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## VALIDATION OF NSW POLICE CRIME STATISTICS

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The 1999 annual crime statistics report recently published by the NSW Bureau of Crime Statistics and Research shows that crime trends in NSW have now reversed. Two years ago, significant increases in crime were recorded by NSW police for several major offence categories, including assault, armed robbery and burglary. In this year's report, however, all major categories of crime are either decreasing or stable. In order to verify this unexpected improvement in crime, trends in three complementary data sources are compared with trends in official crime statistics. Each of these comparisons – with monthly calls for service to NSW police, monthly insurance claims, and annual victimisation rates measured by crime victim surveys – broadly confirms that the decrease in crime presently being experienced in NSW is not attributable to changes in crime incident recording practices by NSW police.

### INTRODUCTION

The annual crime statistics report *NSW Recorded Crime Statistics 1999* shows that there are now no significant upward trends in NSW crime rates for the major offence categories which are routinely tested for trend. This contrasts markedly with previous annual reports which showed significant upward trends for several major offence categories. Table 1 summarises the trends in recorded crime in NSW published in the 1997, 1998 and 1999 annual reports.<sup>1</sup>

The information in Table 1 indicates that the increase in recorded crime rates experienced in NSW during the late 1990s has now stopped and, in some cases, reversed. In the 1997 annual crime statistics report, eight of the sixteen major offence categories were trending upwards, seven showed no statistically significant upward or downward trend, and only one offence category was trending downwards. In the twenty-four months to December 1999, seven categories were showing significant downward trends and the remainder were stable.<sup>2</sup>

This paper examines alternative sources of crime trends in order to substantiate the information presented in the annual crime statistics reports. The analysis concentrates on those offence categories

which comprise the 'index' crimes which are closely monitored by the NSW Police Service, namely *assault, robbery, break and enter, motor vehicle theft, and stealing*.<sup>3</sup> Relevant comparisons are made between recorded crime statistics, as recorded on the Police Service Computerised Operational Policing System (COPS), and other sources of crime data for those offence categories which show significant trends in the monthly numbers of recorded criminal incidents, and for which alternative sources of data are available.

Three alternative sources of data will be employed for this validation exercise. In this paper, trends in recorded crime statistics will be compared with trends in (1) calls for service to NSW police, (2) insurance claims, and (3) crime victimisation rates. For each set of data, the hypothesis that the trend in the data concurs with the trend in recorded crime statistics over the same time period will be tested.

### POLICE CALLS FOR SERVICE AND INSURANCE CLAIMS

The first test of trend concordance compares service calls to NSW police with trends in recorded criminal incidents for comparable offence categories. The service calls data are extracted from the NSW Police Service Computerised Incident Dispatch System

**Table 1: Summary of NSW Recorded Crime Statistics 1997, 1998 and 1999: Comparison of twenty-four month trends and annual percentage changes for selected offence categories**

<i>Offence category</i>	<i>January 1996 to December 1997</i>	<i>January 1997 to December 1998</i>	<i>January 1998 to December 1999</i>
Murder	No significant trend	No significant trend	No significant trend
Assault	+8.7%	+6.2%	No significant trend
Sexual assault	No significant trend	-14.1%	-10.2%
Indecent assault, act of indecency and other sexual offences	No significant trend	-18.7%	-15.6%
Robbery without a weapon	+29.5%	No significant trend	No significant trend
Robbery with a firearm	+33.4%	No significant trend	-24.3%
Robbery with a weapon not a firearm	+76.8%	+29.7%	-19.8%
Break and enter – dwelling	+6.5%	+7.0%	-10.0%
Break and enter – non-dwelling	+3.4%	+6.8%	-6.6%
Motor vehicle theft	+12.5%	No significant trend	-10.5%
Steal from motor vehicle	+10.9%	+5.9%	No significant trend
Steal from retail store	-5.7%	No significant trend	No significant trend
Steal from dwelling	No significant trend	+7.7%	No significant trend
Steal from person	No significant trend	No significant trend	No significant trend
Fraud	No significant trend	No significant trend	No significant trend
Malicious damage to property	No significant trend	+11.9%	No significant trend

(CIDS). Because these calls are triggered mainly by 000 calls and are not recorded by Local Area Commands, they provide an external check on trends in police crime statistics. For reasons of CIDS data availability at the time of analysis, the time period over which the trend tests are performed is the two-year period from October 1997 to September 1999.

