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Counting the costs of crime in Australia: a 2005 update

Kiah Rollings

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Director's introduction

In 2003, the Australian Institute of Criminology (AIC) released two companion reports examining the costs of crime to the Australian community. These reports described in detail the identified costs of crime to the Australian community and the methodology used to calculate those figures. The original report estimated the costs of crime to be nearly $32b in 2001.

The current report provides an update to the AIC's previous work, estimating the costs of crime for the calendar year 2005, and is released as a stand-alone document. Notwithstanding the considerable difficulties in estimating costs of crime, which are described in this report, the estimated costs of crime for 2005 are $35.8b. The largest components of this figure are the costs of the criminal justice systems: police, courts, corrections, and other criminal justice-related government agencies; and the costs relating to fraud. Fraud, while not being a new crime, is a crime that is in a state of change and evolution due to shifting technologies. Cybercrimes, of which fraud and identity theft are major components, are emerging areas of crime where a commitment to further research is necessary.

The methodology used to calculate the estimates in this report are, for the most part, the same as that employed in the original report. This allows for a broad comparison between the two reports. In terms of the overall growth in the costs of crime, estimates have risen over the period. However, when considered in a 'real' sense, for example when considered in the context of gross domestic product or inflation, the increases are nominal and the overall trend should be considered stable. However, as alluded to above, the component costs of crime within the context of the overall figure has changed somewhat between 2001 and 2005. Fraud and criminal justice costs have increased as a proportion of the overall costs of crime, and vehicle thefts and burglary have fallen.

The costs of crime to any community are considerable and it is of value to policymakers, politicians, the general public and researchers to further debate and increase the knowledge base in the area of costing crime. Estimates of the costs of crime, while in this report are compared to government spending in the areas of health and education to get a sense of the magnitude of the estimate, should be viewed as a guide rather than a definitive number. Australian data used in the costing of crime are lacking, and this report describes some suggestions for future working in this important area.

Toni Makkai
Director
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Acknowledgments

The author would like to acknowledge the significant work of Pat Mayhew, who produced the first publication of this type, *Counting the costs of crime in Australia*. The current report is based heavily on Mayhew's original methodology.

The author would like to thank all of the organisations that supplied data for this report and provided advice, without which this publication could not have gone ahead. Thanks are also extended to Natalie Taylor and Toni Makkai at the AIC whose comments on drafts of this report were especially helpful.

The author is indebted to the anonymous reviewers whose suggestions were carefully considered and, where possible, have been incorporated. Any errors or omissions remaining are entirely the author's responsibility.

This research paper does not necessarily reflect the policy position of the Australian Government.

Overview of crime costs

This section provides an overview of the key findings in the report. It presents the numbers of crimes recorded – referred to as 'baseline counts' – for each crime type, the multipliers applied to each crime type to account for underreporting, and a breakdown by category of the costs of crime. More detailed information about how these estimates were derived are provided in the main body of the report. This section also includes a discussion of how future estimates of crime might be improved and highlights emerging crime areas that could be included in future estimates.

Table 1 presents the sources of recorded data and the baseline number of crimes, which have been used as the foundation for multipliers for each crime type. Australian Bureau of Statistics (ABS) *Recorded crime: victims* data were used to provide baseline counts of crime for homicide, assault, sexual assault, robbery, burglary, thefts of vehicles and other theft. Jurisdictional police data were used to provide counts of thefts from vehicles, shop theft, criminal damage, arson and fraud. For the crime type 'drug offences', the number of deaths attributable to drug use (872) is the key baseline figure for that section.

Table 1: Reported (or baseline) counts of crime by crime type

Crime type	Source of the recorded data	Number of crimes in reported data
Homicide	ABS *Recorded crime: victims*	496
Assault	ABS *Recorded crime: victims*	161,000 + 295 attempted murders
Sexual assault	ABS *Recorded crime: victims*	18,000
Robbery	ABS *Recorded crime: victims*	17,000
Burglary	ABS *Recorded crime: victims*	197,000
Thefts of vehicles	ABS *Recorded crime: victims*	85,000
Thefts from vehicles	Individual police jurisdictions [a]	188,000
Shop theft	Individual police jurisdictions [a]	70,000
Other theft	ABS *Recorded crime: victims*	261,000
Criminal damage	Individual police jurisdictions [a]	294,000
Arson	Individual police jurisdictions [a]	20,000
Fraud	Individual police jurisdictions [a] and Australian Federal Police serious crime figures	99,000 + 367 cases of serious fraud

a: Data were received from New South Wales, South Australia, Victoria and Tasmania, and have been inflated to give an Australia-wide estimate

Source: ABS (2005); ABS (2006a); NSW, SA, Vic and Tas police jurisdictions (unpublished data); AFP (2006)

Table 2 shows the multipliers and the corresponding estimated number of crimes for each crime category. As a general rule, the higher a multiplier, the less that crime type is recorded in the official administrative systems. Multipliers help to adjust for levels of underreporting, to provide more accurate estimates of how frequently a particular crime occurs. Most multipliers have changed very little between this report and Mayhew (2003b). For purposes of comparison between 2001 and 2005, multipliers used by Mayhew (2003b) are included. Table 1 shows that criminal damage, assault and most categories of theft (burglary, theft from motor vehicles, shop theft and other theft) are among the most commonly reported crimes to police. Once multipliers are applied to reported crime figures, some crime types increase in incidence relative to others. Shop theft and criminal damage increase markedly in volume and are the crime types with the greatest volume of estimated crimes. These are followed in volume by assault and burglary.

Table 2: Multipliers by crime type

Crime type	2001 multiplier estimate [a]	Current multiplier estimate	Estimated number of crimes
Homicide	1.0	1.0	496
Assault	5.3	5.2	832,000 + 295 attempted murders
Sexual assault	5.6	5.3	96,000
Robbery			
Against individual	7.5	7.2	96,000
Against commercial	1.1	1.2	3,000
Burglary	3.0	3.4	777,000
Thefts of vehicles	1.05	1.0	85,000
Thefts from vehicles	3.6	2.8	527,000
Shop theft	100.0	100.0	7,000,000
Other theft	4.5	2.7	705,000
Criminal damage	6.0	4.3	1,265,000
Arson	–	–	20,000
Fraud	4.0	4.0	397,000 + 1,500 cases of serious fraud

a: See Mayhew (2003b)

Table 3 presents the total estimated costs of crime to the Australian community in 2005. These costs are estimated to be just under $36b (4.1% of national GDP). Mayhew (2003b) estimated the total costs of crime in 2001 to be around $32b (3.8% of GDP). In terms of putting that estimate in context, the Productivity Commission (PC) reported that in 2004–05, Australian governments spent $47.2b (PC 2007: Table EA.1) (5.0% of GDP) on education and $83.8b (PC 2007: Table BA.1) on health (8.9% of GDP).

The change in the estimated costs of crime over the four-year period represents a 12.6 percent increase, slightly higher than inflation at 11.2 percent over the period (RBA). Given the difficulties in estimating costs of crime, the conclusions to be drawn from these findings are the costs of crime have remained fairly stable over the past four years.

Figure 1: Different crimes as a proportion of total costs

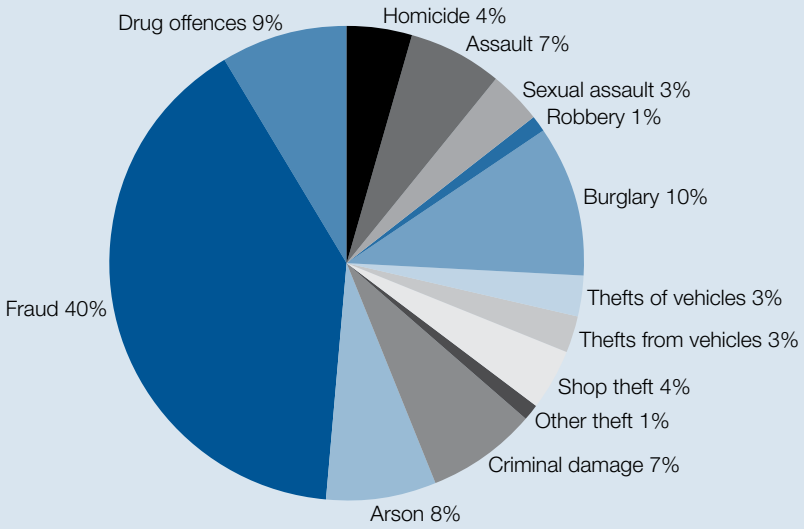
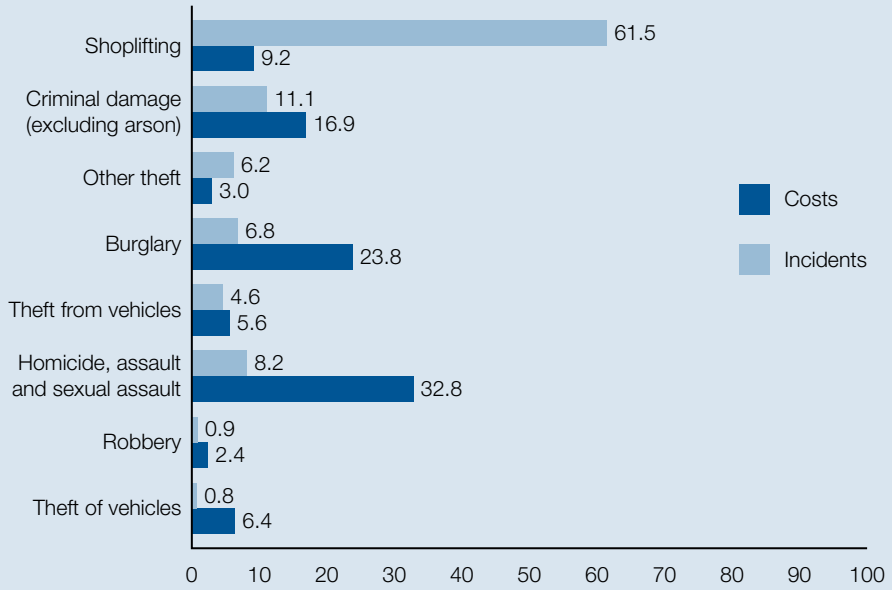


Table 3 presents the estimated costs for each of the crime types covered in the report. Fraud offences easily account for the highest dollar value of all crime types (24% of total costs), followed by burglary and arson. The least expensive crime in terms of total dollar value was robbery (as distinct from burglary). Figure 1 shows the overall costs of the crime categories presented.

Table 3: Summary of costs of crime		
Cost type	**Estimated cost in 2005 ($m)**	**Percentage of total costs**
Crime types		
Homicide	950	2.7
Assault	1,411	3.9
Sexual assault	720	2.0
Robbery	225	0.6
Burglary	2,229	6.2
Thefts of vehicles	597	1.7
Thefts from vehicles	529	1.5
Shop theft	861	2.4
Other theft	282	0.8
Criminal damage	1,582	4.4
Arson	1,624	4.5
Fraud	8,516	23.8
Drug offences	1,816	5.1
Other costs		
Criminal justice	9,808	27.4
Victim assistance	1,073	3.0
Security	2,999	8.4
Insurance administration	580	1.6
Total	35,802	100.0

Figure 2 highlights the differences between estimated numbers of crimes and the costs associated with them. Excluding fraud, arson and drug offences, while shoplifting accounts for over 60 percent of crimes, it only accounts for nine percent of the costs. The opposite of the various forms of assault is true – they account for eight percent of incidents, but 33 percent of costs.

Figure 2: Volume and costs of crime, excluding arson, fraud and drugs (percentage)



Future directions for costing crime

The estimates in this report should be considered approximate and are not designed to reflect exact costs of crime. It is difficult to give a definitive number for the cost of crime, and some of the limitations of the current estimates are discussed elsewhere in this report and in other publications (Mayhew 2003a, 2003b). Estimates of crime depend on the methodology used to obtain them. While the methodology used in this report replicates that used by other researchers both in Australia and the United Kingdom and is believed to be the most robust available, improved methodologies could be developed if better crime data were available. This is especially the case for crimes which are harder to cost such as fraud, arson and drug offences (in some instances 'victimless' crimes).

Growth areas of crime

What is clear when reading this report and others in the area of costing crime is the emergence of both 'growth areas' of crime and areas of crime where more research is required to be able to give reliable and robust estimates of costs. While not examined explicitly in this report, it is apparent the area of fraud (and related crime types) is an important growth area. This can be attributed partly to the increase in electronically assisted

crime such as cybercrime and identity theft. Recent Australian Government parliamentary inquiries (see the 'Fraud' section of this report for greater detail) have highlighted the need for better data and costings in the area of fraud and electronically assisted crimes. The AIC has an active program of research into the areas of cybercrime, fraud against older Australians, and serious and organised crime, but more research into emerging areas of crime are needed.

