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Measuring recidivism: Police versus court data

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Aim: *To compare estimates of re-offending obtained from two sources, police data on persons of interest proceeded against and court finalisation data.*

Method: *Offenders who were convicted in a NSW Local or Higher Court in 2009 and received a non-custodial penalty were identified. For these offenders, rates of re-offending at 12 and 24 months were estimated using police and court data. Differences between the estimates obtained from these data sources, and the effect of offender and offence characteristics on these estimates, were investigated. In addition, the time taken for a re-offence to be proceeded against by police or finalised in court was examined and the impact of allowing shorter versus longer periods of time for re-offences to be captured in the data sources was explored.*

Results: *As at 30 June 2011, the proportion of offenders estimated to have re-offended within 12 months was 20.1 per cent using proven offences in court, 21.7 per cent using court finalisations (regardless of outcome), 21.9 per cent using police data where persons of interest were proceeded against to court, and 23.1 per cent where persons of interest were proceeded against more generally (i.e., to court, criminal infringement notice, cannabis caution). Most, but not all, offenders (94%) identified as having re-offended using court data were identified as having re-offended using police data. Estimates of re-offending by offender and offence characteristics were similar across data sources. The median time between a re-offence occurring and police commencing court proceedings against the person of interest was 1 day, while the median time between a re-offence occurring and being finalised in court as a proven re-offence was 86 days.*

Conclusion: *Data on persons of interest proceeded against by police may provide a more timely measure of re-offending than court finalisations data, potentially enabling program evaluations to be conducted 6 months earlier than current practice.*

Keywords: *offenders, recidivism, re-offending*

INTRODUCTION

With increasing emphasis on evidence-based policy and practice comes pressure to produce timely evidence. A core function of the NSW Bureau of Crime Statistics and Research (BOCSAR) is to undertake and provide advice on evaluations of programs and initiatives operating within the criminal justice system in NSW. While re-offending is not the only outcome of interest or importance, it is an outcome commonly used to evaluate a program's effectiveness. Re-offending can be measured using self-report data or data collected by the police, court or corrective services; each data source has its strengths and weaknesses. In using administrative data to measure re-offending it is assumed that the offending behaviour identified and recorded against individuals is indicative of the underlying frequency, severity or seriousness of actual offending (Payne, 2007). However, it is a widely accepted principle in recidivism research that the further into the criminal justice process that re-offending is measured: the greater the probability that re-offending will be underestimated and the greater the probability that an offender will be erroneously labelled as a non-recidivist (Payne, 2007).

Typically, particularly in relation to adult offenders, BOCSAR measures re-offending using offences proven in court.[1] Thus, only those offenders who commit offences which come to the attention of police, who are apprehended and proceeded against to court by police, and found guilty of an offence in court, will be identified as recidivists. In most cases, even when the alleged offender is promptly charged, it will take many months from the date of the alleged offence for a matter to be finalised in court. The time it takes for a matter to be processed in court is likely to be influenced by a range of factors, including offence type and seriousness, locality, the jurisdiction in which the matter is dealt with (i.e., Local, District or Supreme Court) and how the defendant pleads in the matter (i.e., whether a defended hearing, whether the charges are proceeded against to trial or

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to sentence, and so on). Thus, the time lag between an offence occurring and court finalisation has implications for the evaluation of programs and penalties in the criminal justice system.

When evaluating an intervention to reduce re-offending, using court finalisations data, allowance must be made for the time taken for a matter to be finalised in court and for these court data to be processed. For example, among a cohort of offenders appearing in court over a 12-month period, data on re-offending within 12 months will not be complete and available until at least 2 years and 6 months after the first offender enters the cohort. This allows everyone in the cohort 12 months to re-offend plus a minimum of 6 months for those matters to be finalised in court and the data processed. An earlier measure of 12-month re-offending may be an under-estimate if offences, particularly more serious offences, have not yet been processed in court. Similarly, re-offending within 24 months could only be measured 3 years and 6 months from the time the first offender entered the cohort. For example, when the Group Risk Assessment Model (GRAM) was developed to monitor trends in recidivism in NSW, re-offending within a 24-month period was examined using offences that occurred within 24 months but which were finalised within 30 months (Smith & Jones, 2008).

The approach taken by BOCSAR in relation to GRAM and other studies of re-offending is consistent with the approach adopted by the UK Home Office on the same issue. It guards against any changes in reconviction rates brought about by change in the speed of securing convictions (Cunliffe & Shepherd, 2007). The long lag required before programs designed to reduce re-offending can be evaluated, however, poses difficulties for policy makers and program managers, who generally want to know whether their policies and programs are working within a year or two from commencement.

Data on persons of interest (POIs)[2] proceeded against by police may offer an alternative to using court data to measure re-offending in NSW. Matters will appear in police data much earlier than in court finalisation data. Police data may therefore provide a much timelier basis on which to make judgements about trends in re-offending or the effect of interventions designed to reduce it. Police data may also provide a more complete measure of re-offending. Data on POIs proceeded against not only includes cases where alleged offenders are proceeded against to court (e.g., are charged with a criminal offence). It also includes cases where an offender is proceeded against in other ways, such as via a criminal infringement notice (CIN; an on-the-spot fine) or a cannabis caution.[3] Thus, in using information on POIs proceeded against by police, a broader, more inclusive measure of re-offending may be obtained.

However, measuring re-offending using data on POIs proceeded against by police is not without its risks. While this data source will not include suspected offenders where no formal action was taken, a proportion of those proceeded against by police will ultimately be found not guilty in court. Further, the frequency with which police issue CINs or cannabis cautions may be more a reflection of policing policy than actual offending. To be confident in the use of police data as a measure of re-offending, we need to know what proportion of persons proceeded against by police are ultimately found to have committed an offence. We also need to know whether measures of re-offending based on police data confirm what we already know about the way in which various factors (e.g., gender, age, Indigenous status and prior record) influence rates of re-offending.