Each police service call is recorded on CIDS against a specific offence category. However, it is not expected that the category of the CIDS entry will exactly match the COPS event offence category, even if a COPS crime entry results from the call. This is because calls are logged on CIDS according to the information provided by the reporting agent. Police who respond to the calls make a decision as to whether an actual criminal offence has been committed, and if so, the appropriate offence category for recording the event on COPS. The incident which motivated the CIDS call may therefore either (1) not be recorded at all, (2) be recorded on COPS under an offence category other than that which has been notified, or (3) be recorded in the category on COPS for which the call was made. On the other hand, not all COPS events originate from a CIDS notification. As well as telephone notification,

police may be approached in person or detect the crimes themselves. Neither of these situations has a parallel CIDS recording. Despite these variations in recording procedure, it is reasonable to expect parity of trends between these two data sources at the aggregate State level.

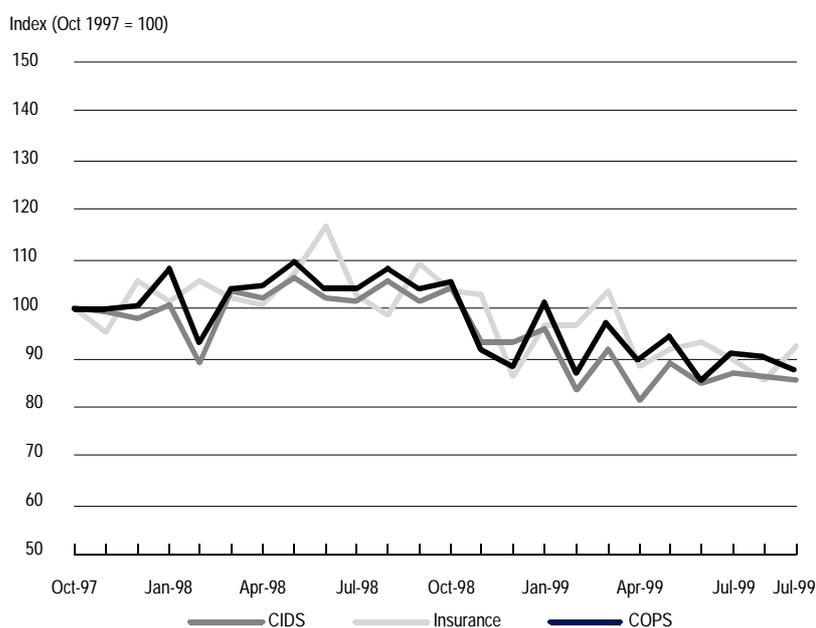
The second test of trend concordance involves monthly insurance claims over the two years to September 1999. It is expected that trends in claims for household *break and enter* offences, and for *motor vehicle theft* offences, for which insurance claim data are available, should broadly reflect trends in police statistics. A two-year monthly series of data (indexed to a base of October 1997) for each of these offences was provided by NRMA Insurance Ltd and will be compared with recorded crime data over the same period. Again, a direct correspondence between the number of insurance claims and the number of recorded criminal incidents is not expected. NRMA, while the largest general insurer in Australia, is only one of many insurance companies processing claims in NSW. For our purposes, it has the advantage of a very large and therefore fairly representative insurance portfolio.

Figure 1 shows the trend in monthly calls for service, insurance claims and recorded incidents of *break and enter* for the two-year period from October 1997 to September 1999. Each series has been indexed using October 1997 as the base count (that is, October 1997 = 100.0 for each series) to enhance visual comparability. Figure 2 shows the corresponding series for the *motor vehicle theft* offence category over the same time period.

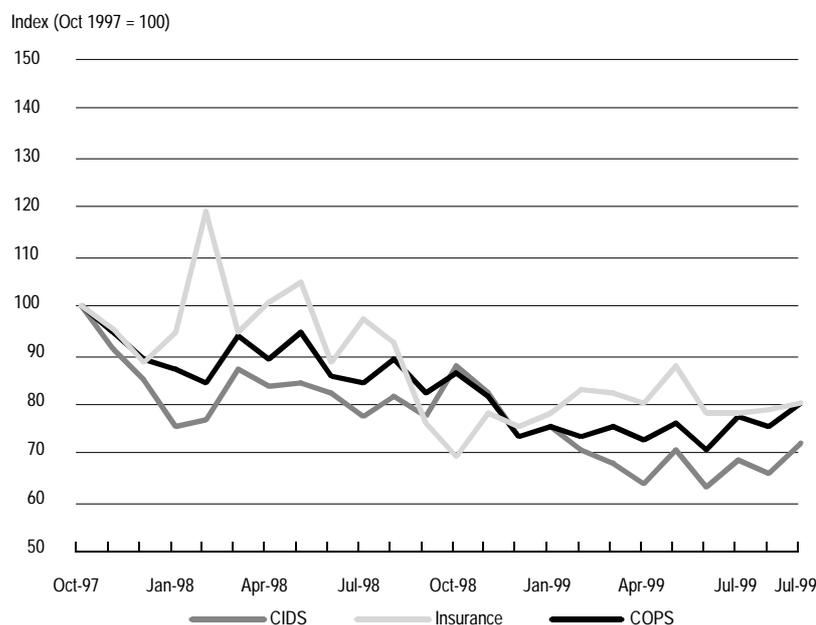
For both offence categories, there are similar monthly trends in each data series. Table 2 provides further

details of the trend comparisons. For each of the index crime offence categories and for each source of data, Table 2 shows the results of trend tests to check for a statistically significant upward or downward trend in the monthly numbers of calls for service, insurance claims and recorded criminal incidents over the twenty-four months from October 1997 to September 1999. In addition, the annual percentage change has been calculated for each of the police data series. The annual percentage changes in the insurance data series, while not shown, are each consistent with the COPS and CIDS data series.

