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Robbery Against Service Stations and Pharmacies: Recent Trends

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This paper examines the vulnerability to robbery of service stations and pharmacies in Australia. Service stations are open for long hours, keep cash on the premises and have minimal staffing at night, all of which may be contributing factors for robbery. Pharmacies may be attractive targets because they stock drugs. Data in this paper on the prevalence of robbery in these two retail sectors are drawn from the Australian Bureau of Statistics and from a major national survey of crime against small business conducted by the Australian Institute of Criminology. The data show that since 1993 the proportion of all robberies occurring at service stations has risen substantially, while the proportion of all robberies occurring at pharmacies has remained stable. Of the service stations and pharmacies surveyed in the Small Business Crime Survey, eight per cent of service stations and 11 per cent of pharmacies reported at least one incident of robbery in the previous 12 months.

Further, 80 per cent of robberies occurring at service stations had only one staff member on duty, while a majority of robberies at pharmacies (52%) occurred with two or more staff members present.

Repeat victimisation is a key factor in understanding robbery; five per cent of all pharmacies and service stations in the sample accounted for almost three-quarters (72%) of all reported robbery incidents.

Research into this kind of business victimisation is essential for developing programs and practices to reduce robbery—and vulnerability to robbery—and is a key task of the Australian Institute of Criminology's Small Business Crime Prevention program. It will complement the AIC's National Armed Robbery Monitoring Program which commenced in 2001.

Adam Graycar
Director

The increasing incidence of armed and unarmed robbery in Australia in recent years is cause for concern, not least because of the enormous psychological and physical impact that robberies have on victims. While banks have increased target hardening by installing measures such as bulletproof screens, camera surveillance, upgraded alarm systems and armed guards (Clarke 1990), thus making robbery more difficult to achieve, businesses that are financially less able to provide increased security remain vulnerable. Other factors may also make certain types of business more vulnerable to robbery. If the motivation for robbery is to obtain money quickly to pay for drugs or alcohol, for example, then businesses that are open late, exchange cash and are minimally staffed may be at heightened risk. Service stations are one obvious target for robbery because they exchange money with customers, are often open late at night, provide easy access, are usually not located in close proximity to other businesses, and have minimal traffic at night (Hume 1996; Mayhew 2000). Pharmacies are also presumably at risk due to the fact that drugs are kept on the premises and many stay open until late (Rotherham 1999).

AUSTRALIAN INSTITUTE
OF CRIMINOLOGY

trends

&

issues

in crime and criminal justice

April 2002

ISSN 0817-8542

ISBN 0 642 24257 7



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For a complete list and the full text of the papers in the Trends and Issues in Crime and Criminal Justice series, visit the AIC web site at:

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While it is likely that service stations and pharmacies may be at heightened risk of robbery, the nature and extent of robberies against these types of businesses have not been investigated in detail. It is also unknown whether the risks of robbery may be greater, say, at service stations than pharmacies or household residences. Drawing on data from the Australian Bureau of Statistics (ABS) and from the Australian Institute of Criminology’s Small Business Crime Survey, this paper provides an overview of recent trends in robbery and a comparison of risks between service stations, pharmacies and other types of target in Australia.

Armed and Unarmed Robberies

For the purposes of this paper, and in line with the ABS (1999, p. 126), robbery is defined as:

the unlawful taking of property, without consent, under confrontational circumstances from the immediate possession, control, custody or care of a person, accompanied by force or threat of force or violence and/ or by placing the victim in fear.

Armed robbery refers to robbery incidents in which a weapon is carried and/or used, while unarmed robbery refers to robbery incidents in which a weapon is not carried or used.

