# Introduction to Crime Data Analysis

Developed by Garner Clancey

Crime data analysis is fundamental to effective crime prevention. Knowing as much as you can about crime will help significantly in its prevention.

## Limitations of Recorded Crime Data

It is generally accepted that there are significant limitations to recorded crime data. There are a many factors that limit an understanding of the 'true' picture of crime. Many offences will never be reported to the police. For example,

- Only about **one in three assaults, attempted burglaries** and **robberies** of the person **are** ever **reported to the police**[1]
- Even fewer sexual assaults are reported to police, with data from victim surveys suggesting that **only 15 to 20 per cent of sexual assaults are reported to police**[2]

Consequently, any analysis of crime data should recognise the limitations of the raw data, due to the uneven reporting rates of particular crimes.

## Sources of Crime Data

The sources of crime data will vary for each jurisdiction. In New South Wales, the most helpful sources of crime data include the following:

- **NSW Bureau of Crime Statistics and Research (BOCSAR)** – BOCSAR provides a range of crime data that is pertinent to crime prevention practitioners. Crime map publications, on-line data tools and annual crime statistics are just some of the useful resources provided by BOCSAR.
- **NSW Police Force** – The NSW Police Force collect some of the most useful crime data in the state. However, gaining access can be difficult and the way the data is stored can prevent useful information from being aggregated and analysed. Weatherburn suggests that "in New South Wales ... crucial information about the precise location of a criminal incident, the precise nature of any weapons involved, whether the offender was intoxicated and the methods used to commit a crime can sometimes only be found (if at all) in the narrative section of police reports".[3] Nonetheless, if it is possible to access data from the NSW Police Force, it can prove to be very beneficial.
- **NSW Office of Liquor, Gaming and Racing (OLGR)** – OLGR publishes social profiles on local government areas (LGAs). These profiles include a host of data, including demographic information, number and density of licensed venues and information on alcohol-related assaults. These profiles can be very useful resources.

### Sources of Crime Data Exercise

1. Conduct a search of the Internet to find both the BOCSAR and OLGR websites. Familiarise yourself with the various resources and publications available on both websites.
2. Consider the reasons why the NSW Police Force is understandably reluctant to publish or disseminate crime data.

## Crime Data Analysis

Determining if particular crimes are increasing; identifying the hot spot locations where crime is concentrated; understanding the temporal trends of offending and analysing potential reasons for crime trends will be critical features of crime data analysis. This analysis is often based on data provided by BOCSAR. The following table shows data outputs that you might access from BOCSAR.

*Crime Trends*

| Offence | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | 120 Month trend |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Murder | 5 | 6 | 3 | 13 | 7 | 2 | 6 | 3 | 7 | 4 | ** |
| Attempted murder | 20 | 9 | 18 | 13 | 18 | 9 | 10 | 3 | 10 | 5 | ** |
| Assault – Domestic violence related | 493 | 511 | 518 | 592 | 800 | 764 | 773 | 788 | 689 | 756 | Up 4.9% |
| Assault – Non-domestic violence related | 958 | 1054 | 1058 | 1136 | 1043 | 957 | 956 | 908 | 946 | 921 | Down 0.4% |
| Sexual Assault | 81 | 70 | 81 | 90 | 79 | 98 | 95 | 85 | 80 | 69 | Stable |

The first thing that you realise when you begin analysing crime data is the sheer volume of information at your disposal. The above table shows the number of incidents of particular offences within a LGA. There are many more crime categories not listed here. Choosing which crime categories will be of interest and the number of years that you will access data for, are just two of the initial considerations. You will also have to consider how to best present the data.

### Crime Data Analysis Exercise

1. What limitations exist for this data set?
2. What are the limitations of presenting crime data in table form?
3. What other options might be more effective?

*LGA Ranking*

BOCSAR provides comparisons across LGAs by providing a ranking. The number of offences is divided by the population to give a rate per 100,000 people. This rate is compared across LGAs. The lower the number, the worse the picture is for that LGA.

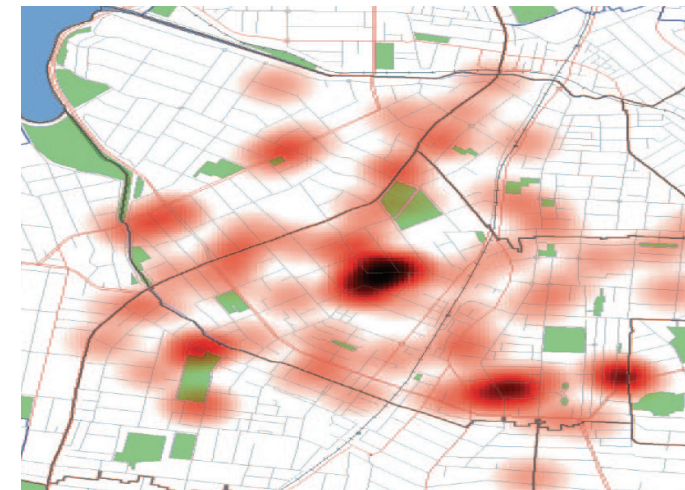| Offence | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|
| Assault – Non-domestic violence related | 91 | 98 | 90 | 96 | 99 |
| Assault – Domestic violence related | 52 | 71 | 59 | 68 | 76 |
| Break and enter – Dwelling | 50 | 72 | 61 | 55 | 51 |
| Break and enter – Non-dwelling | 81 | 78 | 77 | 102 | 118 |
| Malicious damage to property | 115 | 121 | 119 | 125 | 113 |
| Motor vehicle theft | 23 | 24 | 26 | 30 | 23 |
| Robbery | 12 | 12 | 11 | 13 | 10 |
| Sexual offences | 83 | 100 | 113 | 109 | 110 |
| Steal from motor vehicle | 58 | 65 | 54 | 57 | 41 |
| Steal from person | 17 | 26 | 21 | 26 | 21 |
| Steal from retail store | 52 | 51 | 48 | 46 | 34 |
| Steal from dwelling | 137 | 141 | 137 | 140 | 138 |
| Fraud | 14 | 8 | 11 | 15 | 19 |

This table shows the ranking of a LGA across various crime categories.

### LGA Ranking Exercise

1. For which offences does this LGA rank poorly?
2. How might these LGA rankings be useful?
3. What limitations exist with this form of measurement?

*Crime Maps*

BOCSAR produces crime maps for LGAs. These maps reveal spatial concentration of particular crimes. Accompanying information also highlights the temporal trends (i.e. frequency of offences by time of day, day of week and month of year) for particular offences.



### Crime Maps Exercise

1. How would you use this map if you were trying to prevent crime in this LGA?
2. What are the limitations of crime maps generally?
3. Search for a BOCSAR crime map publication. Review the selected publication.

[1] Australian Bureau of Statistics (2007) Crime and Safety NSW, Australian Bureau of Statistics, 4509.1, Canberra.

[2] O'Brien, K.; Jones, C. and Korabelnikoff, V. (2008) 'What caused the decrease in sexual assault clear-up rates?', Contemporary Issues in Crime and Justice, No. 125, BOCSAR, Sydney.

[3] Weatherburn, D. (2004) Law and Order in Australia: Rhetoric and Reality, Federation Press, Annandale, page 214.