An area which certainly requires additional research to produce more reliable estimates is the area of arson, and specifically bushfire arson. The Bushfire Cooperative Research Centre (CRC) was established in 2003. Although the AIC has produced several important publications on bushfire arson, including a detailed statistical overview of bushfire arson data (Bryant 2008), the quality of the data remains problematic. It is important that further research in the areas of arson and bushfire arson continue with the inclusion of costing elements.

Productivity estimates

A major area of costing work that has not been included in this report is the area of lost productivity of criminals due to their involvement in the criminal arena. This has not been costed due to a lack of data – the extent to which criminals participate solely in the criminal world, how economically productive they might be if not engaged in criminal activities, and the gross number of individuals involved in criminal activities is not known. This report accounts for the lost productivity of the victim of crimes (time spent away from work, time spent fixing any damage, time spent in hospital, etc.), but does not attempt to quantify the lost productivity to society of those individuals who are engaged in illegal activities rather than in legal ones. It is recommended that this area should be one where future work around the costs of crimes is expanded.

Improving data availability in the Australian context

Throughout this report, there are many instances where estimates from the UK or the US are used. This is because estimates for Australia are not available. While these figures or estimates are likely to be a reasonable proxy for what occurs in the Australian context, it would be preferable to have Australian data. The areas where data in the Australian context are not available fall into four main categories: estimates of intangible losses and lost output, costs of crime to business, Australia-wide costs of injury estimates, and limited data collected by the Australian Bureau of Statistics in its *Recorded crime: victims* collection. Each of these areas is discussed below.

AUSTRALIAN ESTIMATES OF INTANGIBLE LOSSES AND LOST OUTPUT

This report relies heavily on work done in the United Kingdom and the United States to estimate intangible losses and lost output for a range of crimes, but most importantly crimes against an individual. For example, current estimates of costs of crime from the United Kingdom use a 'desired compensation' approach to estimate intangible losses (Mayhew 2003b). Desired compensation estimates are derived from surveys where this information is directly sought from the person responding to the survey. Currently there are no data in Australia with which to estimate intangible losses or desired compensation for crimes against an individual, and this is especially the case for violent crimes against the individual such as assault, sexual assault and robbery. This area of research (which, in turns, feeds into government policy in the crime and justice area) in Australia would be greatly enhanced by the inclusion of 'desired compensation' into victimisation surveys, or the implementation of a specific survey designed to gain information on the intangible costs of crimes to individuals. This would assist in estimating the intangible costs of crimes, and should include sections on:

- intangible costs (or desired compensation)
- time spent dealing with crime
- time away from work
- any financial consequence to being a victim (e.g. installing a home alarm system, catching a bus rather than walking to work)
- any medical costs associated with the crime.

ESTIMATES OF THE COSTS OF CRIME TO BUSINESS

In terms of organisational victims subject to crimes such as robbery, criminal damage, shop theft and fraud, it would be useful to collect survey data on crime perpetrated against business. In 1998–99, the AIC conducted a national postal survey investigating crime against small businesses (Taylor & Mayhew 2002). The data from this survey were used by Mayhew (2003b) for costing estimates, but the data were considered too dated to be used in the current report. As more recent data for Australia are not available, data from the UK Home Office National Crime against Retail and Manufacturing Premises survey conducted in 2002 (Shury et al. 2005a) were used to construct cost estimates and some lost output estimates for crimes against organisational victims.

In addition to the need for more regular collection of crime data against businesses in Australia, more information on the range of crimes against business should be collected in the Australian context. For example, the UK survey collects information on burglary, attempted burglary, vandalism (referred to as criminal damage in this report), theft of vehicles, theft from vehicles, theft by customers, theft by employees, theft by outsiders,

theft by persons unknown, fraud by employees, fraud by outsiders, robbery, threats and assaults, and electronic crimes/sending viruses. A similar survey in Australia would help to provide up-to-date and necessary data for costing crime to businesses.

UP-TO-DATE INFORMATION ON THE COSTS OF INJURY IN AUSTRALIA

Information on the costs of injury in the United States has been used in this report to estimate the medical costs for violent interpersonal crime such as murder, assault and sexual assault. The report also uses information on lost output in the United States. Mayhew (2003b) was able to use Australian data on the costs of injuries from Victoria (Watson & Ozanne-Smith 1997), but as this provided estimates for 1993–94 they are now too dated to be included in the current estimates.

Research into the cost of injury in Australia should be produced, and in line with the 'gold standard' of the US work, should include data on lost output due to injury. While these data would assist in compiling more accurate estimates of the costs of crime, it would also assist the public policy areas of health, the aged, education and workplace safety.

EXPANDING DATA COLLECTED BY THE AUSTRALIAN BUREAU OF STATISTICS

This report relies on the annual ABS *Recorded crime: victims* publication. While a number of crimes are reported in the ABS publication, some crimes such as shop theft, criminal damage, fraud, arson and theft from motor vehicles are not. Based on the gross estimates of crime in this report (some crime data had to be sourced at a jurisdictional level), ABS *Recorded crime: victims* accounts for only slightly more than half of all recorded crime. As technology-enabled crime appears to be increasing and new possibilities for technology-based crime continue to evolve, the proportion of overall recorded crime published by the ABS will decline relative to these other types of crime. To provide a more complete and accurate overview of recorded crime, the inclusion of these extra categories of recorded crime are warranted.

Introduction

In 2003, the Australian Institute of Criminology released *Counting the costs of crime in Australia* (Mayhew 2003a). This publication, and the accompanying technical paper (Mayhew 2003b), attempted to put a dollar value on the total cost of crime in 2001 to the Australian community. This dollar value was estimated by the Reserve Bank of Australia (RBA) to be $31.8b, or 3.8 percent of gross domestic product (GDP). These publications were well received by policymakers, researchers and police as they took a step towards filling a large gap in knowledge. They also highlighted the substantial costs that crime imposes on the community.

While estimating the costs of crime is a particularly difficult task – as many of the costs associated with different crimes cannot be conclusively determined or ascertained – it is nevertheless an exercise worth repeating. Updating estimates of the cost of crime allow changes over time to be monitored and identification of which crime types might be increasing or decreasing in cost. Given the sizable financial investment made to fight crime, both in terms of direct investment from governments and investments made by individuals and organisations on preventative measures, understanding which crimes cost more and whether there is change over time allows a better understanding of where sizable resources might best be directed.

This report updates the costs of crime estimated by Mayhew (2003a) and for the most part replicates the previous methodology. Categories of crime costed in this report include:

- homicide
- assault
- sexual assault
- robbery
- burglary
- thefts of vehicles
- thefts from vehicles
- shop theft
- other theft
- criminal damage
- arson
- fraud
- drug-related harm
- other costs (which include costs of the police, courts and other government spending on crime, the prevention of crime and the punishment of offenders).

The method used by Mayhew (2003) to calculate costs was based on the methodology employed in the United Kingdom (Brand & Price 2000). It also expanded on previous work completed in the Australian context by Walker (1992, 1997). The costs of crime in the United Kingdom have since been revised (Dubourg, Hamed & Thorns 2005), and those revised estimates are referred to throughout this publication.

The previous costing was for the calendar year 2001. The current costings are for the calendar year 2005. The decision to estimate for this period was made because the most recent ABS Crime and Safety Survey (CSS) and Personal Safety Survey (PSS) were conducted in 2005. These surveys allowed for multipliers (see section 'Methodology') to be applied directly to 2005 ABS Reported Crime data to estimate crime costs. Some components in the current report, mostly costs associated with government agencies, are for the financial year 2005–06. As with the previous report, this discrepancy was unavoidable.

For ease of use, this report is laid out in a similar fashion to the previous technical report (Mayhew 2003b), with the detailed methodology and costings associated with each major category of crime explained in detail in its own section. The section 'Overview of crime costs' presents key figures and costs, discusses future areas that could be investigated when costing crime, and provides some suggestions to improve data for future costings.

Studies used to assist in estimating costs of crime

ABS *Recorded crime: victims*, 2005 and 2004

The ABS compiles data provided by the state and territory police jurisdictions to produce national counts of a select number of crimes, which are reported to police. Data from ABS *Recorded crime: victims* is used in this report for the categories of homicide, assault, sexual assault, robbery, break and enter, motor vehicle theft, and other theft. The ABS does not compile police figures on the other categories examined in this report (thefts from vehicles, shop theft, criminal damage, arson, fraud and drug offences), and in most cases state police services were approached directly to provide those figures.

Due to differences across jurisdictions in the way police record assault and sexual assault, national aggregate figures for these crimes were not provided in 2005 ABS *Recorded crime: victims*. However, assault and sexual assault counts for each separate jurisdiction were included in the ABS report, and these figures have been used to calculate a national estimate.

ABS Crime and Safety Survey 2005

The most recent ABS Crime and Safety Survey (CSS) was conducted in 2005 and is the sixth of its type. The CSS is a nationally representative survey of Australians and seeks information on their experiences with a range of crimes, and is used in conjunction with *Recorded crime: victims* to get an overview of the major categories of crime in Australia. Specifically, the CSS asks whether the respondent was a victim of crime in the previous 12 months. The survey asks for details about the incident, such as whether it was reported to police, whether the offender was known to the victim and where the offence took place. Crimes covered in the CSS include break-ins, motor vehicle theft, robbery and assault. While sexual assault was included in the 2000 CSS, this information was not provided in the 2005 CSS due to unreliability of the estimates for this offence.

The strength of the CSS is that it provides an estimate of the 'unknown' portion of crimes that are not reported to police. This information is an integral part of estimating the costs of crime because while a crime might not be reported to police, it does not mean it will not have costs associated with it. CSS findings are used to estimate multipliers for assault, burglary, motor vehicle theft and robbery.

ABS Personal Safety Survey 2005

The ABS Personal Safety Survey (PSS) is a national survey of both men and women which addresses their experiences of violence – both in the 12 months prior to the survey being

undertaken, and their lifetime experiences with violence. The survey also provides information on people's safety at home and within the community. The survey was last conducted in 2005.

Like the CSS, the PSS provides an excellent tool with which to estimate the actual prevalence of violent crimes within the Australian community. The PSS differs from the CSS in two important ways. First, the PSS is asked only of people aged 18 years and over, rather than those aged 15 years and over. Second, the PSS is conducted using face-to-face interviews rather than an individual filling out the survey by themselves and mailing it. The PSS has been used to estimate multipliers for sexual assault.

The Incidence and Economic Burden of Injuries in the United States study

The Incidence and Economic Burden of Injuries in the United States, conducted by Finkelstein, Corso and Miller (2006), is a study into the costs of injuries in the United States in 2000. This work is an update of the US landmark report to Congress in 1989 (Rice et al. 1989). These data are relied on heavily in this report, and provide the basis for estimating the medical costs and lost output figures for violent crimes against the individual. Adjustments have been made for the different costs of US and Australian medical systems (described in detail later in the report) and these costs are, for the most part, fairly closely aligned with current UK estimates of these costs.

Mayhew (2003b) used the Monash University Accident Research Centre (MUARC) study (Watson & Ozanne-Smith 1997) to estimate costs of injuries and lost output. The MUARC study estimated the cost of injury in Victoria in 1993–94 and the methodology was based on the original work from the United States report to Congress (Rice et al. 1989). No further work on medical costs of injury has been completed in Australia since the MUARC study, and given costs were estimated for 1993–94 it was considered too outdated to be included in this study. In the absence of Australian work, the updated US study was used.

The US study examines the costs of injuries in terms of incidence, lifetime medical costs and productivity losses. The US study also presents figures for fatalities, which is useful when estimating costs for homicides. The MUARC study specifically gave estimates of costs for interpersonal violence with injury, which the US does not provide. As such, the average cost across all injuries was taken, and when these are compared with the previous estimates for medical costs the estimates are slightly higher, but are comparable with previous estimates. The difference between the two reports comes with the estimates for lost productivity for injury, which are substantially lower in the US report than in the MUARC study. However, the current estimates for lost productivity are much more comparable with current UK estimates

(Dubourg, Hamed & Thorns 2005), so the US estimates, while being perhaps more conservative than in the previous study, have been used.

The economic and social costs of crime against individuals and households 2003/04 (updated UK study)

This study (Dubourg, Hamed & Thorns 2005) is an update of the original Brand and Rice (2000) work completed by the Home Office in 2000. This study looked at the detailed costs of crime in England and Wales in 1999. Mayhew's (2003) work relied heavily on the methodology (with some small differences) employed by Brand and Price, and the updated estimates in the current report are used mainly for comparison purposes, but the overall methodologies are still similar.

Bureau of Transport Economics (BTE): *Road crash costs in Australia*

The BTE study on road crash costs in 1996 (BTE 2000) was again used in the current report. As with Mayhew's methodology (2003b), actual cost data produced in the BTE report was not used, but rather the ratio of their lost output to their intangible losses was applied to data from the Finkelstein, Corso and Miller (2006) study.

