Examining supply changes in Australia’s cocaine market

CAITLIN E. HUGHES1, JENNY CHALMERS1, DAVID A. BRIGHT1, FRANCIS MATTHEW-SIMMONS1 & NATASHA SINDICICH2

1Drug Policy Modelling Program, National Drug and Alcohol Research Centre, The University of New South Wales, Sydney, Australia, and 2National Drug and Alcohol Research Centre, The University of New South Wales, Sydney, Australia

Abstract

Introduction and Aims. Media attention to cocaine use and supply has increased following some of the largest cocaine seizures in Australia’s history. Whether there has been an expansion in supply remains unclear. This paper examines the evidence behind assertions of increased supply in Australia and the scale and nature of any apparent increase, using proxy indicators of cocaine importation, distribution and use. Design and Methods. Eight proxies of cocaine importation, distribution and use were adopted, including amount of importation, mode of importation and supply flows to Australia. Each proxy indicator was sourced using publicly available and Australia-wide data, including information on the total weight of border seizures, mode of detection and country of embarkation of individual seizures. Data permitting, trends were examined for up to a 12 year period (1997–1998 to 2009–2010). Results. Since 2006–2007 there was evidence of increased cocaine importation, albeit less than between 1998–1999 and 2001–2002. There were further signs that the 2006–2007 expansion coincided with a diversification of trafficking routes to and through Australia (beyond the traditional site of entry—Sydney) and shifts in the geographic distribution of use. Discussion and Conclusions. The congruity between indicators suggests that there has been a recent expansion in cocaine supply to and distribution within Australia, but that the more notable shift has concerned the nature of supply, with an apparent growth in importation and distribution beyond New South Wales. The diversification of cocaine supply routes may increase risks of market entrenchment and organised crime throughout Australia. [Hughes CE, Chalmers J, Bright DA, Matthew-Simmons F, Sindicich N. Examining supply changes in Australia’s cocaine market. Drug Alcohol Rev 2012;31:263–272]

Key words: cocaine, Australia, supply, demand, market.

Introduction

Media attention to cocaine use and supply has grown following some of the largest cocaine seizures in Australia’s recorded history [1]. Indeed, in Australian newspapers alone there has been a 35% increase in cocaine mentions between 2009 and 2010 [2], and increasing talk of an emerging cocaine epidemic [3] and developing ties between Australian traffickers and violent Mexican cartels [4,5]. Moreover, the National Drug Strategy 2010–2015 [6] and numerous law enforcement agencies have highlighted possible expansions in cocaine supply to Australia [7–10]. Questions remain as to whether there has been a real expansion in supply and if so, whether it is Australia-wide and whether this should be of concern to the Australian community. Given an estimated 5.9% of the Australian population aged 14 and over have ever used cocaine [11] and increased cocaine use in early 2001 was associated with public health harms [12], a real expansion could be of concern. But it remains unclear whether an Australian expansion in cocaine use or supply will necessarily take the same shape and form. By examining national trends in proxy indicators of cocaine importation, distribution and use from 1997–1998 to 2009–2010, this paper systematically addresses the evidence...
behind assertions of increased supply. It further examines the scale and nature of any apparent increase, situating recent experiences in the context of longer-term trends. It is important to note that our prime focus is on cocaine supply. While cocaine supply changes are expected to coincide with changes in overall cocaine use, the patterns of use can change independent of changes in total supply.

Identifying changes to drug supply is theoretically, methodologically and practically challenging, particularly as available indicators are often more indicative of law enforcement activity than changes in drug markets themselves [13]. For example, increases in cocaine seizures at the border could result from three things: more cocaine arriving at Australian borders; law enforcement agencies becoming more proficient at detecting cocaine imports; and/or traffickers themselves becoming less able to avoid detection. Relative to other drugs, identifying changes in cocaine supply is more difficult, as there remain very real gaps in knowledge about how the Australian cocaine drug market operates [8,14]. Moreover, the affluent nature of many cocaine users means users are often not detectable using publicly available indicators [15–17]. This increases the potential for ‘false alarms’ or conversely, the failure to identify an expanding market [18], both of which could be costly for the Australian community.

Our central assumptions are first, given Shearer et al.’s [17] findings that there is no stockpiling of cocaine in Australia, changes in overall supply will coincide with changes in overall use. Within limits, all cocaine that is supplied to the Australian retail market will be used almost immediately. Second, given the limited number and weight of border seizures (Columbia, Bolivia and Peru) [9], a change in cocaine supply would be independent of changes in supply of other illicit drugs. For this reason we limit our analysis to cocaine alone.

