sole parent family status (Weatherburn, Cush & Saunders 2007; Cottle, Lee and Heilbrun 2001), parental pathology (Cottle, Lee and Heilbrun 2001); family problems (Cottle, Lee and Heilbrun 2001); poor school performance (Blumstein, Farrington & Moitra 1985; Cottle, Lee and Heilbrun 2001) and substance use or abuse (Blumstein, Cohen, Roth & Visher 1986; Cottle, Lee and Heilbrun 2001).

The list of factors examined in the current study for potential inclusion in the multivariate analysis are shown in Table 1 below, along with the method of construction of each factor (where relevant) and the p-value from the bivariate log-rank tests conducted with time to re-offend.

Table 1: Factors examined for potential inclusion in the multivariate analysis and their relationship with time to reoffend

VARIABLE/FACTOR	MEASURE	RELATIONSHIP WITH TIME TO REOFFEND (Dependent Variable) p-value
Gender	Sex – Q36 of Questionnaire	0.0763
"Race"	Proxy: ATSI Status Q37 of Questionnaire	0.0002*
Socioeconomic status	SEIFA Australian decile ranking	0.7577
	Household crowding – compute Q66 and Q67 of Questionnaire	0.8639
Age	Interview date minus DOB and regrouped into 3 groups: 10-15; 16-17; 18 and over	0.2421
Age at first contact with the law	The Age at time of first proven offence (either a prior offence or a reference offence) – from ROD regrouped into three groups: 10-13; 14-15; 16 and over	0.0043
Prior criminal record	Number prior court appearances – grouped into 'none' and 'one or more'– from ROD	<0.0001*
	Number prior proven offences – grouped into 'none' and 'one or more'– from ROD	<0.0001*
	Number prior supervision orders – grouped into 'none' and 'one or more' – from ROD	<0.0001*
Number of prior commitments	Number prior custodial episodes – grouped into 'none' and 'one or more'– from ROD	0.0010*
Number of concurrent offences	Number concurrent offences (including principal offence)– grouped into 'one' and 'two or more' – from ROD	0.0208*
Type of crime at index court appearance	Offence Type, created from four-digit Australian Standard Offence Classification (ASOC) descriptions of offences in ROD and grouped into three groups: violence; property and other	0.0644
Victim of abuse	Q57 from Questionnaire – Do your parents punish you by slapping or hitting you? – grouped into 'never' and 'sometimes/often/always'	0.6460
Single parent	Compare Options 1 (both parents) with Options 2&3 (one parent) from Q43 of Questionnaire – Who are you currently living with?	0.0903
Parenting	Do parents congratulate and encourage (Q58) – grouped into 'never' and 'sometimes/often/always'	0.2601
	Are parent/s aware of what their child thinks and feels? (Q61) – regrouped into 'never' and 'sometimes/often/always'	0.1538
	How close does young person feel to parents (Q63) – regrouped into 'not close at all' and 'quite close' / 'close' / 'very close'	0.7784
	When parents make up rules do they explain them to young person (Q52) – regrouped into 'never' and 'sometimes/often/always'	0.7083
	Does young person think that the rules that their parents make up are fair (Q56) – regrouped into 'never' and 'sometimes/often/always'	0.5146