**Figure 1: Trends in break and enter (indexed)**



**Figure 2: Trends in motor vehicle theft (indexed)**



**Table 2: Recorded incidents, calls for service and insurance claims: trends and annual percentage changes, October 1997 to September 1999**

<i>Offence category</i>	<i>Recorded incidents (COPS)</i>	<i>Calls for service (CIDS)</i>	<i>Insurance claims</i>
Assault	Not significant	Not significant	n.a.
Robbery	Not significant	Downward (-13%)	n.a.
Break and enter	Downward (-11%)	Downward (-11%)	Downward
Motor vehicle theft	Downward (-15%)	Downward (-14%)	Downward
Stealing	Not significant	Not significant	n.a.

All offence categories other than *robbery* show broad agreement across the three data sources. For *robbery*, while recorded crime data showed no significant trend over the period, CIDS calls had declined. Note, however, that while the monthly trend in recorded *robberies* was not significant, there was a 7 per cent decrease in the total number of incidents of *robbery* recorded over successive twelve-month periods. The direction of the change is therefore consistent between these two series.

## VICTIMISATION SURVEYS

A third source of alternative data which can be used to validate police recorded crime statistics is the *NSW Crime and Safety Survey*, a victimisation survey conducted annually by the Australian Bureau of Statistics (ABS).<sup>4</sup> The survey reports annual victimisation rates for four of the five index crimes, namely *assault*, *robbery*, *break and enter* and *motor vehicle theft*. In addition, the survey examines the willingness of the victims to report crimes to police, and calculates the rate of reporting for each of the above four offence categories. An increase in the recorded crime rate may therefore reflect a rise in the proportion of persons reporting offences to the police rather than an increase in the true level of crime in the community.

A National (rather than a State) victimisation survey was conducted in 1998. The questions asked of respondents in the National survey, and the method for processing responses, differed from the State surveys for all offence categories except *robbery*. For *robbery*, the questions were changed in 1998, and repeated in the 1999 State survey. Trend comparisons for the offence categories of *assault*, *break and enter* and *motor vehicle theft* are therefore made between 1997 and 1999 data, but for *robbery* the comparison is made between information collected in 1998 and 1999. Table 3, below, shows this comparison for the four index crimes noted above.

Note that the comparison between recorded crime data and crime victimisation data is not as straightforward as that between trends in COPS, CIDS and insurance claims data. As was noted earlier in this paper, each of the latter two sources of data has a direct, though not exact, correspondence with the public reporting and police recording of criminal activity. Changes in victimisation rates, however, may differ substantially from trends in recorded crime rates for a number of reasons.

Firstly, in common with the CIDS data, the interpretation of a criminal incident may differ between the victim reporting and police recording of the crime, resulting in a change of classification or non-recording of the incident. A further complication with victimisation rates is that there is a high level of non-reporting associated with several crime categories (for example, according to the 1999 survey, only 34% of *assault* victims in NSW reported the incident to police). As was noted above, part of the change in a recorded crime rate over time may be attributed to a change in the reporting rate.

Secondly, victimisation rates are based on numbers of victims rather than numbers of separate incidents. Persons who have been a victim of the same type of crime a number of times during the survey period will only be included once in the calculation of the victimisation rate.

Finally, and most importantly, there is only one victimisation rate figure available for each crime category for any one year. This contrasts with the monthly data series which were available for each of the other data sources. For this reason, there can be no test for a monthly trend in victimisation rates over the time period. The annual victimisation rate is tested for a significant increase or decrease between one time period and another, rather than for a significant upward or downward monthly trend over the whole period. This complicates the process of comparing police crime data and victim survey data.

In Table 3 below, the 1999 annual victimisation rate is compared with the 1997 rate for the offences of *assault*, *break and enter* and *motor vehicle theft*. The 1999 victimisation rate for *robbery* is compared with the 1998 rate. Between 1997 and 1999, there was a statistically significant increase in the *assault* victimisation rate, while *break and enter* and *motor vehicle theft* were both stable. Between 1998 and 1999, there was also a significant increase in the *robbery* victimisation rate. These changes in victimisation rates are compared with trends in recorded incidents. For *robbery*, the comparison is made with the monthly trend in recorded incidents over the twenty-four month period to April 1999, and for the other three offence categories over the thirty-six month period to April 1999.