Methods

The choice of indicators was guided by current methods of assessment, evidence on the weaknesses of particular indicators and practical considerations, namely that to be included, data must have been publicly available and enable Australia-wide coverage. Indicators referred to by recent commentators on the Australian cocaine market (or sections of the Australian market) include: the number and weight of border and domestic seizures [7,9]; the number of use/possess arrests [7,10]; the prevalence of use amongst sentinel surveys of regular ecstasy users [7,19]; the prevalence of use amongst household surveys of users [7]; the number of cocaine-related overdoses [10]; and the price and purity of cocaine [7].

Table 1 lists the eight indicators we used to proxy importation, distribution and use, setting out their source, rationale and limitations. Six indicators of cocaine importation/distribution were adopted, five derived from drug seizure data. Seizures serve as important, albeit imperfect indicators of cocaine supply. Given cocaine is produced offshore, border (and not domestic) seizures are the clearest indicator of supply [14]. The total weight is also much more indicative of supply changes than the number of seizures (an indicator that is highly affected by changes in law enforcement activity). Nevertheless, we concur with Kilmer et al. [20] that, on its own, the total grams seized over a time period is of limited value for understanding changes in drug markets. Other commonly collected data about seizures (including country of embarkation, mode of importation and mean or median seizure quantity) can provide salient information on drug flows, importation methods and the sophistication of drug-trafficking activity [20]. Drawing on the Australian Customs and Border Protection Service (Customs) Annual Reports and the Australian Crime Commission Illicit Drug Data Reports (IDDR), the current analysis included total and mean weight of border seizures, proxies for scale and mode of importation, and supply routes to and within Australia (see Table 1 for full details). Also included was information on provider arrests.

Indicators of cocaine supply were supplemented by two indicators of the relative scale and pattern of cocaine use (see Table 1). Examining prevalence and patterns of cocaine use is inherently challenging. Australian studies have demonstrated cocaine users vary considerably, in terms of employment, criminal history, levels of contact with treatment systems and mode (injecting or snorting) and frequency of ingestion [16,17]. This suggests that the publicly available indicators of use, the National Drug Strategy Household Survey (NDSHS), Ecstasy and Related Drug Reporting System (EDRS) and Illicit Drug Reporting System (IDRS), can all capture some cocaine users, but that to avoid skewed impressions of prevalence, frequency and mode of use all three need to be considered in concert (as undertaken in the current analyses). Information on use/possess arrests has also been included.