Benefits of theft reform (MM Starrs)

Produced in 2005, the MM Starrs report is the second review of the National Motor Vehicle Theft Reduction Council (NMVTRC), and provides an independent assessment of the costs and benefits of vehicle theft reform and the NMVTRC's performance in overseeing the reform process. Section 4 of the report deals with the unit costs of stolen vehicles and provides detailed estimates for 2004–05. Specifically, the MM Starrs cost estimates for property losses for stolen vehicles for which an insurance claim has not been made have been included in this report.

The costs of tobacco, alcohol and illicit drug abuse in Australian society in 2004/05 (Collins and Lapsley)

Collins and Lapsley (2008) have produced their fourth report, which estimates the total value of the costs of tobacco, alcohol and illicit drug abuse to Australian society. They define costs as 'the value of the net resources which in a given year are unavailable to the community for consumption or investment purposes as a result of the effects of past and present drug abuse, plus the intangible costs imposed by this abuse'. A small amount of data from their publication have been used in the 'Drug offences' section of this report, and a more comprehensive description of their findings is also available in that section.

UK *Crime against retail and manufacturing premises: findings from the 2002 Commercial Victimisation Survey* (Shury et al. 2005a)

This was the second national survey of crime against business premises in England and Wales. Approximately 6,500 businesses took part in a telephone survey, which asked questions about their experience with crime over the previous 12 months. Questions included asking about the cost of crime to their business, their concerns about problems and crime in the local area, action they had taken to respond to incidents of crime and their crime prevention precautions. Data from this report were used in cases when up-to-date data on the costs of crime to business were not available. As a small business survey examining crime has not been carried out in Australia since the AIC's Small Business Crime survey conducted in 1999, this report proved valuable in providing data that were not available elsewhere.

Methodology

This report should be read in conjunction with the technical and background report *Counting the costs of crime in Australia: technical report* (Mayhew 2003b), which describes the original methodology employed. Mayhew's original report also provides a good discussion on some costing principles, as well as the similarities between the United Kingdom and Australia in terms of their crime profile. For purposes of brevity, this discussion and the detailed methodology will not be repeated in this publication.

For the most part, to allow for basic comparisons between the two reports, the same methodology as described in the original report has been followed here. In practical terms, some minor methodological changes have been made, usually where better data have become available over time, or there is a strong theoretical case for making the change. There have been changes made to 'multipliers' (see below) as necessary. In instances where no updated or better data were available, the original 2001 figure was taken and inflated by the consumer price index (CPI) to 2005 values.

There is a myriad of difficulties in assessing the costs of crime, which will be outlined briefly here. For a full explanation of these issues see Mayhew (2003b).

Multipliers and their use

To estimate the cost of a particular crime, the frequency with which the crime occurs needs to be established. A major difficulty in attempting to assess the costs of crime is the 'unknown' frequency of many types of crimes. There are several reasons why the number of crimes which occur may be unknown. First, not all crimes are reported to the police. This is especially the case if the nature of the crime is considered too trivial to report (for example, the case of an attempted break and enter where nothing was stolen), or in the case of a 'victimless' crime, where it is not clear a crime has taken place. There are also incidents where more serious crimes are not reported to the police for fear of reprisal or because the victim is uncomfortable or scared to report the crime (as with sexual assault or domestic violence-related assault). This 'gap' between the number of known (or reported) cases of an offence and the actual number of committed offences makes the costing of crime difficult. Second, not all crimes reported to police are necessarily recorded by police as a crime, although this affects recorded crime to a much lesser degree than the non-reporting by victims of crime. The non-recording of crimes by police occurs for a number of reasons, including complying with victims' wishes not to proceed, the police may feel the report is mistaken or dishonest, or the police may feel there is insufficient evidence to proceed with a charge (Mayhew 2003b: 9).

The difficulties presented by the 'gap' between recorded and actual crimes have been addressed in this paper, and in previous work in the area of costing crime, through the

use of 'multipliers' for various crimes. This is an estimate of how much police-recorded crime (as presented in ABS 2005) should be inflated to estimate the 'true' number of crimes. For example, this paper assumes all homicides are known to police, therefore homicide is assigned a multiplier of 1. However, it is well documented that not all instances of sexual assault are reported to police, so a multiplier of 5.3 was used to adjust the *Recorded crime: victims* figures to get an estimate of the 'true' number of sexual assaults.

Where possible, this multiplier is calculated using the nationally representative ABS Crime and Safety Survey (CSS) or the ABS Personal Safety Survey (PSS) national victim-based surveys undertaken by the Australian Bureau of Statistics (ABS 2006b). Respondents are asked whether they were the victims of a crime in the previous 12 months, and those responses are taken at their 'face value'. It should be noted the calculation of the estimated number of crimes in this report is not necessarily the figure presented in CSS or PSS survey findings. This is because the CSS does not cover victims under 15 years of age, and the PSS does not cover victims under 18 years of age (ABS 2006b, 2006c), whereas recorded police figures include victims of all ages.

The multiplier is calculated by comparing the number of crimes as reported in the CSS or PSS with those reported in ABS *Recorded crime: victims*. It is important the victim survey and the *Recorded crime: victims* figures cover the same time period. The CSS was conducted from May to July 2005, the PSS from August to December 2005, and referred to any victimisation the respondent had encountered in the previous 12 months. Thus, for the estimation of multipliers, the data from 2004 and 2005 ABS *Recorded crime: victims* were used. These multipliers were applied to the CSS and PSS data as appropriate.

Intangible costs

Intangible costs are those costs not usually 'exchanged private or public markets, such as fear, pain, suffering, and lost quality of life' (Cohen 2005: 25). The methodology for assessing the intangible costs of crime has basically remained the same as used by Mayhew (2003), and most estimates of intangible costs come from the United Kingdom. For a discussion on the intangible costs of crime, see Mayhew (2003b).

Purchasing Power Parities and inflation figures

Cost estimates from both the United States and the United Kingdom have been used in this report, as Australian data were not available. In both cases, Purchasing Power Parities (PPP) issued by the Organisation for Economic Co-operation and Development (OECD 2007) were

used to convert costs given in US$ or UK£ to A$. The OECD releases both PPP and CPIs. Advice taken from the OECD statistics area (2007, pers. comm., 21 September) was that PPP are the most appropriate conversion tool in this type of work. This gave a conversion rate of A$2.10 to £1 and A$1.38 to US$1. These were the conversion rates applied in this report.

There were several places in the report where costs estimated by Mayhew (2003b) or where US and UK figures needed to be inflated to 2005 figures. This was done using the CPI inflation rates reported by the RBA using their online inflation calculator (RBA 2007). Inflation rates were applied as the last stage of the conversion process.

What has been left out?

Some costs have not been included in the estimates presented in this report. These include the social costs of fear of crime, costs of supporting offenders and their families, local government crime prevention activity, community defensive action, 'second-generation' costs of offending, damage to an individual's reputation (in the case of a financial crime, Gilligan 2007) and costs associated with disinvestment in high-crime areas. The nation-wide lost productivity of those individuals committing crimes has not been costed and included in estimates due to lack of available data.

Notes when reading this report

- Table totals may not add to sub-components due to rounding.
- Medical costs have not been estimated for the categories of burglary, thefts of motor vehicles, thefts from motor vehicles, shop theft, other theft, criminal damage, arson or fraud due to lack of available data.
- Intangible losses have not been estimated for shop theft, arson, or drug offences due to lack of available data.
- All dollar values reported have been adjusted to 2005 A$.

Findings

Homicide

The number of homicides

There were 496 homicides recorded by the ABS in 2005. This figure includes manslaughter and driving occasioning death (thus figures are higher when compared to the AIC's National Homicide Monitoring Program (Davies & Mouzos 2007)), but does not include attempted murder, which is included in the assault estimates. In line with Mayhew (2003a) and Dubourg, Hamed and Thorns (2005), it is assumed all homicides were known to police, so a multiplier of 1 was applied.

As noted by Mayhew (2003b), there is likely to be a small underestimation when examining homicides. For example, a case of a shaken baby where cause of death is incorrectly assigned, or where an individual is missing in suspicious circumstance, but no body is found and/or no one is charged, are examples of when a murder may have taken place but not been recorded. However, as those who have been murdered are not able to take part in a victimisation survey, any multiplier for homicide would be based on a best guess. In addition, the use of a multiplier of 1 is consistent with the methodology used in the recent UK estimates (Dubourg, Hamed & Thorns 2005).

Medical costs

No recent work on the medical costs of fatalities has been undertaken in Australia for some time. Thus, it was fortunate recent US data was available (Finkelstein, Corso & Miller 2006). Details of this report can be found in the previous section, but it was particularly valuable as it provided data on the incident level medical costs of fatal, hospitalised and non-hospitalised injuries. Data for fatalities were used for homicides. A three-stage process was used to estimate Australian hospital costs from US estimates. The first step was to convert the US$ value into A$ based on PPP released by the OECD. As medical costs in the United States are higher than in Australia, the second step was to adjust the US estimates. The World Health Organization (WHO) publishes data on Estimates of Unit Costs for Patient Services for Australia and the United States, and presents them in international dollars (INT$) so they can be directly compared (WHO 2000). The cost per bed by day in an American hospital is 6.56 times more expensive than an Australian hospital. Thus, the US figures for the medical costs of a fatal injury (Finkelstein, Corso & Miller 2006: 91) are divided by 6.56. Estimates were for 2000, so the final step was to inflate figures based on CPI to 2005 prices. The medical costs of homicide are estimated at an average of $1,740 per incident, or $861,000 overall.

Lost output

Lost output, or the value of lost earnings, is also estimated in the US report for fatal injuries (Finkelstein, Corso & Miller 2006: 121). Lost output is estimated to be $1.45m per incident, giving a total cost of $719m.

Intangible losses

The methodology used by Mayhew (2003b) to calculate intangible losses has been applied here. That methodology is the ratio of BTE's quality of life figure to its lost output figure for fatal road accidents (0.32), and was applied to the above figure for lost output, giving a total cost for intangible losses of $230m.

Total costs

As shown in Table 4, the total cost for homicide is estimated at $1.9m per incident, or $950m overall. Not surprisingly, the largest component in the costs of homicide was the losses due to lost output of victims.

Table 4: Costs of homicide [a]

	Per-incident cost ($)	Total cost ($m)
Medical costs	1,740	8.6
Lost output	1,449,000	719.0
Intangible losses	464,000	230.0
Total	1,915,000	950.0

a: Based on 496 homicides in Australia in 2005

Assault

Assaults recorded by police

The ABS defines assault as 'the direct (and immediate/confrontational) infliction of force, injury or violence upon a person or persons, or the direct (and immediate/confrontational) threat of force, injury or violence where there is an apprehension that the threat could be enacted' (ABS 2006a: 40). The ABS did not present aggregated results for assault. However, a breakdown by state/territory was provided, and in the absence of better data these have been totalled to provide an Australian figure for assaults. There were 161,000 assaults and 295 attempted murders (which are included in this section) recorded by police.

Crime and Safety Survey

The CSS (ABS 2006b) estimated there were 770,600 assaults of individuals aged 15 years and over in 2005. The CSS provided data on whether the last experience of assault resulted in an injury, but estimations of the severity of the injury, specifically whether the victim was hospitalised or injured but not hospitalised, were not published (ABS 2006b). Thus, estimations of those falling into these categories were taken from the 1997–98 CSS survey and applied to the 2005 CSS data. It was necessary to use this estimate, as the medical costs for someone requiring hospitalisation are far higher, and the impact on the individual is much greater, if the injury is severe enough to cause hospitalisation.

Estimating the number of assaults

There were 770,600 victims of assault reported in the CSS (ABS 2006b). Adjusting for age coverage gives a multiplier of 5.2. This is almost the same as the previous multiplier of 5.3 (Mayhew 2003b), and lower but still in line with the UK multiplier of 7.7.

Applying the multiplier to the total number of assaults (across all age groups) and including attempted murders (a multiplier of 1 is assumed for attempted murders), the total estimated number of assaults was approximately 832,000. Table 5 shows the total estimated assaults by injury type. As mentioned above, the proportion of the total number of assaults that fall into each injury group was taken from the 1997–98 CSS (ABS 1999: 56).

The estimated figure for the number of assaults resulting in a hospital stay can be cross-checked against the number of hospitalisations where the principal diagnosis is assault. More recent figures are not available, but there were approximately 20,500 hospitalisations where the principal diagnosis was assault in 2003–04 (Barry & Harrison 2007: 24), while our figure is an estimated 21,000 hospitalisations due to assault in 2005 (see Table 5). While the two figures are not directly comparable, hospitalisation data support the current estimate as reasonable.