Although the distinction between “armed” and “unarmed” may seem straightforward, the data on weapon use may not necessarily be reliable. For example, a robber who pretends to have a gun or knife in his or her pocket may be regarded as armed

when in fact he or she is unarmed. Victims may also report an incident as being armed because they assumed or feared the robber was armed when in fact he or she was not. Problems also exist in terms of defining weapons. The classification of weapons used by police varies widely between Australian states (Ogilvie 2000) meaning that there is no consensual or standardised approach to the recording of weapons used. Weapon choice also varies substantially with choice of target. Guns are much more likely to be used in bank robberies while knives are much more likely to be used in robberies at pharmacies, service stations and on the street (Mouzos & Carcach 2001). The huge variation in weapon choice means that a singular concept of “armed” robbery is not necessarily very informative. For these reasons, data on all robberies (both unarmed and armed) will be presented together and relevant distinctions made where appropriate.

Patterns of Robberies

In recording crime, the ABS provides limited information concerning the location of the crime. This is generally restricted to the categories of residential location, community location (for example, car park, street), bank, pharmacy, service station and “other”. Table 1 gives the numbers of robberies (armed and unarmed combined) recorded by the ABS between 1993 and 2000 (ABS 1994–2001).

Across Australia, the number of robberies jumped from 12,765 in 1993 to 23,314 in 2000, representing an increase in recorded robberies of 83 per cent over that period. However, the biggest increase in robbery has been against service stations, which saw an increase of 214 per cent between 1993 and 2000. In comparison, pharmacies recorded an increase of 65 per cent, while robberies against banks increased by 37 per cent and robberies in community locations increased by 109 per cent. Hence, while both service stations and pharmacies have seen increases in the numbers of recorded robberies, this has been most substantial for service stations.

While robberies against residences, pharmacies, service stations and banks peaked in 1998 and then took a downturn in 1999 and 2000, the decrease was most noticeable for pharmacies, where robberies fell by 49 per cent between 1998 and 2000. In comparison, the decrease between 1998 and 2000 was four per cent for residential robberies, 34 per cent for banks and nine per cent for service stations. Two points present themselves for consideration here:

- pharmacies and banks may have increased their security measures during this time substantially more than households or service stations—this seems a plausible possibility (see Rotherham 1999); however
- the number of robberies against pharmacies and banks was much smaller than the number of robberies against residences and service stations.

Table 1: Number of recorded robberies, by location and year

	1993	1994	1995	1996	1997	1998	1999	2000	% increase 1993–2000
Residential	1,201	1,329	1,213	1,438	1,561	1,606	1,578	1,539	28
Community	6,141	7,648	8,250	8,452	10,580	11,801	11,932	12,832	109
Bank	301	316	534	426	629	626	536	412	37
Pharmacy	168	230	395	305	396	540	375	278	65
Service station	423	430	817	671	1,169	1,461	1,399	1,328	214
Other retail	2,435	2,139	3,217	3,399	4,680	5,236	4,466	4,583	88
Other unspecified	2,096	1,891	2,040	1,655	2,246	2,508	2,304	2,342	12
Total	12,765	13,983	16,466	16,346	21,261	23,778	22,590	23,314	83

Source: *National Crime Statistics* (ABS 1994–1996) and *Recorded Crime Australia* (ABS 1997–2001)

Hence, while an increase in security measures could account for part of the percentage decrease in robberies for banks and pharmacies between 1998 and 2000, a small decrease in actual numbers will result in a bigger percentage decrease for these targets than would occur for service stations and households. It is quite possible, then, that the percentage decreases for banks and pharmacies reflect both of these points. Based on the available data it is not possible to unravel this further.

To see how armed and unarmed robberies differ by location, Table 2 provides the proportion of all robberies which were recorded as armed for each location. In particular:

- Service stations and pharmacies have consistently recorded the highest proportions of armed to unarmed robberies. Approximately 80 per cent of all robberies occurring at service stations and pharmacies in 2000 were recorded as armed, compared with 50 per cent for banks and 42 per cent for residences.
- Residential and bank robberies have seen a trend towards a decrease in armed robbery and an increase in unarmed robbery between 1993 and 2000. While one in two residential robberies in 1993 was recorded as armed, the ratio in 2000 was two in five. Similarly, while seven in 10 bank robberies were recorded as armed in 1993, the ratio was five in 10 in 2000.