A number of potential indicators have been excluded. Price is commonly used in analyses of supply change, due to theories that an increase in supply could lead to a drop in price [16]. Yet, as noted by Pacula et al. [21], analyses need to be conducted using purity-adjusted price and not raw price, to compensate for changes suppliers may make in purity of their product. Data on purity-adjusted price are not publicly available in Australia, and thus data on price and purity have been excluded from the current analysis. Data on
<table>
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<tr>
<th>Proxy</th>
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<tr>
<td><strong>Importation/distribution</strong></td>
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<tr>
<td>Amount of cocaine imported</td>
<td>Border seizure—total weight and mean weight</td>
<td>Australian Customs—Annual Report</td>
<td>Total weight is an indicator of the amount of drugs being trafficked to Australia, that is, the scale of supply. Mean weight is an indicator of weight per trafficking attempt.</td>
<td>Total weight may be skewed by the presence or absence of one large seizure. Mean weight provides a less skewed indicator, but may be skewed by increases/decreases in small scale trafficking.</td>
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<td>Scale of cocaine importation (low-, mid- or high-level)</td>
<td>Border seizure—size distribution of seizures</td>
<td>Australian Customs—Annual Report</td>
<td>The size of each seizure is classified by Australian Customs as commercial, marketable and less than marketable, based on legal threshold quantities specified by Customs Act 1901. Commercial quantities are the most indicative of high-level wholesalers and the higher the relative weight of commercial seizures to marketable/trafficable seizures the larger the scale of importation attempts.</td>
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<td><strong>Mode of importation</strong></td>
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<td>Border seizure—mode of detection</td>
<td>Australian Customs—Annual Report; Australian Crime Commission—Illicit Drug Data Report</td>
<td>Australian Customs classifies each seizure by mode of detection: air passenger and crew; air/sea cargo and international postal; and shipping and aircraft. Mode of detection is indicative of the level of sophistication of the trafficking with air/sea cargo indicative of high-level planned/non-opportunistic trafficking.</td>
<td>Air/sea cargo seizures are not distinguished from mail seizures in Customs reports. But these are reported separately in the IDDR in an ad hoc manner since 1998/1999 and systematically since 2004/2005.</td>
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<td><strong>Supply routes (to Australia)</strong></td>
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<td>Seizure—country of embarkation</td>
<td>Australian Crime Commission—Illicit Drug Data Report</td>
<td>For each seizure with an aggregate detected weight of cocaine of at least one kilogram Australian Customs records the country of embarkation. This is indicative of where drugs are entering Australia from and if there has been a change in trafficking routes.</td>
<td>Smaller seizures are not taken into account. This indicator also reflects flight paths. Not quantitatively reported until the 2008/2009 IDDR.</td>
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<td><strong>Supply routes (within Australia)</strong></td>
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<td>Seizure—site of importation</td>
<td>Australian Crime Commission—Illicit Drug Data Report</td>
<td>The city or jurisdiction of importation is a potential indicator of how drugs are entering Australian shores and whether there has been a shift in trafficking routes.</td>
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<td><strong>Scale and location of cocaine distribution in Australia</strong></td>
<td>Arrests—provider</td>
<td>Australian Crime Commission—Illicit Drug Data Report</td>
<td>The number and location of provider arrests are indicative of the relative scale and/or pattern of trafficking in Australia. Increases in the number of provider arrests may indicate increased trafficking within Australia.</td>
<td>Provider arrests reflect law enforcement activity and/or change in the nature of trafficking, for example more open trafficking = more likelihood of detection.</td>
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<td><strong>Use</strong></td>
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<td>Relative scale and pattern of use</td>
<td>Self-reported drug use</td>
<td>National Drug Strategy Household Survey (NDSHS); Ecstasy and Related Drug Reporting System (EDRS); Illicit drug Reporting System (IDRS).</td>
<td>Such datasets can indicate whether there has been increased self-reported use in the general population or in sentinel groups and in the frequency or mode of use.</td>
<td>Observed trends reflect the sociodemographics of users and the particular datasets. Use may increase without it being detected in either dataset. Conversely an increase may be observed, for reasons other than changes in supply, for example changes in data collection or in people's willingness to admit to drug use.</td>
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<td>Relative scale of use in Australia</td>
<td>Arrests—consumer</td>
<td>Australian Crime Commission—Illicit Drug Data Report</td>
<td>Consumer arrests are indicative of the relative scale of use in Australia.</td>
<td>Consumer arrests reflect law enforcement activity and/or change in the nature of consumption, for example more open consumption = more likelihood of detection.</td>
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hospitalisations and other harms (another potential source of information on trends in use) were excluded due to a lack of public availability, nationally consistent data.

To situate trends in context market activity was examined over the longest possible period. Data existed from 1997–1998 to 2009–2010 for Customs data and from 1997–1998 to 2008–2009 for the IDDR. Data on consumption were more limited: 2000 to 2010 (IDRS), 2003 to 2010 (EDRS) and 1998 to 2007 (NDSHS).

**Results**

*Indicators of importation/distribution*

Figure 1 shows that over the 12 year period from 1997–1998 to 2009–2010 the annual total weight of cocaine seizures in Australia varied markedly from lows of less than 200 kg in 1997–1998 and during the 4 years from 2002–2003 to 2005–2006 to highs of 792 kg in 1999–2000, 985 kg in 2001–2002 and 610 kg in 2007–2008 [22–32]. Since 2006–2007 the annual weight of seizures has been consistently higher than during the mid-2000s. Yet, taking into account the number of seizures, there are three discernible periods: period 1 (1999–2000 to 2001–2002) with high total weight and high mean weight per cocaine seizure (6.7–10.1 kg); period 2 (2002–2003 to 2005–2006) with low total and mean weight (0.1–0.4 kg); and period 3 (2006–2007 to 2009–2010) with high total weight but a substantially lower mean weight per cocaine seizure (1.0–1.7 kg) than period 1. This suggests that since 2006–2007 the amount of cocaine imported into Australia increased relative to period 2, but not compared to period 1.