THE CURRENT STUDY

The aim of the study is three-fold. We wish to determine:

1. to what extent offenders classified as having re-offended using court data, would have been classified as having re-offended using police data (and vice versa);
2. whether factors known to influence re-offending when measured using court data have the same effect when using police data;
3. how much time would be saved in a study of re-offending if police data were used to measure re-offending rather than court data.

To address these questions we first selected all finalised court appearances which resulted in conviction and a non-custodial penalty in a NSW Local or Higher Court in 2009, allowing re-offending outcomes at 12 and 24 months to be examined. To answer question (1) we compared the proportion of offenders who re-offended based on police and court data at 12 and 24 months following an index appearance (that is, a finalised court appearance with conviction in 2009), and examined whether offenders were classified as having re-offended according to the different data sources. To answer question (2) we examined the effect of offender and offence characteristics on re-offending estimates based on police and court data sources. To answer question (3) we compared the time taken for a re-offence to be finalised in court with that for a POI to be proceeded against by police, and examined estimates of 12- and 24-month re-offending at different points in time, allowing shorter versus longer lag times for re-offences to be captured in the data.

METHOD

DATA SOURCES

Data relating to POIs proceeded against by police were extracted from the NSW Police Force's Computerised Operational Policing System (COPS). These data are routinely provided to BOSCAR by the NSW Police Force. Data of interest included the date and type of the offence and the date and mode by which a POI was proceeded against (e.g., referral to court, CIN, cannabis caution), as well as a range of person identifiers (e.g., name, sex, date of birth, central name index). POIs not proceeded against (e.g., a POI may have been questioned, but no subsequent action taken) were not included in this study. Using person

identifiers, police data on POIs proceeded against were incorporated into the NSW Re-offending Database (ROD), maintained by BOCSAR.[4]

SAMPLE

The sample consisted of all offenders aged 18 years and over who were convicted and received a non-custodial penalty (i.e., not imprisonment) in a Local or Higher Court in NSW in 2009.[5] Offenders may have had multiple finalised court appearances of interest (i.e., multiple finalised court appearances in 2009 which resulted in a conviction and a non-custodial penalty) – all relevant records per person were included as 'index' appearances.[6] The date of such a finalised court appearance is referred to as the 'index date'.

RE-OFFENDING MEASURES

Re-offending within 12 and 24 months

The following binary outcomes were identified using court and police data sources.

1. Court: whether an offender had a court finalisation relating to a proven offence that occurred within 12 or 24 months after the index date;
2. Court: whether an offender had a court finalisation relating to an offence (whether or not the offence was proven) alleged to have occurred within 12 or 24 months after the index date;
3. Police: whether an offender was a POI proceeded against to court for an offence alleged to have occurred within 12 or 24 months after the index date;
4. Police: whether an offender was a POI proceeded against by police either to court or by any other method (e.g., CIN or cannabis caution) for an offence alleged to have occurred within 12 or 24 months after the index date.

Offences which occurred prior to the index date but which were proceeded against or finalised after the index date were excluded from the binary outcomes listed. Further, breaches of custodial, community-based and violence orders were not included as re-offences. However, any new offences connected to a breach were included.

Time from first re-offence to police proceedings or court finalisation

The time from a re-offence to police proceedings or court finalisation was calculated as the number of days from the date of the first recorded criminal incident/offence (following the index finalisation) to the date police commenced proceedings against the POI or the matter was finalised in court.

Time from index appearance to first re-offence

The time to first re-offence was calculated as the number of months from the index finalisation to the incident/offence date of the first re-offence.

OFFENDER AND OFFENCE CHARACTERISTICS

In addition to the re-offending measures, data relating to offender and offence characteristics were extracted.[7] These data included the offender's age at index conviction, sex and Indigenous status, the number of concurrent offences at the index conviction, and the number of court appearances with proven offences and whether the offender had been given a custodial penalty in the 5 years prior to the index appearance.

STATISTICAL ANALYSIS

Police- and court-based estimates of re-offending

The overall proportions of offenders identified as having re-offended within 12 and 24 months (of an index appearance) using finalised court appearances (both proven offences, and all offences) and police data on POIs proceeded against to court and proceeded against more generally (e.g., to court, or by CIN or cannabis caution) were calculated and compared.

Comparisons were undertaken using data on court finalisations and POIs proceeded against as at 30 June 2011 for re-offending outcomes within 12 months and 30 June 2012 for outcomes within 24 months. These cut-off dates were chosen to be consistent with BOCSAR's current practice in relation to evaluations involving re-offending data which generally allows a minimum of 6 months for re-offences during the period of interest to be finalised in court.

Concordance between police- and court-based measures of re-offending at the individual level

At the individual/offender level the concordance of the data sources was examined by comparing whether offenders were identified as having re-offended within 12 months and 24 months in police and court data sources. The agreement of the data sources in classifying re-offenders was described in terms of the sensitivity (i.e., true positive fraction) and the positive predictive value (i.e., precision rate). These terms are further described in the results section of this report.

Predictors of police- and court-based measures of re-offending

In order to determine whether factors known to influence re-offending when measured using court data have the same effect when using police data, the proportions of offenders identified as having re-offended within 12 months as at 30 June 2011 were compared in terms of offender and offence characteristics. The effects of these characteristics on re-offending were described in terms of odds ratios, obtained from a logistic regression model including all described offender and offence characteristics.

The effect of lag time on re-offending estimates

Time from re-offence to police proceedings or court finalisation

The time taken for first re-offences, within 12 months of the index finalisation, to be proceeded against by police and finalised

in court were compared in terms of the 50th, 75th and 90th percentiles. The proportion of re-offences proceeded against by police or finalised in court within 90 days and 180 days were also compared. Data relating to POIs proceeded against and court finalisations as at 31 December 2012 were chosen for these analyses so as to make use of the most recent data available at the time of the study and to obtain reliable estimates of the time taken for re-offences to be finalised in court or for POIs to be proceeded against by police.