Table 5: Estimated number of assaults

	Assaults recorded by police [a]	Total estimated assaults [b]
Hospital	n.a.	21,000
Other injury	n.a.	172,000
No injury	n.a.	639,000
Total	161,000	832,000

a: Including victims under 15

b: This breakdown is based on the proportions of respondents who reported being hospitalised, and injured but not hospitalised in the 1997–98 CSS

Medical costs

Using data from the US study (Finkelstein, Corso & Miller 2006), the estimated the cost of an injury requiring hospitalisation is $4,000 per incident, which is reasonably close to the UK estimate of $3,070. The average cost of a non-hospitalised injury based on the US study was $1,000 (It is assumed those not injured did not receive any form of medical treatment.) Table 6 shows the breakdown of medical costs for assault. The medical costs of assault per incident are $310, giving a total value of medical costs due to assault as $273m.

Lost output

Finkelstein, Corso and Miller (2006: 119) provide unit productivity losses for both hospitalised and non-hospitalised injuries. 'Short-term' data were used. The estimates for lost productivity for a hospitalised injury were $7,500. The small per-incident cost ($30) of lost productivity for a non-injury assault was taken from Mayhew (2003b) and adjusted to 2005 prices. The lost output for an assault was, on average, $600 per incident, costing $524m overall.

Table 6: Costs of assaults – medical, lost output and intangible losses

	Per-incident cost ($)			Total cost ($m)		
	Medical	Lost output	Intangible	Medical	Lost output	Intangible
Hospitalised [a]	4,000	7,500	4,900	84	156	103
Injured	1,000	1,800	1,900	175	316	332
All injured	1,300	2,400	2,300	258	472	435
Not injured	–	35	350	–	22	223
Average per-incident cost	310	600	800	–	–	–
Total	–	–	–	258	495	658

a: Includes attempted homicides

Intangible costs

In keeping with Mayhew's (2003b) methodology, the ratio of BTE's intangible losses for non-fatal road accidents to BTE's lost output figures (0.66 for hospitalised injuries and 1.05 for non-hospitalised injuries) was applied to the US study's lost output figures. Intangible losses due to assault are estimated at $800 per incident or $658m in total.

Total costs

The estimated total cost for assault is $1,700 per incident and $1.41b overall (Table 7). The largest component of assault costs were the intangible costs, followed by the lost output costs.

Table 7: Overall unit and total costs of assaults, 2005

	Per-incident cost ($)	Total cost ($m)
Hospitalised	16,000	343
Injured	4,800	823
All injured	6,000	1,165
Not injured	380	245
Average per-incident cost	1,695	–
Total	–	1,411

Sexual assault

Sexual assaults recorded by police

The ABS did not present an aggregate Australia-wide count for sexual assault in the *Recorded crime: victims* publication (2006a). However, a state/territory breakdown was provided in 2005, and these figures have been aggregated to provide an Australia-wide estimate of the number of sexual assaults. There were around 18,000 sexual assaults recorded by police across the Australian states and territories.

Personal Safety Survey: estimating the number of sexual assaults

Unlike other sections of this report addressing crimes against the individual, the ABS CSS has not been used to calculate multipliers to estimate the numbers of actual sexual assaults. The ABS reported that due to methodological changes in the survey, the response rate for the sexual assault section was lower than in previous years (ABS 2006b: 33). This meant that very minimal information on sexual assault was published in the CSS due to the unreliability of the estimates. Instead, information from the ABS Personal Safety Survey (PSS) has been used to calculate the multiplier for sexual assault. The PSS (ABS 2006c) is considered a more robust instrument for the recording of crimes against the person, as the survey is conducted face-to-face by a trained interviewer.

The definition of sexual assault in the PSS is broader than in ABS *Recorded crime: victims*, thus the multiplier for sexual assault has been calculated differently from multipliers for other personal crime incidents. The PSS asks respondents whether they reported the last incident

of sexual assault to police. In 2005, 18.9 percent of sexual assault victims reported they had told police of the most recent incident of sexual assault in the previous 12 months, giving a multiplier of 5.3. This multiplier is very similar to Mayhew's multiplier of 5.6 (Mayhew 2003b) and reasonably consistent with Dubourg, Hamed and Thorns' (2005) multiplier of 7.7. Reporting of sexual assault has been found to vary between 11 and 20 percent in previous survey research. The 2002–03 Australian component of the International Violence Against Women Survey conducted by the AIC revealed a reporting rate to police of 14–16 percent (Mouzos & Makkai 2004) – a multiplier of between 6.3 and 7.1. While on the conservative side, a multiplier of 5.3 is considered reasonable, given that it is based on the reporting rate in the PSS. This gives an estimated 96,000 incidents of sexual assault.

In terms of injury, published PSS data were not available to estimate the percentage of sexual assaults that result in an injury, thus data from the 2002 CSS were used, which estimated 28 percent of sexual assaults resulted in an injury (ABS 2002: 29). This gives an estimate of around 27,000 sexual assaults in 2005 resulting in an injury.

Medical costs

The average medical costs for those who were injured (both hospitalised and non-hospitalised) were $1,330 per injury (Table 8). Overall, the medical costs for sexual assault with injury were an estimated $36m.

Lost output

Mayhew (2003b) estimated lost output figures for sexual assault by adjusting assault figures by one-third based on the ratio of people who consider assault 'very serious' to those who consider sexual assault 'very serious'. Thus, lost output figures for assault figures were inflated by one-third to give an estimate for sexual assault. The same method was used for estimates of intangible losses for sexual assault.

However, it was felt this methodology might result in an underestimation. Thus, a methodological change was made in this report. Rather than inflating by one-third, the ratio of sexual assault to assault (wounding) from UK estimates was used. This gives an adjustment factor of 3.8. The lost output figures estimated for assault of $35 for a non-injury and $2,400 for an injury assault were inflated 3.8 times to give figures of $130 and $9,300 respectively (Table 8). The total cost for lost output due to sexual assault is estimated at $259m.

Table 8: Costs of sexual assaults – medical, lost output and intangible losses						
	Per-incident cost ($)			Total cost ($m)		
	Medical	Lost output	Intangible	Medical	Lost output	Intangible
Injured	1,300	9,300	11,300	36	250	303
Not injured	–	130	1,700	–	9	121
Average per-incident cost	370	2,700	4,400	–	–	–
Total	–	–	–	36	259	424

Intangible losses

Intangible losses for assaults were adjusted by the UK estimates ratio of 5 (which is the ratio of intangible losses for sexual offences to the intangible losses for wounding assault) (Dubourg, Hamed & Thorns 2005), rather than by one-third as in Mayhew (2003b). Clearly, this is going to produce a much higher estimate when compared with Mayhew (2003b) and, as the methodology has changed, it is not advisable to compare the two figures.

The estimated intangible costs for assault ($2,300 and $350 for injury and non-injury respectively) were adjusted as described above, giving a per-incident cost of $11,300 and $1,700 for injury and non-injury sexual assaults. This gives a total cost estimate due to intangible losses as $424m.

Total costs

The estimated total cost of sexual assault is $720m (Table 9). This is an average incident cost of just under $7,500. The costs for sexual assault are higher than Mayhew (2003b) as the figures have been inflated relative to assault in line with UK estimates.

Table 9: Total costs of sexual assault		
	Per-incident cost ($)	Total cost ($m)
Injury	21,900	589
No injury	1,900	130
Total	7,500	720

Robbery

Robbery is defined by the ABS as 'the unlawful taking of property, with intent to permanently deprive the owner of the property, from the immediate possession, control, custody or care of a person or organisation, accompanied by the use of, and/or threatened use of immediate force or violence' (ABS 2006a: 41). Attempted robbery is included in the statistics.

Individual vs organisational victims

The victim of a robbery can be either an organisation or an individual. ABS *Recorded crime: victims* reported approximately 84 percent of victims were an individual as opposed to an organisation (ABS 2005: 13). This figure is consistent with New South Wales police data, where 83 percent of victims were individuals and the remaining 17 percent of victims were organisations (data provided by the NSW Bureau of Crime Statistics and Research (BOCSAR)).

Estimating the number of robberies

The CSS collects data on both the number of victims and the number of incidents. The correct count to use is the number of incidents. While ABS *Recorded crime: victims* reports on victims, if an individual reports the same crime on more than one occasion and reports those incidents to police on different days, the incidents will be counted individually. However, if an individual reports more than one incidence of a crime on the same day (even if those incidents took place on different days), those crimes will only be counted as one incident (ABS 2006: 35).

Thus, using incident count data from the CSS (2005) assumes when more than one incident has occurred, these are reported to police on separate days. It should be noted this might not always be the case, thus counts of total crimes presented below may be a slight overestimate.

An adjustment was made for CSS not being asked of people under the age of 15 (as ABS *Recorded crime: victims* is collected for all victims, with around five percent being under the age of 15), the overall multiplier for personal robberies was 7.2, which is much the same as the previous estimate of 7.5. The estimated number of personal robberies is 96,100.

In the case of organisational robberies, a multiplier of 1.1 was used in 2001 (Mayhew 2003b). The proportion of retail robberies reported to police in the UK 2002 Commercial Victimisation Survey was 0.78. There is no distinction between armed and non-armed. The UK Small Business Crime survey showed almost all armed and 75 percent of unarmed

robberies were reported to police. Thus, the previous multiplier of 1.1 was lifted to 1.2 to be more in line with current UK estimates. The total number of organisation robberies is estimated to be 3,220, giving a total number of estimated robberies as 99,000. This figure is lower than reported by Mayhew (2003b) (around 65,000 robberies less), as the number of robberies recorded by police dropped substantially from 26,600 in 2001 to 16,800 in 2005.

Estimating property loss

There is no definitive figure for the average property loss per robbery across Australia. A number of sources were consulted to gain an estimate of property loss as a result of robbery, and these were the NSW Police Force (figures provided by BOCSAR), estimates presented in the most recent UK study (*The economic and social costs of crime against individuals and households 2003/04*) and the most recent UK business crime survey (*Crime against retail and manufacturing premises: findings from the 2002 Commercial Victimisation Survey*).

The UK commercial crime survey covering retailers and manufactures indicates an average cost (in 2005 A$) of $1,800 for retailers and $2,900 for manufactures. The UK costs of crime estimates (which cover recorded and unrecorded crimes) estimate an average cost of $232 (this is lower than the previous UK estimate of around $450 per incident).

Average costs per robbery in New South Wales were also obtained. Mayhew (2003b) estimated the average costs to be $6,200 for an organisational robbery and $1,000 for a personal robbery. However, average figures (certainly for 2005) are skewed due to a small number of large-value incidents. For example, in 2005 the average (mean) cost of a personal robbery was $1,200 and for an organisational robbery it was $213,600. The mean was thus considered to be an unrealistic estimate, so the median value of $300 for a personal robbery and $600 for an organisational robbery were used when generating an estimate of property loss.

An estimate of $500 for a personal robbery and $2,900 for an organisational robbery are used. This gives a total cost due to property loss of $57m, or approximately $570 per incident. The per-incident figure is similar to current UK estimates.

Medical costs

The CSS (ABS 2006b:19) reported 35 percent of victims are injured as a result of robbery. No further breakdown of those injuries is provided in the CSS, so estimates from the 2006–07 British Crime Survey (2007: 70) were used. The percentage of those injured through robbery who saw a doctor and who had an overnight stay in hospital were approximately 38 percent and 10 percent respectively. The rest had some form of medical

attention, but as it was not specified it was not included in the cost estimates. This gives slightly fewer than 35,000 incidents were an injury occurred, with 13,200 of those requiring attention from a doctor and 3,600 requiring a hospital stay.

The cost per average hospital stay and non-hospital stay were taken from the assault estimates (slightly under $4,000 per hospital stay and slightly over $1,000 for a non-hospital stay), with the estimated medical costs due to robbery being $28m, or averaged across all robbery incidents slightly under $300 per incident (Table 10).

Lost output

Using US figures (Finkelstein, Corso & Miller 2006: 119), the costs of lost output were $7,500 for an injury requiring hospitalisation and $1,800 for an injury requiring medical attention but not hospitalisation (Table 10). Figures from Mayhew (2003b) for the lost output for those injured but who did not have medical treatment ($500 per incident), and those not injured ($30 per incident) have been used and inflated to 2005 prices. Lost output due to robberies is thus estimated to be $63m, with an average per-incident cost of $640.

Table 10: Costs of robberies – medical, lost output and intangible losses

	Per-incident cost ($)			Total cost ($m)		
	Medical	Lost output	Intangible	Medical	Lost output	Intangible
Hospitalised	4,000	7,500	5,200	14	27	19
Injured, medical treatment	1,000	1,800	1,900	13	24	25
Injured, no medical treatment	–	580	580	–	10	10
All injured	1,600	1,800	1,600	28	61	54
Not injured	–	35	350	–	2	23
Average per-incident cost	280	640	780	–	–	–
Total	–	–	–	28	63	77

Intangible costs

This report uses the same ratios of lost output to intangible costs as described in Mayhew (2003b). When compared with Mayhew's estimates (2003b) the intangible costs have come down substantially. This reflects the decrease in the lost output for injuries (as discussed in the section 'Assault') and the decrease in the overall number of robberies. Intangible costs are estimated to be $77m in total.