Figure 2 shows that the relative importance of commercial seizures (by weight) has varied markedly over the observation period. Nevertheless, in periods 1 and 3 (from 1997–1998 to 2001–2002, and since 2006–2007) the majority of cocaine seizures were commercial quantities (detected in amounts of 2 kg or greater).

Using Customs data Figure 3 indicates the mode of attempted importation over time: distinguishing between cocaine trafficked by air passengers and crew (e.g. swallowed or carried on bodypacks/luggage); air/sea cargo consignment (e.g. concealed in paint drums)

and international post; and shipping and aircraft (e.g. concealed in a yacht). More detailed data contained within the Australian Crime Commission’s IDDR distinguished air/sea cargo from international post, and sea from air cargo (thereby accounting for some of the shortfalls in the Custom’s data). This reaffirms that the mode of cocaine importation has changed substantially during the three identified periods.

During period 1, the high total and average weight seizures were largely detected via ships and aircraft. During period 2 the low total weight seizures were predominantly detected via air passengers or international post (peak of 24% in 2005–2006). This is indicative of a rise in opportunistic routes of attempted importation. Finally, in period 3 the high total but lower average weight seizures were predominantly detected via sea cargo (peak of 81% in 2007–2008) [9,33,34]. This suggests a return to more planned methods of importation.

Proxy indicators of supply routes point to an increasing diversification over time in the countries that served as embarkation points for attempted cocaine importation into Australia: 22 countries in 1999–2000 to 46 countries in 2008–2009 [9]. In period 1 (1999–2000 specifically), the USA, Argentina, South Africa and the Netherlands served as the major sites of attempted cocaine importation, but in period 3 (2008–2009 specifically) Mexico, Columbia and Panama were the major sites [9]. There has also been evidence of increasing diversification of the points of entry into Australia, with increasing number of seizures made in Melbourne, Brisbane and Perth compared with the traditional entry point, Sydney [9].

Figure 4 shows that the pattern of annual provider arrests within Australia is reasonably consistent with border seizure activity. The two periods of heightened provider arrests coincide with periods 1 and 3, when total weight of cocaine seizures was at its highest. The pattern of provider arrests in Australia also shifted over time, mirroring the apparent diversification of entry points. In particular, the proportion of provider arrests made in New South Wales (NSW) decreased from 79% in period 1 to 55% in period 3, as Victoria, Queensland and Western Australia became more important locations of provider arrests [9,33–43].

Indicators of use

Indicators of use are consistent with the signs of increased cocaine entering the Australian market, albeit indicating increase in only some populations. As shown in Figure 5 NDSHS data suggest that recent (last 12 months) cocaine prevalence in the general population fell for men and women between 2001 and 2004 (representing periods 1 and 2 respectively) and rose between 2004 and 2007 (representing periods 2 and 3 respectively). The only statistically significant change was the 2007 increase in men’s use [11,44–46]. The prevalence of recent cocaine injection reduced substantially post 2001 (period 1) and subsequently remained low [11,44–46]. This suggests that between 2004 and 2007 there has been a rise in use in some populations, predominantly among non-injectors.

Data from sentinel surveys of regular drug users are consistent with the NDSHS findings. Data from IDRS indicated that amongst regular injecting drug users, the peak period of cocaine use was during period 1 (2000 to 2002 specifically), as exhibited by relatively high prevalence of cocaine use (35% in 2001) [47]. However, during both periods 2 and 3 (i.e. since 2003) prevalence has remained stable at around 20% [47]. The EDRS commenced in 2003 and data indicate that prevalence amongst regular ecstasy users rose between periods 2 and 3 (from 23% in 2003 to 41% in 2005 with a further increase to 48% in 2010) [19]. Frequency of use has remained less than monthly in both surveys over the periods under analysis [19,47]. This supports the notion that there has been an increase in the number of users, but not more frequent use, and that the recent increase in prevalence has been amongst non-injectors only.

Trends in consumer arrests reinforce an apparent rise in cocaine supply and use, albeit the most recent rise commenced earlier than in other indicators and has outpaced growth in indicators of cocaine distribution (see Figure 6). For example, consumer arrests rose during period 2 and continued to rise in period 3, in spite of a flattening in both provider arrests and total weight seized. Similarly with the other indicators, NDSHS, EDRS and arrest data suggest that the recent rise in cocaine use has coincided with shifts in the geographic distribution of use within Australia, beyond the traditional site, NSW. For example, self-reported use increased between periods 2 and 3 in the EDRS sample in Tasmania, South Australia and the ACT [19] and in the NDSHS sample in most jurisdictions, particularly Queensland (where the percentage doubled between 2004 and 2007) [48,49].

