

The logo for the National Drug Law Enforcement Research Fund (NDLERF) is displayed in a large, bold, sans-serif font. The letters 'NDLER' are white, and the letters 'RF' are yellow. The logo is positioned on a dark blue background that is part of a larger grid of squares in various shades of blue, white, and grey.

NDLERF

Targeting the Profits of Illicit Drug Trafficking
through Proceeds of Crime Action

Michael McFadden
Martin O'Flaherty
Paul Boreham
Michele Haynes

Monograph Series No. 52

Funded by the National Drug Law Enforcement Research Fund
An Initiative of the National Drug Strategy

Targeting the Profits of Illicit Drug Trafficking through Proceeds of Crime Action

Michael McFadden

Martin O'Flaherty

Paul Boreham

Michele Haynes



Funded by the National Drug Law Enforcement Research Fund,
an initiative of the National Drug Strategy

Produced by the National Drug Law Enforcement Research Fund (NDLERF)
GPO Box 2944, Canberra, Australian Capital Territory 2601

© Commonwealth of Australia 2014

ISBN: 978-1-922009-63-0

ISSN: 1449-7476

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without prior written permission from the Commonwealth available from the National Drug Law Enforcement Research Fund. Requests and enquiries concerning reproduction and rights should be addressed to the National Drug Law Enforcement Research Fund, GPO Box 2944, Canberra, Australian Capital Territory 2601.

Opinions expressed in this publication are those of the authors and do not necessarily represent those of the National Drug Law Enforcement Research Fund (NDLERF) Board of Management or the Australian Government Department of Health and Ageing.

The research on which this report is based was funded by the National Drug Law Enforcement Research Fund, an initiative of the National Drug Strategy.

Contents

| | |
|---|-------------|
| Acronyms | viii |
| Disrupting drug trafficking—the project on a page | 1 |
| Introductory remarks | 2 |
| Executive summary | 3 |
| Background to the study | 3 |
| A business model of drug trafficking | 3 |
| Measuring the impact of proceeds of crime action | 5 |
| Factors relating to successful proceeds of crime investigation | 6 |
| Future directions | 8 |
| 1 Introduction—Targeting the profits of illicit drug trafficking | 9 |
| 1.1 Aims of the study | 9 |
| 1.2 Potential benefits | 9 |
| 1.3 Background | 10 |
| 1.4 Method | 10 |
| 1.5 Structure of the report | 11 |
| 2 Literature review of proceeds of crime | 12 |
| 2.1 The situation here and abroad | 13 |
| 2.2 Social impact of proceeds of crime | 14 |
| 2.3 Evaluating the success of anti-money laundering and proceeds of crime legislation | 16 |
| 2.4 Implications for our study | 19 |
| 3 A business model of organised crime | 21 |
| 3.1 Organised crime in Australia | 22 |
| 3.2 Implications for our study | 26 |
| 4 Estimating the impact of proceeds of crime activity | 27 |
| 4.1 Profitability and the drug market | 28 |
| 4.2 Criminal investment in legitimate and illegitimate enterprises | 29 |
| 4.3 From crime to reinvestment | 30 |
| 4.4 Proceeds of Crime Drug Disruption Index (POCDDI) | 30 |
| 4.5 Concluding comments | 31 |
| 5 Conducting successful proceeds of crime investigations | 33 |
| 5.1 Towards more effective and efficient proceeds of crime investigations | 33 |
| 5.2 Descriptive analysis of proceeds of crime cases | 33 |
| 5.3 Multivariate analysis of proceeds of crime asset outcomes | 36 |

| | |
|--|-----------|
| 5.4 Implications for law enforcement..... | 39 |
| 6 Conclusions and recommendations..... | 41 |
| 6.1 Measuring the impact of proceeds of crime action..... | 41 |
| 6.2 Evaluating proceeds of crime action | 42 |
| 6.3 Factors relating to successful proceeds of crime investigation | 42 |
| 6.4 Future directions..... | 42 |
| References..... | 44 |
| Attachment A The illicit drug market in Australia..... | 49 |
| Overview and trends | 49 |
| Attachment B | 53 |
| Note on the price elasticity of illicit drugs..... | 53 |
| Attachment C | 54 |
| The supply sector..... | 54 |

Tables

| | |
|---|----|
| Table 1. A basic supply model of illicit drug trafficking | 4 |
| Table 2. Estimates of POCDDI short term and POCDDI medium term..... | 5 |
| Table 3. Current Proceeds of Crime Legislation..... | 13 |
| Table 4. Organised crime business structures identified by the Australian Crime Commission | 23 |
| Table 5. A basic supply chain model of trafficking in human beings..... | 24 |
| Table 6. A basic supply chain model of illicit drug trafficking..... | 25 |
| Table 7. Revenue, cost, profitability of the Australian illicit drug market..... | 28 |
| Table 8. Revenue, cost, profit and profitability of distributors and producers/importers combined | 29 |
| Table 9. Estimates of POCDDI short term and POCDDI medium term..... | 31 |
| Table 10. Proceeds of crime data summary statistics..... | 34 |
| Table 11. Variance components and final models of successful vs. unsuccessful proceeds of crime outcomes | 38 |

Figures

| | |
|--|----|
| Figure 1. Distribution of asset value for all assets and forfeited assets by case value..... | 7 |
| Figure 2. Distribution of asset values for all assets and forfeited assets by case value | 35 |
| Figure 3. Proportion of assets forfeited by case value | 35 |
| Figure 4. Expected success rate by asset type over time | 39 |

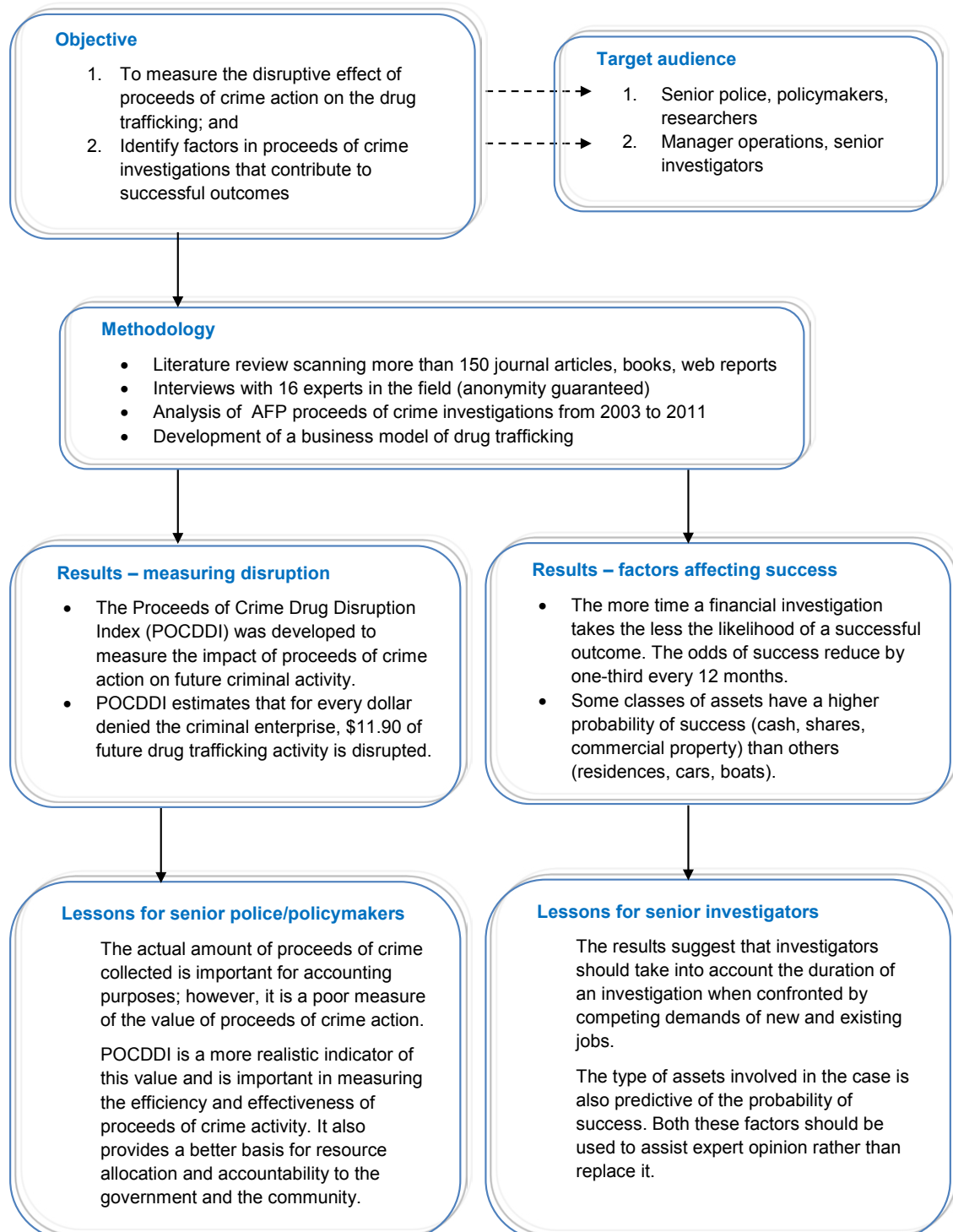
Acknowledgements

Funding for the research was provided by the National Drug Law Enforcement Research Fund (NDLERF). De-identified data used in Chapter 6 were provided by the Australian Federal Police. Research assistance was provided by Andrew Clarke and Elizabeth Shaw. The investigators also wish to acknowledge the invaluable advice and insight provided by members of the Project Reference Group over the course of the research.

Acronyms

| | |
|--------|--|
| ACC | Australian Crime Commission |
| ACS | Australian Customs Service (now known as the Australian Customs and Border Protection Service) |
| AIHW | Australian Institute of Health and Welfare |
| ASIC | Australian Securities and Investments Commission |
| ATO | Australian Tax Office |
| CAA | Confiscated Assets Account |
| EDRS | Ecstasy and Related Drugs Reporting System |
| ICC | Intra-Class Correlation |
| IDDR | Illicit Drug Data Report |
| IDRS | Illicit Drug Reporting System |
| MCMC | Markov Chain Monte Carlo |
| MOR | Median Odds Ratio |
| NDSHS | National Drug Strategy Household Survey |
| POCDDI | Proceeds of Crime Drug Disruption Index |
| PPO | Pecuniary Penalty Order |
| UN | United Nations |

Disrupting drug trafficking—the project on a page



Introductory remarks

This project is complex and these introductory remarks are aimed at directing the reader through some of that complexity. The Project on a Page schema summarises the main features of the study. It is intended to act as a guide and a ready reminder of the major features of the study.

The Executive Summary is primarily a hands-on document that summarises what we did, why we did it and what it means for the target audience. It also describes the limitations of our work and gives our thoughts on where future research might go. For those interested in the practical application of our results, the Executive Summary should be sufficient.

It is equally important that the report has a sound intellectual basis and can be placed within the mainstream literature on proceeds of crime. The body of our report fulfils this function. Some of the issues treated in the report are complex and we have attempted to explain these as clearly as we can for readers without technical backgrounds in statistics and other fields. The authors should be contacted directly for further explanation.

Executive summary

Illicit drug trafficking is a source of funds for further trafficking and for supporting the lifestyles of criminals. Drug trafficking has been closely linked with organised crime and with social harms. This project had two main aims:

- To identify the disruptive effect of proceeds of crime action on criminal activity. The project attempted to measure the disruptive effect by developing an economic model that estimated the multiplier impact of the reinvestment of the profits of drug trafficking.
- The project also attempted to identify factors associated with successful proceeds of crime action.

There are two main audiences for the findings of this study. Senior police, police intelligence, policymakers and researchers will be interested primarily in measuring the disruptive effect of proceeds of crime action. Police responsible for managing proceeds of crime investigations and senior investigators will be interested in the practical applications of findings relating to success factors in financial investigations.

The results of the project should improve agencies' ability to target trafficking and increase the seizure of proceeds of crime. The proposed index of the disruptive effect of proceeds of crime action—the Proceeds of Crime Drug Disruption Index (POCDDI)—will also allow agencies to provide both the Government and the community with a more accurate assessment of the value of their proceeds of crime initiatives.

Background to the study

We conducted an extensive literature review, as well as collecting information from expert sources in Australia. It is not intended to summarise the findings of the literature review here (see Chapter 2). It should be noted that in the wider literature proceeds of crime and money laundering are closely linked and issues relating to proceeds of crime are often dealt with under the broader heading of money laundering. As such, our review extended across both areas.

The literature we surveyed was predominantly negative about the benefits of proceeds of crime/money laundering legislation. Various parties have raised concerns about the cost-effectiveness of anti-money laundering and proceeds of crime initiatives, their failure to target major crime figures and the infringement of civil liberties associated with implementation. We argue that very little attention has been paid to developing measures relevant to determining the success of these initiatives. Apart from the occasional comment, there has been little interest in the development of a coherent and explicit measurement framework for evaluation. Too often, studies have adopted measures that are readily available (eg arrests and forfeitures) rather than to develop measures that are truly appropriate for measuring the impact of proceeds of crime action upon the criminal enterprise and ultimately, through the disruption of crime, on the community.

The business-for-profit nature of the majority of drug trafficking suggests that a proper evaluation should take place within the context of an appropriate business model.

A business model of drug trafficking

To derive a business model of drug trafficking, we modified an existing business model of people trafficking operations developed by the Organisation for Security and Co-operation in Europe (Aronowitz et al. 2010). An outline of the modified business model for drug trafficking is presented in Table 1. People trafficking operations have many features in common with the global movement of illicit drugs, employing similar techniques and similar resources.

Table 1. A basic supply model of illicit drug trafficking

| Production | Transportation | Retail | Consumer |
|---|--|--|--|
| Cultivation/production of raw drug/ precursor | Transport of illicit drug to consumer market | Wholesalers purchase from manufacturer and distribute to retailers | Established retailer–consumer relationships pose less risk to both retailer and consumer |
| Manufacture/refinement of illicit drug | Transport funded either by manufacturer or by wholesaler or both | Retailers provide drugs to regular customers and new customers | Consumer chooses product based on Cost Quality Perceived risk |
| | Transport across national borders require additional planning | | |
| Collection and reinvestment of revenues | Collection and reinvestment of revenues | Collection and reinvestment of revenues | Consumer experiences the social, psychological and physiological impact of drugs |
| Revenues are related to competition, costs and perceived risk | Revenues are related to competition, costs and perceived risk | Revenues are related to competition, costs and perceived risk | |

The consideration of drug trafficking as a business provides an entirely different perspective to that provided by the literature review. The literature review tended to be pessimistic about the potential for proceeds of crime and money laundering legislation to disrupt crime.

One of the major concerns was the apparent lack of evidence of any impact on key organised crime figures. From a business model perspective, this might be expected. If modern organised crime is comprised of shifting allegiances and cooperation between individuals and cells in one or more broadly based criminal groups, then such a result is to be anticipated.

The hypothesis that proceeds of crime action should be directed at major crime figures is based on the unstated assumption that organised crime exhibits a concrete, hierarchical structure. Such an assumption is not consistent with modern notions of the structure of organised crime.

Adopting a business model of organised crime also gives us a clear indication of why proceeds of crime are important. All business models of organised crime assume that profit is the primary motive of such businesses, as it is with legitimate business enterprises. On that assumption, one would expect that successful proceeds of crime action would be disruptive to the business of crimes. Proceeds of crime action per se cannot be without value unless the business model of crime is wrong and that seems highly unlikely. If criticisms of proceeds of crime/money laundering efforts are to be sustained, they must be directed at the application of such regulations rather than the concept itself.

In conclusion, recognition of the ‘business’ nature of organised crime refutes many of the criticisms met with in the literature which has, in our opinion, focused too narrowly on the technicalities of proceeds of crime and money laundering regimes rather than recognising the broader theoretical framework within which these regimes exist. The adoption of an appropriate business model also assists us to identify the point in the supply chain where proceeds action may be most effective. With imported drugs, the most vulnerable point would appear to be the transportation of illicit drugs across national borders.

Measuring the impact of proceeds of crime action

One of the principal aims of our research was to produce an index of the social impact of proceeds of crime action. The Proceeds of Crime Drug Disruption Index (POCDDI) estimates the revenue that would have been available for reinvestment in the criminal enterprise in the short to medium term had it not been for successful proceeds of crime action. POCDDI can also be described as a measure of the disruption to the criminal enterprise caused by proceeds of crime action. Summary information for the POCDDI is presented in Table 2.

Basically, the index has three components. First, it requires knowledge of how much revenue is generated for each dollar of cost in drug trafficking (or profitability). Second, it requires an estimate of what proportion of illegal revenues are reinvested in further criminal activity, noting that a proportion of revenue will be spent on living expenses and other legitimate purposes. Finally, the model needs to specify the number of times profits are to be reinvested. Estimates on profitability were derived from Adkins (unpublished) and the reinvestment rate was estimated from original AFP data. How far into the future the POCDDI should predict is more problematic. Obviously, the assumptions behind the model will be less stable the further into the future we go.

For our purposes, we decided to generate a short and medium term index based on one and two cycles of reinvestment.

$$\begin{aligned}
 \text{POCDDI}_{\text{short term}} &= \text{Profitability} \times \text{Reinvestment Rate} \\
 \text{POCDDI}_{\text{medium term}} &= \text{POCDDI}_{\text{short term}}^2
 \end{aligned}$$

Where:

- Profitability is the ratio of revenue to cost
- Reinvestment is the proportion of fund reinvested in further criminal activity
- Short term is the position after one period of criminal activity (around 3 months)
- Medium term is the position after two periods of criminal activity (around 6 months)

POCDDI was calculated for two models:

- The Overall Model refers to results averaged over the entire supply chain from producer to retailer.
- The Distributor Importer Producer Model excluded retail dealers (discussed below).

| Table 2. Estimates of POCDDI _{short term} and POCDDI _{medium term} | | |
|--|---------------|-------------------------------------|
| | POCDDI Model | |
| | Overall Model | Distributor Importer Producer Model |
| Profitability | 3.6 | 5.8 |
| Reinvestment rate | 60% | 60% |
| POCDDI _{short term} | 2.2 | 3.5 |
| POCDDI _{medium term} | 4.6 | 11.9 |

The POCDDI model calculates the downstream effect of proceeds of crime action given assumptions drawn from the literature, expert opinion and our own analysis. Under these conditions it is apparent that revenue will increase over time. The short term impact, that is, the impact after a single lag, is a reduction in criminal funds of \$2.20 for the Overall Model and \$3.50 for the Distributor Importer Producer Model for every \$1 of criminal proceeds confiscated. In the medium term, these savings are \$4.60 and \$11.90 respectively. Given that the majority of proceeds of crime action is against individuals involved (a) in the production and/or importation of illicit drugs or their precursors, or (b) in the wholesale distribution of illicit drugs to retail dealers, it would appear reasonable to adopt the Distributor Importer Producer Model estimates for estimating the impact of

police action on criminal groups. A further observation to support the exclusion of retail dealers is the relatively high proportion of illicit drugs consumed by this group. The not-for-profit dealers contribute to this result.

In summary, as a reasonable estimate of the impact of proceeds of crime action in Australia, a multiplier of 3.5 should be adopted to measure short-term disruption and 11.9 to measure medium-term disruption. As a general rule of thumb, the short term is a period up to three months and the medium term up to six months. For most practical applications, we would recommend the use of the medium term estimate of 11.90.

There are a number of benefits to the use of POCDDI estimates:

- First, the POCDDI highlights a key cost to the community associated with illicit drugs. Previous studies have identified the direct impact of drug use on, for example, property crime; none have attempted to quantify the reinvestment of the profits of drug trafficking into further trafficking.
- Second, it provides law enforcement agencies with a more accurate estimate of the impact of their proceeds of crime activities on illicit drug trafficking. In turn, this should improve accountability to both Government and the community.
- Third, estimates of benefits flowing from law enforcement activities assist in the allocation of internal resources and contribute to the case for further funding.

Such benefits are not always apparent. A case study is provided by a UK report. Sproat (2009b) found that proceeds of crime action generated a return of £143 million from an expenditure of £114 million on law enforcement. Converting Sproat's reported figures to a ratio, it appears proceeds of crime action recovers a very modest £1.25 for every £1.00 invested by the Government. From a social impact perspective, we would argue that, in fact, every pound invested in such action resulted in £11.90 of disruption in the medium term. The impact of proceeds of crime action is put in focus by concentrating on disruption to crime rather than the actual amount recovered.