Total costs

The estimated total cost of robbery can be seen in Table 11. The overall cost of robbery is estimated at $225m, with an average of $2,300 per incident. It should be noted that over recent years, the numbers of reported robberies have decreased markedly, which lowers the aggregate cost estimates.

Table 11: Overall unit and total costs of robberies

	Per-incident cost ($)	Total cost ($m)
Property loss and damage	570	57
Medical	280	28
Lost output	640	63
Intangible	780	77
Total	2,270	225

Burglary

Burglaries recorded by police

Burglary is defined as the 'unlawful entry of a structure with the intent (UEWI) to commit an offence where the entry is either forced or unforced' (ABS 2006a: 42). As such, this includes break-ins where there was property taken and those where property was not taken, but do not include trespass where there is no intent to steal. There were 197,000 residential burglaries recorded by police. Most of those (72%) were actual break-ins while the remainder (28%) were attempts.

The Crime and Safety Survey

The 2005 ABS CSS gives data for the number of victims and the number of incidents of attempted break-ins and break-ins, and combines the number of overall victims (victims of one incident are not double counted if they have been the victims of another). There were 664,000 incidents of break-ins and attempted break-ins recorded in the CSS (ABS 2006b: 12).

Table 12: Multipliers for residential burglaries

	CSS burglaries 2005 (n)	Residential burglaries recorded by police (n)	Multiplier
Break-ins	347,000	141,000	2.5
Attempted	318,000 [a]	55,000	5.8
Total	664,000	197,000	3.4

a: Based on the above estimation methodology

Estimating the number of burglaries

Residential burglary

The CSS (ABS 2005b) reported around 664,000 incidents of burglaries and attempted burglaries, considerably lower than figures presented in the previous report of just over 800,000 burglaries (Mayhew 2003b). The multiplier for residential burglary was 3.4 (Table 12).

Non-residential burglary

ABS *Recorded crime: victims* reported there were 98,000 non-residential burglaries (ABS 2006a). The breakdown of break-ins taking property and break-ins with no property taken is not disaggregated by the number of residential and non-residential burglaries. Therefore, the percentage of 'property taken' and 'no property taken' is applied equally to both residential and non-residential burglaries (72% had property taken).

The UK 2002 Commercial Victimisation Survey showed 92 percent of burglary in a retail setting and 85 percent of burglary in a manufacturing setting were reported to police (Shury et al. 2005b). No distinction was made between attempts and successes. Estimates from Mayhew (2003b) were that 20 percent of attempts and five percent of actual break-ins go unreported, and the numbers of non-residential burglaries were inflated by these amounts. Thus, applying the multiplier to residential burglaries for Australia and adding in the non-residential burglaries gives a total number of estimated burglaries as 777,000.

Table 13: Estimated number of burglaries

	Non-residential burglaries recorded by police	Residential burglaries recorded by police	Total estimated non-residential burglaries	Total estimated residential burglaries	Total estimated burglaries
With loss	73,000	141,000	77,000	347,000	424,000
No loss	29,000	55,000	36,000	318,000	353,000
Total	102,000	196,000	113,000	664,000	777,000

Estimating property loss

Estimates of property loss due to burglary are made by police and victims. The extent to which police and individuals can accurately estimate property losses due to burglary is not known. However, estimates provided below have been compiled from a number of sources and provide a reasonable guide.

Residential burglaries

UK estimates of residential burglary property loss are $1,900 (Dubourg, Hamed & Thorns 2005). Data provided by New South Wales police show the median property loss for a residential burglary was $800 but the average loss was $2,700. This highlights the skewed nature of the data towards a smaller number of high cost crimes. Victorian police statistics show a mean value of $1,035 and a median value of $310 per burglary, and Tasmanian police reported a mean value of $1,170. Mayhew (2003b) used an estimate of $1,000. Putting these estimates together (using medians rather than means where available) gives a 'best estimate' of $1,040 for 2005.

Non-residential burglaries

Mayhew (2003b) estimated the cost for an average non-residential burglary in 2001 was $2,400. Estimates from 2005 vary with the mean and median figures provided by New South Wales police being $3,200 and $600 respectively. Victorian police reported a mean of $1,800 and a median of $500, and the most recent UK Crime Retail and Manufacturing Premises Survey (Shury et al. 2005b) reported costs of $6,200 (authors computations) for a burglary. Taken together, the estimate for 2005 is $2,400 per burglary (Table 14).

Table 14: Costs of burglaries – property loss, lost output and intangible losses

	Per-incident cost ($)			Total cost ($m)		
	Property loss and damage	Lost output	Intangible	Property loss and damage	Lost output	Intangible
Residential	1,040	150	1,470	688	97	977
Non-residential	2,400	240	1,470	274	27	166
Average per-incident cost	1,240	160	1,470	–	–	–
Total	–	–	–	962	124	1,143

Lost output

As Australian estimates were not available, lost output figures from the UK report were adjusted. For residential burglary, this was estimated at slightly less than $150 (Dubourg, Hamed & Thorns 2005). Lost output for non-residential burglary is taken from the 2002 UK Crime again retail and manufacturing premises (Shury et al. 2005b) and is calculated based on the average hours lost due to a burglary. The average lost hours were multiplied by the Australian average hourly wage in 2005, giving an average figure of $240 per incident. This can be broken down further, with the lost output for an attempted burglary being $135 per incident and for a successful burglary $340.

Intangible costs

The only estimate available for intangible losses was taken from the recent UK estimates (Dubourg, Hamed & Thorns 2005). This was $1,470 for a residential burglary, which has also been applied to non-residential burglary. Intangible costs represent the largest cost associated with burglary at over $1.1b.

Total costs

The overall costs of burglary are presented in Table 15 and are estimated to be $2.23b. This equates to slightly under $3,000 per incident.

Table 15: Overall unit and total costs of burglary

	Per-incident cost ($)	Total cost ($m)
Residential	2,700	1,763
Non-residential	4,100	466
Average	2,900	–
Total	–	2,229

Thefts of vehicles

Vehicle thefts recorded by police

The ABS defines motor vehicle theft as 'the taking of another person's motor vehicle illegally and without permission with the intent of either temporarily or permanently depriving the owner or possessor of the use of the motor vehicle. Excludes attempted motor vehicle theft' (ABS 2006a: 41). Thefts from a motor vehicle are excluded; these are addressed in the following section.

There were an estimated 84,900 motor vehicle thefts recorded by police over the reporting period (ABS 2006a). This is a substantial decline from 2001 when approximately 140,000 vehicles were reported stolen. This difference will have implications for the overall costs associated with motor vehicle theft over a period of time.

Crime and Safety Survey

The CSS reports the gross number of vehicle thefts. While it is possible there were some vehicles stolen where the owner was under the age of 16 (and thus excluded from participating in the CSS), it is assumed this number will be small, so no adjustment has been made. There were 85,200 vehicles reported stolen in the CSS, indicating almost all vehicle thefts are reported. For the purposes of this paper, this gives a multiplier of 1. This multiplier is similar to last time (1 vs 1.05) (Mayhew 2003b) and is comparable to the UK figure of 1.2.

Estimating property loss

The Comprehensive Auto-theft Research System (CARS) database was established to provide timely, comprehensive and accurate information on motor vehicle theft from a wide range of sources. CARS has been established and maintained by the Office of Crime Statistics and Research (OSCAR), within the South Australian Attorney-General's Department and is the best source of information on motor vehicle theft in Australia.

Information from the CARS database indicates that in 2005 the average insurance claim for a stolen vehicle was $9,174, with an additional average of $365 for excess (giving a total of $9,539). This includes all costs incurred by the insurer minus any salvage value. However, the CARS database only covers 80 percent of insurance claims. Thus, if the total number of thefts according to the database is reduced to 80 percent of the total and the total number of claims is divided by that figure, it means approximately 45 percent of stolen vehicles end in an insurance claim (data provided by Paul Thomas, OSCAR).

This leaves around 55 percent of stolen vehicles for which there is no formal estimate of the value of the vehicle. However, the recent MM Starrs (2005) report, based on data from the CARS database, estimated in 2004–05 the average value of an insured vehicle where no insurance claim was made was $1,010, and the value of an uninsured vehicle was $2,020. These figures will be used to estimate the property loss due to vehicle theft.

The total figure for stolen vehicles is estimated to be $430m and the per-incident average is slightly over $5,000. This is similar to the UK estimate of $4,950 per incident; value of property stolen plus value of property damaged or destroyed minus property recovered (Dubourg, Hamed & Thorns 2005).

Table 16: Property loss and damage costs for vehicle theft [a]

	Number of incidents	Estimated loss/ incident ($)	Total loss ($m)
Insured – claim made	38,000	9,500	366
Insured – no claim made	30,000	1,000	30
Uninsured	17,000	2,000	34
Average per-incident cost	–	5,050	–
Total	85,000	–	430

a: Medical costs are not estimated

Lost output

The UK business survey reports the average number of working hours spent dealing with a theft of a vehicle was 20 hours for the retail area and 16.5 for manufacturing (Shury et al. 2005b). Taking an approximate number of hours spent as being 18 and applying Australian

average wages in 2005 gives an estimated lost output of $440 for a theft of a vehicle from a commercial victim. Figures obtained from the New South Wales police indicated in 2005 commercial victims made up eight percent of vehicle theft victims. The UK estimate for lost output of $1,000 (Dubourg, Hamed & Thorns 2005) will be taken for private vehicles (the remaining 92% of incidents), giving an average of $130 lost output per incident for motor vehicle theft and a total estimate of cost due to lost output as $11m.

Intangible costs

UK estimates for 'physical and emotional impact on direct victims' were taken for this section. This is a per-incident figure of $1,820 (Dubourg, Hamed & Thorns 2005) per vehicle, giving an estimated total of $155m for intangible costs for motor vehicle theft.

Table 17: Overall unit and total costs of motor vehicle thefts

	Per-incident cost ($)	Total cost ($m)
Property loss and damage	5,050	430
Lost output	130	11
Intangible	1,800	155
Total	6,980	597

Total costs

The total cost of motor vehicle theft is estimated at $7,000 per vehicle, or nearly $600m overall (Table 17). The largest component of costs of motor vehicle theft was property loss and damage (almost 73%).

Thefts from vehicles

Estimating the number of thefts

The category 'thefts from vehicles' is not included individually in ABS *Recorded crime: victims*, but is included in the 'Other thefts' category along with theft from a person (excluding the use of force), theft from a retail premises, theft not elsewhere covered and illegal use of property (except motor vehicles) (ABS 2006: 41). Separating 'theft from a motor vehicle' from the other categories is not possible, but fortunately several police jurisdictions (New South Wales, Victoria, South Australia and Tasmania) were able to provide a gross count of the number of thefts from vehicles from their records. This number was 121,000 and, on the basis of these states' share of ABS reported thefts, has been adjusted to 188,000 to give an Australia-wide figure.

As with many other crimes, there is a level of underreporting in thefts from vehicles. The most recent UK estimates indicate slightly more than one-third of thefts from motor vehicles are reported to police, producing a multiplier of 2.8 (Dubourg, Hamed & Thorns 2005: 10), which suggests the total number of estimated thefts from a motor vehicle in Australia as 527,000.

New South Wales police were able to provide a breakdown of thefts from private and commercial vehicles. The proportion of thefts from commercial vehicles in New South Wales was 15 percent, and this has been applied to the Australian data to give an estimated number of thefts from commercial vehicles as 76,000.

Estimating property loss

Estimates of property loss have been provided by the state police jurisdictions of New South Wales, Victoria and Tasmania. These figures are likely to represent the higher end of the spectrum of crimes, as high-value crimes are more likely to be reported. Nevertheless, estimates from New South Wales police suggest the median cost of a theft from a vehicle was $200 from an individual and $500 from an organisation. Victorian police reported a median value of $260 and Tasmanian police reported a mean value of $650. Estimates from the United Kingdom show a loss of $550 for individuals (Dubourg, Hamed & Thorns 2005), and estimates from the Crime Against Retail and Manufacturing Premises survey show a median loss of $450 – $570 for each incidence of theft from a vehicle (Shury et al. 2005b). Mayhew (2003b) estimated costs of $600 for a commercial vehicle and $250 for a non-commercial vehicle.

Taking a synthesis of these estimates gives an estimated property loss of $315 from a private vehicle and $550 from a commercial vehicle. This gives a total loss of theft from a vehicle as $184m (Table 18).