Service stations, then, have seen the highest increase in recorded robbery between 1993 and 2000 compared with other targets, and approximately four out of five robberies occurring at service stations are armed. While these statistics show that service stations appear to be vulnerable to robbery, a further test of vulnerability would be to look at the number of robberies occurring at different locations as a proportion of all robberies that occur. That is, what share of all robberies is borne by service stations? Figure 1 gives a comparison of the proportions of robberies borne by service

Table 2: Percentage of all robberies recorded as armed, by location and year

	1993	1994	1995	1996	1997	1998	1999	2000
Residential	51	48	48	41	43	47	44	42
Community	24	20	20	20	24	28	26	26
Bank	70	67	69	58	62	56	–	50
Pharmacy	89	80	74	83	82	86	–	81
Service station	83	80	84	82	85	85	81	80
Other retail	67	58	67	62	67	70	72	66
Other unspecified	42	48	47	46	44	44	47	42
Total	42	36	40	38	42	46	42	41

Note: The numbers of recorded armed robberies against banks and pharmacies were not provided by the ABS in 1999—only numbers of all robberies were provided.

Source: *National Crime Statistics* (ABS 1994–1996) and *Recorded Crime Australia* (ABS 1997–2001)

stations, pharmacies, banks and residential locations.

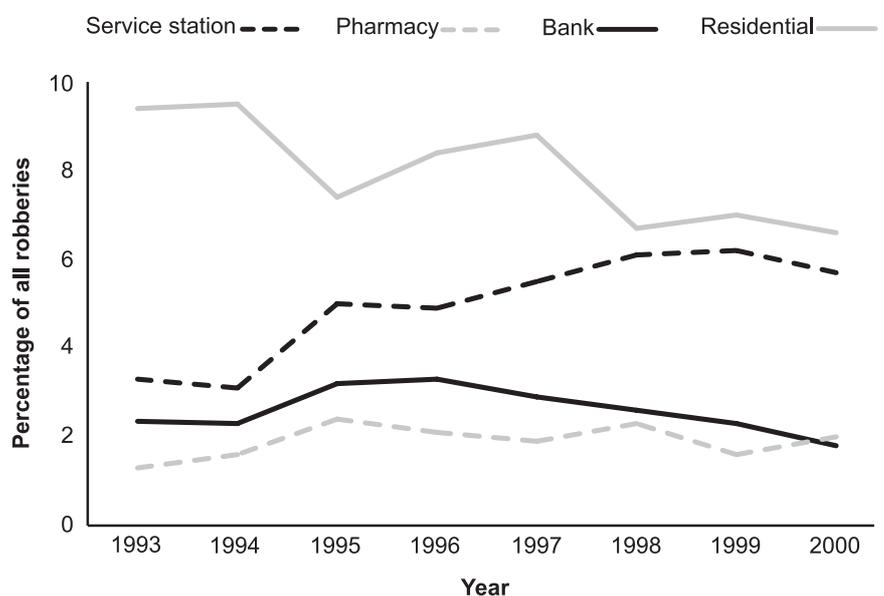
While the proportions of all robberies occurring at banks and pharmacies have remained relatively stable, the proportion of robberies at service stations increased steadily from 3.3 per cent in 1993 to 6.2 per cent in 1999. A slight downturn was recorded in 2000 (5.7%) but, as this was the most recent year for which data were available, it is not possible to say whether this is due to random fluctuation or the beginning of a downward trend. Community robberies on the street and in open places (not shown in Figure 1) also increased from 48 per cent in 1993 to 55 per cent of all robberies in 2000. Residential robberies, however, decreased from 9.4 per cent of all

robberies in 1993 to 6.6 per cent in 2000. In sum, the proportion of robberies occurring at service stations steadily increased between 1993 and 1999, while this was not so for pharmacies, banks or residential locations. Service stations, then, have been carrying an increasing share of robberies compared with other targets.