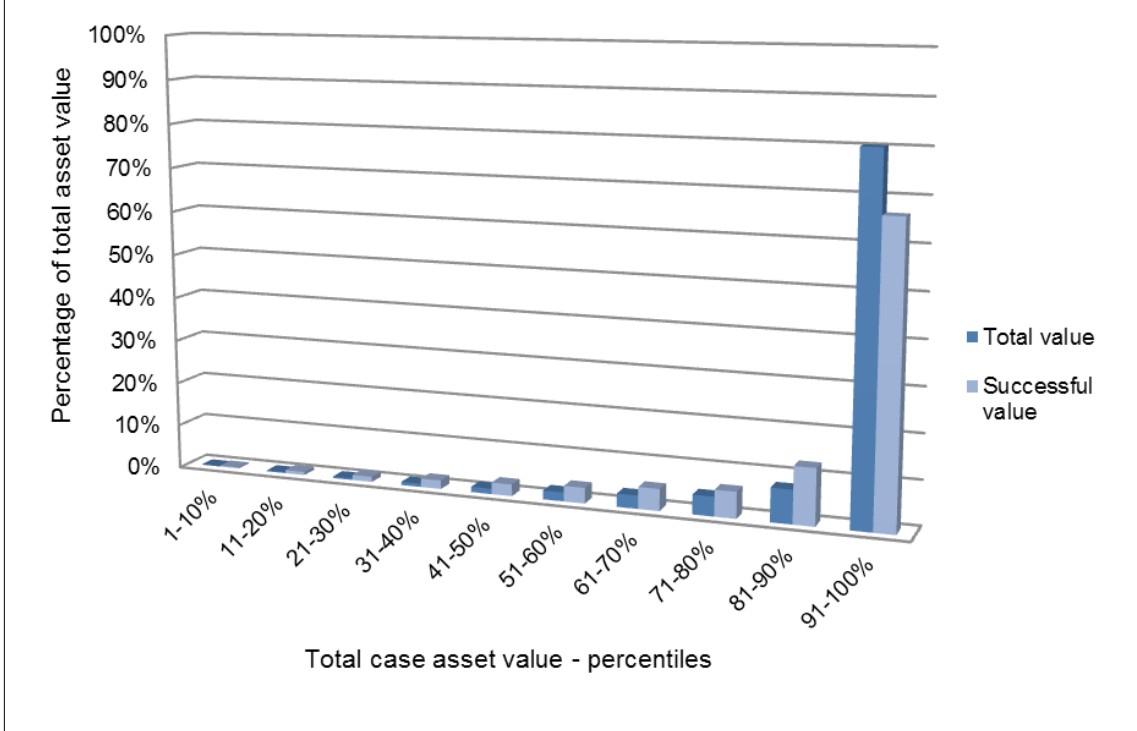
It should be noted that POCDDI is primarily an aggregate measure of the impact of proceeds of crime investigations on criminal activity. Obviously, the profit margin of individual crimes is influenced by a wide range of factors, such as the cost of raw materials, retail market pressures and the degree of difficulty in evading law enforcement. POCDDI is designed to report the benefits of proceeds of crime investigations over an extended period, preferably say one year.

Factors relating to successful proceeds of crime investigation

A second component of the research used proceeds of crime case data provided by the Australian Federal Police (AFP) to investigate factors associated with successful proceeds of crime investigations. Because the data are from AFP investigations, it is important to note that the findings presented here are not generalisable to state jurisdictions, which operate with both a different mix of cases and a different legal framework.

We attempted to identify factors related to successful proceeds of crime investigations using both descriptive statistics and modelling techniques. First, the value of proceeds in financial investigations is heavily concentrated in the largest cases. The top 10 percent of cases contained 80 percent of the total value of proceeds (see Figure 1). This observation is consistent with the Pareto Principle or 80/20 rule, which suggests that 80 percent of the effects come from 20 percent of the causes.

Figure 1. Distribution of asset value for all assets and forfeited assets by case value



Conversely, as the value of a case increases, the proportion of assets forfeited tends to decline. In the ‘bottom’ 50 percent of cases (by value), two in three assets are forfeited, while in the ‘top’ 50 percent, one in two assets are forfeited. This suggests that law enforcement should continue to pursue straightforward lower value cases due to their higher success rate, while focusing the bulk of their effort on large investigations because most of the value is in these cases.

More complex statistical methods were employed to identify factors in the successful outcome of financial investigations (see Chapter 5 for details). It should be noted that the number of cases available for drug-related proceeds of crime cases was insufficient to support the analysis. We decided to include proceeds of crime data from other crime types to increase the amount of data available for our statistical analysis. We tested our final model to evaluate whether the type of crime in any way influenced the factors related to success. Type of crime did not influence the model, which means that the types of factors that influence success in proceeds of crime action are the same for drug trafficking and other types of crime. A good financial investigation exhibits similar characteristics regardless of the predicate crime.

The second major finding was that the duration of the financial investigation (as measured by the period from the restraint of an asset to its resolution) was statistically associated with the chance of success. The longer a financial investigation takes, the less likely it will be successful. For every year that passed, the odds of success were reduced by approximately one-third.

The observed rate of decline could be useful in assisting financial investigation teams to assess the progress of individual cases. For example, where resources are scarce, this information would be helpful in weighing up whether to continue an ongoing case of some duration with a lower rate of success, as opposed to adopting a new case with a potentially higher chance of success. This finding may be of particular relevance as expert opinion confirmed that the main obstacle to pursuing proceeds of crime was lack of available resources in financial investigation teams.

Third, our model also suggested that the type of asset restrained was associated with the chance of a successful outcome. Liquid assets and commercial property were more likely to be forfeited than residential property and other assets. There is potential to improve the overall effectiveness of financial investigations if the reasons for the lower success rate with respect to residential property and other assets could be identified.

Future directions

There are a number of opportunities to improve our understanding and application of proceeds of crime initiatives. The following observations are offered for further consideration.

- Expert opinion identified lack of available resources as the primary restraint on proceeds of crime activity.
- There is potential to consider the relative merits of differing operational approaches. Current individual practices range from full integration of financial investigation units into the investigation team to utilising financial investigation units as 'separate' advisors.
- It should be noted that the introduction of unexplained wealth provisions could have a significant impact on the current findings. It is too early to assess any potential impact and a new study should be commissioned at a suitable time.
- Similarly, the scope of and support for specific proceeds of crime legislation was noted by experts as a key determinant of overall success.
- There was concern expressed by a number of experts as to the proportion of proceeds of crime transferred overseas. Although outside the bounds of our study, the flight of proceeds to other countries is obviously a major concern that warrants further study.

1 Introduction—Targeting the profits of illicit drug trafficking

Illicit drug trafficking is a source of funds for further trafficking and for supporting the lifestyles of criminals. Drug trafficking has been closely linked with organised crime and with social harms. This project will quantify the multiplier impact of the reinvestment of the profits of drug trafficking by identifying proceeds likely to be reinvested in crime and applying an appropriate economic model. The project will also attempt to identify factors associated with successful proceeds of crime action. The findings should improve agencies' ability to target trafficking and increase the seizure of proceeds of crime. It will also allow agencies to provide both the Government and the community with a more accurate assessment of the value of their proceeds of crime initiatives.

1.1 Aims of the study

This study was aimed at estimating the multiplier effect of profits derived from drug trafficking. As with any business enterprise, a proportion of turnover will be reinvested in the business and lead to increased business activity. With respect to organised crime, a proportion of the profits of drug trafficking will be reinvested in further drug trafficking and may also be used to support the lifestyles of those involved. The research was specifically intended to:

1. Identify the reinvestment of the profits of drug trafficking into both legitimate and illegitimate activities.
2. Calculate the downstream profits and harms to the community produced as a result of the reinvestment of drug trafficking profits.
3. Derive the multiplier effect of illicit drug trafficking on further criminal activity.
4. Identify factors associated with successful proceeds of crime investigations.

The results from the research should allow police agencies to better describe the true impact of their proceeds of crime activity on illicit drug trafficking and suggest ways in which these proceeds could be maximised. The research outcomes should enhance the evidence base for best practice in drug law enforcement by providing more accurate and operationally relevant estimates of the social impact associated with illicit drug trafficking. These results would also enhance the role of law enforcement in the research, development, piloting and evaluation of innovative illicit drug law enforcement practices by engaging both federal and state police in the project through the establishment of a project steering committee. Finally, the results of the study should lead to better informed decision making by law enforcement agencies in terms of the direction and targeting of drug law enforcement and increased confiscation of proceeds of crime.

1.2 Potential benefits

There are a number of benefits to this study.

- First, it highlights a key cost to the community associated with illicit drugs. Previous studies have identified the direct impact of drug use on, for example, property crime; none have looked at the reinvestment of the profits of drug trafficking into further criminal activity.
- Second, it provides police with a more accurate estimate of the impact of their drug law enforcement activities, especially with reference to money laundering and proceeds of crime activity. In turn, this should improve accountability to both Government and the community.

- Third, it should allow police to target those drug trafficking activities that are more likely to result in further criminal activity.
- Finally, it may provide a means for agencies to increase their seizures of criminal assets and proceeds of crime.

1.3 Background

According to Sherman (2006), proceeds of crime action in Australia dates from the introduction of relevant legislation at federal, state and territory level during the 1980s and followed a series of recommendations from Royal Commissions in the previous decades. Sherman (2006) noted the importance of proceeds of crime legislation in combating organised crime and drug trafficking, although he expressed some doubts over the effectiveness of criminal law measures. The issue of effectiveness is more complex than it first appears. The Australian Institute of Criminology (2008) noted the difficulties in reporting the amount of proceeds of crime recovered by the Commonwealth.

While it is important to report on activity, in this case proceeds forfeited, it is equally important to report on the social impact of public sector efforts (Office of Best Practice Regulation 2009). For example, the Australian Taxation Office has been criticised in the media for its failure to recoup its outlay from its investigations of possible tax evasion by high wealth and often high profile individuals (Project Wickenby). However, the Australian Taxation Office (p.88 2008) reported that significant additional voluntary contributions had been made by high wealth individuals since the launch of Wickenby. There was an estimated increase of 70% in net tax payable by those targeted by Wickenby. In addition, intelligence suggested that two schemes worth in excess of \$100 million had been abandoned. In other words, while the investigation of Wickenby cases was not cost-effective in terms of actual amounts recovered, it was highly effective in terms of revenue generated by increased voluntary compliance. It appears that the important social impact of Wickenby has been offset by an over-emphasis on measuring the activity of Wickenby.

There are important parallels with the reporting of proceeds of crime in the literature where the level of activity is reported in the absence of comment on the social impact of that activity. As recently as October 2009, the Scottish Government (2009) noted that there is no harm reduction measure related to proceeds of crime. To the authors' knowledge, the current project is the first attempt to measure the social impact of proceeds of crime action in Australia or elsewhere.

It is perhaps just as important to realise what was not attempted in this study. The study does not attempt to describe, evaluate or compare proceeds of crime activities across Australian jurisdictions and agencies. Expert opinion from various state and federal agencies was collected on the assumption of anonymity to ensure an open and frank discussion.

1.4 Method

There were four major components to the study:

- An exhaustive review of the literature with separate searches being undertaken in relation to proceeds of crimes, business models of organised crime and the illicit drug market in Australia. The information gained from this review informed subsequent stages of the study.
- A survey of expert knowledge from major law enforcement agencies through interview or workshop. (Note: to ensure an open discussion, anonymity was guaranteed.)
- The development of a business model of illicit drug trafficking in Australia and the development of a measure of the impact of proceeds of crime action.
- Multivariate analysis of proceeds of crime data from Australian agencies to identify factors relating to successful proceeds of crime action.

1.5 Structure of the report

This introduction explains the background to our project. It is followed by a review of proceeds of crime and anti-money laundering initiatives both here and globally and a review of evaluations of these initiatives (Chapter 2). A business model of illicit drug trafficking is introduced (Chapter 3) to underpin the development of a social impact measure of proceeds of crime activity (Chapter 4). To this point, the project has primarily relied on literature reviews, the results of previous research and expert opinion. Chapter 5 includes a multivariate analysis of Australian Federal Police data to identify factors associated with success in proceeds of crime cases using data related to (a) illicit drug cases only, and (b) all crime types. This analysis is supplemented by the results of an expert opinion survey. The conclusion (Chapter 6) contains recommendations related to our findings and issues for future consideration and research. Attachment A provides a short review of the illicit drug market in Australia which provides a contextual background for readers who may not be familiar with it.

2 Literature review of proceeds of crime

This literature review was undertaken in order to provide a suitable backdrop for our research project and, more importantly, to derive historical information that might assist in identifying the impact of proceeds of crime action on the criminal enterprise.

It was clear from the outset that the phrase 'proceeds of crime' although a very exact description of the subject matter may have restricted value in a literature review. Much of the literature of interest to our study is to be found under the headings of money laundering and organised crime. It should be noted that while all money laundering involves proceeds of crime not all criminal proceeds are laundered. This distinction highlights one of the main themes in our project: some proceeds of crime are directly invested in further crime whereas others are put to legitimate uses.

Organised crime is an even wider net but an appropriate one if we hope to apply a business model to proceeds of crime. All this must be set within the specific context of illicit drug importation and trafficking. Again, it was apparent that if the literature pertaining to 'proceeds of crime' was somewhat thin, then the subset of articles relating to illicit drugs was exceedingly sparse. Thus, although the review was undertaken with an emphasis on illicit drugs, the decision was made to examine other crime types and to assess the extent to which findings in other areas could be applied to the business of supplying illicit drugs.

Finally, it should be noted that the precise meaning of phrases such as 'proceeds of crime' and 'money laundering' will vary across jurisdictions in Australia depending on the detail of their respective legislation. Such differences will be exacerbated when considering the result internationally. Nevertheless, it is reasonable to assume that there is sufficient commonality of meaning to allow for broad observations that can be applied across nations and across jurisdictions in Australia.

The literature review incorporated the following steps:

- A review of the formal literature using key words such as 'proceeds of crime', 'money laundering', 'organised crime' and 'illicit drugs'. The references provided by these studies were reviewed for additional material.
- Money laundering has its own subject matter journal *The Journal of Money Laundering Control*. Every article published since 1 January 2000 was considered.
- A review of major websites for material provided by Government and other bodies was also undertaken using either the key words indicated above or by examining websites of known relevance.
- Face-to-face discussions were held with the Australian Crime Commission, the Queensland Crime and Misconduct Commission, Queensland Police and the Australian Federal Police to identify any other potential sources of information.

The literature review will attempt to address a number of issues. First, the review will provide a broad description of legislation relating to proceeds of crime and money laundering locally and internationally. Second, the review will consider the social impact of the reinvestment of proceeds of crime as far as possible in relation to illicit drugs but also mentioning other types of criminality. Third, the review will attempt to evaluate the success, including barriers to success, of the relevant legislation. Finally, the review will identify key issues from the literature that will inform our study and provide a framework for the results presented.

2.1 The situation here and abroad

In Australia, proceeds of crime legislation were developed following a request in 1983 from the Australian Police Ministers Council to the Standing Committee of Attorneys-General. There was a strong link between proceeds and crime legislation and drug law enforcement from the beginning. The proposal to develop uniform legislation across Australia was endorsed by the Special Ministers Conference on Drugs in 1985. Eventually, all jurisdictions developed their own legislation between 1985 and 1993. Since that time, most jurisdictions have introduced amendments to allow civil forfeiture. Current legislation is listed in Table 3.

Table 3. Current Proceeds of Crime Legislation

| Jurisdiction | Title | Year |
|------------------------------|---|------|
| Commonwealth | Proceeds of Crime Act 2002 | 2002 |
| Australian Capital Territory | Confiscation of Criminal Assets Act | 2003 |
| New South Wales | Confiscation of Proceeds of Crime Amendment Act | 2005 |
| Northern Territory | Criminal Property Forfeiture Act | 2002 |
| Queensland | Criminal Proceeds Confiscation Act | 2002 |
| South Australia | Criminal Assets Confiscation Act 2005 | 2005 |
| Tasmania | Crimes (Confiscation of Profits) Act 1993 | 1993 |
| Victoria | Confiscation Act | 1997 |
| Western Australia | Criminal Property Confiscation Act | 2000 |

As noted above, a significant impetus for proceeds of crime legislation in Australia originally came from the drug law enforcement sector. This interest in the link between drugs and proceeds of crimes can be traced to the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances 1988 (United Nations, 1988) where parties to the treaty agreed that they were 'determined to deprive persons engaged in illicit traffic of the proceeds of their criminal activities' (p.1). The introduction of proceeds of crime legislation in Australia in effect made good Australia's international commitment as a party to the 1987 convention. The Australian Institute of Criminology (2008) in a brief overview of federal confiscation of proceeds of crime in Australia noted that the rationale for such legislation was twofold:

First, the removal of funds generated by criminal activities is intended to deprive criminals of the benefits of their financially motivated criminality, thus reducing the motivation for offending. Confiscation also entails punishment for wrongdoing, which may deter further offending by both the criminal and others in the community. Second, removing access to assets generated from criminal activities reduces the capital available to perpetrators of future criminal ventures (p.1).

Similar legislation relating to both proceeds of crime and/or money laundering was enacted in a large number of countries globally. References were found in the formal literature to the enactment of legislation in 29 countries including Argentina (Ruiz 2002), Australia (Johnson 2000), Belgium (Verhage 2009), Canada (Murphy 2003), Georgia (Gotz & Jonsson 2009), Germany (Blocker 2002), China (Ping 2007), Hong Kong (Sham 2006), Hungary (Roule 2002), Iran (Rahmdel 2002), Ireland (Ashe & Reid 2001), Israel (Harpaz 2001), Lebanon (Fheili 2001), Malaysia (Shanmugam et al 2003), Mexico (Varga & Backhouse 2003), Myanmar (Joyce 2002), The Netherlands, (Nelen 2004), Nigeria (Okogbule 2007), Poland (Plywaczewski 2000), Russia (Subbotina 2008), South Africa (de Koker 2002a,b), Spain (Cabana 2007), Switzerland (Capus 2003), Taiwan (Ching 2004), Turkey (Okuyucu 2008), Ukraine (Roule & Salak 2003), United Kingdom (Harvey 2005), USA (Baldwin 2002) and Zambia (Okogbuke 2007).

It is likely that other reports appear in non-English journals and in other less formal sources. There is little doubt that the adoption of legislation to combat money laundering and to permit the confiscation of proceeds of crime is widespread. Furthermore, there is evidence for the uptake of relevant legislation in countries which initially failed to do so. The Financial Action Task Force is an inter-governmental body that assists nation states to implement measures designed to counter the use of the financial system by criminals. It established a framework in 1990 which was subsequently revised in 1996 and 2003. In 2000-2001, the Task Force listed 23 countries which failed to comply substantively with its framework (Shahin 2005). However, four countries were delisted in 2001, eight in 2002, two in 2003 and three in 2004 leaving six countries remaining on the list in 2005 (Shahin 2005). In summary, there has been considerable legislative action in Australia and globally to address the issue of proceeds of crime and money laundering.

Despite these efforts, the problem is far from disappearing. In October 2011, the United Nations Office on Drugs and Crime released a report on the size of illicit financial flows arising from drug trafficking and other transnational crime (United Nations Office on Drugs and Crime 2011). The report suggested that, in 2009, proceeds of crime accounted for 3.6% of global GDP or approximately US\$2.1 trillion. Money laundering through the world's financial systems accounted for 2.7% of global GDP or US\$1.6 trillion. When the analysis was restricted to transnational crime including drug trafficking, the United Nations Office on Drugs and Crime reported that proceeds of crime were equivalent to 1.5% of global GDP or US\$870 billion in 2009. The report also noted that illicit drugs were the main contributor to the income of organised crime accounting for 20% of all criminal proceeds and about half the income derived from transnational crime. The report concluded that globally the interception rate for proceeds of crime is low, probably less than one percent.

2.2 Social impact of proceeds of crime

The United Nations Office on Drugs and Crime report (2011) identified social impact of criminal proceeds relating firstly to reinvestment in crime and secondly to investments in the legitimate economy.

- Analysis of the socio-economic impact suggests that the most severe consequence of criminal funds is the further perpetuation and promotion of criminal activities. In the drug area, research indicates that the socio-economic costs related to drug abuse are twice as high as the income generated by organised crime; in some countries (USA, UK) one can even find a 3:1 ratio.
- Criminal funds, even if invested in the legal economy, may create a number of problems, from distortions of the resource allocation, to 'crowding out' licit sectors and undermining the reputation of local institutions, which, in turn, can hamper investment and economic growth. The situation is less clear-cut for financial centres receiving illicit funds, but the long-term consequences may be negative if they do not actively fight money-laundering. (United Nations Office on Drugs and Crime 2011, p.8)

This distinction between reinvestment and legitimate use reflects one of the major concerns of this report, namely the proportion of income reinvested in crime. According to the United Nations Office on Drugs and Crime (2011, p. 99), drug trafficking has a higher level of reinvestment than other forms of crime. Thus, it would appear that proceeds of crime action against drug traffickers would result in a greater reduction in subsequent criminal activity than comparable action against other crime types. The actual impact of proceeds of crime action will be the subject of review later in this chapter. Nevertheless, assuming that proceeds of crime action is effective in preventing criminal activity then it is especially effective against drug trafficking.