The effect of lag time on estimates of re-offending rates

The proportions of offenders who re-offended within 12 and 24 months after the index appearance are compared at various dates corresponding to the date proceeded against by police or finalised in court. For example, estimates of the proportion of offenders who re-offended within 12 months of the index date were obtained using data as at 31 December 2010 (allowing 12 months from the latest date an offender may have entered the cohort), as well as 30 June 2011 (allowing a minimum of 6 months for the re-offence to be finalised in court or proceeded against by police). Estimates were also calculated using data as at 31 December 2012 (the most current data available at the time of the analyses).

This series of comparisons shows the effect of differing lag times (i.e., the time allowed for re-offences to be proceeded against or finalised in court) on estimates of re-offending, with emphasis on whether police data could be used to obtain more timely estimates of re-offending.

The effect of lag time on analyses of time to first re-offence

An alternative to examining re-offending as a dichotomous outcome at discrete time points (e.g., 12 months, 24 months) is to examine the time to a re-offence. For example, the time (in days or months) from an offender's index finalisation to the date of their first re-offence. In this study, Kaplan-Meier methods were used to examine the time from index finalisation to first re-offence, by data source and at different dates (i.e., allowing for varying lag times), corresponding to the date a re-offence was proceeded against by police or finalised in court. These methods (along with 'survival analysis' methods more generally) account for individuals for whom the event of interest (i.e., a re-offence) has not occurred, and for varying lengths of follow-up (i.e., it is not necessary for someone to have been observed for 12 months or 24 months, for example). Thus, estimates obtained using data as at 30 June 2010 (i.e., an earlier time point than would usually be possible if looking at 12-month re-offending) were also included in these analyses.

Kaplan-Meier plots were examined, along with 12- and 24-month estimates of re-offending obtained from these plots, and estimates of the number of months at which 25 per cent of offenders had re-offended.

Concordance between police- and court-based measures of re-offending at the individual level at different time points

In line with the examination of concordance between data sources at the same time point, concordance between data sources at different time points was examined. More specifically, re-offending within 12 months identified using court and police data as at 31 December 2010 (the end of the period of interest) was compared with re-offending within 12 months identified using court data as at 30 June 2011 (as per current practice).

RESULTS

In 2009, there were 104,931 finalised court appearances relating to persons aged 18 years and over who were convicted in a Local or Higher Court in NSW and given a non-custodial penalty (as a principal penalty).[8]

Police- and court-based estimates of re-offending

The proportion of offenders identified as having re-offended within 12 months and 24 months are presented in Table 1.[9]

Estimates of re-offending within 12 months based on POIs proceeded against by police to court and court finalisations were similar; regardless of whether an offence was proven (21.9% and 21.7% respectively). Using proven offences finalised in court, 20.1 per cent of offenders were estimated to have re-offended within 12 months. By contrast, the estimate of re-offending within 12 months based on POIs proceeded against by police by way of court, CIN or cannabis cautioning was 23.1 per cent; 3 percentage points higher. By including POIs proceeded against by CINs and cannabis cautions in the measure of re-offending,

Table 1. Re-offending within 12 months, as at 30 June 2011 and re-offending within 24 months, as at 30 June 2012, by data sources (N=104,931)

		Re-offence within 12 months		Re-offence within 24 months	
Data source		**n**	**per cent**	**n**	**per cent**
Court appearance	Proven offence	21,057	20.1	31,359	29.9
	All	22,786	21.7	33,461	31.9
Police proceedings	To court	22,939	21.9	32,788	31.3
	All	24,215	23.1	34,576	33.0

an additional 1,200 offenders were identified as having re-offended within 12 months of an index appearance.

A similar pattern of differences between data sources was seen in relation to estimates of re-offending within 24 months. Similar estimates were obtained for POIs proceeded against by police to court (31.3%) and court finalisations (31.9%). Using proven offences finalised in court, 29.9 per cent of offenders were estimated to have re-offended within 24 months, whereas the estimates based on POIs proceeded against by police (whether by way of court, CIN or cannabis cautioning) was 33.0 per cent; approximately 3 percentage points higher. Using a measure of re-offending that included CINs and cannabis cautions (as well as those proceeded against to court), close to 1,800 additional offenders were identified as having re-offended within 24 months.

Concordance between police- and court-based measures of re-offending at the individual level

While 12- and 24-month estimates of re-offending using court and police data were shown to be similar, it is possible that the same individuals were not identified as having re-offended using the different data sources. The purpose of this section is to compare the agreement of the data sources in identifying individuals who re-offend.

As shown in Table 2, in relation to measures of re-offending within 12 months as at 30 June 2011, the sensitivity of police data sources against court measures was 94 per cent, regardless of the police and court measures being compared. This means that 94 per cent of those identified as having proven re-offences in court, or a finalised court appearance relating to offences alleged to have occurred within 12 months of the index appearance, were identified as POIs proceeded against by police (to court, or more generally). Thus, most, but not all, of those identified as having a proven re-offence in court, were identified as POIs proceeded against to court for a re-offence. Conversely, depending on the comparison, between 82 per cent and 94 per cent of those identified as POIs proceeded against by police were identified as having re-offended using court measures (positive predictive value). For example, of those identified as POIs proceeded against by police generally, 82 per cent were identified as having proven re-offences in court; of those identified as POIs proceeded against by police to court, 94 per cent were identified as having finalised court appearances relating to offences alleged to have occurred within 12 months of the index appearance.

Also presented in Table 2 are comparisons of measures of re-offending within 24 months as at 30 June 2012. The sensitivity of re-offending measures from police data against court measures, using this longer follow-up period, was also around 94 per cent. Further, depending on the comparison, between 86 per cent and 96 per cent of those identified as POIs proceeded against by police were identified as having re-offended using court measures (positive predictive value).