Table 18: Costs of thefts from vehicles – property loss, lost output and intangible losses [a]

	Per-incident cost ($)			Total cost ($m)		
	Property loss	Lost output	Intangible	Property loss	Lost output	Intangible
Commercial vehicles	560	60	610	142	5	46
Other	320	50	610	42	21	270
Average per-incident cost	350	60	610	–	–	–
Total	–	–	–	184	25	319

a: Medical costs are not estimated

Lost output

The UK *Crime against retail and manufacturing premises* estimated a median of two to three working hours was spent of dealing with theft from vehicles (Shury et al. 2005b). That equates to around $60 per incident. The UK estimate for crimes against individuals and households estimated the lost output from each incident of theft from a vehicle was $46 (Dubourg, Hamed & Thorns 2005). Applying these figures to the numbers of offences gives an estimate of $25m for lost output (Table18).

Intangible costs

The estimate for intangible costs from the recent UK report has been used in the absence of Australian data. As with all figures presented in this paper, the figure was converted from UK£ and adjusted to 2005 prices. This gives an estimated $600 per incident for intangible costs, which has been applied to thefts from commercial and private vehicles, giving a total of $319m for intangible costs.

Table 19: Overall unit and total costs of theft from vehicles [a]

	Per-incident cost ($)	Total cost ($m)
Property loss	350	184
Lost output	60	25
Intangible	610	319
Total	1,000	529

a: Medical costs are not estimated

Total costs

The total cost of thefts from vehicles is estimated to be $529m (Table 19). The largest component of costs due to theft from motor vehicles (just over 60%) is the intangible losses.

Shop theft

Estimating the number of shop thefts

The major issue in the case of shop theft is the vast number of offences that go both undetected and unreported. Shop theft is not uniquely identified in the ABS *Recorded crime: victims* statistics. However, state police jurisdictions do specifically identify shop theft (which is theft from a retail premises by staff or customers), and figures received from New South Wales, South Australia, Victoria and Tasmania are estimated at 45,000 shop

thefts. These states encompass 64 percent of incidents in the 'Other theft' category of ABS *Recorded crime: victims* (ABS 2006a), and thus the number of recorded offences of shop theft Australia-wide is estimated at 70,000.

The most recent UK report (Dubourg, Hamed & Thorns 2005) does not provide estimates for shop theft, so the multiplier of 100 from Mayhew (2003b) has been used. This gives an estimated 7,000,000 shop thefts across Australia in 2005 (Table 20).

Table 20: Estimates for shop thefts

	Estimate
Estimated number of shop thefts recorded by the police [a]	70,000
Multiplier	100
Estimated number of shop thefts	7,000,000
Best estimate of value of theft per incident ($)	110
Best estimate of total property loss ($000)	756,000

a: Based on New South Wales, Victoria, South Australia and Tasmania, aggregated to Australia-wide

Estimating property loss

Police estimates of the value of shop theft are likely to be skewed to the higher end of the scale, as higher value crimes are more likely to be reported. Taking this into consideration, where available the median value of costs have been reported rather than the mean value, as mean values are likely to be highly skewed towards a small number of high-cost crimes.

The median value of shop thefts reported to New South Wales police was $100 and in Victoria $50. The mean value only is available for Tasmania and this value is $210. Shury et al. (2005b) report the median value of direct financial losses from retail premises of theft by customers was $80 and $285 for theft by an employee. Mayhew (2003b) estimated property loss due to shop theft as $100 per incident. Synthesising these figures gives an estimated cost of slightly less than $110 per incident of shop theft. This gives a total estimated property loss of $756m for shop thefts across Australia. No allowance is made for the recovery of goods, as this is likely to be a small value.

Lost output

Lost output comes mainly from dealing with offenders and from managing stock losses (Mayhew 2005b). Shury et al. (2005b) report the median length of time spent on a retail theft by a customer was one hour, which equates to approximately $25 per incident. Mayhew (2003b) estimated $10 per theft. Taking into account the UK estimates and CPI movement between 2001 and 2005, it is reasonable to estimate the lost output due to shop theft is $15 per incident.

Table 21: Costs of shop theft		
	Per-incident cost ($)	Total cost ($m)
Property loss	110	756
Medical	not estimated	
Lost output	15	105
Intangible	not estimated	
Total	125	861

Total costs

The total costs of shop theft are estimated at $875m, or $125 per incident (Table 21). The largest component (over 86%) of shop theft is the costs due to property loss.

Other theft

Estimating the number of thefts

The 'Other theft' category covers all thefts which have not already been mentioned previously and include incidents such as thefts from gardens and leisure settings. ABS *Recorded crime: victims* (ABS 2006a: 11) reports there were 519,000 cases of theft which fell into the 'other theft' category. This number includes some categories which have been addressed in previous sections (theft from a vehicle and shop theft) and so this figure was reduced by those crimes already considered, leaving 260,000 crimes. The multiplier here is taken from the UK study (Dubourg, Hamed & Thorns 2005) and is 2.7. This gives an estimated 261,000 cases of other theft across Australia during 2005. In a departure from the previous reports methodology, 'handling' offences have not been included in this report, as the costs of handling offences are considered to have been covered elsewhere and handling of stolen goods does not generate a cost to society.

Estimating property loss

The UK study (Dubourg, Hamed & Thorns 2005) provides multiplier estimates for 'Other theft', but does not give estimates of property loss, so Mayhew's (2003b) estimate of $200 per incident has been employed. This figure was adjusted to 2005 prices, giving a per-incident property loss of $220 and a total property loss estimate of $157m.

Table 22: Estimates for other theft	
	Estimate
Estimated number of other thefts recorded by police	261,000
Multiplier	2.7
Estimated other thefts	705,000
Value of theft per incident ($)	220
Total property loss ($m)	157
Lost output per incident ($)	11
Total lost output ($m)	8
Intangible losses per incident ($)	165
Total intangible losses ($m)	118
Total loss per incident	400
Total loss ($m)	282

Lost output

The estimate from Mayhew (2003b) of $10 has been adjusted by the CPI to $11 per incident across all incidents. This gives a total estimated cost of $8m for lost output due to other theft.

Intangible losses

The estimate from Mayhew (2003b) of $150 for intangible costs has been inflated to a 2005 figure of $165. This gives a total estimated cost of $118m for intangible losses due to other theft.

Total costs

The above figures give an estimated cost of $282m for other theft. The largest component of this estimate is intangible losses.

Criminal damage

Estimating the number of incidents

Criminal damage (or vandalism) is not reported in ABS *Recorded crime: victims*, nor is it addressed in the ABS Crime and Safety Survey. Four police jurisdictions provided their figures on the number of reported criminal damage cases, and applying the same proportion

as for 'Theft' gives an estimated 294,000 cases of criminal damage reported to police across Australia.

Estimates for criminal damage are presented in the United Kingdom (Dubourg, Hamed & Thorns 2005), and the multiplier of 4.3 specified in that work has been applied. This gives an estimated 1,265,000 cases of criminal damage across Australia in 2005.

Estimating property loss

Estimates of property damage/loss in Victorian police figures are an average of $930 and a median value of $400 with the Tasmanian police data average being $590. New South Wales was able to provide slightly more detailed data, with the mean and median cost of a criminal damage offence being estimated at $715 and $215 for an individual victim, and $870 and $400 for an organisational victim respectively. Current UK estimates are $480 per incident (Dubourg, Hamed & Thorns 2005), and Mayhew (2003b) estimated $350 per incident. Synthesising these figures gives an estimate of $500 per incident of criminal damage (Table 23).

Lost output

The recent UK estimates point to lost output for criminal damage against an individual of $14. The UK *Crime against retail and manufacturing premises survey* (Shury et al. 2005b) estimates a median of two hours spent on vandalism per incident (an estimated value of $50). Mayhew (2003b) estimated $50 per incident, which will also be used on this occasion.

Intangible losses

The current UK report estimates the intangible losses due to criminal damage are $1,075 per incident. Mayhew (2003b) estimated the intangible loss per incident to be $300. These two estimates have been combined and the mid-point of $700 has been used.

Total costs

The total cost of criminal damage is estimated at $1.58b, or $1,250 per incident. The highest component of this estimate is the intangible costs followed by the costs of property loss/damage.

Table 23: Costs of criminal damage – property loss, lost output and intangible losses [a]							
	Per-incident cost ($)			Total cost ($m)			
	Property loss/ damage	Lost output	Intangible	Property loss/ damage	Lost output	Intangible	Total cost
Criminal damage	500	50	700	633	63	886	1,582

a: Medical costs were not estimated

Arson

The costs of arson are difficult to quantify. Overall, police statistics from four jurisdictions (NSW, Vic, SA and Tas) show there were approximately 12,600 cases of recorded arson in 2005. Adjusting this to an Australia-wide figure gives an estimated number of reported arson incidents of slightly fewer than 20,000 cases. This is likely (as with many crimes) to be an underestimation. However, the construction of a multiplier, as was carried out for many of the other crimes reported on in this study, is not applicable as there are no victims' surveys where 'arson' is included. Likewise, even if it were included, cases of bushfire arson, for example, would not be captured by a victimisation survey, as people only report when they are the victim (for example, when someone set fire to their house or car). Likewise, arson costs are not included in the recently revised UK estimates of the costs of crime.

Mayhew (2003b) estimated the costs of arson based on a number of different sources. This estimate is still the most comprehensive available, so the previous estimate of $730m has been adjusted to 2005 figures to give an estimated cost of $812m.

Medical costs, lost output and intangible losses

It is not known how many injuries are due to arson. It is assumed any deaths due to arson will be captured in the homicide figures. Lost output and intangible losses were not included separately due to insufficient data.

The cost of dealing with fires

The Productivity Commission reported in 2005–06 the total costs of fire service organisations were $1.9b (PC 2007; Table 8A.15). In line with Mayhew's work (2003b), it is estimated that 25 percent of these costs can be allocated to dealing with arson

($475m). In addition, the cost of the ambulance service is estimated at $1.4b, and five percent of this ($70m) has been allocated to arson fires (PC 2007: Table 8A.25).

The value of volunteer time

Volunteers play a vital role in supporting fire services across Australia. The ABS provides a comprehensive analysis of voluntary work in Australia (the most recent is 2006). The ABS reports volunteers spent 26.2 million hours volunteering in emergency services in 2005. Emergency services refer to 'those emergency services involved in the protection against fire and flood, search and rescue and disaster relief (not including emergency medical services)' (ABS 2006: 85). Thus, the figure of 26.2 million hours includes volunteering for fire services across Australia, but there is no estimate provided by the ABS that identifies the time spent volunteering for the fire services specifically. As it is not possible to use ABS data for the estimation, Mayhew's (2003b) estimate of $240m has been adjusted to 2005 figures. This gives a total value of $267m for the value of volunteer time in fighting arson fires.

Table 24: Summary of arson costs

	$m
Best estimate of costs of arson [a]	812
Fire service [b]	475
Ambulance service [c]	70
Volunteer service	267
Total	1,624

a: Includes property loss, and estimates for indirect and intangible losses

b: 25 percent of fire services

c: Five percent of ambulance service costs

Total costs

Table 24 shows the costs considered when putting assigning a cost to arson. This figure comes to $1.62b. The biggest component of this is the damage to property and land caused by arson.

Fraud

Estimating the costs of fraud

Fraud has a common element of a perpetrator seeking to obtain property by deception (Smith 1997). Although there have been some improvements in reporting and tracking fraud, especially the emerging areas of computer fraud and identity theft, it is still difficult

to quantify the cost to the Australian community. However, it appears certain the costs of fraud are well in excess of other types of crimes.

The difficulties in assessing the cost of fraud remain the same as described in Mayhew's (2003b) original report. Briefly, they include:

- the wide range of fraud types – from small-scale credit card fraud through to major corporate crime costing millions of dollars in one transaction – means it is hard to get good quality data across the spectrum of fraud types
- the volume of 'hidden' fraud, which does not become known to police, or even to the individual or organisations involved. Unlike more common crimes such as car theft, where the victim is aware the crime has taken place (even if they do not report it), it is the case that some victims of fraud are not even aware they are victims. Good examples of this are tax fraud, benefit fraud or insurance fraud. This makes the costing of fraud difficult. The example used by Mayhew (2003b) was of serious fraud, where some detected cases of serious fraud have extremely high values, and the extent to which there are undetected cases of fraud with these high values would have an impact on the overall estimates of the costs of fraud
- the costs of detected fraud are not always known, as victims might not be able to accurately estimate their losses (Mayhew 2003b).

There has been a lot of work undertaken in the area of fraud since 2003. This work has highlighted that fraud continues to be an especially serious crime, which is difficult to cost due to the volume of undetected fraud.

Identity theft

Identity theft (or identify fraud) is one of the fastest growing crimes in the world (Attorney-General's Department 2007). The costs of identity fraud are included as part of the cost estimates made in this report, but it is worth mentioning as a special case, as the increase in its frequency is related to growth in electronic crime. It has been estimated the minimum cost to Australian business for identity fraud was $1.1b in 2001–02 (Securities Industry Research Centre of Asia Pacific Ltd 2003, in Attorney-General's Department 2007), and in the US the costs for 2005–06 were estimated at $56.6b.