There have been a number of reports into the social impact of illicit drugs in Australia. Collins and Lapsley (2008) estimated in 2004-05 that illicit drugs carried a social cost to the Australian community of \$8.2 billion. Moore (2007) introduced a number of enhancements to the Collins and Lapsley methodology and estimated the total cost of selected illicit drugs in 2004 to be near \$12 billion. Results are similar worldwide. The United Nations Office on Drugs and Crime (2011, p.101) estimated that illicit drugs caused harms in Australia amounting to 1.0 percent of GDP compared with the weighted average for a group of countries with available data of 1.2 percent.

The use of socio-economic measures expressed in dollars or proportion of GDP disguises the human impact of the problem. Perhaps the most widely known example of a nation negatively impacted by the trade in illicit drugs is Mexico. Simser (2011, p.266) reported the extent of impact of drug cartels on life in Mexico. In Ciudad Juarez, a city of 1.3 million people, seven people a day are murdered by drug gangs. Between 2006 and 2010 28,000 people died from drug-related violence in Mexico as a whole. The extent of corruption and social disruption suggests that Mexico is 'a weak and potentially failing state' and a potential national security threat to the USA (Simser 2011, p.267). While recognising the extent of the problem in Mexico, it is perhaps prudent to note that the links between social disorder and the drug trade are not as strong in other countries. De Andrade Filho (2008) provided an overview of the relationship between illicit drugs, organised crime and corruption in Brazil. In Brazil, the more extreme elements of the Mexican experience are lacking.

It is possible to distinguish between the harm associated with the use of illicit drugs and the broader impacts of criminal proceeds on society. The use of criminal proceeds to fund legitimate enterprises, even philanthropic projects, has a long history. Van Duyn and Soudijn (2009) noted the contribution of criminal proceeds to the construction of the Peace Palace in the Netherlands and to the establishment of Stanford University in the USA. The conversion of criminal proceeds into legitimate assets (i.e. money laundering) is a necessary step if criminals are to enjoy, in relative safety, the products of their criminal activities. It would appear that the use of proceeds to stimulate the legitimate economy may benefit the community as a whole. Certainly, there are situations where this is the case but conversely others where the entry of criminal funds into a legitimate market distort that market to the detriment of society as a whole.

McDowell and Novis (2001) described the potential negative impacts of criminal proceeds entering the legitimate economy including:

- Undermining the private sector. Where criminal proceeds are used, in effect, to subsidise a legitimate business it provides a competitive advantage over companies playing within the rules.
- Undermining the integrity of financial markets. The swift movement of large sums of money through the financial system can create liquidity problems for banks and other financial institutions and has been associated with a number of bank failures including the first Internet bank, the European Union Bank.
- Loss of economic control. The involvement of organised crime in foreign currency manipulation can threaten government control of modest to small economies and create instability in foreign exchange markets.
- Reputation risk. The perception that certain countries are more likely to be involved in the acceptance or transfer of criminal proceeds. Loss of market and/or investor confidence can reduce the economic viability of such countries.

Even in well developed economies, the impact of criminal proceeds entering the legitimate economy can be destabilising. The potential for such impacts has been reported with respect to real estate (Nelen 2008; Ritzen 2011; Schneider 2004a), the stock market (Lai 2011; Sharma 2001), international trade (Liao & Acharya 2011), public contracts (Canapple et al 2009), insurance (Thanasegaran & Shanmugam 2008), and gambling (Hugel & Kelly 2002). The contribution of illicit funds to corruption was noted earlier with respect to Mexico and Brazil, however, the corrupting influence of proceeds of crime is not limited to these nations alone. The relationship between corruption and proceeds has been discussed in detail by Sharman and Chaikin (2009) and Van der Does de Willebois et al (2011: Foreword). The latter summarised the impact of corruption as follows:

Corruption is estimated to be at least a \$40 billion dollar a year business. Every day, funds destined for schools, healthcare, and infrastructure in the world's most fragile economies are siphoned off and stashed away in the world's financial centers and tax havens. Corruption, like a disease, is eating away at the foundation of people's faith in government. It undermines the stability and security of nations. So it is a development challenge in more ways than one: it directly affects development assistance, but it also undermines the preconditions for growth and equity.

An alternative perspective on criminal proceeds and the legitimate economy has been proposed by Beare (2007), who argued that the distinction is not as clear as the literature assumes. In fact, society is to some extent tolerant of criminality within corporations and it is the 'criminal behaviour' of legitimate businesses, accountants and officials that may be potentially more harmful to society than the infiltrations of the legitimate economy by criminal proceeds. An interesting but largely unsubstantiated claim reported in *The Observer* suggested that drug money kept many banks afloat at the height of the global financial crisis (Syal 2009).

In summary, the consensus opinion to date is that the application of criminal proceeds to fund further crime or as an investment in legitimate business enterprises has profound social impact. The reinvestment of proceeds into criminal activity, as noted earlier, is the major concern and even the investment of proceeds in legitimate business enterprises has a negative impact on the market. This latter impact is generally in terms of a slight to moderate disruption to various markets, e.g. real estate, foreign currency, insurance, but in its more extreme forms may threaten the viability of the state itself.

2.3 Evaluating the success of anti-money laundering and proceeds of crime legislation

The claim that stopping the money will stop the crime has been repeated many times over many years by government and law enforcement officials alike. While there is a strong commonsense appeal to this notion, empirical evidence to substantiate such a claim is more difficult to establish. In the first place, the extent and content of legislation to attain this goal differs both between and within nations making both across border and within border comparisons that much more difficult. As noted earlier, the distinction between 'anti-money laundering' and 'proceeds of crime' is not easy to maintain given that the former is a subset of the other. Therefore, the following review will encompass evaluations conducted under the title of 'proceeds of crime' and 'money laundering'. The evaluations will be grouped under domestic and international. A final caveat: proceeds of crime and anti-money laundering legislation has changed considerably over past decades, and law enforcement strategies, techniques and technology have also changed. Some of the evaluations quoted are over ten years old and might raise issues that were subsequently addressed.

In Australia, conviction-based proceeds of crime legislation has been in place since the 1980s. The shortcomings of conviction-based legislation were widely recognised (Australian Law Reform Commission, 1998) and civil forfeiture legislation was introduced by the Commonwealth, States and Territories during the 1990s and early 2000s. Sherman (2006) conducted an independent review of *Proceeds of Crime Act 2002 (Cth)* as required by Section 327 of that Act. He concluded that the Act had achieved its aim and that it was more effective than its predecessor although noting the difficulty with making such comparisons with the data available at the time. It should be noted that the number of matters and total amount forfeited for drug-related investigations fell between the comparison years of 2001-02 and 2005-06 (Sherman 2006, p.20). Sherman made a wide range of recommendations which emphasises the evolving nature of proceeds of crime legislation and enforcement.

The major recommendations of the review are as follows:

- a) the Act should contain a clear mandate for agencies to pass on information acquired under the Act to other agencies;
- b) the ACS, the ATO and ASIC be given powers to issue s.213 notices to financial institutions, and that the ATO be given the same access to coercive powers under the Act as the other agencies;
- c) the CAA be made a normal income and expenditure account with greater flexibility for payments, this is to be accompanied by greater accountability to the Parliament on the operations of the account;
- d) the processing of legal aid claims should be made more flexible and efficient;
- e) the limitation period for civil confiscation be extended from six to twelve years;

- f) a court be able to make an examination order before a restraining order is made and that applications for such orders can be made *ex parte*;
- g) the penalties for offences related to failure to attend examinations and refusal to answer questions be increased;
- h) a new offence of providing false or misleading information in connection with an examination be created;
- i) magistrates be given power to make PPOs, and make conviction-based forfeiture orders, when indictable offences are dealt with summarily;
- j) the definitions of 'financial institution' and 'serious offence' be expanded.

(Sherman 2006, Executive Summary)

The recommendations included one reference to 'greater accountability to the Parliament' (c.) but otherwise did not address the issue of measuring the impact of proceeds of crime action. More recently, proceeds of crime legislation has been supplemented by unexplained wealth provisions – Northern Territory in 2003, Queensland, Western Australia and South Australia in 2009, the Commonwealth and New South Wales in 2010.

The pros and cons of such legislation have been summarised by the Australian Institute of Criminology (Bartels 2010):

Pros:

- To deter potential criminal activity by increasing the cost of crime.
- To reduce the funds available for reinvestment in crime.
- To seek moral redress by removing wealth gained through criminal activities.

Cons:

- The presumption of innocence is undermined by reversing the onus of proof.
- The right to silence is undermined by specific provisions of the act(s).
- The potential for arbitrary exercise of power exists.

It should be noted that there is a lack of empirical evidence to support the pros; and the cons are based largely on concerns surrounding civil liberties. This observation should not be taken to undermine arguments either for or against but rather as an indication of the nature of the debate in Australia. These points also neatly summarise the main arguments for and against proceeds of crime legislation and anti-money laundering provisions in the wider literature.

Perhaps the most fertile ground for evaluation of anti-money laundering and proceeds of crime legislation is the UK, and the findings are almost uniformly bleak. A number of authors report no discernible effect on crime (Bell 2000a; Harvey 2005; Haynes 2008; Sproat 2007a) and especially organised crime (Sproat 2007a 2009a). The cost of running a money laundering/proceeds of crime regime was generally considered to be greater than the benefits (Bosworth-Davies 2008; Harvey 2005; Rider 2008). Only Kennedy (2007) was positive about proceeds of crime legislation by reference to the increasing amount of forfeitures. Murray (2010) attributed the relative lack of success of proceeds of crime action to the increasingly complex arrangements put in place by organised crime. Bosworth-Davies (2008) was inclined to see anti-money laundering and proceeds of crime legislation as a political smokescreen to divert attention from the extent of white collar crime in the UK financial sector. Similarly, Gelemerova (2011) concluded that 'the fight against money laundering has become a variable of political choices and subject to double standards rather than a targeted effort to curb crime for profit' (p. 254). The Institute of Chartered Accountants and the Corporation of London commissioned a survey of interested parties to assess perceptions of the costs and benefits of anti-money laundering regulations (Yeandle et al 2005). Two thirds of respondents believed the burden of these regulations was not justified by the level of risk of money laundering activity. Compliance with the regulations was due to sanctions imposed for non-compliance rather than the fact that this was good business practice or reduced

the incidence of crime. Corporate experience of the high cost of compliance was associated with a perception of low effectiveness in relation to fighting crime.

Formal cost-benefit analyses of anti-money laundering and proceeds of crime activity were undertaken by Sproat (2007b 2009b). In the earlier study, Sproat included the cost to Government as well as compliance costs to industry. Benefits were measured mainly in terms of forfeiture. The results suggested relevant regulation costs far more to implement than it recovered, with every £1 of criminal assets recovered costing £3.73. In the later analysis, Sproat was concerned with Government costs only. In this case, benefits of £143 million were generated from an expenditure of £114 million. It should be noted that proceeds of crime activity does not carry a major private sector burden so that the results reported by Sproat (2009b) are probably a better indication of the benefits and costs associated with that specific activity. Converting Sproat's reported figures to a ratio, it appears that proceeds of crime action recovers £1.25 for every £1.00 expended. Taking the results of the UK studies as a whole, it would appear that proceeds of crime action does not have a major impact on drug trafficking or crime in general and returns at best slightly more than it costs to implement and even this modest claim is tentative at best.

A number of evaluations in other countries reached similar conclusions. Schneider (2004b) concluded that money laundering linked to illegal drug trafficking had little impact on the Canadian economy and that the cost of enforcement probably outweighed the potential benefits. Nelen (2004) concluded that proceeds of crime action was used primarily against minor criminals and not against organised crime. Furthermore, there was evidence that a prison sentence was a greater deterrent than proceeds of crime action. Potential losses to the criminal could be integrated into the cost of doing business. Similarly, money laundering legislation was ineffective against organised crime in Russia (Orlova 2008). In Sweden, Magnusson (2007) concluded that the cost of implementing anti-money laundering legislation could not be justified by the results to date. Geiger and Wuensch (2007) reached the same conclusion with respect to Switzerland. An expert group in Indonesia concluded that the costs of that country's money laundering regime probably outweighed the benefits (Rusmin & Brown 2008). Interestingly, it has been suggested that 'following the money' may be an effective way to stop illegal logging in Indonesia (Walters 2010). This study highlights the need to look outside of the historical concern with amount forfeited to wider measures of the impact of anti-money laundering and proceeds of crime action. The preservation of the rainforest in Indonesia may have ramifications massively greater than the financial profit associated with illegal logging.

Finally, a small number of studies have addressed the issues of money laundering and proceeds of crime from an international perspective. It will be recalled that criminal proceeds attributable to transnational crime were equivalent to 1.5% of global GDP or US\$870 billion in 2009 with illicit drugs contributing 50 percent of that amount (United Nations Office on Drugs and Crime 2011). In terms of proceeds and illicit drugs it is important to look across as well as within nations.

Initiatives sponsored by the Financial Action Task Force have played an important role in international anti-money laundering and proceeds of crime initiatives. Johnson & Lim (2002) noted the pivotal role played by banks in international money laundering and used multiple regression techniques to measure the strength of the banking-money laundering connection. They compared pre and post data for nine countries joining the Financial Action Task Force and for nine countries that did not. They concluded that while the situation had improved in the majority of countries involved in the Financial Action Task Force, the situation had deteriorated in eight of the nine countries that did not join. Other reports with an international perspective include Mohamed (2002) who argued for European Union legislation as an appropriate model for other nations to adopt, Borgers & Moors (2007) who noted the need for increased international cooperation on proceeds of crime initiatives, and Cuellar (2003) and Bosworth-Davies (2006) who both argued against the value of the global anti-money laundering approach. From a largely methodological perspective, Preller (2008) noted the difficulties, in the absence of a standardised measurement framework, of making comparisons across nations of relative efficiency and effectiveness.

There is a limited literature on the factors affecting successful implementation and evaluation. These can be broadly divided into two groups (i) definitional issues and the need for more data or better data analysis

techniques (Arnone & Borline 2010; Beare 2002; Ferwerda et al 2011; Gao & Ye 2007; Harvey 2009; Tupman 2009), and (ii) legal and administrative issues (Bell 2000b 2001 2002; Brindle 2001; Douglas 2007; Rosdol 2007; Roule & Kinsell 2002, Sherman 2006) noting that there is an extensive literature on specific legislation in individual jurisdictions not included here.

In the previous section, we observed that there is general agreement in the literature of the extent and deleterious nature of the impact of criminal proceeds. This degree of agreement is almost matched by the agreement in this section that anti-money laundering and proceeds of crime initiatives have to date been largely ineffective.

2.4 Implications for our study

The literature we have analysed is both informative and to a degree surprising. The overwhelming conclusion noted above is ‘yes we have a problem and no we don’t have a solution’ or at least we do not have a cost-effective solution. The problem is probably not as great if we limit ourselves to proceeds of crime rather than including money laundering offences. The high cost to industry of enforcing anti-money laundering legislation is a prime contributor for the poor cost-effectiveness results reported in the literature. These costs do not apply directly to proceeds of crime although a proportion of proceeds of crime actions may result from surveillance systems operated by financial institutions. In such cases, it is reasonable to take into account the costs borne by financial institutions.

We would argue that, more importantly, very little attention has been paid to developing measures relevant to the questions we are asking. Apart from the occasional comment, there has been little interest in the development of a coherent and explicit measurement framework for evaluation. Too often, studies have adopted measures that are readily available (e.g. arrests and forfeitures) rather than to develop measures that are truly appropriate to measuring the impact of proceeds of crime action upon the criminal enterprise and ultimately, through the disruption of crime, on the community.

There are three major questions with respect to anti-money laundering and proceeds of crime initiatives:

- Has it reduced the level of crime, e.g. drug trafficking or terrorism?
- What has been the impact on organised crime?
- Have these initiatives been cost-effective?

We argue that the use of simple arrest or forfeiture statistics is unlikely to resolve any of these matters. For example, it appears to be true across many jurisdictions that arrests and forfeiture actions are generally not carried out against senior organised crime figures. This should not be considered a failure to have an impact on organised crime. If the ‘follow the money’ hypothesis has any credence in relation to organised crime, it must be in terms of the criminal organisation not any individual within it. The \$1 million in possession of a low level member may be destined for a drug deal but the member is merely the agent not the owner of these funds. Confiscating \$1 million probably has little impact on the agent but it does have an impact on the criminal organisation. There may be other good grounds for considering the arrest of senior crime figures desirable but this should not be confused with the impact of cutting off funds. We argue then that it is the funds denied or the disruption to the criminal enterprise that is the crucial element to measuring success.

As we have proposed elsewhere, the actual amount of forfeiture is not indicative of the impact of proceeds of crime action (or anti-money laundering activities). The true measure of proceeds of crime initiatives is in future criminal activity prevented or disrupted. It is the measure of crime prevented that is critical to answering the three questions posed above.

We acknowledge that, in our original proposal, we suggested that criminal funds invested in crime contributed to social harm whereas such funds invested in the legitimate economy did not. From the evidence provided in the literature review, it appears that the latter assertion may not be true. There appear to be harms associated with the investment of criminal funds in the legitimate economy. It is noted, however, that the majority of harm appears to result from investment in further criminal activity

while estimates of harm resulting from legitimate investment vary considerably. In some jurisdictions, the undermining of the legitimate economy appears negligible, e.g. Canada, whereas in a number of Latin American countries the impact is considerable, e.g. Mexico.

On balance, we have decided to remain within our original proposal to develop a measure of the value of crime prevented by proceeds of crime action. It follows that if we have omitted estimates of harm from legitimate investments of criminal funds, then our overall measure will tend to be conservative with respect to total harms avoided.

3 A business model of organised crime

The development of a model of organised crime will underpin our work on measuring the impact of proceeds of crime activity. D'Andria (2011) noted that the criminal organisations world-wide are characterised by a tendency toward internationalisation and the adoption of management practices typical of the legitimate corporate sector. He concluded that the ability to limit organised crime's investment choices is a significant factor in deterring further criminal activity.

It might reasonably be expected, and certainly the assumption is often implicit, that a penalty applied to someone near the apex of the organised crime pyramid is more likely to be effective than a penalty applied to someone at the base level of the structure. Whether this is so is open to question. It is certainly safer to assume that the impact of proceeds of crime activity will be related to the specific structure of the criminal organisation.

It is not intended in this chapter to review the extensive literature on organised crime in any detail; rather the chapter will focus on organised crime structures as they apply to the trade in illicit drugs in Australia. These observations will then be summarised into a specific business model. The chapter will conclude with a summary of the implications of this review for our study.

There are, however, a few general points to consider before undertaking the specific review. The first perhaps self-evident point to make is that there is no single model of organised crime that would apply uniformly to all known instances of organised crime. Certainly, in the popular media, organised crime tends to be presented as strongly hierarchical with a dominant leader, captains, lieutenants and foot soldiers. It involves a specific organisational culture with well-defined mutual obligations and support. It has well-defined means of communication and often involves an element of ritual, e.g. initiation and advancement rites. Another important feature of this model is that it portrays the structure and culture of the crime group as enduring over time. The hierarchical model clearly places organised crime in the same class of organisations as the military, police, public sector bureaucracy and some religions.

The alternative view is that organised crime is generally not highly structured and not strongly hierarchical. According to such an entrepreneurial model, organised crime stems from groups with some shared and legitimate interest (e.g. biker clubs or specific immigrant groups) that venture into illicit activities. In this scenario, the wider group provides the opportunity and the support for individual entrepreneurs to conduct criminal activities. The group also provides a relatively secure base from which to operate. It should be noted that such groups tend to have a specific group culture, a feature also of the hierarchical model.

In fact, the differences between these two views relates predominantly to the degree of top-down intentionality in planning criminal activities. It is certainly not unreasonable to propose that some groups might exhibit behaviours typical of both models. On occasions, the group may engage in a concerted, planned and structured activity while at other times individuals or small subsets of individuals may engage in more sporadic criminal activity.

The degree of organisation of a criminal activity will also be influenced by the nature of that activity. For example, in Australia it is a relatively simple matter for an individual of modest means to cultivate and harvest a cannabis crop in their own backyard or within their own home. It is probably safe to assume that such an individual will have a ready circle of fellow users to purchase the product. On occasions, such individuals might operate on a not-for-profit basis.

By way of contrast, the degree of organisation required to import a large quantity of heroin or cocaine into Australia is formidable. A successful operation requires both partners and contacts in the source country as well as Australia. The crossing of at least two borders with illicit substances represents a substantial barrier and has spawned a wide diversity of innovative means of importation from filling cargo containers to filling body cavities.