	Does young person think that their parents chop and change the rules (Q59) – regrouped into 'never' and 'sometimes/often/always'	0.1423
	Do parents follow through on their rules? (Q60) – regrouped into 'never' and 'sometimes/often/always'	0.3275
	Do parents nag young person about little things (Q62) – regrouped into 'never' and 'sometimes/often/always'	0.3306
	How well does young person get on with their mother? (Q46) – regrouped into 'badly' and 'okay/well/very well'	0.6740
	How well does young person get on with their father? (Q47) – regrouped into 'badly' and 'okay/well/very well'	0.4438
	Does young person feel rejected by parents (Q51) – regrouped into 'never' and 'sometimes/often/always'	0.6523
	What would parents do if they found out young person had destroyed or damaged property on purpose (Q53) – regrouped into 'nothing' and 'discuss seriously/scold not punish/punish'	0.6140
	What would parents do if they found out young person was using cannabis (Q54) – regrouped into 'nothing' and 'discuss seriously/scold not punish/punish'	<0.0001
	What would parents do if they found out young person had taken something from a store (Q55) – regrouped into 'nothing' and 'discuss seriously/scold not punish/punish'	0.8782
	How well do parents get along? (Q45) – regrouped into 'badly' and 'okay/well/very well'	0.9970
	Do parents argue or fight in front of young person (Q48) – regrouped into 'not at all' and 'a bit/quite a bit/a lot'	0.9846
Supervision	Do parents know where young person is when young person is out of house? (Q49) – regrouped into 'never' and 'sometimes/often/always'	<0.0001
	Do parents know who young person is with when young person is out of house? (Q50) – regrouped into 'never' and 'sometimes/often/always'	0.4740
Delinquent peers	How many of young persons friends had been in trouble with the police – regrouped into 'one' and 'more than one'	0.0499
	How many of young persons friends had shoplifted or stolen – regrouped into 'one' and 'more than one'	0.1228
	How many of young persons friends had vandalised – regrouped into 'one' and 'more than one'	0.3331
	How many of young persons friends had drunk alcohol under age – regrouped into 'one' and 'more than one'	0.9624

	How many of young persons friends had used illegal drugs – regrouped into 'one' and 'more than one'	0.2197
	How often did young person hang out with friends who had been in trouble with the police – 'never' and 'sometimes/often/all the time'	0.0068
	Q72/78 of Questionnaire – How often do/did you wag? – grouped into 'never' and 'sometimes/often/always'	0.0161
School attendance	Q73/79 of Questionnaire – How often have you been/were you suspended? – – Grouped into 'never' and 'sometimes/often/always'	0.2177
	Alcohol consumption – Q85/87 of Questionnaire – regrouped into '' and ''	<0.0001
	Alcohol consumption frequency – Q86/88 of Questionnaire – regrouped into 'at least one day/week' and '2-3 days/month or less'	<0.0001*
Substance abuse	Monthly cigarette consumption – Q89 of Questionnaire	0.7188
	Yearly cigarette consumption – Q89 of Questionnaire	0.2208
	Monthly illicit drug consumption – Q90, Q91, Q92, Q93 of Questionnaire	0.2237
	Yearly illicit drug consumption – Q90, Q91, Q92, Q93 of Questionnaire	0.0262*
	Have you ever injected drugs – Q94 of Questionnaire	0.4604

Change of address	Q65 of Questionnaire – How many times have you moved in your life?	0.7835
	Q44 of Questionnaire – How long have you lived in that situation (in days and excluding "whole life")	0.7708
	Q44 of Questionnaire – How long have you lived in that situation ("whole life")	0.2363
Certainty of arrest	Q2 of Questionnaire – If you commit a crime in the future how likely is it that you will be caught by the police?	0.0037
Court stigmatisation	Sum of Q22, Q23, Q24 Q25, Q28 and Q29 of Questionnaire	0.5130
Custodial sentence	Identified in advance of interviews during sentencing at court (yes/no)	0.0003*

Dependent variable

The measure of re-offending used in the present study is *time to re-offend*, defined as the time between the date of the index court appearance and the date of the first subsequent proven offence after the index court appearance (or the end of the follow-up period if no further offence occurred). Note that in measuring this time we have subtracted any time spent in custody between the end of the index sentence and the first proven offence or end of the follow-up period. Information on the dependent variable was obtained from ROD.

Analysis

The analysis proceeded in two stages. In the first stage, bivariate (log-rank) tests were conducted to see which of the variables listed in Table 1 had an association with time to re-offend at $p<0.25$. The variables found to have a significant relationship with time to re-offend were then ranked in order of p-value from smallest to largest. In the second stage a series of Cox regression models was constructed. In the first model, time to re-offend was regressed against penalty type without controlling for any other factors (unadjusted relationship). For the second model, the variables were added to model 1 one by one commencing with the variable with the smallest p-value from stage one. The process continued until a control variable was reached that added nothing to the explanatory power of the model (that is, its coefficient was not found to be statistically significant at $p<0.05$). That variable was then removed and the final model consisted of the custody variable and those variables found to make a significant independent contribution to time to re-offend.