Table 2. Concordance between data sources: Re-offending within 12 months as at 30 June 2011, and re-offending within 24 months as at 30 June 2012

Re-offending within 12 months			As at 30 June, 2011			
			Court, proven		Court, all	
			Yes	No	Yes	No
As at 30 June 2011	Police, to court	Yes	19,868	3,071	21,455	1,484
		No	1,189	80,803	1,331	80,661
			sensitivity: 94.4%; ppv: 86.6%		*sensitivity: 94.2%; ppv: 93.5%*	
	Police, all	Yes	19,876	4,339	21,467	2,748
		No	1,181	79,535	1,319	79,397
			sensitivity: 94.4%; ppv: 82.1%		*sensitivity: 94.2%; ppv: 88.7%*	
Re-offending within 24 months			**As at 30 June, 2012**			
			Court, proven		Court, all	
			Yes	No	Yes	No
As at 30 June 2012	Police, to court	Yes	29,633	3,155	31,562	1,226
		No	1,726	70,417	1,899	70,244
			sensitivity: 94.5%; ppv: 90.4%		*sensitivity: 94.3%; ppv: 96.3%*	
	Police, all	Yes	29,647	4,929	31,580	2,996
		No	1,712	68,643	1,881	68,474
			sensitivity: 94.5%; ppv: 85.7%		*sensitivity: 94.4%; ppv: 91.3%*	

Note. ppv=positive predictive value

Table 3. Re-offending within 12 months, by offender and offence characteristics and data source, as at 30 June 2011

		Per cent re-offending within 12 months				Odds ratio (95% confidence interval)			
		Court		Police		Court		Police	
	n	Proven	All	Court	All	Proven	All	Court	All
Total	*104,931*	*20.1*	*21.7*	*21.9*	*23.1*				
Sex									
Female	21,825	17.0	18.2	18.2	19.2	1.00	1.00	1.00	1.00
Male	83,033	20.9	22.7	22.9	24.1	1.11 (1.07, 1.16)	1.14 (1.09, 1.19)	1.15 (1.11, 1.20)	1.16 (1.11, 1.21)
Unknown	73	0.0	0.0	0.0	0.0				
Age group (years)									
18-24	31,152	24.7	26.2	27.0	29.2	1.00	1.00	1.00	1.00
25-34	31,273	21.7	23.5	23.6	24.6	0.78 (0.75, 0.81)	0.79 (0.76, 0.83)	0.77 (0.74, 0.80)	0.72 (0.70, 0.75)
35-44	23,475	19.1	21.1	20.7	21.5	0.69 (0.66, 0.72)	0.72 (0.69, 0.75)	0.68 (0.65, 0.71)	0.63 (0.60, 0.66)
45-54	12,627	12.8	14.1	13.9	14.5	0.53 (0.50, 0.56)	0.55 (0.52, 0.58)	0.52 (0.49, 0.55)	0.48 (0.45, 0.51)
55+	6,404	7.4	8.2	8.2	8.5	0.39 (0.35, 0.43)	0.41 (0.37, 0.45)	0.39 (0.35, 0.42)	0.36 (0.32, 0.39)
Indigenous status									
Non-indigenous	78,375	20.0	21.6	22.0	23.2	1.00	1.00	1.00	1.00
Indigenous	12,897	38.4	41.9	41.3	43.2	1.62 (1.55, 1.69)	1.70 (1.63, 1.77)	1.63 (1.56, 1.70)	1.66 (1.59, 1.73)
Unknown	13,659	3.2	3.3	3.0	3.6	0.23 (0.21, 0.26)	0.22 (0.20, 0.24)	0.19 (0.17, 0.21)	0.21 (0.19, 0.23)
Number of proven offences at index									
1	72,947	17.9	19.4	19.5	20.6	1.00	1.00	1.00	1.00
2	18,767	23.6	25.4	25.4	26.8	1.17 (1.12, 1.21)	1.16 (1.11, 1.21)	1.15 (1.11, 1.20)	1.16 (1.11, 1.21)
3+	13,217	26.8	29.2	29.9	31.2	1.19 (1.13, 1.24)	1.21 (1.15, 1.26)	1.25 (1.19, 1.30)	1.24 (1.18, 1.29)
Number of court appearances with proven offences in 5 years prior to index									
0	53,669	10.5	11.4	11.5	12.5	1.00	1.00	1.00	1.00
1	21,772	20.8	22.6	22.7	24.1	1.74 (1.67, 1.82)	1.75 (1.67, 1.82)	1.73 (1.65, 1.80)	1.71 (1.64, 1.79)
2	11,631	28.5	30.9	31.4	33.0	2.37 (2.25, 2.49)	2.38 (2.27, 2.51)	2.40 (2.29, 2.52)	2.38 (2.27, 2.50)
3	6,959	34.1	36.9	37.4	38.9	2.82 (2.66, 2.99)	2.85 (2.69, 3.03)	2.88 (2.71, 3.05)	2.82 (2.67, 2.99)
4+	10,900	47.9	51.4	50.9	52.5	4.27 (4.04, 4.51)	4.36 (4.13, 4.61)	4.26 (4.03, 4.50)	4.20 (3.98, 4.43)
Penalty of imprisonment in 5 years prior to index									
No	96,752	17.8	19.3	19.5	20.7	1.00	1.00	1.00	1.00
Yes	8,179	46.9	50.7	49.8	50.9	1.48 (1.40, 1.57)	1.52 (1.44, 1.61)	1.47 (1.39, 1.55)	1.43 (1.36, 1.52)

Note. Odds ratios show the independent effect of factors, after adjusting for all other factors included in the model.

Offender and offence characteristics and re-offending

Presented in Table 3 are the proportions of offenders who re-offended within 12 months, by offender and offence characteristics at the index appearance. Proportions were similar across data sources, and mostly consistent. Overall and for males there was a 3 percentage point difference in re-offending estimates. For females there was a difference of around 2 percentage points in the estimates, both for proven offences in court and for POIs proceeded against generally (17.0% vs 19.2% respectively). Odds ratios were also generally of similar magnitude, with overlapping confidence intervals. However, the difference in the proportion of those aged 18 to 24 years of age who were identified as having re-offended using data on POIs proceeded against versus proven offences in court, was greater than the differences in proportions seen in other age groups.