The exact nature of organised crime may not have a major influence on the direction of our study; however, an understanding of the business model(s) under which drug traffickers operate will assist in developing a measure of the impact of proceeds of crime action on illicit drug enterprises.

3.1 Organised crime in Australia

The Australian Crime Commission (ACC) (2011a 2011c) has provided recent and detailed reviews of the operation of organised crime in Australia. The ACC (2011a) has estimated the annual cost of organised crime to the Australian economy as between \$10 and \$15 billion. Approximately half of this amount related to illicit drugs. The ACC (p.6 2011a) has identified the major harms related to organised crime as:

- the loss of legitimate business and taxation revenue
- expenditure on law enforcement efforts
- expenditure on managing the social harms that compromise the health, safety and wellbeing of individuals and communities
- threats to the integrity of political and public institutional systems through infiltration of these systems
- loss of confidence in businesses and organisations
- emotional, physical and psychological costs to victims of organised crime, their families and communities
- community fear.

The economic size of the problem and the lists of harms summarised by the ACC are consistent with the findings reported in Chapter 2 Literature review of Proceeds of Crime. The ACC noted (2011a) that organised crime shares both a profit motive and a business management approach with legitimate enterprises. *The principal difference is that their business activities and profits are illicit* (p.2 2011a). From, the ACC's perspective, organised crime is another business albeit illicit.

The ACC (2011c) also produced a more detailed report entitled Organised Crime in Australia. The ACC presented a model of organised crime in Australia that is more closely aligned with the entrepreneurial model described above.

In Australia, organised crime involves a highly interconnected milieu of criminally minded groups and individuals, which come together as opportunities arise. Organised crime groups in this country vary significantly in sophistication, structure and modus operandi, dependant on their perceptions of the opportunities and threats that exist at that time... Rapidly evolving and temporary criminal structures and capabilities create problems for government and law enforcement agencies in identifying and 'triaging' targets and aligning operational and legislative responses. (p.28)

The ACC identified a number of business structures for organised crime. These are summarised in Table 4 on the following page.

The role of the entrepreneur in organised crime

A key feature of flexible business structures is their entrepreneurial approach. Smith (2010) reviewed the literature relating to entrepreneurial criminal activity describing organised crime 'as an enterprising community and as enterprising people' (p.256). Smith argued that entrepreneurship characterises both licit and illicit business activities and, when seen from that perspective, the blurring of the boundary between legal and illegal activities previously noted is readily understood. We have previously noted the deleterious effect of organised crime on the legal economy; however, Smith reported instances of cases where legitimate business depended on the existence of organised crime operating in the community. In effect, crime supports the legitimate economy and the legitimate economy supports crime. Smith, again in common with previous themes, argued that flexibility and networking in a loosely linked community of crime are significant factors in entrepreneurial success. The entrepreneur is driven by the need to profit from new and different opportunities.

Table 4. Organised crime business structures identified by the Australian Crime Commission

| Structure | Description |
|--|--|
| Traditional hierarchical | Historically, organised crime structures tended to be based on existing ethnic or cultural groups, e.g. the Sicilian Mafia or the Yakuza in Japan. These groups borrowed hierarchical business structures and operations typical of the legitimate economy. Such structures retain influence in specific criminal markets. However, such rigid structures are inherently more susceptible to law enforcement disruption and this has prompted many to adopt more flexible structures such as those outlined below. |
| Networked | <p>These structures employ a hybrid hierarchical model to refine methodologies, to repair damage caused by disruption and to protect members. Transnational organised crime in Australia has increasingly adopted this business structure. Relationships between individuals and groups are based upon shared resource and enterprise rather than the historical basis of shared ethnicity or culture.</p> <p>The ACC cites evidence for temporary alliances between transnational and domestic criminal groups for major projects such as the importation of illicit drugs.</p> <p>Some criminal identities assume the role of consultant to or coordinator of separate criminal groups to promote common interests. These interests may extend beyond illicit activities into the legitimate economy. The flexibility of these arrangements allows the extension of domestic operations overseas and vice versa.</p> |
| Net-centric | These groups use the Internet as the primary source of communication between disparate criminal groups. Internet communications provide greater protection against law enforcement interventions. They also provide access to specialist skills and criminal methodologies across the network and allow for the development of specific criminal projects. |
| Resilient networks – a composite model | <p>The most resilient crime groups in Australia tend to incorporate features from all of the structures indicated above. Typical such groups:</p> <ul style="list-style-type: none"> • engage in a variety of criminal markets often as a result of noting changes in consumer demands, • involve people with specialist skill and knowledge, • collaborate with other crime groups on specific projects, and • protect themselves from disruption by law enforcement by gaining knowledge of law enforcement techniques. |

Compiled from material in Australian Crime Commission (2011c, pp.29–32)

Smith was primarily concerned with the entrepreneur in an organisational setting. Frith and McElwee (2007), on the other hand, described the rise of a single entrepreneur (nickname Tom) acting initially alone supplying illicit drugs at a university in the United Kingdom. Tom arrived at university and was impressed by the opportunity to provide illicit drugs to new students with no existing source of supply. Tom worked primarily on a trial and error basis to balance supply and demand. He was driven to wholesale by the perceived risk associated with dealing directly with a large numbers of clients and by the intrusive effect drug dealing was having on his personal life. He displayed initiative in organising other wholesalers into supporting each other. He finally retired when his wholesale business began to intrude into his personal life. Tom shared many characteristics with larger scale enterprises. He made extensive use of networks, integrated other wholesalers rather than compete against them, and paid close attention to perceived risk by minimising contact within networks. This study supports the notion that entrepreneurial behaviour fuels organised crime. It is somewhat different in that, at least as far as Tom was concerned, a comfortable social life was at least as important as the profit motive, and eventually more so.

A business model of drug trafficking operations

As a general observation, analyses of illicit drug trafficking tend to rely on models of the drug market rather than models of the business per se. In the absence of a business model for drug trafficking, we reviewed the literature especially with respect to similar crime types. The Organisation for Security and Co-operation in

Europe (Aronowitz et al. 2010) has provided a detailed analysis of the business model for people trafficking. People trafficking has many features in common with the global movement of illicit drugs employing similar techniques and similar resources. Aronowitz et al. (2010) provides a template for the development of a business model for illicit drug trafficking (see Table 5). The rationale for proceeds of crime legislation for people trafficking is very similar to that for drug trafficking:

Financial investigations should be an integral part of a human trafficking investigation. Huge sums of money generated through the exploitation of trafficked persons can be either reinvested in the trafficking business or in the legitimate economy. Financial investigations will help trace the links and contacts that traffickers have with the underworld, identify which underworld branches are most at risk and which companies collude with traffickers.

Financial intelligence units with the necessary expertise should investigate money laundering practices. Following the identification of investments generated through illicit activities, governments should initiate steps to seize and confiscate assets. Measures should be implemented to compensate victims of trafficking and exploitation—a measure which, in addition to others, serves to decrease the profits generated through illicit activities. (Aronowitz et al. [2010], p.72)

Table 5. A basic supply chain model of trafficking in human beings

| Supplier | Assembly/ Manufacturing | Retailer/Service Provider | Customer |
|---|---|---|---|
| At this stage victims are 'sourced' by various means—travel agencies, employment agencies, 'lover boys', peers and family etc | In case of labour exploitation: goods are being produced (actual point of exploitation) | Choice of marketing channel (= means of communicating their offers to customers) | Customers choose products and services based on: |
| Transport of victims to point of exploitation | In all cases: victims are manipulated to achieve: <ul style="list-style-type: none"> training victims in necessary skills compliance/ obedience according to the will of traffickers through coercion, use of force, or alternative means of creating vulnerability | Choice of customer type: <ol style="list-style-type: none"> Businesses Private customers | <ol style="list-style-type: none"> Price Quality Variety of functions Ease of consumption Presentation of goods and services |
| Provision of travel documents, if necessary | | Mode of sale (where and how to offer goods/services for purchase) | Purchase (goods and services) |
| Collection and use/ reinvestment of revenues | | Collection and use/ reinvestment of revenues | Level of awareness in terms of involvement in the trafficking process varies |
| Revenues are related to competition, costs and perceived risk | Quality controls => Traffickers need to ensure satisfaction of their clients | Choice of competitive strategy: <ol style="list-style-type: none"> Differentiation Price Quality | |

Source: Aronowitz, Theuermann & Tyurykanova (2010) p.34

The report also made a number of recommendations in relation to the business of people trafficking, which again are relevant to the business of drug trafficking including:

- To achieve long term disruption, law enforcement strategies should focus on the business side of criminal activities
- The confiscation of criminal assets should be a key strategy in the disruption of people trafficking
- All investigations into people trafficking should include financial investigations (Aronowitz et al. [2010] pp. 82–85)

It appears that there is a great deal of commonality between approaches to the problem of people trafficking and that of drug trafficking. We suggest that the Supply Chain Model for people trafficking could be applied, with a few modifications to drug trafficking. Table 6 provides details of such a model.

Table 6. A basic supply chain model of illicit drug trafficking

| Production | Transportation | Retail | Consumer |
|---|--|--|---|
| Cultivation/production of raw drug/precursor | Transport of illicit drug to consumer market | Wholesalers purchase from manufacturer and distribute to retailers | Established retailer–consumer relationships pose less risk to both retailer and consumer |
| Manufacture/refinement of illicit drug | Transport funded either by manufacturer or by wholesaler or both Transport across national borders requires additional planning | Retailers provide drugs to regular customers and new customers. | Customer chooses product based on <ul style="list-style-type: none"> • Cost • Quality • Perceived risk |
| Collection and reinvestment of revenues | Collection and reinvestment of revenues | Collection and reinvestment of revenues | Consumer experiences the social, psychological and physiological impact of drugs. |
| Revenues are related to competition, costs and perceived risk | Revenues are related to competition, costs and perceived risk | Revenues are related to competition, costs and perceived risk | |

This model necessarily simplifies relationships between stages. For example, in some cases, the progression from cultivation/production to manufacture/refinement may involve the transfer of product across national boundaries. The number of entities involved in the supply chain can vary considerably. There might be one or more groups involved at each and every point, and profits occur at each step across the supply spectrum. Highly developed organisations may control the entire chain so that the profit occurs at the point of retail.

Certainly within the course of our discussion with various law enforcement agencies, it was suggested that for some drug types the supply chain has an hourglass shape. The greatest number of individuals occurs at either end of the spectrum—the cultivation/production stage and consumers. There are fewer manufacturers than producers and fewer again undertaking the specialised role of transportation across national borders. On the distribution side, there are more wholesalers than transport specialists and more retailers than wholesalers. The implication is that the most vulnerable area, simply in terms of the number of players, is in the centre of the hourglass. It was noted earlier that organised crime had adopted more flexible arrangements for its activities. Such a strategy is consistent with the notion that it is the centre of the hourglass where risk is greatest. It is also the area where the revenues generated by the illicit drug trade are most concentrated.

Again, we should remind ourselves that models are necessarily a simplification of complex interactions in the real world. Good models help us to identify critical causal factors in multifaceted phenomena and by so doing improve our ability to predict and indeed control events. The clandestine nature of drug trafficking is one factor restraining the development of a business model of drug trafficking. The other factor is the variability in drug trafficking operations. From an Australian perspective, it is worthwhile noting the distinction between drugs that are produced for the most part locally, such as cannabis and the amphetamines, and drugs of importation, such as heroin, ecstasy and cocaine. In our model of drug trafficking, transportation is more significant for drugs of importation than locally produced drugs. It is the transfer across national borders that poses the greatest threat to the successful importation of drugs into Australia. The issues surrounding transportation of locally produced drugs are minimal especially with regard to cannabis. Furthermore, Willis (2008) noted that the majority of cannabis consumed in Australia was not supplied by drug dealers but rather obtained gratis or purchased from social contacts in private residences. Nicholas (2008) has also argued for the importance of not-for-profit distribution of illegal drugs at the end point of the retail chain.

3.2 Implications for our study

The consideration of drug trafficking as a business provides an entirely different perspective to the issue of the impact of proceeds of crime from that provided by the literature review. The literature review, it will be recalled, tended to be pessimistic about the potential for proceeds of crime and money laundering legislation to disrupt crime. There are some interesting reflections on specific criticisms arising from the literature review of proceeds of crime.

One of the major concerns was the apparent lack of evidence of any impact on key organised crime figures. From a business model perspective, this might be expected. If modern organised crime is comprised of shifting allegiances and cooperation between individuals and cells in one or more broadly based criminal groups, then such a result is to be anticipated. The hypothesis that proceeds of crime action should be directed at major crime figures is based on the unstated assumption that organised crime exhibits a concrete, hierarchical structure. As the literature shows, such an assumption is not consistent with modern notions of the structure of organised crime.

Adopting a business model of organised crime also gives us a clear indication of why proceeds of crime are important. All business models of organised crime assume that profit is the primary motive of such businesses, as it is with legitimate business enterprises. On that assumption, one would expect that successful proceeds of crime action would be disruptive to the business of crimes. Proceeds of crime action per se cannot be without value unless the business model of crime is wrong and that seems highly unlikely. If criticisms of proceeds of crime/money laundering efforts are to be sustained, they must be directed at the application of such regulations rather than the concept itself.

In conclusion, recognition of the 'business' nature of organised crime refutes many of the criticisms met with in the literature that has, in our opinion, focused too narrowly on the technicalities of proceeds of crime and money laundering regimes rather than recognising the broader theoretical framework within which these regimes exist. The adoption of an appropriate business model also assists us to identify the point in the supply chain where proceeds action may be most effective. With imported drugs, the most vulnerable point would appear to be the transportation of illicit drugs across national borders.

4 Estimating the impact of proceeds of crime activity

One of the principal aims of our project has been to develop a measure of the impact of proceeds of crime action on the criminal enterprise; in effect, the disruption to ongoing criminal activity by proceeds of crime enforcement.

As noted previously, proceeds of crime tends to be reported in terms of the dollar amount confiscated or forfeited. Furthermore, the reported amount is usually that remaining after maintenance and disposal costs have been subtracted. It is important, of course, to have an exact estimate of the amount of proceeds that are deposited in government coffers and prudent to have an understanding of the costs associated with successful prosecution of proceeds of crime. However, neither the revenue derived from confiscation/forfeiture, nor revenue adjusted by costs incurred is a good indicator of the impact of proceeds of crime action on the criminal enterprise.

It is argued that the proper measure of impact is the cost to the criminal enterprise. A simple real life example will demonstrate the difference between amount forfeited and the cost to the criminal enterprise. As part of proceeds of crime action in one jurisdiction, a luxury car was targeted by the investigating authority and eventually forfeited. The car was valued initially at \$120,000 and was maintained for 12 months before being sold at auction. Taking into account maintenance and auction expenses, the amount received for the car was approximately \$30,000. Therefore, the 'benefit' to the government was 25% of the real cost to the criminal.

Admittedly, this is an extreme example presented for illustrative purposes. A more realistic estimate of the impact of legal, maintenance and disposal costs was provided by an analysis of proceeds of crime data from the Australian Federal Police. Based on information from 115 successful proceeds of crime actions relating to illicit drug investigations since 1995, the results suggested that the final amount appropriated was approximately 87% of the estimated cost to the criminal enterprise. In other words, add-on costs relating to assets seized are approximately 13% of the original value. The imbalance between 'benefit to government' and 'cost to criminal' will also be influenced by the type of asset. Liquid assets tend to maintain their original value. The major source of diminution will be where legal costs could be awarded against proceeds. Non-liquid assets will tend to show variation between their original value and their value at disposal. Cars, boats and similar assets will require maintenance and be subject to depreciation with age. Real estate, of course, can be subject to the influence of the market and may increase or decrease in value during the course of the investigation. It should be recognised that court cases involving proceeds can be lengthy and, especially where large amounts are involved, subject to appeal.

It is further argued that the immediate cost to the criminal enterprise is not equivalent to the future cost to the criminal enterprise. Again a simple example will illustrate the point. Imagine that proceeds of crime action has deprived the criminal enterprise of \$100,000 in cash. Assuming that this amount was to be reinvested in drugs and that such an investment returned \$10 for every one dollar invested, then the criminal enterprise has been effectively denied future earnings of \$1 million and after a further iteration, \$10 million. Again, the example is an over-simplification of what occurs in the real world. It is clear, however, that the downstream impact of proceeds of crime action in the present has the potential for significant disruption of the criminal enterprise.

There are issues that need to be considered:

- It is unlikely that the profitability of drug trafficking will be uniform across type of illicit drug, level of criminal involvement (ie producer, importer, distributor, dealer) or geographical location. Profitability will also vary over time.
- As identified in the literature review, not all proceeds of crime are reinvested in illegitimate activity. Some funds find their way into legitimate investments, such as shares and real estate, and some support the lifestyle of the criminals involved.

- Lag times between investment and profit are also important if we wish to predict impact over successive iterations. Should we define future impact in terms of the next six months, one year or two years?

This chapter will consider what we know about each of the above issues using findings from the literature review, expert opinion and data analysis. It will then provide a method for determining the downstream impact of successful proceeds of crime action. The authors have dubbed this measure the Proceeds of Crime Drug Disruption Index (POCDDI). The chapter will conclude with consideration of the applications and limitations of the POCDDI.

4.1 Profitability and the drug market

Any attempt to measure downstream reinvestment opportunities must be based on the profitability of drug trafficking. Profitability will be influenced by market conditions, which in turn will be influenced by a large array of factors including type of drug, geographical location, position in the drug supply chain, level of drug law enforcement, and general economic wellbeing and stability.

Adkins (unpublished, pp85-86) also provided information on the profitability of the Australian drug market by type of drug and level in the supply chain. It should be noted that Adkins employed three separate models of the Australian drug market. We have chosen the Elasticity Adjusted Model and the UN Model to calculate the profitability of the Australian drug market across two dimensions. These two models used different primary datasets. The excluded model was unadjusted for demand elasticity. Results were very similar to the elasticity adjusted model. They were excluded to simplify reporting. More detail on elasticity and its relevance to this study is given in Attachment B.

Adkins provided estimates of revenue and profits by class of drugs and at different levels of the supply chain (producer/distributor/dealer). We used these to calculate cost (cost=revenue—profit) for all drug types by supply chain level. It should be noted that the Adkins model is relevant to a number of phases in the development of our proposed Index. A short summary of that paper and copies of relevant tables and findings are provided at Attachment B.

Profitability was measured in terms of return on investment or dollars of revenue generated for every cost dollar.

$$\text{Profitability} = \frac{\text{Revenue}}{\text{Cost}}$$

| Elasticity Adj. model | Revenue | Profit | Cost | Profitability |
|-----------------------|------------------|------------------|-----------------|---------------|
| Producer/Importer | \$683,648,950 | \$642,693,925 | \$40,955,025 | 16.7 |
| Distributor | \$4,509,051,333 | \$3,648,652,742 | \$860,398,591 | 5.2 |
| Dealer | \$5,550,302,452 | \$3,460,356,000 | \$2,089,946,452 | 2.7 |
| Total | \$10,743,002,735 | \$7,751,702,667 | \$2,991,300,068 | 3.6 |
| UN Model | Revenue | Profit | Cost | Profitability |
| Producer/Importer | \$1,212,265,173 | \$1,136,192,526 | \$76,072,647 | 15.9 |
| Distributor | \$7,353,239,196 | \$5,866,086,788 | \$1,487,152,408 | 4.9 |
| Dealer | \$11,226,706,665 | \$6,398,335,594 | \$4,828,371,071 | 2.3 |
| Total | \$19,792,211,034 | \$13,400,614,908 | \$6,391,596,126 | 3.1 |

Overall, those in the illicit drug trade received \$3.60 for every dollar invested according to the Elasticity Adjusted Model and \$3.10 according to the UN Model (see Table 7). Table 7 also confirms the widely held belief supported by expert opinion that the upper levels of the supply chain are more profitable than the lower levels. An importer/producer receives \$16–17 for every dollar invested; for distributors it is \$5 and for dealers \$2–3. The difference between the two models is not of practical importance. Although the models differ in

terms of their respective amounts of drugs supplied and therefore total revenue and profit, they share many assumptions about the profitability at different levels in the supply chain.

It is also possible to produce profitability ratios by drug type and again, this demonstrates the variance in profitability. For both models, overall profitability ranged from 2.8 for ecstasy to 10.6 for heroin. It is important to note that proceeds of crime action cannot be linked directly to a single type of drug in each and every investigation. We decided therefore that it was preferable to use an all drug average rather than specific estimates for specific drugs.