Results

Fifty-two per cent of the sample had a proven offence subsequent to their index sentence during the follow-up period. The mean time to reconviction (for those who were reconvicted) was 163 days (median = 110 days), with a standard deviation of 178 days. Tables 2a and 2b contain descriptive statistics for variables found to have a statistically significant relationship with time to re-offend.

Table 2a. Descriptive statistics for bivariate predictors of time to re-offend at p<0.25 (continuous variables)

Continuous Variables	**N**	**Mean**	**Standard Deviation**
Illicit drug use in the 12 months prior to the interview	393	8.5	5.3
How long (years) have you been in that situation (i.e. living with the same people respondent is living with now)	214[8]	16.3	1.8

Table 2b: Descriptive statistics for bi-variate predictors of time to re-offend (discrete variables)

Discrete Variables	**N**	**%**
Whether on custodial or non-custodial order at time of interview		
Custodial	152	38.5
Non-custodial	243	61.5

Age at first conviction (in years)		
10-13	79	20.0
14-15	170	43.0
16 and over	146	37.0
Age group (at index court appearance)		
13-16	209	51.9
17	117	29.6
18 +	73	18.5
Number of prior court appearances		
0	126	31.9
1 or more	269	68.10
Number of prior proven offences		
0	164	41.5
1 or more	231	58.5
Number of prior supervised orders		
0	235	59.5
1 or more	160	40.5
Number of prior custodial episodes		
0	335	84.8
1 or more	60	15.2
Number of concurrent offences		
1	138	35.0
2 or more	257	65.0
Offence type (using ASOC descriptions)		
Violent	171	43.3
Property	136	34.4
Other	88	22.3
Sex		
Female	69	17.5
Male	326	82.5
ATSI Status		
ATSI	95	24.1
Non-ATSI	299	75.9
Missing value	1	
Whether living with single parent		
Yes	164	59.2
No	113	40.8
Missing values	118	
Do parents know where young person is when young person is away from home?		
Never	96	24.9
Sometimes/often/always	290	75.1
Missing values	9	

What would parent do if caught young person taking cannabis?		
Nothing	88	22.7
Discuss/scold/punish	299	77.3
Missing values	8	
Do parents chop and change the rules?		
Never	255	66.2
Sometimes/often/always	130	33.8
Missing values	10	
Do parents know what the young person thinks and feels?		
Never	110	28.6
Sometimes/often/always	275	71.4
Missing values	10	
How often does young person hang out with friends who have been in trouble with the police?		
Never	66	16.8
Sometimes/often/always	328	83.2
Missing values	1	
How many of young person's friends have shoplifted or stolen?		
None	95	24.1
One or more	299	75.9
Missing	1	
How many of young person's friends have used illegal drugs?		
None	103	26.2
One or more	290	73.8
Missing	2	
How many of young person's friends have been in trouble with the police?		
None	31	7.9
One or more	363	92.1
Missing	1	

How often have you been/were you suspended at school?		
Never	63	16.0
Sometimes/often/always	330	84.0
Missing values	2	
How often have you wagged/did you wag at school?		
Never	87	22.1
Sometimes/often/always	306	77.9
Missing value	2	
Alcohol consumption at last sitting		
2-5 drinks over the maximum standard recommended amount per day (the maximum standard per day is 6 for men, 4 for women)	108	45.8
6 or more drinks over the maximum standard recommended	128	54.2

amount per day (the maximum standard per day is 6 for men, 4 for women)		
Missing values	159	
Frequency of alcohol consumption over the maximum standard amount per day in the 12 months prior to the interview		
At least 1 day/week	157	39.9
2-3 days/month or less	237	60.1
Missing values	1	
Young person's perception of their likelihood of being caught by the police if they commit crime in the future		
Very unlikely/unlikely	165	41.8
Very likely/Likely	230	58.2

Table 3 shows the results of two models. Model A gives the unadjusted effect of penalty type on time to reoffend – see also Figure A. Model B gives the adjusted effect of penalty type on time to reoffend (that is, the effect obtained after controlling for other factors) – see also Figure B.