The effect of lag time on estimates of re-offending

Time from re-offence to police proceedings or court finalisation

Descriptive statistics relating to the time between a re-offence occurring and the date the matter was finalised in court or police commenced proceedings against the POI are presented in Table 4. Data in the table correspond to re-offences within 12 months of the index finalisation date (i.e., that may have occurred up until 31 December 2010, depending on the date of the index appearance) that were finalised in court or proceeded against by police by 31 December 2012.

As shown in Table 4, for re-offences proven in court, the average time from re-offence to court finalisation was 136 days, with 52 per cent finalised in court within 90 days (3 months) and 76 per cent finalised within 180 days (6 months) of the re-offence occurring. The average time from re-offence to police commencing court proceedings against a POI was 18 days, with 94 per cent of POIs being proceeded against within 90 days and 98 per cent within 180 days. When CIN and cannabis cautioning offences were included in the definition of re-offending, there was a further, albeit small, reduction in the average number of days between re-offence and the date the POI was proceeded against by police.

The data presented in Table 4 indicate that the time from re-offence to police proceeding against a POI was considerably shorter than the time from re-offence to court finalisation.

The effect of lag time on estimates of re-offending

Typically BOCSAR would allow 6 months after the end of the period of interest in order to capture all offences that occur within 12 months of the index appearance (as a dichotomous outcome). This means that for a cohort of offenders with index court finalisations in 2009, court data up until 30 June 2011 (i.e., 6 months after the last re-offending cut-off date) would be required. Presented in Table 5 are estimates of the proportion of offenders with a re-offence within 12 months from the index appearance at 31 December 2010 (i.e., at the end of the period of interest), 30 June 2011 (i.e., 6 months after the end of the period of interest) and 31 December 2012 (i.e., using all data

Table 4. Time from date of re-offence (within 12 months after index finalisation) to date of court finalisation or date POI was proceeded against by police, as at 31 December 2012

			Time (days)				Per cent	
Data source		n	mean	median	75th percentile	90th percentile	<=90 days	<=180 days
Court	Proven offence	21,600	136	86	174	306	51.9	76.0
	All	23,409	144	94	187	322	48.8	73.8
Police proceedings	To court	22,971	18	1	5	41	94.0	97.7
	All	24,247	17	1	5	37	94.4	97.9

Table 5. Estimates of re-offending within 12 months of index finalisation over time, by data source (N=104,931)

		Re-offence within 12 months					
		As at 31 December 2010		As at 30 June 2011		As at 31 December 2012	
Data source		n	%	n	%	n	%
Court	Proven offence	19,952	19.0	21,057	20.1	21,600	20.6
	Any offence	21,551	20.5	22,786	21.7	23,409	22.3
Police proceedings	To court	22,811	21.7	22,939	21.9	22,971	21.9
	All	24,090	23.0	24,215	23.1	24,247	23.1

Table 6. Estimates of re-offending within 24 months of index finalisation over time, by data source (N=104,931)

		Re-offence within 24 months					
		As at 31 December 2011		As at 30 June 2012		As at 31 December 2012	
Data source		n	%	n	%	n	per cent
Court	Proven offence	30,649	29.2	31,359	29.9	31,563	30.1
	All	32,698	31.2	33,461	31.9	33,674	32.1
Police proceedings	To court	32,732	31.2	32,788	31.3	32,801	31.3
	All	34,522	32.9	34,576	33.0	34,587	33.0

available at the time of the analyses). These dates have been selected to provide an example of how the time taken for a re-offence to be finalised in court or for a POI to be proceeded against by police may affect estimates of re-offending.

As shown in Table 5, estimates of 12-month re-offending obtained using court data increased if more time was allowed for the offences to be finalised. Using proven offences, the 12-month estimate of re-offending increased from 19.0 per cent as at 31 December 2010 to 20.6 per cent as at 31 December 2012. While there were small differences over time in estimates based on court data, estimates obtained from police data were almost equivalent, regardless of the cut-off date used to measure re-offending. For example, using POIs proceeded against to court, 21.7 per cent had re-offended as at 31 December 2010 and 21.9 per cent had re-offended as at 31 December 2012.

Estimates of re-offending within 24 months are presented in Table 6, as at 31 December 2011, 30 June 2012 and 31 December 2012. Differences over time were smaller than for the 12-month estimates. Using proven offences, estimates increased from 29.2 per cent as at 31 December 2011 to 30.1 per cent. Estimates based on POIs proceeded against by police were consistent over time.

Time to first re-offence allowing for different lag times

As mentioned previously, an alternative to examining re-offending as a dichotomous outcome at discrete time points (e.g., 12 months, 24 months) is to examine the time to a re-offence. With the use of 'survival analysis' methods, varying lengths of follow-up can be taken into account and, for example, an estimate

Figure 1. Cumulative proportion who re-offended as a function of time from the index court appearance, where re-offences are based on proven offences in court and different cut-offs are applied to the date of finalisation of the re-offence