From our discussion with expert groups, it was concluded that the bulk of proceeds of crime action is targeted at the higher end of the supply chain. In view of the profitability figures provided in Adkins, this makes good sense. It also raises the issue of whether a version of the proposed POCDDI should be developed that is limited to higher level participants in the illicit drug trade. Table 8 provides profitability ratios for a combined producer/importer and distributor level.

| Table 8. Revenue, cost, profit and profitability of distributors and producers/importers combined | | | | |
|---|-----------------|-----------------|-----------------|---------------|
| | Revenue | Profit | Cost | Profitability |
| Elasticity Adj. Model | \$5,192,700,283 | \$4,291,346,667 | \$901,353,616 | 5.8 |
| UN Model | \$8,565,504,369 | \$7,002,279,314 | \$1,563,225,055 | 5.5 |

The combined results in Table 8 excluded street level dealers and returned profitability ratios of 5.8 for the Elasticity Adjusted Model and 5.5 for the UN Model. These results are considerably higher than those for all participants in drug trafficking.

4.2 Criminal investment in legitimate and illegitimate enterprises

In Chapter 2, it was stated that ‘the most severe consequence of criminal funds is the further perpetuation and promotion of criminal activities’ (United Nations Office on Drugs and Crime 2011, p.8). A study in the Netherlands reported by the United Nations Office on Drugs and Crime (2011, p.99) suggest that on average criminals spent 7% of their income on lifestyle, 57% on legitimate investments and the remaining 36% on reinvestment in criminal enterprises or irregular activities. The United Nations Office on Drugs and Crime concluded that a higher percentage of criminals involved in drug trafficking hoarded cash for reinvestment (77%) than criminals involved in other criminal activities (54%). It is highly unlikely that the proportion of criminal proceeds reinvested in crime will be constant across nations or even within nations. An approach more relevant to the Australia context uses Australian data provided in Adkins (unpublished). As described above, Adkins estimated both revenue and profit across drug types and level of the supply chain (producer/distributor/dealer). We have summed these results across drug type and supply chain level to estimate total revenue at \$19.8 billion and expected profit \$13.4 billion. As before, cost is equal to total revenue less expected profit; in this case \$6.4 billion or 32% of revenue.

These results are relevant to the entire trade in illicit drugs. From expert opinion and consideration of the data, it is apparent that proceeds of crime action tends to be targeted at criminals involved in large-scale production or importation and wholesaling. In order to examine what the reinvestment practice of these groups might be, we considered the type of assets that were seized or forfeited (\$4.9 million in drug-related cases) by the Australian Federal Police. Cash accounted for 56% of total value confiscated, bank accounts and bonds 10% and the remaining 34% non-liquid assets (primarily property, motor vehicles and water vessels). On the basis of expert opinion, it would appear the great majority of cash was destined for further drug trafficking and the same is probably true of a smaller percentage of assets held in bank accounts and bonds. In this context, the amount reinvested in further drug dealing would appear to be in the range 55–60% and the amount in legitimate enterprises 40–45%. As expected, these figures are higher than that implied by the aforementioned studies. This disparity arises from the fact that the Australian Federal Police target the high end of the supply chain, that is, importers and wholesalers, whereas the other studies included the broad base of retail dealers.

On the basis of our own analysis of Australian data, the estimated level of reinvestment in further drug trafficking in Australia is set initially at 60%. Again, it must be emphasised that such point estimates will vary over time and place and it is important that this is acknowledged in the proposed POCDDI.

4.3 From crime to reinvestment

The final variable required for compiling a measure of the disruptive effect of proceeds of crime action on the criminal enterprise is the reinvestment period or the lag time between purchase and sale of illicit drugs. At the retail end of the market, the lag time is presumably based entirely on the time taken to sell a given stock of drugs. Obviously it would be extremely difficult to measure a lag time that might be extremely variable depending on the size of the wholesale purchase and the speed at which this can be sold to drug users.

With drugs of importation, there is a very different scenario. The primary product for many imported drugs is seasonal and subject to the vicissitudes of transportation over long distances to Australia. Large-scale imports such as shipping container loads are often allowed to 'rest' to ensure that authorities have not detected the contents. Smithson et al. (2005) provided tentative evidence that the lag between a shipment of heroin arriving in Australia and its arrival at the street level was in the order of two months.

The problem is not quite so difficult if lag is described simply in terms of 'churn'. Lag 1 is the first reinvestment of criminal proceeds in further illicit drug trafficking, while lag 2 is the second and so on. For the purposes of this study, it was decided to describe the revenue that would have been generated after lag 1 as the short-term disruptive impact. The revenue after lag 2 would constitute the medium term disruptive impact.

4.4 Proceeds of Crime Drug Disruption Index (POCDDI)

One of the principal aims of our research was to produce an index of the social impact of proceeds of crime action. In this case, social impact is defined in terms of disruption of the criminal enterprise, which is measured by the funds denied to the criminal enterprise in the short and medium term. Funds denied are the revenue that would have been available to the criminal enterprise had it not been for successful proceeds of crime action by authorities.

The index or the crime disrupted per dollar of assets confiscated is calculated as follows:

$$\begin{aligned} \text{POCDDI}_{\text{short term}} &= \text{Profitability} \times \text{Reinvestment Rate} \\ \text{POCDDI}_{\text{medium term}} &= \text{POCDDI}_{\text{short term}}^2 \end{aligned}$$

Where:

- Profitability is the ratio of revenue to cost
- Reinvestment is the proportion of fund reinvested in further criminal activity
- Short term is the position after one period of criminal activity (around 3 months)
- Medium term is the position after two periods of criminal activity (around 6 months)

Table 9. Estimates of POCDDI_{short term} and POCDDI_{medium term}

| Growth Model | | |
|-------------------------------|---------------|-------------------------------------|
| | Overall model | Distributor Importer Producer Model |
| Profitability | 3.6 | 5.8 |
| Reinvestment rate | 60% | 60% |
| POCDDI _{short term} | 2.2 | 3.5 |
| POCDDI _{medium term} | 4.6 | 11.9 |

Estimates are provided in Table 9. The growth model calculates the downstream effect of proceeds of crime action given assumptions drawn from the literature, expert opinion and our own analysis. Under these conditions, it is apparent that revenue will increase over time. The short-term impact, that is, the impact after a single lag, is a reduction in criminal funds of \$2.20 for the Overall Model and \$3.50 for the Distributor Importer Producer Model for every \$1 of criminal proceeds confiscated. In the medium term, these savings are \$4.60 and \$11.90 respectively. Given that the majority of proceeds of crime action is against individuals involved (a) in the production and/or importation of illicit drugs or their precursors, or (b) in the wholesale distribution of illicit drugs to retail dealers, it would appear reasonable to adopt the Distributor Importer Producer Model estimates. A further observation to support the exclusion of retail dealers is the relatively high proportion of illicit drugs consumed by this group. The not-for-profit dealers contribute to this result.

Having developed the POCDDI, it is possible to calculate stable revenue points for those involved in the illicit drug trade. The stable revenue point is the amount an individual needs to reinvest to provide a stable revenue flow. An iterative method was used in this case. In the Overall Model, the average participant requires a reinvestment of 28% to provide stable revenue; for the Distributor Importer Producer Model, it is 18%. If reinvestment dropped below this point, then revenues would continue to decline; conversely investment above this point would see a growth in business levels.

4.5 Concluding comments

In summary, as a reasonable estimate of the impact of proceeds of crime action in Australia, a multiplier of 3.5 should be adopted to measure short-term disruption and 11.9 to measure medium-term disruption. As a general rule of thumb, the short term is a period up to three months and the medium term up to six months. It should be noted that the medium term multiplier includes the short-term effect. The short term is a subset of the medium term; they are not mutually exclusive.

It is important to realise that the POCDDI should be applied to the value of an asset before maintenance, depreciation and other costs are applied. The use of estimated value of the asset rather than the actual amount forfeited to Treasury or other government body is consistent with our intention to measure the impact on the criminal enterprise rather than simply total amounts recovered.

The actual amount recovered is an important measure in its own right. If the intention is to make proceeds of crime activity self-funding, it is appropriate to use the actual amount recovered. If the intention is to measure social impact through disruption to the criminal enterprise then POCDDI is the appropriate measure. To use actual amount recovered to measure disruption to the criminal enterprise would, on the basis of these figures, result in a significant underestimation of the impact of proceeds of crime action. For example, it was reported earlier that Sproat (2007b) concluded that for every £1 of criminal assets recovered in the UK, costs of £3.73 were incurred. From a social impact perspective, we would suggest that, in fact, every pound invested in such action resulted in £11.9 of disruption in the medium term. This result is equivalent to a 3.2:1 return on investment.

It should be remembered that any index of social impact will be based on average impacts and as such will overestimate the impact of some individual cases and underestimate others. These indices are designed for use at an aggregate level, for example, total proceeds confiscated in one year, rather than for a specific case.

We considered developing more specific POCDDIs that would identify separate multipliers according to geographic location, more detailed position in the supply chain (we partly met this by excluding retail dealers from our preferred model), and type of drug involved. Separate measures of profitability and reinvestment in crime could be developed by state/territory from Adkins (unpublished) and other sources. In our view, such an undertaking would put considerable pressure on the available data. It would also make calculating the social impact of proceeds of crime, where the crime or assets are spread across categories, complex and onerous for law enforcement agencies (eg a bikie gang that was involved in both cannabis and amphetamines across a number of jurisdictions). Of course, the final sum of results across all cases should not differ substantially from our proposed composite solution. In our view, the costs and risks associated with the development of multiple specific POCDDIs outweigh the benefits.

In terms of future direction for this type of analysis, the ability to identify reinvestment points where future revenues become stable and below which they fall has some potential to inform policy and strategic decisions with regard to the application of proceeds of crime. This point will be discussed in more detail in the conclusion.

Finally, one caveat should be considered. The POCDDI is a model built on other models of the illicit drug market and the funding of criminal activities. This is no different from other scientific models where new models are built from the findings of older models. The difference is that the foundations and superstructure of those sciences are far more securely based than what was available in the present case. Illicit drug trafficking is by definition illegal and therefore often hidden. There are sizable differences in estimates of the size of the market, its value, its profitability, the number of users, their consumption patterns and so on. We have tried to address these concerns in a number of ways.

- Our model is conservative in its inclusion of potential negative impacts. It does not include estimates of the negative impacts on society of the use of criminal funds to invest in legitimate enterprises. It is also concerned solely with the ability of criminals to ply their trade. It does not include the often significant health and productivity costs associated with the use of illicit drugs.
- As noted above, we used wherever possible data aggregated across Australia.
- The results for the Overall Model provide a baseline estimate of the potential disruption to criminal activity. Retail dealers share many characteristics of the drug user community to the extent that some dealers are not-for-profit and others limit their profit to the amount required for their own consumption. As previously noted, such individuals are unlikely to be the target of proceeds of crime action. The Overall Model should be considered a conservative estimate.
- The POCDDI is an estimate of the impact on the specific criminal enterprise. It can be assumed that publicised proceeds of crime actions have a general deterrent effect on criminal activity. Such effects are difficult to quantify and have been excluded from our analysis. Again, our estimates should be considered conservative.

5 Conducting successful proceeds of crime investigations

5.1 Towards more effective and efficient proceeds of crime investigations

A key aim of the research is to provide advice to law enforcement regarding how proceeds of crime actions can be made more effective and efficient. To support this aim, it is important to understand empirically what factors are associated with successful proceeds of crime action, what proceeds of crime cases look like with respect to key variables and where the greatest potential value lies for law enforcement. This chapter examines data provided by the Australian Federal Police in order to address these questions.

To provide the most rigorous estimates possible, data was included from both drug-related and non drug-related cases. As the proceeds of crime process is separate from the predicate offence, the data should remain comparable. This supposition is supported by findings (presented below) that fail to show significant differences in outcomes between proceeds of crime cases based on different predicate offences. By using this additional data, we are able to provide more precise estimates of effects of the predictors than would be possible with only drug-related proceeds of crime data. Indeed, given changes in the legislative framework and the nature of the illicit drug markets over time, it is unlikely that a large enough number of drug related proceeds of crime cases *could* be selected unless there was a significant increase in the volume of drug cases passing through a proceeds of crime process.

5.2 Descriptive analysis of proceeds of crime cases

Data

Data for the analysis are taken from the Australian Federal Police database and include all assets from proceeds of crime actions associated with cases opened on or after 1 January 2003 and closed before 30 June 2011. In total, 1,273 assets were included in the original data. A small number of assets ($n=29$) were discarded due to inconsistencies in the case record that could not be resolved, leaving 1,244 assets (98.5% of the original data) associated with 269 cases for consideration. In addition, all statistical models were fitted to the data both including and excluding a particularly large case, which accounted for 212 assets, to test for sensitivity of the overall estimates to the peculiarities of that case. As our substantive conclusions were unchanged, we opted to retain the case in the final set of models presented here.

An asset was deemed to have a 'successful' outcome if its final status was forfeited to the Commonwealth and 'unsuccessful' otherwise. Of the 1,244 assets included in the analysis, 601 (48.3%) were successfully forfeited or disposed. 'Successful' was coded as 1 and 'unsuccessful' as 0 in the key outcome variable. Other variables considered in the analysis included (for each asset) time elapsed in years between a case being reported and the asset restrained, time elapsed in years between asset restraint and the final case outcome, the type of asset restrained, the offence type associated with the case and the estimated value of the asset. Type of asset includes the categories 'Liquid assets', 'Real estate—commercial', 'Real estate—residential' and 'Other'. Offence types include 'Fraud', 'Civil proceeding', 'Drugs', 'Money laundering' and 'Other'. Last, we also considered the estimated value of the asset. For analysis purposes this was transformed using the natural logarithm of the value.

Table 10. Proceeds of crime data summary statistics

| Case variables (n = 269) | |
|---|-------------------------|
| Crime type | |
| Fraud | 69 (25.7%) |
| Civil proceeding | 38 (14.1%) |
| Drugs | 70 (26.0%) |
| Money laundering | 68 (25.3%) |
| Other | 24 (8.9%) |
| Asset variables (n = 1,244) | |
| Proceeds of crime outcome | |
| Successful | 601 (48.3%) |
| Unsuccessful | 643 (51.7%) |
| Asset type | |
| Liquid assets | 513 (41.2%) |
| Real estate – commercial | 262 (21.1%) |
| Real estate – residential | 239 (19.2%) |
| Other | 230 (18.5%) |
| Asset value | |
| Mean | \$374,025 (\$1,156,328) |
| Median (Interquartile Range) | \$93,200 (\$249,685) |
| Years elapsed between: | |
| Case reported and asset restrained | 1.36 (1.40) |
| Asset restrained and final asset status | 1.85 (1.65) |

Note: displayed values for asset value and time elapsed variables are Mean (Standard Deviation) Data drawn from Australian Federal Police records

This transformation was chosen to produce a variable with a distribution that was most closely approximated by the normal probability distribution, given the highly positively skewed distribution of the raw asset value.

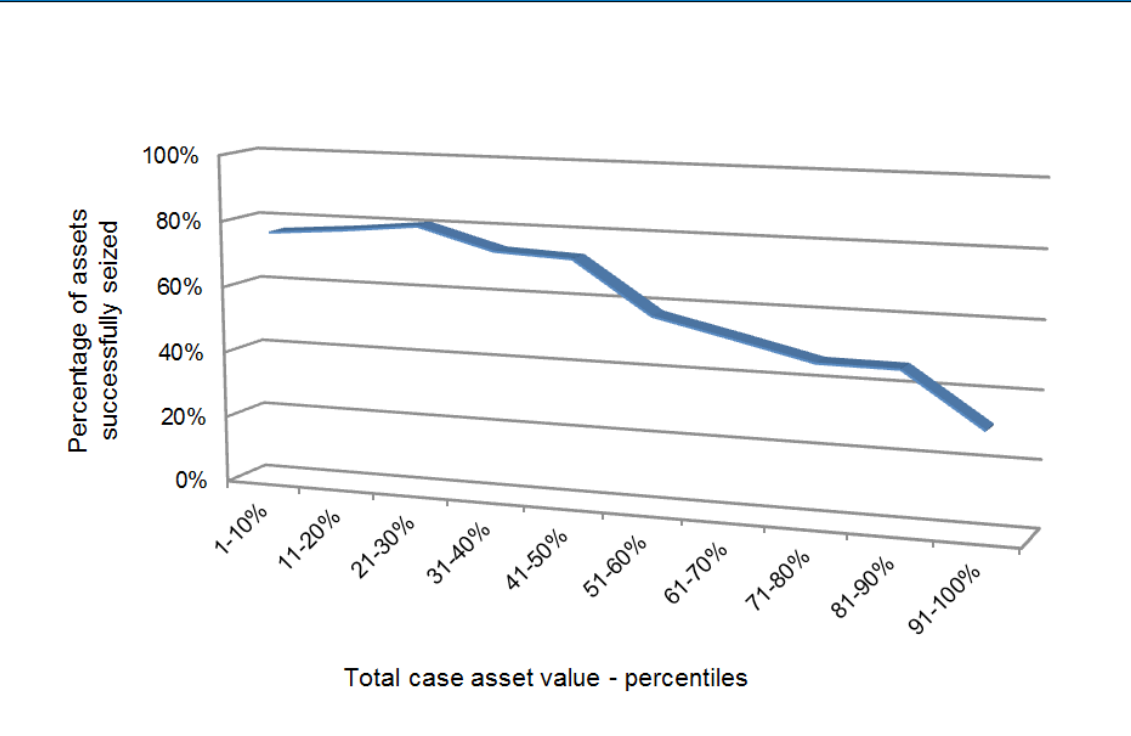
Table 10 presents summary statistics of the variables under consideration. For continuous variables (asset value, elapsed time between case reported and asset restrained, elapsed time between asset restrained and final asset status) means and standard deviations are presented, while percentages in each category are presented for categorical variables (crime type, successful/unsuccessful proceeds of crime outcome, asset type).

The results show that Fraud (25.7%), Drugs (26.0%) and Money Laundering (25.3%) each make up about a quarter of the cases in our data, with the remainder of cases split between Civil Proceeding (14.1%) and Other (8.9%). Of the 1,244 assets, 601 (48.3%) resulted in a successful proceeds of crime outcome. Liquid assets were approximately two-fifths of the assets (41.2%), while Commercial Real Estate (21.1%), Residential Real Estate (19.2%) and Other assets (18.5%) each roughly represented one-fifth of the data. Average asset value was \$374,025, with a standard deviation of \$1,156,328.

Figure 2. Distribution of asset values for all assets and forfeited assets by case value



Figure 3. Proportion of assets forfeited by case value



Time elapsed between case reported and asset restraint averaged 1.36 years (SD=1.40) and time between asset restraint and final asset status averaged 1.85 years (SD=1.65).

Follow the money: Distribution of value

An important consideration for law enforcement agencies pursuing proceeds of crime action is the expected return or damage to the criminal. Figures 2 and 3 address this question, illustrating the rate of 'successful' proceeds of crime action over deciles of total case asset value, as well as the percentage of total value and the percentage of successful asset value.

The data show that the raw rate of asset level success declines for higher value cases, from approximately three-quarters successful for the lowest decile of case value to around a third for the highest (although it is noteworthy that excluding data for the very large case mentioned above increases the rate of success in the top decile to nearly 50%). Furthermore, a very high percentage of both the total asset value (80.4%) and successful asset value (66.4%) are contained in the top 10% of cases. Thus, despite the lower rate of success in higher value (and presumably more complex and difficult) cases, it is clear that the bulk of the potential (and actual) impact of proceeds of crime action is concentrated in the top decile of cases with the highest monetary value.

5.3 Multivariate analysis of proceeds of crime asset outcomes

In order to better understand the factors associated with successful or unsuccessful outcomes in proceeds of crime cases, a series of multivariate analyses were undertaken. The purpose of these analyses was to assess the relationships between a 'successful' outcome of the proceeds of crime action with respect to each asset and other potentially important predictors including the type of offence, the type of asset, the asset value and the time elapsed in certain 'asset states'. A further advantage of multivariate analyses is that simultaneous effects of the predictors are 'controlled' for, giving a better estimate of the actual effect of each factor on the outcome.

Modeling strategy

Successful or unsuccessful proceeds of crime outcomes were modeled with a multilevel logistic regression model, with assets nested within cases. This model accounts for the case-clustering by allowing a random intercept at the case level, while allowing the effects of predictors at both the case and asset level to be modeled simultaneously. Using this framework, two models were estimated using stata 11.2, MLwiN and the user-written runmlwin command (Browne 2009; Leckie & Charlton 2011; Rasbash et al. 2005). The first model fitted to the data was a variance components model with no substantive predictors, which was estimated via Markov Chain Monte Carlo (MCMC) simulation. A burn in period of 500 iterations and a chain of 5,000 iterations was used for this model. The purpose of the variance components model is to explore what proportion of variation in the outcome (success or failure of the proceeds of crime process) is between assets or between cases. The second model includes all predictors listed above, and uses a burn in of 50,000 iterations and a chain of 200,000 iterations.