Table 3: Effect of custody on time to re-offend (unadjusted and adjusted estimates)

Model	Variables	B	SE	p-value	HR	95% HR CI	
A (unadjusted)	Custody v non-custody	0.55	0.15	0.00	1.74	1.29	2.33
B (adjusted)	1 or more prior court appearance v none	0.61	0.16	0.000	1.85	1.35	2.52
	Custody v non-custody	0.29	0.16	0.08	1.33	0.97	1.84

There are three points to note about Table 3. The first is that the unadjusted effect of custody on recidivism (model 1) is significant and positive (i.e. is associated with an increased risk of recidivism). The second is that, once controls are introduced for number of prior court appearances the relationship between penalty type and time to re-offend ceases to be statistically significant at $p<0.05$. This point can be seen graphically in Figure B, which shows the survival curves for the custody and non-custody groups after controlling for number of prior court appearances.

Figure A: Proportion not reconvicted by free time since index court appearance (Model A)

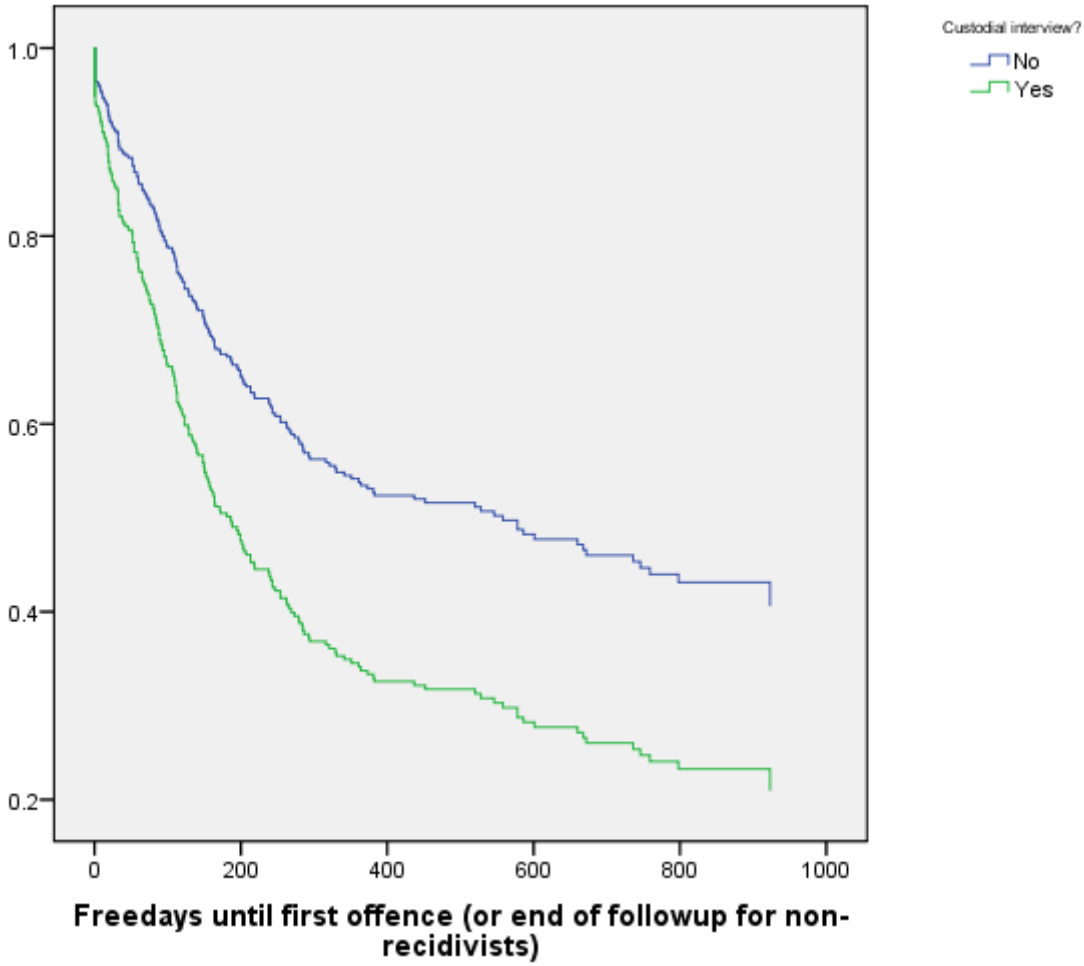
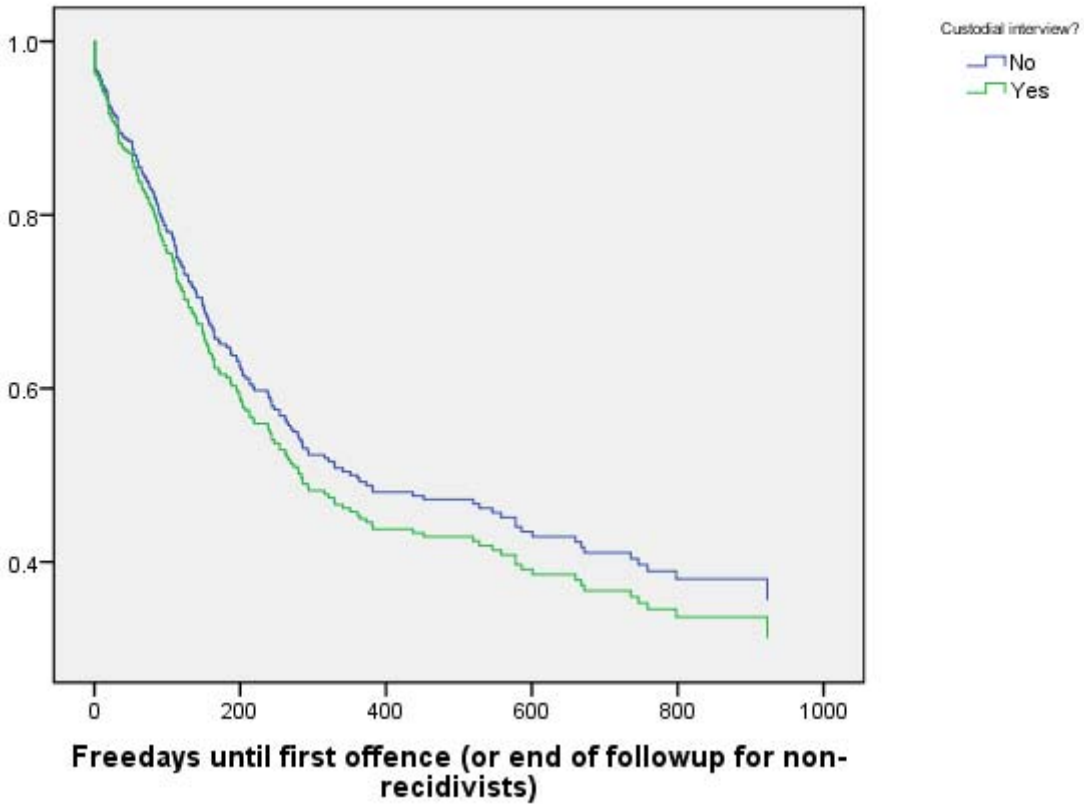


Figure B: Proportion not reconvicted by free time since index court appearance (Model B)



Discussion

Only two previous Australian studies have examined the specific deterrent effect of custodial sanctions on an Australian sample of juvenile offenders. The present study uses more sophisticated methods than the first (Kraus 1978) and a wider range of controls than the second (Cain 1996). Both of these earlier studies found evidence that the imposition of a custodial sentence on juvenile offenders was criminogenic. As with most overseas studies, the present study finds that, when controls are introduced for other factors likely to affect recidivism, no association is found between the imposition of a custodial penalty and post-sentence reoffending (in this study measured as time to reoffend).