Discussion

This paper examined the evidence behind assertions of recent expansion in the supply of cocaine to Australia. Analysis shows that since 2006–2007, relative to the previous 4 years, there is evidence of increased importation, distribution and use in Australia, with key indicators being increases in the total weight of cocaine detected at the border, the predominance of commercial weight seizures, and detections via sea cargo and increases in consumer and provider arrests in Australia. This suggests that, at least over the short term, media attention has been warranted. But analysis over a longer time frame, encapsulating 1997–1998 to 2009–2010, shows a more nuanced picture. The recent expansion (during period 3) has not seen supply levels return to the highs seen during period 1 (which coincided with the heroin shortage). One unknown is whether the recent increase in cocaine supply, could more aptly be described as a return to supply levels, albeit with different modes of distribution and patterns of consumption to that seen around the heroin shortage. Similarly, with the heroin shortage, it was questioned whether this was best viewed as a ‘shortage’ (an atypical event) or a return to ‘pre-glut’ levels [50].

An equally salient issue is the nature of supply, and here we have highlighted very substantial changes over the period of analysis. The diversification in points of embarkation and points of entry and increased provider arrests throughout Australia suggest there have been real changes in the distribution to and throughout Australia, beyond the traditional point of entry: NSW. The apparent shift in drug flows is supported by shifts in the geographic distribution of use within Australia. A shift towards more diverse trafficking of cocaine supply within Australia is something not previously identified, yet could pose significant risks to the Australian community. Key risks include further entrenching cocaine supply and use, attracting/retaining new players in the
Australian markets, expanding organised crime and reducing the ease of law enforcement detection. The identified shift in supply since 2006–2007 thus poses evident risks for the criminal justice system. Implications for the public health system are less clear. Nevertheless, the growth since 2006–2007 in predominantly occasional and non-injecting populations (populations associated with low incidence of harms) [17] differs notably to the previous expansion in cocaine use (which led to a substantial injecting population), and suggests the public health burden, at least in the short term, may be limited. More detailed analyses are however needed.

There are limitations to be considered in light of our conclusions, including varying degrees of weakness in signal data and the added uncertainties in analysing changes in Australia's cocaine market [8,14]. One core concern is that use of seizure data may be more indicative of failed importation attempts and hence may bear little resemblance to the total amount imported or means or flows of successful importation [20]. That said, this is at present the best available data in Australia on supply.

Improved data collection/reporting would increase the ease of future quantitative supply analyses, with key areas for improvement being provider arrests, site of importation and purity-adjusted price. More detailed information on arrested dealers, particularly distinguishing border from domestic provider arrests and low level from high-level provider arrests, would help focus attention on activities at the border/upper end of the cocaine market. Information on nationality and ethnicity of provider arrestees could further improve monitoring of organised crime networks. Collecting and reporting quantitative data on site of entry (as per country of embarkation) would enable more informative flow analysis of drugs entering Australia. Finally, data on purity-adjusted price would facilitate analysis of whether suppliers had altered price or purity.

To conclude, systematic analysis of indicators of cocaine importation, distribution and use suggests that there has been some recent expansion in cocaine supply to and distribution within Australia, but that the more notable shift has concerned the nature of supply, with an apparent growth in importation and distribution beyond NSW. What is driving the recent change in cocaine supply, particularly the apparent diversification in distribution within Australia is beyond the scope of this current paper. It may reflect

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the emergence of new trafficking groups in Mexico looking for new markets to expand into [51]. On the other hand, it may be ‘demand driven’, following on from reductions in the purity and popularity of ecstasy in Australia [52]. Whatever the cause, better knowledge of cocaine-trafficking networks in Australia [53] and internationally [54] and the cocaine market’s capacity to adapt and capitalise on changing conditions [55] is vital. Such knowledge will improve capacity to monitor, predict and respond to future supply changes in Australia’s cocaine market.

Acknowledgements

The Drug Policy Modelling Program (DPMP) is funded by the Colonial Foundation Trust. The Ecstasy and Related Drug Reporting System and Illicit Drug Reporting System are funded by the Commonwealth Department of Health and Ageing. Thanks to Dr Katrina Grech (BoCSAR) and Associate Professor Alison Ritter (DPMP) for input into the conceptualisation of this project.

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