A number of alternative modeling approaches were also considered for the available data. In the first instance, due to the theoretical interest in case duration as related to asset outcomes, multilevel competing hazards models were considered (Steele et al. 1996). A competing hazards model is used to model the expected duration until an event occurs, where there is more than one possible event of interest (in this case, the competing events are that the asset status is finalised as successful or that the asset status is finalised as unsuccessful). The model is defined as multilevel due to the clustering of assets within cases, which necessitates some method of accounting for the case-clustering in order to produce unbiased coefficient estimates. This model was, however, discarded due to diagnostic tests indicating that the estimates were unstable. The instability is likely to be caused by the very high level of case-level clustering in both duration and final successful/unsuccessful result.

Results

Table 11 presents the variance components and final models, both estimated via MCMC and the final model including only predictors with either statistical or theoretical significance. The estimated Intra-Class Correlation (ICC) of 0.827 (95% Credible Interval [CrI]: 0.745-0.884) for the variance components model illustrates the very high level of case based clustering in outcomes, suggesting that nearly 83% of total variance in the probability of a successful outcome is between cases and only 17% between assets within a case. This is reinforced by the very high value of the Median Odds Ratio (MOR) (Larsen & Merlo 2005; Larsen et al. 2000) of 43.789 (95% CrI: 19.188–118.345), indicating that the median expected increase in the odds of a successful outcome were an asset associated with a different case with a higher likelihood of success is over 40 times.

Results from the final model show a number of significant effects, but indicate that the unexplained case-level variation is comparatively much more important than the effects of the observed parameters in determining successful seizure of an asset. This conclusion is supported by comparison of the estimated MOR of 69.43 with the much lower estimated odds ratios for the predictors. Further, the bulk of unexplained variance (approximately 86%) remains between cases.

Time elapsed between asset restraint and finalisation of asset status is significantly associated with reduced chances of success. The estimated odds ratio of 0.67 (95% CrI: 0.53–0.83) suggests that each year an asset is restrained reduces the odds of success by approximately a third, or between half and a sixth taking into account the credible range of the parameter. Time from first case report to asset restraint was a non-significant predictor.

Results for asset category indicated that the reference category of liquid assets (such as cash) were most likely to be successfully forfeited in proceeds of crime action. Commercial real estate was not significantly different from liquid assets in the likelihood of successful forfeiture. Residential real estate and 'Other' assets by contrast were much less likely to be forfeited successfully, with odds ratios of 0.15 and 0.16 respectively. These results suggests that there are two broad tiers of assets with liquid assets and commercial real estate most likely to be forfeited and residential real estate and other assets displaying much lower odds of success.

Results for case offence type indicate that no category is significantly different from the reference category of fraud in the likelihood of success. This result is important in that it supports the decision to combine data relating to multiple crime types instead of limiting the analysis strictly to drug crime-related cases.

Log asset estimated value was not significantly associated with success or failure in the final model. It is, however, worth noting that results from the third model (not shown) including all predictors showed a marginally significant positive effect for log asset value on successful forfeiture (Odds Ratio = 1.19, 95% CrI: 1.00–1.40).

Table 11. Variance components and final models of successful vs. unsuccessful proceeds of crime outcomes

| | Variance components model | | Final model | |
|---|---------------------------|----------------|-------------|----------------|
| Fixed parameters | | | | |
| | Estimate | 95% CrI | Estimate | 95% CrI |
| Constant | 1.16 | (0.64-1.77) | 1.19 | (-1.58–2.69) |
| | Odds ratio | 95% CrI | Odds ratio | 95% CrI |
| Elapsed years from case first reported-asset restrained | | | 1.20 | (0.86–1.66) |
| Elapsed years from asset restrained-final asset status | | | 0.67*** | (0.53–0.83) |
| Asset Category (ref. Liquid assets) | | | | |
| Real estate – commercial | | | 0.75 | (0.08–3.14) |
| Real estate – residential | | | 0.15*** | (0.05–0.32) |
| Other | | | 0.16 *** | (0.06–0.32) |
| Case Offence Type (ref. Fraud) | | | | |
| Civil proceedinga | | | 0.71 | (0.04–3.28) |
| Drugsa | | | 7.87 | (0.88–32.62) |
| Money laundering | | | 1.85 | (0.18–7.85) |
| Other | | | 1.95 | (0.06–10.73) |
| Log asset estimated value | | | 1.16 | (1.00–1.37) |
| Random parameters | | | | |
| Case level variance (95% CrI) | 15.70 | (9.59–25.04) | 19.76 | (12.01–31.34) |
| Summary statistics | | | | |
| N (assets) | 1,244 | | 1,244 | |
| N (cases) | 269 | | 269 | |
| Intra-Class Correlation (95% CrI) | 0.83 | (0.74–0.88) | 0.86 | (0.78–0.91) |
| Median Odds Ratio (95% CrI) | 43.79 | (19.19–118.35) | 69.43 | (27.26–208.59) |

95% CrI = 95% Credible Interval; *** = $p < 0.001$;

a) post hoc tests indicate that the estimated odds of success for assets associated with 'Drugs' cases are significantly higher than for assets associated with 'Civil Proceeding' cases (OR=12.81, $p=0.026$).

Variance components model estimated in MLwiN 2.02 via MCMC, with a burn in of 500 iterations and a chain of 5,000 iterations. Final model estimated with burn in of 50,000 iterations and a chain of 200,000 iterations.

ICC estimated via the linear threshold method (Goldstein et al. 2002; Snijders & Bosker 1999)

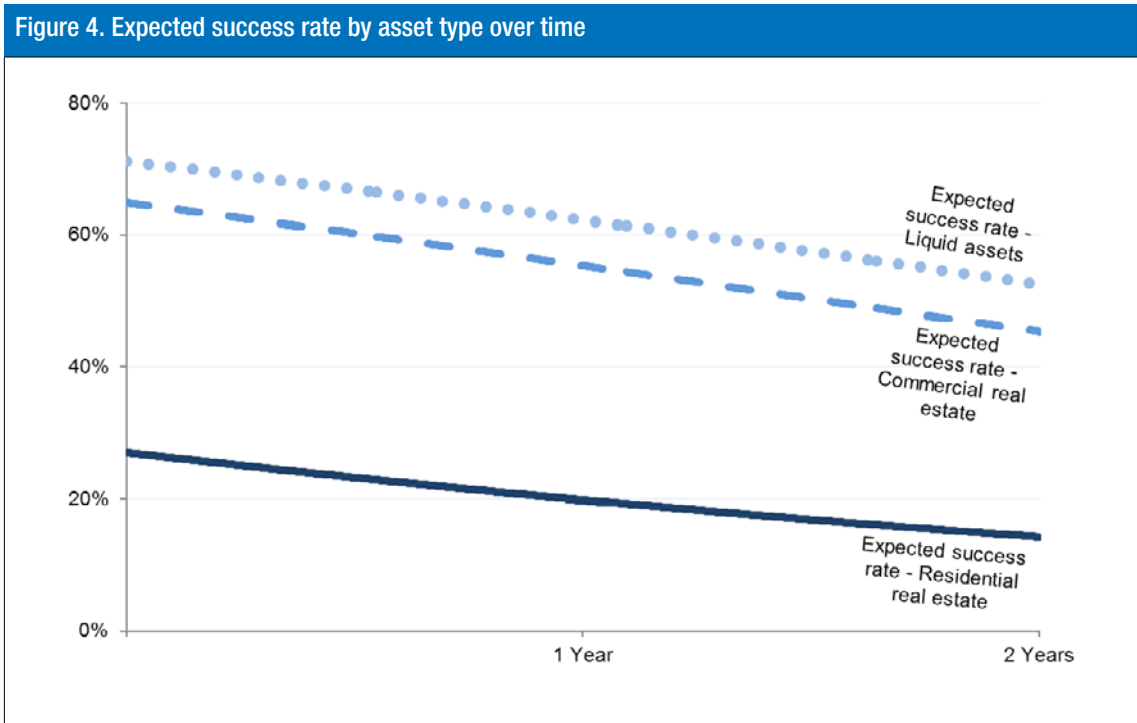
It is important to note that the available data provides only weak support for estimation of a suitable model. This is due to the very high level of case clustering (meaning that there is only a limited amount of variance in outcomes at the asset level) and a large number of cases with only a very small number of associated assets. Additionally, because the data were designed for administrative rather than research purposes, there is no information available on many potentially important factors and items in the data are often poorly suited to statistical analysis.

The consequence of these factors is that the credible ranges of 'true' values for the parameters in our model are wide, as for instance in the case of the comparison between commercial real estate and liquid assets, where the credible interval of the odds ratio indicates that the odds of successfully seizing commercial real estate may range from 12 times less likely to three times more likely. While a number of significant effects emerge nevertheless, they tend to be estimated with a low level of precision, such that our conclusions are limited with respect to specifying the magnitude of effects (beyond stating that they are probably not zero).

5.4 Implications for law enforcement

The results suggest a number of important considerations for law enforcement. First, it is clear that subsequent analysis is likely to be more fruitfully focused on the predicate offence(s) associated with the proceeds of crime action, as most variance in asset level outcomes is in fact at the case level.

There were, however, also a number of significant asset level findings which are important to consider. Time elapsed between asset restraint and final asset status significantly reduces the odds of success, by about a third each year. This suggests that the model results may be used to provide an empirical basis for setting case review dates based on the expected probability of success. This is illustrated in Figure 4, which graphs the estimated probability of success (based on the logistic regression models) over time for the major asset types, holding constant other factors in the model.



Further, our results show that residential real estate is significantly less likely to be successfully forfeited or disposed than liquid assets, while there was no corresponding effect for commercial real estate. While it is unclear based on the data at hand why this is the case, it is an issue that warrants further investigation by the Australian Federal Police. In particular, it is possible that this is related to common ownership arrangements put in place by criminals where the assets are held by a family member or partner.

The lack of a significant effect for asset value on success (note asset value is distinct from case value) reinforces the earlier conclusion that law enforcement should focus most effort on high-value, high-profile cases. This is implied because a high-value asset is no more or less likely to be successfully forfeited than a low-value asset, but offers a greater return for law enforcement and will inflict substantially more harm on the criminal if forfeited.

Lastly, as the data are drawn from a federal source, readers should not assume that the findings apply to all Australian jurisdictions, as considerable differences exist in the legislation in place in different states.

6 Conclusions and recommendations

The final chapter summarises significant findings and provides our recommendations.

6.1 Measuring the impact of proceeds of crime action

One of the principal aims of our research was to produce an index of the social impact of proceeds of crime action. The POCDDI estimates the revenue that would have been available for reinvestment in the criminal enterprise in the short to medium term had it not been for successful proceeds of crime action. POCDDI can also be described as a measure of the disruption to the criminal enterprise caused by proceeds of crime action.

$$\text{POCDDI}_{\text{short term}} = \text{Profitability} \times \text{Reinvestment Rate}$$

$$\text{POCDDI}_{\text{medium term}} = \text{POCDDI}_{\text{short term}}^2$$

Where:

- Profitability is the ratio of revenue to cost.
- Reinvestment is the proportion of fund reinvested in further criminal activity.
- Short term is the position after one period of criminal activity (around 3 months).
- Medium term is the position after two periods of criminal activity (around 6 months).

POCDDI estimates, both short and medium term, were calculated against all individuals involved in the supply chain (Overall Model) and then with retail dealers excluded (Distributor Importer Producer Model). It was argued that on the basis of the available evidence that proceeds of crime action tends to target wholesale dealers and producers/importers (or their employees) rather than retailers.

On those grounds, we recommend the use of the Distributor Importer Producer Model estimates. In terms of representing the social value of proceeds of crime action against drug traffickers, we would recommend the use of the medium-term estimate of 11.9. The short-term estimate of 3.5 should be considered where a conservative estimate is required. In our view, both estimates are conservative as they exclude harms associated with investment in the legitimate economy and health and productivity consequences related to drug use per se. They also exclude any general deterrent effect that may be associated with successful proceeds of crime action.

There are a number of benefits to the use of POCDDI estimates:

- First, the POCDDI highlights a key cost to the community associated with illicit drugs. Previous studies have identified the direct impact of drug use on, for example, property crime; none have attempted to quantify the reinvestment of the profits of drug trafficking into further trafficking.
- Second, it provides law enforcement agencies with a more accurate estimate of the impact of their proceeds of crime activities on illicit drug trafficking. In turn, this should improve accountability to both government and the community.
- Third, estimates of benefits flowing from law enforcement activities assist in the allocation of internal resources and contribute to the case for further funding.

6.2 Evaluating proceeds of crime action

In terms of evaluating the usefulness of proceeds of crime action in combating drug trafficking, there is a complete dearth of studies examining return on investment in Australia and overseas. Return-on-investment studies are a widely recognised way to establish the effectiveness of public policy. Through the development of the POCDDI, our study provides an empirical basis for measuring the benefits associated with proceeds of crime action and provides a starting point for a future return-on-investment study.

6.3 Factors relating to successful proceeds of crime investigation

We attempted to identify factors related to successful proceeds of crime investigations using both descriptive statistics and advanced modelling techniques.

The value of proceeds of crime in individual investigations was concentrated in the largest cases. The top 20% of cases contained 87.8% of the total value of proceeds. This observation is consistent with the Pareto Principle or 80/20 rule which suggests that 80 percent of the effects come from 20 percent of the causes. It also suggests that, in terms of potential impact on the criminal enterprise, law enforcement agencies should target the largest cases.

As noted earlier, the amount of data available was not sufficient to develop robust models and our conclusions from the statistical analyses should be taken as indicative.

The duration of the financial investigation (as measured by the period from the restraint of an asset to its resolution) appeared to be related to the chance of success. For every year that passed, the odds of success were reduced by approximately one-third. The observed rate of decline could be useful in assisting financial investigation teams to assess the progress of individual cases. Where resources are scarce, it would provide useful input into decisions regarding that input. For example, it would be helpful in weighing up whether to continue an ongoing case of some duration as opposed to adopting a new case.

We strongly recommend that each jurisdiction develop its own estimate of the relationship between duration and success. Our results were developed from Commonwealth data and it is unlikely that the observed reduction of one-third per annum represents a universal rule that could be applied across the differing circumstance of each jurisdiction.

Our model also suggested that the type of asset restrained affected the chances of a successful outcome. Liquid assets and commercial property were more likely to be forfeited than residential property and other assets. There is potential to improve the overall effectiveness of financial investigations if the reasons for the lower success rate with respect to residential property and other assets could be identified.

6.4 Future directions

There are a number of opportunities to improve our understanding and application of proceeds of crime initiatives. The following suggestions are offered for further consideration.

- Data quality is always an issue. Information concerning successfully prosecuted investigations is adequate; however, there tends to be lower quality with respect to proceeds of crime actions that were discontinued. Certainly, there would be benefit in understanding why things do not work as opposed to why they do. There is even less information about cases where proceeds of crime action was not initiated. Future research could be profitably directed at assessing the potential for levels of proceeds of crime activity above the present level. Expert opinion identified lack of available resources as the primary restraint on proceeds of crime activity.

- We need to test the boundaries of our work. Our model works at an aggregated level of data. The POCDDI itself represents the average disruption to the criminal enterprise brought about by successful investigations. The estimated reinvestment rate required to produce a stable revenue flow is also an 'average' result. More attention could and should be given to the variability inherent in these estimates. One of the reasons we limited our estimates of downstream disruption to one and two lags was uncertainty as to longer term developments. The issue of variability is an important one and the data quality issues mentioned above also impose restrictions on the extension of these findings beyond the data that gave rise to them.
- We also need to test our model across a wider range of conditions. A simulation model along the lines of Adkins (unpublished) could take into account the long-term effect on the criminal enterprise of (a) arrests and drop-outs from the illicit drug trade, (b) changes in market conditions and (c) the impact of highly successful participants. Such a model would assist in reinvestment points where future revenues become stable and below which they fall under a variety of conditions. Such information could usefully inform proceeds of crime policy and operational priorities.
- There is a need for further research into the integration of proceeds of crime investigation into the array of drug law enforcement techniques. Individual practices differ from full integration financial investigation units into the active investigation team to utilising the financial investigation team as a separate expert advisor. It would be useful to consider the utility of each approach and whether the best approach is dependent on the specific crime under investigation. Similarly, although proceeds of crime ranks along with imprisonment as a deterrent to drug crime, the relative efficiency of each approach is not well understood. Some consideration of how proceeds of crime activity fits into the overall strategy for combating the illicit drug trade would be useful.
- It should be noted that the introduction of unexplained wealth provisions could have a significant impact on the current findings. It is too early to assess any potential impact and a new study should be commissioned at a suitable time. Some agencies were cautious. It was suggested that criminals managing their affairs at a distance are unlikely to be affected by the new provisions and that unexplained wealth investigations may be resource intensive, reducing their appeal to investigators.
- The literature on proceeds of crime action relating to illegal drug trafficking is scant. The role of bodies like the National Drug Law Enforcement Fund in funding and disseminating such research is crucial. It is also crucial that research undertaken within individual jurisdictions is made available, preferably publicly but at the very least within the law enforcement community. In the course of our project, we have become aware of some such research being undertaken 'privately' in jurisdictions. We need to protect sensitive operational detail from criminal eyes; we also need to share best practice with our colleagues.
- A number of experts raised concerns over the proportion of proceeds of crime that are transferred overseas and thus lost to the Australian economy. This issue was outside our scope but is of such potential importance that a formal study into the issue is warranted.

References

- Adkins G (unpublished), *A Simulation Model of the Illicit Drug Industry in Australia*.
- Arnone M & Borlini L (2010), International Anti-Money Laundering Programs, *Journal of Money Laundering Control*, 13 (3) 226–271.
- Aronowitz A, Theuermann G & Tyurykanova E (2010), *Analysing the Business Model of Trafficking in Human Beings to Better Prevent the Crime*, The Organization for Security and Co-operation in Europe, Vienna.
- Ashe M & Reid P (2001), Ireland: The Celtic Tiger Bites The Attack on the Proceeds of Crime, *Journal of Money Laundering Control*, 4 (3) 253–263.
- Australian Crime Commission (2006), *Illicit Drug Data Report 2004–5*, ACC, Canberra
- Australian Crime Commission (2011a), *Crime Profile Series—Organised Crime Groups*, ACC, Canberra.
- Australian Crime Commission (2011b), *Illicit Drug Data Report 2009–10*, ACC, Canberra
- Australian Crime Commission (2011c), *Organised Crime in Australia*, ACC, Canberra.
- Australian Crime Commission (2012), *Illicit Drug Data Report 2010–11*, ACC, Canberra
- Australian Institute of Criminology (2008), *Confiscation of the Proceeds of Crime: Federal Overview*, Transnational Crime Brief No. 1.
- Australian Institute of Health and Welfare (2011) *2010 National Drug Strategy Household Survey report*. Drug statistics series no. 25. Cat. no. PHE 145. Canberra: AIHW.
- Australian Law Reform Commission (1998), Proceeds of Crime Review, *Law Institute Journal*, 35–36.
- Australian Taxation Office (2008), *Commissioner of Taxation Annual Report 2006–07*, Commonwealth of Australia.
- Baldwin F (2002), Money Laundering Countermeasures with Primary Focus upon Terrorism and the USA Patriot Act 2001, *C*, 6 (2), 105136.
- Bartels L (2010), *Unexplained Wealth Laws in Australia*, Trends & Issues in Crime and Criminal Justice No 395, Australian Institute of Criminology, Canberra.
- Beare M (2002), Searching for Wayward Dollars: Money Laundering or Tax Evasion — Which Dollars are We Really After? *Journal of Financial Crime*, 9 (3) 259–267.
- Beare M (2007), The devil made me do it: business partners in crime, *Journal of Financial Crime*, 14 (1), 34–48.
- Bell R (2000a), An Evolving Series of Proceeds of Crime Models, *Journal of Financial Crime*, 8 (1) 21–31.
- Bell R (2000b), Proving the Criminal Origin of Property in Money-Laundering Prosecutions, *Journal of Money Laundering Control*, 4 (1), 12–25.
- Bell R (2001), Discretion and Decision Making in Money Laundering Prosecutions, *Journal of Money Laundering Control*, 5 (1), 42–51.
- Bell R (2002), Abolishing the concept of ‘predicate offence’, *Journal of Money Laundering Control*, 6 (2), 137–140.
- Blocker K (2002), Reporting Suspicions of Money Laundering and Whistleblowing under German Law, *Journal of Money Laundering Control*, 6 (1), 52–56.
- Borgers M and Moors J (2007), Targeting the Proceeds of Crime: Bottlenecks in International Cooperation, *European Journal of Crime, Criminal Law and Criminal Justice*, 1–22.
- Bosworth-Davies R (2006), Money laundering: towards an alternative interpretation—Chapter one, *Journal of Money Laundering Control*, 9 (4), 335–364.
- Bosworth-Davies R (2008), The Influence of Christian Moral Ideology in the Development of Anti-Money Laundering Compliance in the West and its Impact, post 9–11, upon the South Asian Market, *Journal of Money Laundering Control*, 11(2), 179–192.
- Brindle M (2001), Private banks’ Initiative Against Money Laundering, *Journal of Money Laundering Control*, 4 (4), 344–347.
- Browne W (2009), *MCMC Estimation in MLwiN v2.1*, Centre for Multilevel Modelling, University of Bristol