As the present study is not a randomized controlled trial, the question naturally arises as to whether the lack of association between penalty type and recidivism is a consequence of selection bias. This is a difficult question to answer because, as noted earlier, there is no consensus on what controls need to be included in studies on specific deterrence. All that can be said is that every effort was made to control for extraneous factors that might have obscured the true effect of custody on juvenile recidivism. All the main factors identified by Nagin (2009) as essential controls were examined for possible inclusion in the analysis. We also explored the influence of a large number of personal, family and social factors.

Although our study cannot be regarded as definitive, the general lack of evidence that custodial penalties have a specific deterrent effect suggests that policy makers and judicial officers would be unwise to rely on specific deterrence as a justification for imposing custodial penalties on juvenile offenders. It is also worth bearing in mind that the present study only examined the short-term effects of custody on recidivism. The long-term effects of custodial penalties might be quite different to their short-term effects. Fagan and Freeman (1999), for example, using data from a national panel study of 5,332 randomly selected youths, found that incarceration produced a significant negative effect on future employment prospects, even after adjusting for the simultaneous effects of race, human capital and intelligence.

There have been no studies of the effect of juvenile detention on juvenile employment prospects in Australia but Hunter and Borland (1999) examined the effect of an arrest record on Indigenous employment prospects using data from the 1994 National Aboriginal and Torres Strait Islander Survey. Controlling for age, years completed at high school, post-school qualifications, whether the respondent had difficulty speaking English, alcohol consumption and whether the respondent was a member of the 'stolen generation', they found that an arrest record reduced Indigenous employment for males and females by 18.3 and 13.1 percentage points, respectively. On this basis Hunter and Borland estimated that differences in arrest rates for Indigenous and non-Indigenous Australians might explain about 15 per cent of the difference in levels of employment between these two groups.

These findings and the absence of strong evidence that custodial penalties act as a specific deterrent for juvenile offending suggest that custodial penalties ought to be used very sparingly with juvenile offenders. Fortunately, a range of non-custodial programs now exist which, in the United States at least, have been shown to be very effective in reducing juvenile recidivism. In the United States, they have been found

to be considerably less expensive than a custodial sentence (Aos, Miller & Drake 2006). Western Australia and New South Wales are currently trialing an intensive supervision program (ISP) known in the United States as multi-systemic therapy (MST). The NSW Bureau of Crime Statistics and Research is currently evaluating ISP. It will be very interesting to see whether it proves as effective here as it has been in the United States (MacKenzie 2002).

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[1] Personal communication, Mr Eric Heller, Manager, Research & Information Development, Research, Planning & Evaluation, NSW Department of Juvenile Justice.

[2] For the purposes of this bulletin, the word "conviction" when used in relation to NSW sentencing encompasses all proven offences, including dismissals under s.10(1) and s.10(2)(a) of *Crimes (Sentencing Procedure) Act* 1999 and all penalties mentioned under s.33 of the *Children (Criminal Proceedings) Act* 1987.

[3] A conviction episode for our purposes is a court appearance where the defendant is convicted of at least one offence.

[4] Probably because variables like the length of an individual's prior criminal record are good proxies for many 'hard-to-measure' factors.

[5] A small minority of interview participants had apparent learning disabilities. If they did not understand the question, then individual words in the question were interpreted for them and/or the entire question was explained to them. The question was then repeated without any change to the wording.

[6] Some questions provoked certain young people to discuss issues sensitive to them. This was particularly true of girls in custody. The researcher allowed the discussion to go on for as long as the young person needed it to last. At the first sign that the interaction was becoming therapeutic in nature or that disclosures of assault were being made, protocol dictated that the researcher abort the interview and with the permission of the young person, invite a Youth Officer into the discussion. There were no instances where this protocol needed to be invoked.

[7] In ROD, prior criminal history in the form of prior Children's Court sentences was obtained from the NSW Department of Juvenile Justice Children's Court Information System until January 2006. For further information about ROD, see Hua & Fitzgerald (2006)

[8] This item is restricted to people who have had no other address