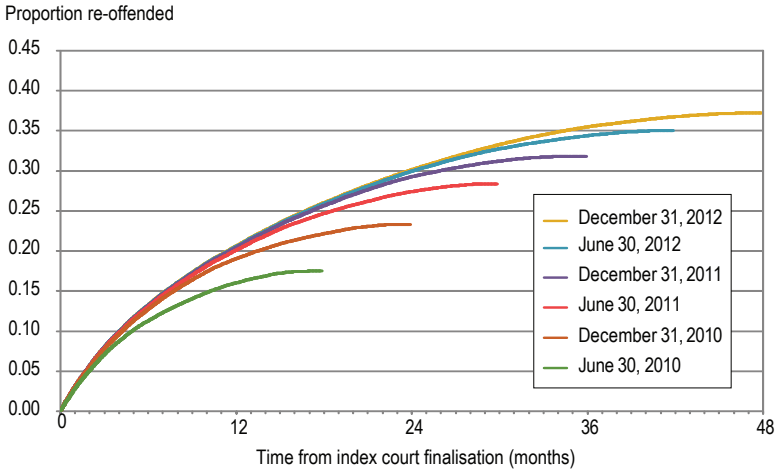
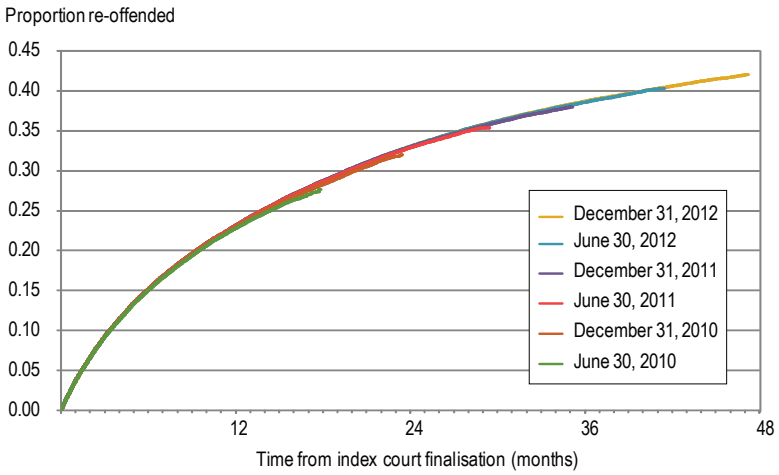


Figure 2. Cumulative proportion who re-offended as a function of time from the index court appearance, where re-offences are based on POIs proceeded against by police and different cut-offs are applied to the date police commenced proceedings



of the 12-month re-offending rate can be obtained prior to all offenders having 12 months of follow-up time available.

Figure 1 shows the cumulative proportion of offenders who re-offended as a function of time from the index court appearance, using proven offences in court to measure re-offending. The separate curves show how this relationship varies when different cut-offs are applied to the date of finalisation. For example, the curve corresponding to 'June 30, 2010' shows the cumulative proportion who had re-offended over time, using data finalised up until 30 June 2010. Using data as at 30 June 2010, at 12 months from the index finalisation, 16 per cent of offenders were estimated to have re-offended; based on data finalised by 31 December 2012, this estimate was closer to 21 per cent. Figure 2 presents the cumulative proportion of offenders who re-offended as a function of time from the index court appearance, using data on POIs proceeded against to measure re-offending. Different cut-offs were applied to the date police commenced proceedings. Using police data, the estimate of re-offending at 12 months following the index finalisation was 23 per cent, regardless of the cut-off applied. From these figures it can be seen how estimates based on proven offences in court changed depending on the cut-off applied to the date of court finalisation, whereas estimates based on police data relating to POIs proceeded against remained similar over time.

Table 7 shows 12- and 24-month re-offending rates, as well as the number of days at which 25 per cent of offenders had re-offended, estimated from Kaplan-Meier failure functions (such as those presented in Figures 1 and 2). The estimates take into account the varying follow-up times of offenders. As presented, using court data relating to proven offences finalised as at 30 June 2010, 16.0 per cent of offenders were estimated to have re-offended within 12 months of their index appearance. Using data relating to proven offences finalised as at 31 December 2012, 20.6 per cent of offenders were estimated to have re-offended within 12 months. In contrast, estimates based on data relating to POIs proceeded against to court by police changed from 21.6 per cent to 21.9 per cent (using data as at 30 June 2010 and 31 December 2012, respectively), and those based on data relating to POIs proceeded against by police more generally increased from 22.8 per cent to 23.2 per cent (as at 30 June 2010 and 31 December 2012, respectively).

Table 7. Estimates of rates of re-offending within 12 and 24 months and 25th percentile for time to first re-offence from Kaplan-Meier failure function, by data source (N=104,931)

Data source	As at		Per cent re-offended within 12 months	Per cent re-offended within 24 months	Time to first re-offence (months) 25th percentile
Court, proven	2010	June 30	16.0	-	-
		December 31	19.0	-	-
	2011	June 30	20.1	27.4	18.6
		December 31	20.4	29.3	17.1
	2012	June 30	20.6	30.0	16.9
		December 31	20.6	30.2	16.7
Court, all	2010	June 30	17.1	-	-
		December 31	20.6	-	-
	2011	June 30	21.8	29.3	15.7
		December 31	22.2	31.2	14.9
	2012	June 30	22.3	32.0	14.8
		December 31	22.4	32.2	14.6
Police, to court	2010	June 30	21.6	-	16.2
		December 31	21.8	-	15.6
	2011	June 30	21.9	31.2	15.4
		December 31	21.9	31.3	15.3
	2012	June 30	21.9	31.3	15.2
		December 31	21.9	31.3	15.2
Police, all	2010	June 30	22.8	-	14.4
		December 31	23.0	-	14.0
	2011	June 30	23.1	32.9	13.8
		December 31	23.2	33.0	13.8
	2012	June 30	23.2	33.0	13.8
		December 31	23.2	33.0	13.8

Concordance between police- and court-based measures of re-offending at the individual level at different time points

In Table 8, measures of re-offending within 12 months as at 31 December 2010 (6 months earlier than the usual cut-off) are compared against court-based measures finalised by 30 June 2011 (the cut-off that would be used as per current practice). As shown, of those with proven re-offences finalised in court by 30 June 2011, 95 per cent had proven re-offences in court finalised by 31 December 2010. Similarly, 94 per cent of those with proven re-offences finalised in court by 30 June 2011, had a re-offence proceeded against by police by 31 December 2010. Sensitivity and positive predictive values obtained when comparing court-based measures of re-offending finalised by 30 June 2011 with measures of re-offending obtained from police data as at 31 December 2010 were similar to the values obtained earlier when comparing both court- and police-based measures as at 30 June 2011 (shown in Table 2). Regardless of which police- and court-based measures were compared, sensitivity was 94 per cent and positive predictive values ranged from 82 per cent to 94 per cent.