- Cabana P (2007), Legal Professionals and Money Laundering in Spain, *Journal of Money Laundering Control*, 10 (3), 318–336.
- Canapple S, Calderoni F & Martocchia S (2009), Not only banks: Criminological models on the infiltration of public contracts by Italian organised crime, *Journal of Money Laundering Control*, 12 (2), 151–172.
- Capus N, (2003), Self-Regulation in Combating Money Laundering, *Journal of Money Laundering Control*, 6 (4), 355–366.
- Chalmers J, Bradford D & Jones C (2009), How do Methamphetamine Users Respond to Changes in Methamphetamine Price? *Crime and Justice Bulletin*, no. 134. NSW Bureau of Crime Statistics and Research, Drug Policy Modelling Program.
- Ching C (2004), Recent Achievements in Taiwan's Anti-Money Laundering and Anti-Terrorism Work, *Journal of Money Laundering Control*, 7 (4), 308–319.
- Collins D & Lapsley H (2008), *The Costs of Tobacco, Alcohol and Illicit Drug Abuse to Australian Society in 2004/05*, Department of Health and Ageing, Australia.
- Cuellar M (2003), The Tenuous Relationship between the Fight against Money Laundering and the Disruption of Criminal Finance, *Journal of Criminal Law and Criminology*, 93 (2/3), 311–466.
- de Andrade Filho L (2008), The Dynamics of Drug-related Organised Crime and Corruption in Brazil from a Development Perspective, *Journal of Financial Crime*, 15 (1), 49–59.
- d'Andria D (2011), Investment Strategies of Criminal Organisations, *Policy Studies*, 32 (1), 1–19.
- de Koker L (2002a), Money Laundering Trends in South Africa, *Journal of Money Laundering Control*, 6 (1) 27–41.
- de Koker L (2002b), Money Laundering Control: The South African Model, *Journal of Money Laundering Control*, 6 (2), 166–181.
- Douglas R (2007), The Relevance of Confiscation to Sentencing and its Limitations, *Criminal Law Journal*, 31, 345–358.
- Ferwerda J, Kattenberg M, Chang H, Unger B, Groot L & Bikker J (2011), *Gravity Models of Trade-based Money Laundering*, Tjalling C. Koopmans Research Institute Discussion Paper Series 11–16, Utrecht School of Economics, Amsterdam.
- Fheili M (2001), Lebanon: The Fight Against Money Laundering, *Journal of Money Laundering Control*, 4 (3) 283–299.
- Frith K & McElwee G (2007), An Emergent Entrepreneur? A Story of a Drug-dealer in a Restricted Entrepreneurial Environment, *Society and Business Review* 2 (3) 270–286.
- Gao Z & Ye M (2007), A Framework for Data Mining-based Anti-money Laundering Research, *Journal of Money Laundering Control*, 10 (2), 170–179.
- Gelemerova L (2011), *The Anti-money Laundering System in the Context of Globalisation: A Panopticon Built on Quicksand?* Wolf Legal Publishers, The Netherlands.
- Geiger H & Wuensch O (2007), The Fight against Money Laundering: An Economic Analysis of a Cost–Benefit, *Journal of Money Laundering Control*, 10 (1), 91–105.
- Goldstein H, Browne W & Rasbash J (2002), Partitioning Variation in Generalised Linear Multilevel Models, *Understanding Statistics*, 1 223–232.
- Harpaz G (2001), Israel: Money Laundering: A Clean Break, *Journal of Money Laundering Control*, 4 (3) 264–282.
- Harvey J (2005), An Evaluation of Money Laundering Policies, *Journal of Money Laundering Control*, 8 (4), 339–345.
- Harvey J (2009), The Search for Crime Money—Debunking the Myth: Facts Versus Imagery, *Journal of Money Laundering Control*, 12 (2), 97–100.
- Haynes A (2008), Money Laundering: From Failure to Absurdity, *Journal of Money Laundering Control*, 11 (4), 303–319.
- Hugel P & Kelly J (2002), Internet Gambling, Credit Cards and Money Laundering, *Journal of Money Laundering Control*, 6 (1), 57–65.
- Johnson J (2000), Country Profiles, Australia: The Continuing Fight Against Money Laundering—Financial Institutions and FATF's Recommendation 19, *Journal of Money Laundering Control*, 4 (1), 56–65.
- Johnson J & Lim Y (2002), Money Laundering: Has the Financial Action Task Force Made a Difference? *Journal of Financial Crime*, 10 (1), 7–22.
- Joyce B (2002), Dynamics and Deficiencies of Anti-money Laundering Efforts in Myanmar, *Journal of Money Laundering Control*, 6 (1), 80–84.
- Kennedy A (2007), An Evaluation of the Recovery of Criminal Proceeds in the United Kingdom, *Journal of Money Laundering Control*, 10 (1), 33–46.

- Lai L (2011), Misuse of Securities and Futures Market by Money Launderers—A General Overview, *Journal of Money Laundering Control*, 13 (1), 66–69.
- Larsen K & Merlo J (2005), Appropriate Assessment of Neighborhood Effects on Individual Health—Integrating Random and Fixed Effects in Multilevel Logistic Regression, *American Journal of Epidemiology*, 161, 81–88.
- Larsen K, Petersen J, Budtz E-Jorgensen & Endahl L (2000), Interpreting parameters in the logistic regression model with random effects, *Biometrics*, 56 (3), 909–914
- Leckie G & Charlton C (2011), *Runmlwin: Stata Module for Fitting Multilevel Models in the MLwiN Software Package*, Centre for Multilevel Modelling, University of Bristol
- Liao J & Acharya A (2011), Trans-shipment and Trade-based Money Laundering, *Journal of Money Laundering Control*, 14 (1), 79–92.
- Magnusson D (2009), The Costs of Implementing the Anti-money Laundering Regulations in Sweden, *Journal of Money Laundering Control*, 12 (2), 101–112.
- McDowell J & Novis G (2001), *The Consequences of Money Laundering and Financial Crime*, Bureau of International Narcotics and Law Enforcement Affairs, US Department of State.
- Mohamed S (2002), Legal Instruments to Combat Money Laundering in the EU Financial Market, *Journal of Money Laundering Control*, 6 (1), 66–79.
- Moore T (2006), Australian Illicit Drug Market Data: Sources and Issues, *The Australian Economic Review*, 39 (4), 442–452.
- Moore T (2007), Working Estimates of the Social Cost Per Gram and Per User for Cannabis, Cocaine, Opiates and Amphetamines, *Drug Policy Modelling Program Monograph 14*, Turning Point.
- Murphy D (2003), Using Confiscated Money, *Journal of Money Laundering Control*, 6 (4), 344–354.
- Murray K (2010), Dismantling Organised Crime Groups through Enforcement of the POCA Money Laundering Offences, *Journal of Money Laundering Control*, 13 (1), 7–14.
- Nelen H (2004), Hit Them Where it Hurts Most? The Proceeds-of-Crime Approach in the Netherlands, *Crime, Law and Social Change*, 41, 517–534.
- Nelen H (2008), Real Estate and Serious Forms of Crime, *International Journal of Social Economics*, 35 (10), 751–762.
- Nicholas R (2008), *The Impact of Social Networks and Not-for-profit Illicit Drug Dealing on Illicit Drug Markets in Australia*, National Drug Law Enforcement Research Fund, Hobart.
- Office of Best Practice Regulation (2009), *Decision Rules in Regulatory Cost Benefit Analysis*, Best Practice Regulation Guidance Note, Canberra.
- Okogbule N (2007), Regulation of Money Laundering in Africa: The Nigerian and Zambian Approaches, *Journal of Money Laundering Control*, 10 (4), 449–463.
- Okuyucu G (2008), Anti-Money Laundering Under Turkish Law, *Journal of Money Laundering Control*, 12 (1), 88–92.
- Orlova A (2008), Russia's Anti-money Laundering Regime: Law Enforcement Tool or Instrument of Domestic Control? *Journal of Money Laundering Control*, 11 (3) 210–233.
- Ping H (2007), Comments on the Law of the People's Republic of China on Anti-money Laundering, *Journal of Money Laundering Control*, 10 (4), 438–448.
- Plywaczewski E (2000), Poland: Counteracting Money Laundering, *Journal of Money Laundering Control*, 4 (1), 70–77.
- Preller S (2008), Comparing AML Legislation of the UK, Switzerland and Germany, *Journal of Money Laundering Control*, 11 (3) 234–250.
- Rahmdel M (2002), Money Laundering in Iranian Law: Present and Future, *Journal of Money Laundering Control*, 6 (2), 182–190.
- Rasbash J, Charlton C, Browne W, Healy M & Cameron B (2005), *MLwiN Version 2.02*. Centre for Multilevel Modelling, University of Bristol
- Rider B (2009), Editorial: Cost Effectiveness—A Two Edged Sword! *Journal of Money Laundering Control*, 12 (4).
- Ritzen L (2011), Mapping 'Infected' Real Estate Property, *Journal of Money Laundering Control*, 14 (3) 239–253.
- Rosdol A (2007), Are OFCs Leading the Fight Against Money Laundering? *Journal of Money Laundering Control*, 10 (3), 337–351.
- Roule T (2002), Hungary: Recent Efforts to Strengthen Legislation and Domestic Anti-Money Laundering Agency Capabilities, *Journal of Money Laundering Control*, 6 (1), 46–51.

- Roule T & Kinsell J (2002), Legislative and Bureaucratic Impediments to Suspicious Transaction Reporting Regimes, *Journal of Money Laundering Control*, 6 (2), 151–156.
- Roule T and Salak M (2003), Recent Legislative, Regulatory and Bureaucratic Initiatives to Increase Anti-Money Laundering Initiatives in Ukraine, *Journal of Money Laundering Control*, 6 (4), 367–372.
- Ruiz M (2002), The Hiding of Wealth: An Argentine Perspective, *Journal of Money Laundering Control*, 6 (1), 85–87.
- Rusmin R & Brown M (2008), Indonesian Stakeholder Viewpoints of Indonesia's Anti-money Laundering Legislation, *Journal of Money Laundering Control*, 11 (3) 261–268.
- Schneider S (2004a), Organised Crime, Money Laundering, and the Real Estate Market in Canada, *Journal of Property Research* 21 (2), 99–118.
- Schneider S (2004b), Money Laundering in Canada: A Quantitative Analysis of Royal Canadian Mounted Police Cases, *Journal of Financial Crime*, 11 (3) 282–291.
- Scottish Government (2009), *Joint Thematic Report on the Proceeds of Crime Act 2002*, accessed 5 November 2009 at <http://www.scotland.gov.uk/Publications/2009/10/26113051/0>
- Shahin W (2005), De-listing from NCCTs and Money Laundering Control Measures: A Banking Regulation Perspective, *Journal of Money Laundering Control*, 8 (4), 320–327.
- Sham A (2006), Money Laundering Laws and Regulations: China and Hong Kong, *Journal of Money Laundering Control*, 9 (4), 379–400.
- Shanmugam B, Nair M & Suganthi R (2003), Money Laundering in Malaysia, *Journal of Money Laundering Control*, 6 (4), 373–378.
- Sharma S (2001), Dirty Money: How the UK Securities and Derivatives Markets are Used to Launder Money, *Journal of Money Laundering Control*, 4 (4), 309–319.
- Sharman J & Chaikin D (2009), *Corruption and Anti-Money-Laundering Systems: Putting a Luxury Good to Work, Governance: An International Journal of Policy, Administration, and Institutions* 22 (1) 27–45.
- Sherman T (2006), *Report on the independent review of the operation of the Proceeds of Crime Act 2002 (Cth)*, Commonwealth of Australia, Canberra.
- Simser J (2011), Plata o Plomo: Penetration, the Purchase of Power and the Mexican Drug Cartels, *Journal of Money Laundering Control*, 14 (3) 266–278.
- Smith R (2009), Understanding Entrepreneurial Behaviour in Organised Criminals, *Journal of Enterprising Communities: People and Places in the Global Economy*, 3 (3) 256–268.
- Smith R (2010), *Economic Crime: Keeping Watch on Financial Transactions*, Australian Institute of Criminology, Canberra.
- Smithson M, McFadden M & Mwesigye S (2005), Impact of Federal Drug Law Enforcement on the Supply of Heroin in Australia, *Addiction*, 100, 1110–1120.
- Snijders T & Bosker R (1999), *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*, 1st ed. Thousand Oaks, CA: Sage
- Sproat P (2007a), The New Policing of Assets and the New Assets of Policing: A Tentative Financial Cost–benefit Analysis of the UK's Anti-money Laundering and Asset Recovery Regime, *Journal of Money Laundering Control*, 10 (3) 277–299.
- Sproat P (2007b), An Evaluation of the UK's Anti-money Laundering and Asset Recovery Regime, *Crime, Law and Social Change*, 47, 169–184.
- Sproat P (2009a), To What Extent is the UK's Anti-money Laundering and Asset Recovery Regime Used Against Organised Crime? *Journal of Money Laundering Control*, 12 (2), 134–150.
- Sproat P (2009b), Payback Time? To What Extent has the New Policing of Assets Provided New Assets for Policing? *Journal of Money Laundering Control*, 12 (4), 392–405.
- Steele F, Diamond I & Wang D (1996), The Determinants of the Duration of Contraceptive Use in China: A Multi-level Multinomial Discrete-hazards Modeling Approach, *Demography*, 33 (1), 12–23
- Subbotina N (2008), Development of Anti-Money Laundering Regime in Russia, *Journal of Money Laundering Control*, 11 (4), 358–370.
- Syal R (2009), Drug Money Saved Banks in Global Crisis, claims UN advisor, *The Guardian* (London), accessed 10 October 2011 at <http://www.guardian.co.uk/global/2009/dec/13/drug-money-banks-saved-un-cfief-claims>
- Thanasegaran H & Shanmugam B (2008), Exploitation of the Insurance Industry for Money Laundering: The Malaysian Perspective, *Journal of Money Laundering Control*, 11 (2), 135–145.

- Tupman W (2009), Ten Myths about Terrorist Financing, *Journal of Money Laundering Control*, 12 (2), 189–205.
- United Nations (1988), *Convention Against Illicit Traffic In Narcotic Drugs and Psychotropic Substances*, United Nations, Vienna.
- United Nations Office on Drugs and Crime (2011), *Estimating Illicit Financial Flows Resulting From Drug Trafficking and Other Transnational Organised Crimes*, Research Report, October, 1–138.
- Van der Does de Willebois E, Halter E, Harrison R, Won Oark J & Sharman J (2011), *The Puppet Masters, Stolen Asset Recovery Initiative, The World Bank, United Nations Office on Drugs and Crime*.
- Van Duyne P & Soudijn M (2009), Hot Money, Hot Stones and Hot Air: Crime-money Threat, Real Estate and Real Concern, *Journal of Money Laundering Control*, 12 (2), 173–188.
- Varga A and Backhouse J (2003), Mexican Suspicious Transaction Reporting: Legislation, *Journal of Money Laundering Control*, 6 (4), 331–336.
- Verhage A (2009), Compliance and Anti-Money Laundering in Belgium: A Booming Sector with Growing Pains, *Journal of Money Laundering Control*, 12 (2), 113–133.
- Walters J (2010), *Following the Proceeds of Illegal Logging in Indonesia*, Trends & Issues in Crime and Criminal Justice No 391, Australian Institute of Criminology, Canberra.
- Willis K (2008), Cannabis Supply Into and Within Australia, *Criminal Justice Bulletin* 2.
- Yeandle M, Mainelli M, Berendt A & Healy B (2005), *Anti-Money Laundering Requirements: Costs, Benefits And Perceptions*, City Research Series Number 6, Corporation of London.1

Attachment A: The illicit drug market in Australia

This attachment provides a broad, descriptive overview of the Australian illicit drug market. It considers the extent of the market and provides a summary of key statistics from publicly available sources.

In understanding the state of Australian illicit drug markets, it is first necessary to define what is meant by the constituent terms 'Australian', 'illicit drug' and 'markets'. By 'Australian' we mean drugs that are ultimately sold and consumed in Australia, while recognising that a great deal of the earlier phases of production and wholesale distribution may take place overseas at least for some drugs. 'Illicit drug' is operationally defined to include cannabis, amphetamines, ecstasy, cocaine and heroin. While we recognise that there are many other illicit drugs, these five are most widely consumed and problematic, making them a natural focus of attention. Moreover, due to their seriousness, there is a greater availability of data and research regarding these drugs.

The last term 'markets' is more contentious but is defined here to encompass the relationships, processes, conditions and actors involved in the production, distribution and consumption of a product or set of related products. Importantly, parts of a market are responsive to changes in other parts of the market (for example where increases in the price of a product lead to reduced consumption of that product). Thus, 'Australian Illicit drug markets' is defined as including the primary producers, distributors (including importers), retail vendors and consumers involved in cannabis, amphetamines, ecstasy, cocaine and heroin, as well as the set of relationships that link them together.

Data relevant to Australian illicit drug markets are naturally difficult to obtain owing to the clandestine nature of much of the activities that constitute the markets. Moore (2006) summarises the major available data sources and the strengths and limitations of each. Of particular concern is the suitability of sampling procedures used across the range of major studies. Convenience samples of drug users are used in the Illicit Drug Reporting System (IDRS) and the Ecstasy and Related Drugs Reporting System (EDRS), while the Illicit Drug Data Report (IDDR) is based on police sources and does not report on the number of cases used to obtain reported estimates or the source of the estimates (Australian Crime Commission 2006). To the extent that the prices paid and purities of drugs in these samples are not representative of the broader Australian illicit drug market, they will provide misestimates. Conversely, the Australian Institute of Health and Welfare's (AIHW) National Drug Strategy Household Survey (NDSHS), which employs a random sample of households, does not include homeless or institutionalised persons, who are likely to have higher rates of substance abuse. Consequently, it is important to acknowledge that the estimates reported here are likely to be subject to a higher than usual degree of error.

The remainder of this chapter summarises the available evidence on a number of important variables relevant to Australian illicit drug markets, including price, purity, number of users and total consumption among other variables. First, an overview of patterns and trend in illicit drug use as a whole is provided. Then, more detailed summaries are provided by each of the major drug types listed above: cannabis, amphetamines, ecstasy, cocaine and heroin. Where available, we use raw data reported in one of the primary series. Several higher order estimates (such as total funding and consumption weight) are, however, taken from Adkins (unpublished), who combines raw data to estimate quantities which are unavailable in raw form.

Overview and trends

Available evidence suggests that participation in illicit drug markets is quite widespread and is particularly pronounced in younger age groups. The 2010 NDSHS indicates that approximately 14.7% of persons aged 14 years and over had used some kind of illicit drug at least once in the previous year (AIHW 2011). This

represents a significant, albeit slight, increase from the 2007 NDSHS, which found 13.4% of persons had used some kind of illicit drug in the past year. Nearly forty percent (39.8%) of respondents indicated that they had used some kind of illicit drug in their lifetime in the 2010 NDSHS.

Adkins (unpublished) findings reinforce the view of illicit drug markets as substantial in size, suggesting that total funding for the cannabis, heroin, cocaine, amphetamines and ecstasy markets was around \$10.8 billion in 2008.

The AIHW (2011) also reports variations in the level of participation by state/territory and age. Of the various states and territories, the Northern Territory had the highest rate of illicit drug use, with 21.3% of persons aged 14 and over reporting illicit drug use at least once in the past year. Western Australia also displayed a higher rate of illicit drug use at 18.6%, while the other states ranged from 12% (Tasmania) to 15.1% (Queensland). With respect to age, the highest level of participation in the illicit drug market was for persons aged 20–29 and 18–19, of whom approximately 27.5% and 25.1% respectively had used illicit drugs on at least one occasion in the past year. The next highest rate of use was among persons aged 30–39 at 18.8%, with older groups exhibiting progressively lower rates of use. Ten percent of the youngest group aged 12–17 had used illicit drugs in the past year.

As noted above, data from the NDSHS indicate that use as a percentage of the population aged 14 or over increased between 2007 and 2010. However, this is contrary to a longer term decline in use from a peak of 21.9% in 1998 to 13.4% in 2007 (AIHW 2011). It is unclear then, whether the observed increase from 2007–2010 represents the beginning of an upwards trend or a temporary deviation from the existing trend.