Risks of Robbery

To determine whether risks of robbery at service stations increased over time, data concerning the number of existing service stations (defined as “fuel retailers” by the ABS) across Australia were obtained from the ABS, and the risks of robbery per 100 premises in both 1994 and 1998 were calculated.¹ Over this

Figure 1: Percentage of all recorded robberies committed at service stations, pharmacies, banks and residential locations between 1993 and 2000



Source: *National Crime Statistics* (ABS 1994–1996) and *Recorded Crime Australia* (ABS 1997–2001)

period, the number of service stations increased from 6,805 in 1994 to 8,010 in 1998 (an 18 per cent increase). Risks of robbery were calculated taking into account the existing number of premises. It was determined that six robberies were recorded per 100 service stations in 1994 while 18 robberies were recorded per 100 service stations in 1998.

The risk of robbery to service stations, then, increased three-fold over a four-year period. While one robbery was recorded per 17 service stations in 1994, this jumped to one robbery per six service stations in 1998, reflecting a dramatic increase in risk between 1994 and 1998.

The Small Business Crime Survey

The robbery data obtained from the ABS reflect the number of recorded *incidents* which have occurred, not the number of victims.² This means that the total number of robberies occurring against service stations and pharmacies could result from a lot of these businesses experiencing a single incident, or a few of these businesses experiencing several incidents. From the ABS data it is not possible to establish how many service stations or pharmacies accounted for the number of recorded robberies. It is therefore not possible to determine how many service stations or pharmacies experienced at least one incident of robbery (the prevalence rate) or the level of repeat victimisation. Further, ABS data do not provide information concerning risk factors that might lead some service stations and pharmacies to be at greater risk of robbery than others. These gaps, however, can be partially filled through reference to data obtained from the Australian Institute of Criminology's Small Business Crime Survey,³ conducted in 1999 and funded by the Commonwealth Government's National Crime Prevention Program.

The survey covered the 1998–99 financial year and was primarily distributed to small businesses

across Australia within six retail sectors:

- cafes/restaurants/takeaways;
- general stores/milk bars;
- liquor outlets;
- service stations;
- pharmacies; and
- newsagents.

After the data were weighted to national figures for better representativeness, the final sample size was 3,834. Of relevance here are the responses from service stations (n=735) and pharmacies (n=713) and while it is acknowledged that this reflects self-report data (and the data may suffer from some degree of sampling error and response bias), the findings are reported to supplement information provided by ABS statistics and to give further insight into the risks faced by service stations and pharmacies. In sum:

- For service stations:
 - eight per cent of service stations in the data set reported experiencing at least one incident of robbery;
 - 37 per cent of victims accounted for 62 per cent of all reported robberies;
 - 13 robberies were reported per 100 service station premises (slightly below the risk level calculated from ABS figures); and
 - of those service stations experiencing robbery, 63 per cent were victimised once, 26 per cent were victimised twice and 11 per cent fell victim three or more times.
- For pharmacies:
 - 11 per cent of pharmacies in the data set reported experiencing at least one incident of robbery;
 - 48 per cent of victims accounted for 64 per cent of all reported robberies;
 - 15 robberies were reported per 100 pharmacy premises; and
 - of those pharmacies experiencing robbery, 67 per cent were victimised once, 24 per cent were victimised twice and nine per cent fell victim three or more times.

Consistent with research showing that crime against business is unevenly distributed (Bowers

2001; Fisher & Looye 2000; Gill 1998; Hopkins & Ingram 2001), the majority of service stations and pharmacies do not experience robbery. Most in the Small Business Crime Survey experienced none, while others experienced one or more instances. Understanding what it is about some premises which makes them more vulnerable to robbery than other premises would greatly assist in developing effective crime prevention strategies.