Table 8. Re-offending within 12 months: concordance between data sources, comparing police and court data as at 31 December 2010 with court data as at 30 June 2011

			As at 30 June 2011			
			Court, proven		Court, all	
			Yes	No	Yes	No
As at 31 December 2010	**Court, proven**	Yes	19,952	0	19,952	0
		No	1,105	83,874	2,834	82,145
			sensitivity: 94.8%, ppv: 100.0%		*sensitivity: 94.8%, ppv: 100.0%*	
	Court, all	Yes	20,016	1,535	21,551	0
		No	1,041	82,339	1,235	82,145
			sensitivity: 94.8%, ppv: 92.9%		*sensitivity: 94.6%, ppv: 100.0%*	
	Police, to court	Yes	19,840	2,971	21,421	1,390
		No	1,217	80,903	1,365	80,755
			sensitivity: 94.2%; ppv: 87.0%		*sensitivity: 94.0%; ppv: 93.9%*	
	Police, all	Yes	19,847	4,243	21,432	2,658
		No	1,210	79,631	1,354	79,487
			sensitivity: 94.3%; ppv: 82.4%		*sensitivity: 94.1%; ppv: 89.0%*	

Note. ppv=positive predictive value

DISCUSSION

Reducing re-offending is a key priority in the criminal justice policy arena, and many programs and interventions are assessed in relation to this objective. While there are potentially numerous administrative data sources that could be used to measure re-offending, BOCSAR has typically used offences proven in court. One significant disadvantage with this measure is that it often takes some considerable time for an offence to be finalised in court. This increases the time required to conduct an evaluation. The purpose of this brief was to explore the utility of police data relating to POIs proceeded against as an alternative to measuring re-offending with court finalisation data.

The first aim of the study related to whether offenders classified as having re-offended using court data would have been classified as having re-offended using police data. Estimates of re-offending obtained from court and police data were largely consistent, overall, and at the offender level. Estimates based on POIs proceeded against to court were very similar to those obtained using court finalisation data if a minimum of 6 months for matters to be finalised was allowed (21.9% vs 21.7% within 12 months, and 31.3% vs 31.9% within 24 months). Further, estimates of re-offending within 12 and 24 months were only 3 percentage points higher when based on POIs proceeded against generally (i.e., by court, CIN, cannabis caution) than when measured using proven offences in court (23.1% vs 20.1% within 12 months, and 33.0% vs 29.9% within 24 months). More importantly, of those identified as having re-offended within 12 months using data on POIs proceeded against to court, only 13 per cent did not have a re-offence within 12 months that was proven in court as at 30 June 2011.[10] Conversely, of those offenders with a re-offence within 12 months that were proven in court as at 30 June 2011, 94 per cent had a re-offence measured using police data as at 30 June 2011. Thus, while almost all offenders identified as having re-offended using court data were identified as having re-offended using police data, it is perhaps surprising that this figure is not closer to 100 per cent. Indeed, only a very small number of cases, such as matters prosecuted by agencies other than the police, would appear in court records without having first appeared in police databases (Payne, 2007). That 6 per cent of offenders were found to have a re-offence in court data, but not in police data, is most likely due to imperfect linking of police and court records, due to inconsistencies and errors in the recording of person identifiers.

The second aim related to whether factors known to influence re-offending when measured using court data have the same effect when using police data. Estimates of re-offending were generally consistent by offender and offence characteristics, regardless of the data source used. However, there was a tendency for estimates of re-offending using POIs proceeded against data (compared with proven offences in court), to be higher for those aged 18 to 24 years of age than for older offenders. It is possible that this tendency is related to more people in this age group receiving criminal infringement notices and cannabis cautions. While overall estimates of re-offending were generally consistent across the data sources when examined by offender and index offence characteristics, estimates relating to specific types of re-offending were not examined. There may have been less consistent estimates had

the outcome of interest been violent re-offending, or property offending, for example.

The third aim of the study concerned how much time could be saved in a study of re-offending if police data were used to measure re-offending rather than court data. The time from date of first re-offence to court finalisation for proven re-offences was considerably longer than the time from date of first re-offence to police proceeding against a POI to court (mean 136 vs. 18 days, median 86 vs. 1 day). As a consequence of this much shorter time frame, estimates of 12- and 24-month re-offending based on data relating to POIs proceeded against by police were more consistent from an earlier time point than were estimates based on court finalisations. Typically when evaluating re-offending outcomes using court finalisations data BOCSAR would not extract data until at least 6 months after the end of the period of interest in order to ensure that the majority of re-offences occurring during the period of interest would be included. Nevertheless, some re-offences, particularly re-offences of a more serious nature, may take longer to process in court, and will still be missed. Findings from this study suggest that re-offending estimates could be obtained sooner if data on POIs proceeded against by police was used to measure re-offending. In this study, estimates using police data taken at the end of the period of interest varied only slightly from those obtained much later (e.g., 12-month estimate of 21.7% as at 31 December 2010 vs 21.9% as at 31 December 2012 measured using POIs proceeded against to court). Further, the use of police data on POIs proceeded against would help to overcome any bias related to court data on re-offences (particularly more serious re-offences) being incomplete due to pending court matters.

While use of data relating to POIs proceeded against by police could mean that re-offending estimates could be obtained 6 months earlier than is currently the case, a disadvantage of using police data is that it would include offences that later were not proven in court. Of those identified as having re-offences within 12 months using data on POIs proceeded against to court as at 31 December 2010, 13 per cent did not have a re-offence within 12 months that was proven in court as at 30 June 2011. Conversely, of those offenders with re-offences within 12 months that were proven in court as at 30 June 2011, 94 per cent had re-offences measured using police data as at 31 December 2010. Using court finalisations data 6 months earlier would have similar sensitivity, without loss of accuracy. For example, 95 per cent of offenders identified as having re-offended within 12 months as at 30 June 2011, would have been identified as having re-offended using data as at 31 December 2010.