Recorded cases of fraud – police

There were 64,000 cases of fraud recorded by police services in New South Wales, Victoria, South Australia and Tasmania in 2005, giving an Australia-wide estimate of slightly under 100,000 cases of recorded fraud. It is assumed that recorded fraud accounts for 25 percent of all fraud – thus for every fraud offence there are three which go either unreported or undetected (Mayhew 2003b).

The difficulties in assessing the losses due to fraud are highlighted in the mean and median values of fraud cases provided by the state police services. For example, in New South Wales the mean value of organisational fraud (which is a fraud committed against a business or organisation, rather than an individual) was slightly under $18,000, whereas the median value was only $75. The average New South Wales figure for fraud against a person was around $32,000 and the median $500. This highlights the highly skewed nature of losses due to fraud where most crimes are petty in nature, but a smaller number of very high-value cases need to be taken into account. Victorian police figures show a similar pattern, with the average value of fraud being $14,600 and the median value being $700.

In estimating the cost of fraud, the average of the three averages presented above ($21,500) has been used to ensure those fewer higher-value crimes are accounted for. Applying this figure to the estimated number of cases of fraud described above gives a cost estimate of $2.13b. This is a different methodology than employed in previous sections of this for the 2005 report. Those sections have used median figures to control for the issue that crimes of lower value are less likely to be reported.

Unrecorded fraud

There are two aspects to unrecorded fraud. As with other crimes, there are those crimes that are known to the victim but not reported to police, and those which are not known to the victim (see Mayhew (2003b) for a more detailed discussion). These are known as unreported and undetected fraud.

In terms of those crimes known to the victims and not reported, there are several surveys that give an indication of the level to which this occurs. The 2006 Forensic Fraud Survey (KPMG 2006) was a survey that targeted large organisations across Australia and New Zealand. The survey (of 465 entities) found for those organisations that had experienced at least one incidence of fraud between April 2004 and January 2006 (nearly one-half) that 61 percent reported it to police. The main reason for not reporting a fraud offence to police was 'not enough evidence' followed by 'minor incident' (KPMG 2006: 25). The most recent British Commercial Victimisation Survey (Shury et al. 2005b) reported that in the retail sector, 46 and 41 percent of businesses reported the last incident of fraud conducted by an employee and an outsider respectively to the police. Those figures were even lower for the manufacturing sector, with only 30 percent and 20 percent of businesses reporting the last fraud incident conducted by an employee and an outsider respectively (Shury et al. 2005b: 57).

Average costs of unrecorded frauds

As discussed by Mayhew (2003b), it would appear sensible to assume the unit value of unrecorded fraud offences are likely to be lower than recorded offences. However, in terms

of comparing the value of recorded and unrecorded crime it becomes more difficult. The UK *Crime against retail and manufacturing premises* survey provides data on the percentage of crimes that were reported to police and the average cost of the value of fraud, but does not provide a breakdown of the costs of fraud by whether they were reported to police. Nevertheless, the average unit cost of fraud (in Australian 2005 dollars) for the retail sector where the offence was perpetrated by an employee was $17,000 and for fraud by an 'outsider' was $3,000. The costs for the manufacturing sector were higher than the retail sector, with an average cost per incident being $29,000 for fraud perpetrated by an employee and $23,000 for fraud perpetrated by an outsider. These figures are all quite high and obviously include the higher-value incidents of fraud, which were more likely reported to police.

As with other crimes mentioned previously, the median values for the above were much lower than the averages. Fraud perpetrated in the manufacturing area cost $2,800 and $1,400 for offences by employees and outsiders respectively, and those figures were $320 and $230 for the retail sector (Shury et al. 2005b).

Mayhew (2003b) estimated a unit cost of unreported fraud at $1,590, which was 6.2 times lower than the figure estimated for fraud recorded by the police. If this figure is applied to the current unit estimate of the cost of recorded fraud ($21,000), it gives an estimated $3,390 as the unit cost of unrecorded fraud. This figure is slightly higher than median UK estimates for the median manufacturing, but not excessively so, and so will be used in this instance.

Recorded serious fraud

The Australian Federal Police were able to provide the AIC with data on recorded serious fraud for the financial year 2006–07, but not for 2005–06. It should be noted these data are for a time period slightly later than the rest of the report. To make the data comparable, the figures provided by the AFP have been adjusted to 2005–06 dollars in line with the CPI.

In 2006–07, there were 367 cases of serious fraud referred to the AFP for investigation. The estimated financial loss for these crimes was approximately $491m, or an average of $1.34m per case. The dollar value of these crimes is much higher than the previous estimate of $497,000 per crime; however, there were substantially fewer crimes investigated (921 vs 367) so the total cost is quite similar ($491m vs $460m).

Unrecorded and undetected serious fraud

It is assumed the same proportion of serious fraud as general fraud go undetected – which is for every serious fraud incident there are three fraud incidents which go undetected. This gives an estimated cost of $1.47b for unrecorded and undetected serious fraud.

Mayhew (2003b) made an allowance for unrecorded frauds against state and territory law (i.e. to account for a small number of high-value fraud incidents). These have not been included in the current estimates, as the average costs of fraud for both serious and other frauds are higher than the previous report, and thus it is considered the small number of high value frauds have been adequately accounted for.

Other costs

An allowance has been made for lost output and intangible costs associated with fraud (no medical costs have been estimated), but the figures provided should be viewed with caution as there is limited information available on the costs of lost output or intangible costs due to fraud. The UK *Crime against retail and manufacturing premises* survey gives estimates for the number of hours business owners spent dealing with the last previous case of fraud (Shury et al. 2005b). When converted to a dollar value, it shows on average the dollar value of time spent dealing with fraud is around $800 per incident (author's computations).

Mayhew (2003b) valued the other costs associated with fraud at 40 percent of the total cost, and this has been replicated in this report. It puts the total value of the other costs associated with fraud at $3.41b (Table 25).

Table 25: The elements of the overall fraud cost [a]

	Number of offences	Unit cost ($)	Total cost ($m)
Property loss			
(a) Recorded by the police	99,293	21,500	2,135
(b) Unrecorded offences – (a) x 3	297,878	3,390	1,010
(c) Referred to AFP for investigation	367	1,338,000	491
(d) Unrecorded AFP cases – (c) x 3	1,101	1,338,000	1,474
Other costs (based on other property crime)			3,406
Total			8,516

a: Medical costs have not been estimated

Other information

Insurance fraud

A study in 2003 (IAG 2004) estimated the total cost of insurance fraud in 2003 to be $2.1b, or $73 per insurance policy taken out in Australia. This was using the known figures for insurance fraud and adjusting them to the industry assumption that 10 percent of insurance

claims made are fraudulent (IAG 2004: 12). It is assumed insurance fraud has been included in the above estimates.

Benefit fraud

The 2005–06 Centrelink Annual Report states there were 3,961 matters relating to fraud that were referred to the Commonwealth Director of Public Prosecutions and of those, 2,885 were prosecuted (Centrelink 2006). There were 2,822 convictions (a conviction rate of 98%). The total amount of debt involved in those convictions was $34.3m. This seems like a fairly small cost, but it should be noted it is likely, as with other types of fraud, that many go undetected. It is assumed benefit fraud is included in the above estimates.

Serious and organised crime

In early 2007, the Parliamentary Joint Committee on the Australian Crime Commission (ACC) conducted an inquiry into *Future impact of serious and organised crime on Australian society* (Parliamentary Joint Committee on the ACC 2007), in which serious fraud is included. This inquiry invited submissions from key stakeholders and other interested parties. Specifically, as outlined in the terms of reference, the third point to be addressed in submissions was: 'the economic cost of countering future organised crime at a national and state and territory level'.

The report from the inquiry observed 'the committee received very little detailed evidence on the future economic costs of combating serious and organised crime. These costs, at a national and state and territory level, are diffuse and difficult to quantify' (Parliamentary Joint Committee on the ACC 2007: 5.3). Indeed, most of the individual submissions did not even address the economic aspect of the terms of reference for the inquiry.

The report went on to highlight the increased government spending on government agencies whose main functions include combating serious and organised crime, including the AFP, ACC and AUSTRAC, but was not able to quantify much further than that. Several police jurisdictions gave an estimate of the expenditure on organised crime for their jurisdictions, but these estimates varied so widely it was clear they were not comparable and so will not be reported here.

As a side issue, this highlights the difficulties in disaggregating administrative costs for individual crimes, and hence why this paper does not attempt to attribute costs of police and courts to individual crime types.

Fraud against older Australians

In 2006, the then Attorney-General, the Hon. Philip Ruddock, MP, requested the House of Representatives Standing Committee on Legal and Constitutional Affairs to conduct an inquiry into and report on *Older people and the law*. That report was released in 2007 (House of Representatives 2007) and specifically addressed the issue of fraud and financial abuse against older Australians. The report, and submissions associated with it, highlighted how vulnerable older people are to fraud and financial abuse. Indeed, the first recommendation of the fraud section was that the government task the AIC with undertaking a detailed study of fraud and financial abuse against those over the age of 65 (over the age of 50 for Indigenous Australians). Using projections, Temple (2007) predicted that as a group, older Australians will experience the greatest proportional increase in being the victims of fraud.

Money laundering and fraud

Money laundering, the process whereby the origin of dishonest and/or illegally obtained money is concealed so it appears to come from a legitimate source, is not costed separately as, for the purposes of this report, it is considered money laundering does not constitute an additional cost to society over and above what has already been estimated. However, it is acknowledged there will be a cost of money laundering through the lost productivity of legitimate business and individuals' time spent on the laundering of illegal profits. Stamp and Walker (2007) estimated in 2004 the total proceeds of crime (note this differs from the total *costs* of crime as estimated in this report) were $3.8b, with fraud (around $2.3b) being the largest component.

Drug offences

The costs of drug offences

As explained in more detail by Mayhew (2003a), there are three main costs to consider when examining the costs of drug offences. Firstly there are the 'human costs' of drug offences. These costs are mainly the health costs to society of drug abuse and include costs due to drug deaths, hepatitis and HIV/AIDS, accidents occurring due to drug abuse, and the cost of drug addiction treatment. The second group of costs are associated with the cost of offences used to cover a drug habit; for example, a drug addict who commits a break and enter to fund his or her habit. The third group of costs are the law enforcement costs associated with the prevention of drug use and drug trafficking. This section will examine the 'human' costs of drug crime, as the costs of crime associated with drug use and law enforcement costs to prevent drug use and trafficking have been covered elsewhere in this report.

The human costs of drug use

Loss of life

There were 872 deaths attributable to illicit drug use in 2004–05 (Collins & Lapsley 2008). This includes deaths attributed to opiates, cannabis, psychostimulants, hallucinogens, other psychotropics, and other category and licit/unspecified/combined drug use. The use of this figure is a slight methodological change from Mayhew (2003b), who took the number of fatal opioid overdoses and adjusted the figure by a factor 1.39. However, given Collins and Lapsley are able to provide a more exact figure of the number of deaths attributed to illicit drug use, this figure has been used.

Because these were deaths, the same medical and lost productivity costs from homicide were used, giving a total of nearly $1.3b. It should be noted, as in the previous report, that intangible costs were not considered in these calculations, as drug abuse can be considered a 'willing' cost (Mayhew 2003b).

Hospitalisation

The best available data show that there were 8,494 hospital stays during the financial year 2003–04 among 15 to 54-year-olds where the principal diagnoses relates to cannabis, opiates, amphetamines or cocaine (Roxburgh & Degenhardt 2006). Although these data are dated, they are the most recent available.

The average cost of a hospital stay in 2004–05 (AIHW 2006: Table 2.4a) was $3,410. This gives a total estimated cost of hospital stays due to illicit drug use of $29m, which is similar to the Collins and Lapsley (2008) estimate for the gross hospital costs due to illicit drug use *where the drug is identified* of $21m. Collins and Lapsley (2008) identified a further $92m of gross hospital costs due to illicit drug use where the specific drug had not been identified. However, this figure will not be included in these costs, as the methodology behind identifying those days as being attributable to illicit drug use is not known.

The same ratio presented by Mayhew (2003b) – of emergency admissions not leading to a stay in hospital to hospital admissions for injury and poisoning (7:1) – has been used. The average estimated cost of an emergency department visit is $357 (PC 2007: Table 9A.66), giving an estimated cost of emergency department visits due to illicit drug use of $21m.

Drug users in treatment

Care should be taken when examining this section, and it is not advised the results be compared with the corresponding section in Mayhew (2003b) as there have been important changes in the way data on drug users in treatment are collected by the Australian Institute

of Health and Welfare (AIHW). Data for this section have been taken from AIHW (2007). The National Minimum Data Set collection does not collect information on those organisations and/ or treatment episodes involving opioid pharmacotherapy. Data presented are for the number of closed episodes during 2005–06. The data also exclude treatment in the correctional environment, private agencies that do not receive public funding or clients under 10 years of age (for more details, see AIHW 2007).