**Table 3: Trends in recorded incidents and victimisation rates, comparisons of twelve month periods to April 1997 and April 1999**

<i>Offence category</i>	<i>Recorded incidents (COPS)</i>	<i>Victimisation rates</i>
Assault	Upward (+15%)	Increase (+16%)
Robbery*	Not significant	Increase (+33%)
Break and enter	Upward (+8%)	Not significant
Motor vehicle theft	Not significant	Not significant

\* For *robbery*, 1999 figures are compared with 1998.

The trends in recorded incidents of *assault* and *motor vehicle theft*, as shown in Table 3, correspond with the changes in victimisation rates. For *break and enter*, however, while the recorded crime figures show an upward trend, there is no comparable increase in the victimisation rate. Part of this difference may be attributed to a small increase in the estimated reporting rate for *break and enter* offences, from 71 per cent of victims in 1997, to 74 per cent of victims in the 1999 survey.

On the other hand, while there was a stable monthly trend in recorded criminal incidents over the two-year period, the *robbery* victimisation rate increased between 1998 and 1999. A comparison of reporting rates for this offence indicates that the reporting rate for *robbery* has been stable over this period.<sup>5</sup>

This discordance between trends in victimisation rates and trends in recorded crime for *robbery* was followed up with the ABS, who undertook a more detailed analysis of their estimates of crime victimisation for

the *robbery* offence category from both the 1998 and 1999 surveys. The preliminary results of this analysis indicate that the increase in *robbery* victims in 1999 resulted from an increase in the number of *attempted robberies* which contributed to the *robbery* rate. The ABS report that the victimisation rate for actual *robbery* has not increased over the period and therefore is consistent with the rate of recorded *robbery*.

## CONCLUSION

Three alternative data sources were used to validate crime incidents recorded by NSW police. The offence categories which were tested for trend concordance were: *assault*, *robbery*, *break and enter*, *motor vehicle theft*, and *stealing*. The alternative sources of data used for validation were (1) monthly calls to police for service (for each of the five crime categories), (2) monthly insurance claims (for *break and enter*, and *motor vehicle theft*), and (3) annual victimisation rates (for each offence category other than *stealing*). The validation exercise indicates that, at an aggregate NSW level, each source of data confirms the trends in official recorded crime statistics published by the NSW Bureau of Crime Statistics and Research.

The results reported in this paper have verified recent changes in overall crime trends in NSW. As recorded crime statistics now play a key role in police performance in NSW, however, it is particularly important to continue this validation process. The next stage in this process will involve comparing calls for police service with crimes recorded by police at the regional command level.

## NOTES

- 1 Chilvers, M. 1998, *New South Wales Recorded Crime Statistics 1997*, NSW Bureau of Crime Statistics and Research, Sydney.  
  
Chilvers, M. 1999, *New South Wales Recorded Crime Statistics 1998*, NSW Bureau of Crime Statistics and Research, Sydney.  
  
Doak, P. 2000, *New South Wales Recorded Crime Statistics 1999*, NSW Bureau of Crime Statistics and Research, Sydney.
- 2 The statistical test used is Kendall's rank order correlation test for trend; see, for example, Conover, W. J. 1980, *Practical Non-Parametric Statistics*, 2nd edn, John Wiley and Sons, pp. 256-260. A 5% two-tailed test was used to determine whether there was an increasing or decreasing trend in the monthly rates of recorded criminal incidents. Some month-to-month variations in the rates of recorded criminal incidents suggest seasonal factors may be at work. The test for trend is not sensitive to seasonal variations; it is sensitive only to a generally increasing or decreasing trend over the time period examined.
- 3 The five index crime categories are closely monitored by the senior executive of the NSW Police Service in their regular Operation and Crime Review (OCR) meetings. At these meetings, Local Area Commanders are required to address and explain the trends in these five major crime categories in the geographical areas under their command.
- 4 Australian Bureau of Statistics 1997, *Crime and Safety, New South Wales, April 1997*, Cat. No. 4509.1, ABS, Sydney.  
  
Australian Bureau of Statistics 1999, *Crime and Safety, Australia, April 1998*, Cat. No. 4509.0, ABS, Canberra.  
  
Australian Bureau of Statistics 1999, *Crime and Safety, New South Wales, April 1999*, Cat. No. 4509.1, ABS, Sydney.
- 5 *Crime and Safety Survey* results show that, for robbery, 52% of victims in 1999 reported the incident to police, compared with 48% of victims reporting the incident in 1998. This difference, however, is not statistically significant due to the small number of robbery victims surveyed.