From a program evaluation perspective, the fact that use of police data would increase the number of 'false positives' (people identified as re-offenders who are later found out not to have committed a further offence) is not a major concern if the error is small and random. In that case, control and 'treatment' groups will be equally affected by measurement error. A more significant issue is what to count as a further offence in terms of police data. Inclusion of CINs and cannabis cautions in the measure of re-offending may make the measure more sensitive to underlying differences in rates of re-offending, but only if we can safely assume that differences between groups in the frequency with which these proceedings are initiated is an unambiguous marker of differences in frequency of offending. This is not always a safe assumption to make. In some instances, variation in the use of CINs and cannabis cautions may be more reflective of policing policy than offending. Issues like this need to be carefully considered when selecting a measure of re-offending.

It is important to highlight that the aims of the current study were addressed using a cohort of adult offenders who were convicted and received a non-custodial penalty in a NSW court in 2009, with binary outcomes limited to 12- and 24-month estimates of re-offending. Whether these findings can be generalised to a custodial sample, or indeed to a sample of juvenile offenders, is unknown. Further, it is possible that the consistency of re-offending estimates may degrade over longer periods of time (e.g., at 5 years). Additional research could address these issues, as well as compare measures of the frequency and severity of re-offences captured by the police and court data sources. While the current study examined dichotomous re-offending outcomes, and the time to the first re-offence, the number and type of re-offences committed may also be of interest when evaluating a program's effectiveness.

The final point to note relates to estimates of re-offending using court finalisations data at different time points (i.e., allowing different lag times for re-offences of interest to be captured in the data). While the focus of the current study was not on comparing groups of offenders, differences in re-offending estimates over time (e.g., 12- and 24-month estimates at different time points) highlight the importance of ensuring equal follow-up time between groups of offenders when evaluating programs/interventions. It is important that differences in re-offending are not found simply because of differences in data completeness or availability resulting from the differential accrual of offenders over time, the severity of re-offences, or the propensity of certain groups of offenders to plead guilty.

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NOTES

1 In relation to juveniles, evaluation studies have also included offences dealt with by way of police cautions and youth justice conferences.

2 A person of interest (POI) is an individual in whom police have an interest as the consequence of a criminal event/incident. Generally, a POI is considered an alleged offender in an event/incident. Some POIs are proceeded against whilst others are not proceeded against. In this study data relating to POIs relates to POIs that were proceeded against by police.

3 In NSW, criminal infringement notices, as an on-the-spot fine can be issued for several offences including stealing (less than $300), offensive language, and offensive behaviour. The cannabis cautioning scheme provides for formal cautioning of adult offenders detected for minor cannabis offences.

4 ROD is a collection of data from criminal justice agencies in NSW, including the court system, the NSW Police Force and Juvenile Justice NSW. ROD is routinely updated and includes information on all finalised court appearances in NSW since 1994, and police cautions and completed youth justice conferences since 1998 (as per the Young Offenders Act 1997). Further details relating to the development of ROD can be found in Hua and Fitzgerald (2006).

5 For the purposes of this study, time in custody during the follow-up period (i.e., following the index finalisation) has not been taken into account. It is possible that offenders may have had reduced time at risk to re-offend if they had spent time in prison during the follow-up period, such as for offences that were committed prior to the index finalisation. Had those who received custodial penalties been included, the analyses would have had to account for time spent in custody. Systematic differences between the re-offending measures for those who received custodial and non custodial penalties were thought to be unlikely.

6 Studies of re-offending conducted by BOCSAR commonly only include one index court finalisation per offender (usually the first finalisation within a period of interest, or a finalisation selected at random). However, as the purpose of this study was to compare re-offending measures using different data sources, rather than to estimate re-offending in a cohort per se, all relevant finalised court appearances were included as index records. For ease of reading and understanding, the phrase “offenders who have re-offended” is used throughout this report. Given that offenders could have been included in the sample multiple times, “index appearances that were followed by a re-offence” is perhaps more technically correct.

7 These characteristics have been selected for illustrative purposes, to compare the data sources, and are not inclusive of all factors that could be used in an evaluation.

8 These 104,931 finalised court appearances related to 92,739 offenders, with 89 per cent of offenders having one included finalised court appearance, 9 per cent having two, and 2 per cent having three or more.

9 The estimates shown allow a minimum of 6 months for re-offences to be proceeded against by police or finalised in court (i.e., using data as at 30 June 2011 for re-offences within 12 months and 30 June 2012 for those within 24 months).

10 Similarly, in NSW Local Courts in 2012, 89 per cent of persons charged were found guilty, 11 per cent were not found guilty (NSW Bureau of Crime Statistics and Research, 2013).

REFERENCES

Cunliffe, J., & Shepherd, A. (2007). Re-offending of adults: Results from the 2004 cohort. Home Office Statistical Bulletin no. 06/07. Home Office, London.

Hua, J., & Fitzgerald, J. (2006). *Matching court records to measure reoffending* (Crime and Justice Bulletin No. 95). Retrieved from NSW Bureau of Crime Statistics and Research website: http://www.bocsar.nsw.gov.au/lawlink/bocsar/ll_bocsar.nsf/vwFiles/cjb95.pdf/$file/cjb95.pdf

NSW Bureau of Crime Statistics and Research. (2013). New South Wales Criminal Courts Statistics 2012. Retrieved from NSW Bureau of Crime Statistics and Research website: http://www.bocsar.nsw.gov.au/lawlink/bocsar/ll_bocsar.nsf/vwFiles/CCS2012.pdf/$file/CCS2012.pdf

Payne, J. (2007). *Recidivism in Australia: findings and future research* (Research and Public Policy Series No. 80). Retrieved from Australian Institute of Criminology (AIC) website: http://www.aic.gov.au/documents/0/6/B/%7B06BA8B79-E747-413E-A263-72FA37E42F6F%7Drpp80.pdf

Smith, N., & Jones, C. (2008). *Monitoring trends in re-offending among adult and juvenile offenders given non-custodial sanctions.* (Crime and Justice Bulletin No. 110). Retrieved from NSW Bureau of Crime Statistics and Research website: http://www.bocsar.nsw.gov.au/lawlink/bocsar/ll_bocsar.nsf/vwFiles/cjb110.pdf/$file/cjb110.pdf

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