The Importance of Timing

If being open late is a risk factor generally for robbery (Bellamy 1996; Mayhew 2000) because it means there are fewer people around and presumably fewer staff, then it would be expected that the majority of robberies would occur during the evening and early morning. Indeed, in relation to service stations, a security consultant employed by Mobil has stated that most robberies occur between the hours of 10pm and 4am (Hume 1996). Data from the Small Business Crime Survey confirm this. Of reported robberies occurring at service stations, 73 per cent occurred between 6pm and 6am.

However, for robberies to occur between these times, businesses must be open during these times. While 14 per cent of service stations in the Small Business Crime Survey operated on a 24-hour basis, only one pharmacy was open 24 hours a day. This means that the timing of robberies against pharmacies took a different pattern from that against service stations. Of reported robberies against pharmacies, the majority (53%) occurred between noon and 6pm while one-quarter occurred between 6pm and midnight. Timing, then, is important, but risk times for robbery also depend upon business operating hours.

In the vast majority (80%) of cases when robbery occurred at service stations, only one staff member was on duty. This highlights the vulnerability of

staff working alone at service stations. Again, however, the pattern was different for pharmacies. Only 13 per cent of robberies took place when only one staff member was working, while 52 per cent occurred with two staff members. This presumably reflects the finding that more robberies at pharmacies occurred during the day when more staff members were likely to be working.

Characteristics Associated with Robbery Victims

As with most surveys, there are limitations to what information can reasonably be collected concerning the attributes of individual businesses. Concerns about anonymity, length of completion time and accurate recall mean that information can usually only be obtained on a restricted range of measures. Although the measures included in the Small Business Crime Survey can only account for a small proportion of the variation in robberies, and the number of victimised businesses in the survey is small, it is nevertheless useful to look at the patterns of characteristics associated with victims. The percentages of robbery victims and non-victims possessing each characteristic are shown in Table 3. Service stations that fell victim to robbery were significantly more likely to be open 24 hours a day than service stations which did not experience robbery (49% versus 11%) and were more likely to have a higher rather than lower turnover. Consistent with research showing that convenience stores which are open late at night are more susceptible to robbery (Bellamy 1996), service stations also appear more vulnerable if they are open for 24 hours than if they are not. Again, however, as pharmacies in the Small Business Crime Survey were not open 24 hours a day, this was not identified as a risk factor. Instead, pharmacies were more likely to be victims of robbery if they had experienced burglary in the previous year than

if they had not. If one assumes that the aims of both robbery and burglary at pharmacies are often the same—that is, to obtain drugs—then it might make sense that a victimised pharmacy is more likely to experience both burglary and robbery, whereas a pharmacy that has not been burgled is also less likely to be robbed. The aims of burglary and robbery at service stations, however, might differ. Burglary may be associated more with items carried within the store while robbery may be associated more with obtaining money, leading to a weaker association between the occurrence of burglary and robbery.

This interpretation is, however, speculative—further information concerning what is stolen during burglaries and robberies at service stations and pharmacies would need to be obtained for a more complete analysis.

Conclusion

The increasing levels of robbery in recent years, the increased target hardening by institutions such as banks, and potential differences in motivations of offenders (pursuing different rewards; see Ogilvie 2000) has meant that service stations and pharmacies may be coming under increasing risk of robbery due to what they sell and when and how they sell it. The risks of robbery to service

stations and pharmacies, though, have not previously been investigated in detail. The present paper has partially filled this gap by analysing available data, investigating the trends between 1993 and 2000, and supplementing this information with self-report data.

It is clear that service stations have been facing an increasing risk of robbery, both in terms of bearing the greatest increase in robberies between 1993 and 2000 (214%) in comparison with other targets, and as a proportion of all robberies that are occurring at service stations. While there was also an increase in recorded robberies against pharmacies between 1993 and 2000 (65%), pharmacies recorded a substantial drop in robberies between 1998 and 2000. The reason for this is unclear, although a Pharmacy-Watch crime prevention program was implemented by the Pharmacy Guild during this time and reported in its early stages to be effective (Rotherham 1999).