The figures presented are the numbers of closed treatment episodes in 2005–06 and include those where the primary drug of concern is amphetamines, cannabis, cocaine, ecstasy or opioides. Benzodiazepines and other drugs have been excluded, as the legality of the use is unknown (this section is focused primarily on illicit drug use). This gives a total of 78,060 closed treatment episodes. The report also states there were approximately 39,000 clients receiving opioid pharmacotherapy – these are addressed below.

Data on the costs of residential drug treatment facilities are not available, so the cost of residential mental health care facilities has been used as the next best estimate. The figure used is the per day cost of community based residential mental health care services for 2004–05 (this is the most recent figure available), which is $326 per day (PC 2007: Table 11A.39). The PC (2007: Table 11A.48) reports the average cost for a community-based mental health patient is $1,930 per patient treated. Applying this figure to those drug users in non-residential treatment, outreach treatment, home-based treatment and other treatment gives a figure of $126m for other treatment services, with a total of $155m for out-of-hospital drug treatment.

Pharmacotherapy treatment

Of the 38,659 people in pharmacotherapy treatment most (71%) received methadone maintenance, 23 percent for buprenorphine and six percent buprenorphine/naltrexone (AIHW 2007: 43). Methodology between this report and Mayhew (2003b) differs slightly in this section, as buprenorphine and naltrexone treatment has been included. The total cost per pharmacotherapy client from Mayhew (2003b) was $3,000 per client and this figure has been increased to reflect 2005 costs, giving an estimated per client cost of $3,300 and a total estimated cost of $130m for pharmacotherapy treatment.

Lost productivity

As discussed by Mayhew (2003b), lost productivity figures for drug users in treatment may be an overestimation, because as a group of individuals they are underproductive. However, this may be balanced in part, as drug users may die earlier and therefore lose more years of life than a individual who is fully productive in society. Thus, no adjustment for the diminished productivity of a drug user has been made and the same lost productivity costs from the

assault section have been used (hospitalised figures have been used for residential treatment episodes and non-hospitalised injuries for non-residential treatment). The lost productivity for drug users in residential treatment is estimated at $96m and $120m for those in non-residential treatment.

Table 26: Estimated costs of human drug abuse

	$m
Illicit drug use deaths	1,265
Medical costs of hospitalisation	50
Drug treatment costs	155
Pharmacotherapy treatment	130
Lost productivity of drug users in treatment	216
Total	1,816

Other estimates

Collins and Lapsley

Collins and Lapsley (2008) have produced their fourth report which estimates the total value of the costs of tobacco, alcohol and illicit drug abuse to Australian society. The report estimates costs for 2004–05 to be $55.2b with illicit drug use accounting for $8.2b, or 15 percent of that figure. The report includes costs on a wide range of social issues, and uses drug and alcohol attributable fractions (based in part on data from the two AIC collections of Drug Use Monitoring in Australia (DUMA) and Drug Use Careers of Offenders (DUCO)) to estimate the proportion of crime that is attributable to drugs and alcohol. Items considered by Collins and Lapsley include production losses in the paid and unpaid workforce, health costs and crime costs including property theft and damage, policing, criminal courts, prisons and private security.

This report is a valuable piece of work, but caution should be taken if attempting to compare that report with this one. Collins and Lapsley (2008) approach the problem of assessing costs due to alcohol, tobacco and drugs by attributing a proportion of total crime costs to, for example, illicit drug use. However, this report does not seek to assign a proportion of criminal justice spending to each crime type, but rather considers it as a whole and estimates costs for each crime type separately.

Australian Federal Police (AFP)

The AFP's Drug Harm Index (DHI) was 'developed to provide a single measure that encapsulates the potential value to the Australian Community of AFP drug seizures. The index includes both domestic drug seizures and international seizures destined for Australia where the AFP played a significant role' (AFP 2003: 1).

The DHI for 2005–06 was $165m (AFP 2006). This figure will not be counted separately, as components will have been included elsewhere in this report. However, the DHI is a good, high-level economic indicator that can be used to compare the potential value of drug seizures over time.

Omissions

There were a number of costs which have deliberately not been taken into account in this section, including:

- health care costs or lost productivity costs of those injured by someone who is drug dependent. It is assumed some of these costs will have been covered in the assault figures
- social welfare payments to those who are drug-dependent
- costs for dependence on alcohol. As the consumption of alcohol is not illegal it was not appropriate to include those estimates in this report. However, it is likely assault figures also include a high component of assault that is alcohol-related
- intangible costs of drug use are not included as these costs might be considered a 'willing choice'
- costs involved with community awareness campaigns about illicit drugs and the research and training which go with them.

Other costs

Costs for government services (police, courts and government agencies) are only available by financial year. For the purposes of this report, the financial year 2005–06 has been used.

Police costs

The total cost of the police services across Australia in 2005–06 was assessed at $6,400m (PC 2007: Tables 5A.1–8). As not all police time is spent on crime (some is spent on traffic and safety management), this figure was reduced by 30 percent, giving a total of $4,480m.

Court costs

These figures are taken from the Productivity Commission report for 2005–06 (PC 2007: Table 6A.12). The costs include the Supreme Courts, District/County Courts, Magistrates Courts and Children's Courts, and are net of monies received through electronic infringement and enforcement systems. These figures are for criminal courts only and do not include civil courts. This cost of these services as reported by the Productivity Commission is $466m.

Corrective services

The Productivity Commission reported $2,405m was spent on corrective services in 2005–06 (PC 2007: Table 7A.6). This includes both prisons and community corrections facilities. This is much higher than 2001–02 figures, even accounting for an increase in the overall numbers of prisoners and CPI increases. However, the authors have no explanation for why this was the case. The costs in 2000–01 were $1,590m.

Other portfolios

There are a number of other agencies whose allocated budget was taking into account in these costings (Table 27). This information was sourced from the Attorney-General's Department 2005–06 Portfolio Budget Statements and shows the overall expenditure to be $2,041m. This is an increase from 2000–01 and reflects the greater expenditure on crime (mainly anti-terrorism measures) following the 11 September 2001 terrorism incidents in the United States.

Table 27: Costs of selected government agencies [a]

Agency	Total appropriation ($m)
Attorney-General's Department	654
Australian Crime Commission	138
Australian Federal Police [b]	967
Australian Institute of Criminology	6
AUSTRAC	22
Criminology Research Council	1
CrimTRAC	1
Federal Department of Public Prosecutions	80
State funding contribution to Legal Aid	172
Total	2,041

a: This section has omitted state-based government crime and crime prevention policy departments. This omission has been made as budgetary reporting for these agencies differ markedly by state, and a reliable figure could not be reached for this reason.

b: This figure is exclusive of the ACT community policing component, accounted for in the 'Police costs' section above

Victims' services

In the absence of an available update, victim services costs from the last report have been adjusted to 2005 prices. This gives estimated costs for victim compensation of $200m and victims' support services an estimated $17m.

Juvenile justice

At the time of writing, the Productivity Commission did not include juvenile justice in their *Report on government services*. Thus, the same approach that Mayhew (2003b) applied has been used, which is to take the total costs of the New South Wales Department of Juvenile Justice annual report 2005–06 and adjust this figure to an Australia-wide estimate. The estimated expenditure on juvenile justice for Australia is $416m.

The value of volunteer time

It was necessary that volunteering statistics from 2006 be used for this report, as this is not an annual ABS collection and the previous collection was done in 2000. Considerably less hours were spent volunteering for community/welfare groups than reported by Mayhew (2003b) (59 million hours in 2005 vs 180 million in 2000); however, it is not clear why this is the case.

An estimated five percent of the total volunteer time, or three million hours, was spent on victim services. Average hourly earnings were again used to approximate the value of this time. It is estimated the value of volunteer time spent on victims' services was $72m.

SAAP expenditure for domestic violence

The total Supported Accommodation Assistance Program (SAAP) expenditure in 2005–06 was $323.9m (PC 2007: Table 15A.166). Twenty-three percent of this was targeted towards 'women escaping domestic violence', which gives the total expenditure on SAAP for those facing domestic violence as $74m (PC 2007: Table 15A.164).

Child protection

Some of the costs for out-of-home care services and child protection services were included in the estimates. The total bill for child protection and out-of-home care services was $1.38b in 2005–06. Making the same assumption as Mayhew (2003b) (one-half of this was set against child abuse and neglect) gives a figure of $692m (PC 2007: Table 15A.1).

The Office for Women

The Office for Women, currently within the Department of Families, Housing, Community Services and Indigenous Affairs, was allocated $17.6m in 2005–06 for the Women's Safety Agenda (FaCS 2006). This appropriation funded re-running the successful national Violence Against Women. Australia Says No campaign, the Domestic and Family Violence and Sexual Assault Initiative, continued funding for the Australian Domestic and Family Violence Clearinghouse, and the Australian Centre for the Study of Sexual Assault and funding for research projects on domestic violence and sexual assault.

Security industry

The Australian Security Industry Association Limited (ASIAL) provided the following figures for private security turnover in 2005–06 (Bryan de Caires, ASIAL, pers. comm.). ASIAL estimates between 60 and 75 percent of the costs in Table 28 can be attributed directly to the crimes covered here. We have assumed 70 percent.

Table 28: Expenditure on private security in Australia, 2005–06 [a]

	$m
Hardware and electronics	
Hardware and equipment (alarms, CCTV, access control)	666
Installation	733
Monitoring	282
Other	331
Total	2,012
Manpower	2,272
Including customer service, loss prevention/retail security, concierge/reception desks, corporate risk, investigation services, cash collection, armed escorts, client banking, ATM services, special event security, critical infrastructure protection, passenger screening, mobile patrols, maritime security, crowd control	
Overall total	4,284
Total to be attributed to crimes dealt with here	2,999

a: Industry estimate

In addition, it is worth noting that ASIAL, in conjunction with the University of South Australia and Griffith University, has embarked on a three-year benchmark study of the security industry in Australia funded principally by the Australian Research Council. One of the outcomes of this project will be to quantify the size and scope of the private security industry. Findings from this project are due to be released in early 2008 (Bryan de Caires, ASIAL, pers. comm.).

Table 29: Total spent on 'other' costs of crime	
	$m
Criminal justice	9,808
Victim assistance	1,073
Security	2,999
Insurance administration	580
Total	14,460

As shown in Table 29, the total expenditure on 'other' costs of crime is estimated at $14.5b. Most of this spending is located in the criminal justice system (including police, courts, prisons, and other government crime and criminal justice agencies) followed by spending on the security industry.

Conclusions

There has been a 12.6 percent increase in the estimated gross costs of crime in Australia in 2005 ($35.8b) compared with 2001 ($31.8b). This (nominal) increase can be attributed to three main areas. First, assuming that all else remains unchanged, costs are expected to increase over time due to inflation (inflation over the period was 11.2%). As a percentage of gross domestic product (GDP) the 2005 estimate of the costs of crime represents 4.1 percent of national GDP compared with 3.8 percent in 2001. Taken together, these two indicators suggest that the costs of crime increased only marginally between 2001 and 2005 and can be considered stable.

Second, in terms of gross numbers, while many categories of crime experienced a decrease between 2001 and 2005 there was a substantial increase in the costs of fraud. Fraud is a fast-growing area of crime that is facilitated by emerging areas of crime such as electronically assisted identity theft and other cyber-style crimes. The third reason for the increase between 2001 and 2005 in the costs of crime was the growth in spending on the criminal justice system. This is mainly attributed to increased funding for the area as a whole following the 11 September 2001 terrorism incidents in the United States.

The costing of crime remains an area of criminology where more research is required – both to improve and refine costing methodologies, and to improve data on which estimates are constructed. This report provides an estimate of the costs of crime to the Australian community for 2005, but this should not be considered definitive. There are areas for which costs have not been calculated due to lack of data, and areas where baseline data from other countries have been used to construct estimates for Australia. However, in the absence of better data, this report provides an up-to-date estimate of the costs of crime as far as is possible to ascertain. The limitations of the data identified in this report provide valuable indicators for where data improvement is needed for improving costing methodologies and estimates in the future.

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All URLs were correct at 20 March 2008

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AIC research in 2003 examined the costs of crime to the Australian community. This current report provides an update to the previous work by estimating the costs of crime for 2005. While relying primarily on data from the United Kingdom and United States, some Australian data provide general estimates of crime-related costs. The total costs of crime cover components of the criminal justice systems: police, courts, corrections, and other criminal justice-related government agencies; and the costs of fraud. The report covers a range of crimes against people and property, fraud, and drug-related crimes. Estimates for each of these cover the general characteristics of incidents, property loss, medical costs, lost output and intangible costs.

The report highlights the need for improved availability of Australian crime data. Emerging challenges for research that informs government policy include cybercrimes – comprising fraud and identity theft – arson and bushfires, theft from motor vehicles, shop theft, estimates of intangible losses and lost output, estimates of lost business productivity due to criminal activity and national injury estimates.