Cannabis

Cannabis is the most commonly used illicit drug in Australia. The most recent report from the NDSHS (AIHW 2011) found that 1.9 million Australians (10.3%) aged 14 years or over had used the drug in the last 12 months; a significant increase from 1.6 million (9.1%) in 2007 and the first increase since 1998. Currently, males are more likely to use than females (12.9% compared with 7.7%) and the 18–29 age group has the highest rates of recent use, at 21.3%. Of those who reported using cannabis recently (in the last 12 months), most reported that they used once or twice a year (34.7%), although 13% reported that they used every day and 20.9% at least once a week. Users aged 40 years or more were the most likely to use regularly with 17.6% reporting that they used every day and 27% that they used at least once a week.

According to estimates produced by Adkins (unpublished), around 230 tonnes of cannabis were consumed in Australia in 2008, at around \$28 per gram, although prices varied significantly between states. Indeed, in 2009–10, it is reported by the ACC (2011b) in their *Illicit Drugs Data Report (IDDR)* that the price of cannabis in Australia ranged between \$20–50 per gram. Adkins also estimates the national profit margins for producers and distributors of cannabis, which when combined totals around \$2,175 million. The volume of cannabis seized by law enforcement in the 2010–11 year was around 5.45 tonnes, according to the IDDR (Australian Crime Commission (ACC) 2012).

Most cannabis consumed in Australia is produced domestically, with certain prominent criminal groups being quite established in the large-scale cultivation and distribution of the drug (ACC 2011c). Despite the existence of such groups, cannabis markets are recognised to be heterogeneous with various actors operating at various capacities. This information led the ACC, in their *Organised Crime in Australia Report*, to state that “[t]he cultivation and distribution of cannabis in Australia is a large-scale, diverse and entrenched illicit market—resulting in cannabis remaining readily available” (ACC 2011c, p65).

Amphetamines

Of those Australians aged 14 years and over, 2.1% had used amphetamines in the preceding 12 month period, according to the 2010 NDSHS (AIHW 2011). This indicates a significant decrease from 3.7% in 1998. Males were more likely to use than females (2.5% compared with 1.7%) and those aged 20–29 were the most

likely age group to have used amphetamines. Of those who used, most reported using once or twice a year (48.8%), with a decreasing proportion of users falling into each more frequent use category.

Approximately 1.6 tonnes of amphetamines were consumed by 1.9 million users in 2008 (Adkins unpublished). The total profit margin for the importation/production and distribution of amphetamines retail value in 2009–10, up from \$250–600 in 2008–09. Non-crystal methylamphetamine ranged from \$100–1,000 per gram, up from \$100–300 in 2008–09; and amphetamine (the least pure form) ranged from \$50–100 per gram, up from \$30–80 in 2008–09.

Most amphetamines consumed in Australia are locally produced in clandestine laboratories, although the precursor chemicals required to produce them are largely imported (ACC 2011). Thus, the amphetamine market is understood as constituting “extensive domestic and international criminal networks” (ACC 2011c, p57). At present amphetamines remain readily available, despite an increase in the number of seizures and tighter regulation around the importation and general availability of precursor chemicals. Furthermore, although the number of detections at the Australian border rose between 2008–09 and 2009–10, the actual quantity of amphetamines detected has decreased by 84%, from 416.5kg to 66.7kg. The ACC notes that some jurisdictions have discerned volatility in the amphetamines market with high prices existing alongside relatively low quality.

MDMA/Ecstasy

The estimated number of Australians who had recently used MDMA in 2010 had decreased from 600,000 (3.5%) in 2007 to 550,000 (3%) (AIHW 2011). Like the other illicit drugs discussed here, a greater proportion of males than females used, with rates of 3.6% and 2.3% respectively. The age group most likely to use, with a proportion of 9.9%, was those aged 20–29 years. A very small proportion of those who used did so daily or weekly (3.3%), with the majority reporting that they used once or twice a year (53.10%) or every few months (31.40%). Notably, users aged 18–19 years used much more frequently than all other age groups, with 45% using at least once a month; less than 10% of all other age groups used this frequently, with the exception of 20–29 year olds (16.8%).

In 2008, the estimated quantity of MDMA consumed was around 3.3 tonnes with an average retail price of \$358 per gram (Adkins unpublished) or around \$10–50 per tablet (ACC 2011b). This equates to a profit margin of approximately \$723 million for MDMA producers and distributors taken as a whole. Approximately 1.7 tonnes of the drug were kept from reaching the market through seizures in 2008.

Limited production of MDMA has been detected in Australia to date, which suggests that most MDMA on the Australian market is imported (ACC 2011c). General purity of MDMA tablets has been decreasing, due to a global shortage in key precursor chemicals, which has meant a quite unstable market in Australia since 2010, although it is redeveloping slowly. Purity estimates for MDMA are not available for 2010 but in 2008, it was predicted to be around 34% on average (Adkins unpublished). The ACC believe that the continued poor quality of MDMA tablets may serve to raise demand for other illicit drugs.

In interpreting the statistics presented above, it is important to be aware that ‘ecstasy tablets’ may in practice contain a wide range of different (unrelated) substances and that this issue may be exacerbated by the tendency for self-reported drug use to be unreliable, particularly when it may not be clear to the user what the chemical composition of the drugs they are taking is.

Cocaine

According to the NDSHS 2010, rates of cocaine use have been increasing since 2004 (AIHW 2011). In 2010, this trend continued with 2.1% of those over the age 14 reporting having used cocaine in the preceding 12 months, up from 1.6% in 2007. Males were again more likely to use than females, with rates of 2.7% and 1.5% respectively. People in the 20–29 year age group were the most likely to use, with a rate of 6.5%. The majority (60.8%) of those who had used cocaine in the last 12 months reported using it once or twice a year.

In 2008, the estimated amount of cocaine consumed in Australia was approximately 6.8 tonnes at an average price of around \$352 per gram and with average retail purity being relatively high at 53% (Adkins unpublished). Based on Adkins' predictions this would have resulted in a total profit of around \$2,568 million being made through the importation and distribution of cocaine. The retail price of cocaine has remained relatively stable since 2008, ranging between \$250–500 per gram in 2009–10, despite the fact that the amount of cocaine removed from the market through seizures declined from 591.9kg in 2008–09 to 394.8kg (ACC 2011b).

The majority of cocaine consumed in Australia is imported from North and South America. Although there are an increased number of transshipping countries in Africa and South East Asia, the majority of cocaine detected in Australia continues to be imported directly from North and South America (ACC 2011c). According to the ACC, the availability of cocaine is increasing in Australia—and it appears to remain in demand despite the fact that it is significantly more expensive here than in many overseas countries. Nevertheless, the ACC state that “[i]t is difficult to accurately assess and measure the cocaine market in Australia because of the relative lack of data compared with other illicit drug markets” (2011c, p57).

Heroin

Very few Australians aged 14 years and over reported using heroin in the last 12 months in 2010, with a rate of 0.2% (AIHW 2011). This rate had not changed from that observed in 2007. There appeared to be very little gender difference in reported recent heroin use with 0.3% of males and 0.2% of females reporting using. Males were twice as likely to report having ever used heroin though, with a proportion of 1.9%, compared with 0.9% of females. Information on heroin use by age group is not disaggregated from injecting drug use more generally in the NDSHS.

Adkins (unpublished) predicts that 1.2 tonnes of heroin was consumed in 2008 by a population of around 64,000 heroin users. The estimated price per gram of heroin in 2008 was around \$408. From Adkins' models, the total profit margin for heroin importation and distribution in 2008 was approximately \$815 million and the average purity of heroin in 2008 was 28%. Around 375kg of the drug was seized by state and federal police in 2010–11 (ACC 2012).

Most heroin consumed in Australia is imported, although a very small amount is produced locally. Historically, South West Asia (predominantly Afghanistan) has been the primary international source of heroin and this has been true for Australia as well (ACC 2011c). Yet since 2006, the production of heroin in South East Asia has been reportedly increasing quite dramatically. The ACC (2011c, p64) therefore predict that “[w]ith production of opium in South East Asia continuing to rise, the availability of heroin in Australia is expected to continue to increase slowly, particularly in the major capital cities”.

Attachment B: Note on the price elasticity of illicit drugs

There is very little recent work that addresses the price elasticity of illicit drugs, despite its importance for law enforcement techniques (such as seizures) aiming to reduce illicit drug consumption by driving up price (Chalmers et al 2009). One exception is Adkins who adjusts her model of illicit drug consumption for the own-price elasticity of demand for each drug and the cross-price elasticity of demand between drugs; though she does not report the magnitude of these elasticities or the algorithm by which they were computed (p. 42). In terms of own-price elasticity, each of the drugs discussed in Attachment A are considered elastic, except for amphetamines which is considered inelastic. In terms of cross-price elasticity, amphetamines are seen as a complement to each of the other four, and ecstasy is a complement to all except amphetamines. In the case of amphetamines, heroin, cannabis and cocaine are all taken to be complements. Heroin, cannabis and cocaine are considered substitutionary drugs to all others, with exception again of amphetamines which has only ecstasy as a substitute.

Chalmers et al. (2009) also investigate price elasticity but for amphetamines and heroin only. They employ a methodology derived from behavioural economics that has a sample of participants indicate which drug they would purchase and in what quantity in a contrived experimental setting. Here participants are given a hypothetical budget for drug purchases and a list of drug prices across which the price of amphetamines or heroin is varied to allow for elasticity to occur. Participants were drawn in a non-random manner based on their contact with one of a set of four agencies in New South Wales offering a needle and syringe programme.

The own-price elasticity of amphetamines was observed to be elastic by Chalmers et al (2009) with 1.87% and 1.77% reductions in consumption per 1% increase in price for those dependent and non-dependent on amphetamines, respectively—a result that contradicts Adkins' assessment. The own-price elasticity of heroin was too seen to be elastic with reductions of 1.55% and 2.67% in consumption per 1% increase in price for dependent and non-dependent users, respectively. In terms of the cross-price elasticity of amphetamines, dependent users tended to substitute into with heroin and pharmaceutical opioids, whereas non-dependent users substituted mainly with heroin and cocaine. In regards to the cross-price elasticity of heroin, dependent users substituted with amphetamines, benzodiazepines and pharmaceutical opioids. Non-dependent users were observed to substitute into pharmaceutical opioids, though the cross-price elasticity for this was <1%. Cocaine was observed to be a complement for heroin for both groups, though this appeared to be the case more for dependent users than non-dependent.

Attachment C: Excerpts from Adkins G (unpublished), A Simulation Model of the Illicit Drug Industry in Australia

The primary aim of this research has been to develop a simulation model of the illicit drug industry across each of the Australian States and Territories. In this connection, the illicit drug industry is comprised of the markets for heroin, amphetamines, cannabis, cocaine and ecstasy. By placing the components of the system into sectors relating to demand, supply, law enforcement and the community, the fundamental nature of the interactions between the components of the system have been modelled over the period 2000 to 2008 (p.7).

The Supply Sector examines the supply of illicit drugs, with the underlying assumption being that supply progresses through a distribution chain, comprising production/importation, wholesale distribution and retail sales. The Supply Sector incorporates pricing, purity and consuming practices of providers, gross revenues, operating costs, and expected net profits (p.8).

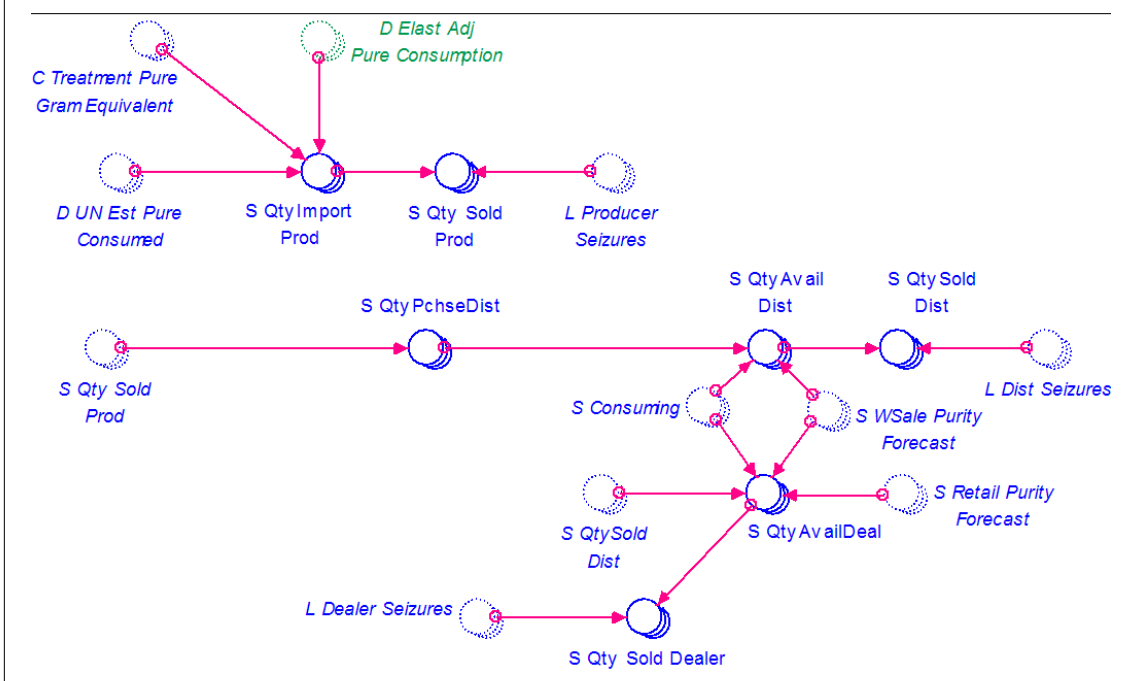
The supply sector

As noted earlier, the Supply Sector examines the supply of illicit products from an industry perspective. While the supply of illicit products is assumed to progress through a varying number of industry levels, dependent upon the type of drug sold, in this model, three industry levels are indicated. That is, Production/Importation, Distribution (Wholesale) and Retail. The choice of these three broad levels has been made in order to add a degree of simplification to the model. Simplification also aids in isolating the flow-on effects of law enforcement activities and other policy actions, and determining the levels of profit etc. To this extent, the model has been designed to illustrate the three entities separately, but, nevertheless, linked, within the distribution chain.

The Supply Sector comprises four processing stages, which address the following objectives:

- Identify industry structures.
- Identify/estimate pricing practices within/across each industry level.
- Identify/estimate profits at each industry level.
- Estimate law enforcement initiated risk premiums attaching to the various supply levels.
- Identify/estimate the likely changes in price due to risk premiums and costs of supply.

Figure 5: Supply Sector Stage 1: Supply



Stage S1 describes supply at each of the importation/production, distribution and retail levels. The amount of product flowing through the system at each level is calculated, taking into account purity levels, consumption practices of supply participants and seizure activities. In stage S2, price and purity calculations are undertaken and in stage S3, operating costs to suppliers are estimated. Stage S4 incorporates calculations undertaken in stages S1 through S3 to estimate gross revenues and expected profits for each of the three supply levels. Processing stage S1 is shown in Figure 5, followed by a summary, definition and brief discussion of the key variables (pp. 34-34).

Supply

As previously noted, the Supply Sector examines the supply of illicit products from an industry perspective. In this connection, the supply of illicit products is assumed to progress through a number of industry levels, represented in this model as production/importation, distribution (wholesale) and dealing (retail). In order to isolate the flow-on effects of law enforcement activities and other policy actions, the model has been designed to illustrate these separate and distinct entities within the distribution chain. Final year model outputs of each of the processing stages for supply are provided for the key variables, as indicated in Tables 11 and 12.

| Table 11 Supply | | | | | |
|----------------------------|-----------------|---------------------|-----------------|-----------------|-----------------|
| | Heroin | Amphetamines | Cannabis | Cocaine | Ecstasy |
| Producer/Importer | | | | | |
| Quantity Sold (kgs) | | | | | |
| - Unadjusted | 1,109.70 | 1,481.42 | 226,936.23 | 6,644.21 | 2,570.89 |
| - Elasticity Adj. | 1,109.83 | 1,482.64 | 226,925.54 | 6,644.35 | 2,570.44 |
| - UN Adj. | 3,327.48 | 5,224.57 | 377,993.62 | 5,592.13 | 4,831.51 |
| Gross Revenue | | | | | |
| - Unadjusted | \$4,131,898 | \$15,484,313 | \$444,256,201 | \$7,533,453 | \$212,287,651 |
| - Elasticity Adj. | \$4,132,382 | \$15,497,065 | \$444,235,288 | \$7,533,613 | \$212,250,602 |
| - UN Adj. | \$12,389,650 | \$54,609,014 | \$739,970,041 | \$6,340,565 | \$398,955,903 |
| Expected Profit | | | | | |
| - Unadjusted | \$3,882,550 | \$14,574,953 | \$433,027,678 | \$7,262,159 | \$183,986,468 |
| - Elasticity Adj. | \$3,883,005 | \$14,586,955 | \$433,007,294 | \$7,262,313 | \$183,954,358 |
| - UN Adj. | \$11,641,973 | \$51,401,944 | \$721,267,386 | \$6,112,229 | \$345,768,994 |
| Distributor | | | | | |
| Quantity Sold (kgs) | | | | | |
| - Unadjusted | 1,648.52 | 1,907.73 | 200,171.34 | 7,697.16 | 2,704.73 |
| - Elasticity Adj. | 2,111.15 | 3,628.42 | 171,943.98 | 7,486.69 | 4,336.20 |
| - UN Adj. | 5,921.51 | 12,653.05 | 279,900.79 | 7,224.60 | 7,916.23 |
| Gross Revenue | | | | | |
| - Unadjusted | \$495,518,784 | \$380,096,235 | \$1,345,407,349 | \$1,821,372,709 | \$432,095,989 |
| - Elasticity Adj. | \$519,860,925 | \$362,597,750 | \$1,296,623,488 | \$1,881,646,731 | \$448,322,439 |
| - UN Adj. | \$1,514,106,520 | \$1,215,701,897 | \$2,203,305,133 | \$1,615,400,740 | \$804,724,906 |
| Expected Profit | | | | | |
| - Unadjusted | \$448,481,458 | \$327,026,214 | \$945,524,979 | \$1,660,748,750 | \$230,146,643 |
| - Elasticity Adj. | \$470,513,580 | \$311,962,540 | \$911,240,628 | \$1,715,708,160 | \$239,227,834 |
| - UN Adj. | \$1,370,380,110 | \$1,045,903,786 | \$1,548,438,096 | \$1,472,942,294 | \$428,422,502 |
| Dealer | | | | | |
| Quantity Sold (kgs) | | | | | |
| - Unadjusted | 1,995.27 | 3,878.43 | 173,537.82 | 7,613.22 | 4,189.69 |
| - Elasticity Adj. | 2,062.27 | 3,453.13 | 170,401.16 | 8,327.79 | 4,903.62 |
| - UN Adj. | 5,982.49 | 13,287.94 | 287,105.49 | 6,702.22 | 7,942.56 |
| Gross Revenue | | | | | |
| - Unadjusted | \$515,912,751 | \$905,610,653 | \$2,521,097,011 | \$597,632,354 | \$1,090,314,100 |
| - Elasticity Adj. | \$550,530,242 | \$839,294,944 | \$2,530,352,848 | \$497,033,144 | \$1,133,091,274 |
| - UN Adj. | \$1,487,471,116 | \$2,975,026,825 | \$4,009,838,270 | \$680,908,619 | \$2,073,461,835 |
| Expected Profit | | | | | |
| - Unadjusted | \$430,772,089 | \$267,832,720 | \$1,502,626,208 | \$463,751,120 | \$739,323,484 |
| - Elasticity Adj. | \$461,555,473 | \$211,617,110 | \$1,637,771,254 | \$369,026,287 | \$780,385,876 |
| - UN Adj. | \$1,232,956,887 | \$986,254,546 | \$2,176,779,319 | \$557,827,005 | \$1,444,517,837 |

(pp. 85-86)

| Table 12 Prices | | | | | |
|---|----------|--------------|----------|----------|----------|
| | Heroin | Amphetamines | Cannabis | Cocaine | Ecstasy |
| Importer/Producer | | | | | |
| Producer Price (per gram) | \$3.42 | \$9.64 | \$1.94 | \$1.10 | \$63.86 |
| Distributor | | | | | |
| Wholesale Price (per gram) | \$302.55 | \$205.37 | \$8.88 | \$237.48 | \$219.63 |
| Seizure Adjusted Wholesale Prices (per gram) | \$302.89 | \$206.73 | \$8.92 | \$237.58 | \$220.46 |
| Percentage Difference | 0.11% | 0.66% | 0.45% | 0.04% | 0.38% |
| Dealer | | | | | |
| Retail Price (per gram) | \$500.94 | \$334.42 | \$24.71 | \$318.31 | \$399.63 |
| Seizure Adjusted Retail Prices (per gram) | \$508.82 | \$335.18 | \$24.81 | \$318.70 | \$402.56 |
| Percentage Difference | 1.57% | 0.23% | 0.40% | 0.12% | 0.73% |

(p. 89)