The finding that a greater proportion of robbery victims was open 24 hours a day than non-victims suggests another possibility for the increasing risk. Simply put, it is possible that the number of service stations open for 24 hours has been increasing over recent years. As service stations have started to take on the characteristics of convenience stores (staying open later, selling a large range of grocery and non-

Table 3: Characteristics associated with being a victim of robbery for service stations and pharmacies

Characteristic	Service stations		Pharmacies	
	Non-victim (n=680)	Victim (n=55)	Non-victim (n=634)	Victim (n=79)
	%			
Located in shopping strip	18	16	64	74
Located in shopping mall/centre	1	2	20	15
Located in industrial estate	9	4	0	0
Located in business strip/centre	37	35	8	6
Located within residential area	5	9	0	0
Open 24 hours	11	49*	0	0
Annual turnover greater than \$500,000	62	89*	86	91
Been operating for more than two years	85	92	87	95
Experienced burglary in previous year	27	31	26	43*

Note: Differences between victims and non-victims are significant at * p<.01

Source: Australian Institute of Criminology Small Business Crime Survey, 1999 [computer file]

grocery items), they may also have attracted increasing risks associated with robbery. This information is not available from the ABS but is clearly worth pursuing further.

Determining levels of repeat robbery victimisation would also be helpful for a more complete analysis of risk. In the Small Business Crime Survey, for example, 65 per cent of service station and pharmacy victims (combined) experienced robbery once, 25 per cent fell victim twice while 10 per cent fell victim three or more times. This means that just over five per cent of all service stations and pharmacies in the sample accounted for 72 per cent of all reported robbery incidents. If businesses that are repeatedly victimised possess characteristics which make them more vulnerable than businesses that do not experience any robbery, then identifying what these risk characteristics might be may allow us to develop an even clearer picture of which service stations and pharmacies might be at greater risk than others.

This paper has shown that service stations have a high risk of robbery compared to pharmacies or banks. This is of particular concern given that 80 per cent of all recorded robberies at service stations are armed. The next step is to investigate why the risk to service stations is higher than other targets, why some businesses experience several incidents while others experience none, whether the trend appears likely to continue and what measures can be put in place to protect against robbery.

Notes

- 1 It was not possible to obtain the same data for pharmacies because the ABS business definition included cosmetic and perfume retailing within the category.
- 2 Although the ABS counts one victim for each recorded incident of robbery, more than one incident can occur to the same victim. This would mean that if one victim experienced five incidents of robbery, the ABS would record five victims when in fact there was only one victim. For this reason it is

argued that the robbery data recorded by the ABS actually reflect the number of incidents which have been recorded and *not* the number of victims.

- 3 More detailed information concerning the Small Business Crime Survey can be found in Perrone (2000) and Taylor and Mayhew (2002).

Acknowledgments

This paper is part of an ongoing project investigating crimes against small business funded by the National Crime Prevention Program in the Commonwealth Attorney-General's Department.

The author gratefully acknowledges the contribution made by Pat Mayhew towards the refinement of the Small Business Crime Survey sample data and helpful comments on an earlier version of this paper.

References

- Australian Bureau of Statistics (ABS)
1994, *National Crime Statistics 1993*, cat. no. 4510, Australian Bureau of Statistics, Canberra.
- 1995, *National Crime Statistics 1994*, cat. no. 4510, Australian Bureau of Statistics, Canberra.
- 1996, *National Crime Statistics 1995*, cat. no. 4510, Australian Bureau of Statistics, Canberra.
- 1997, *Recorded Crime Australia 1996*, cat. no. 4510, Australian Bureau of Statistics, Canberra.
- 1998, *Recorded Crime Australia 1997*, cat. no. 4510, Australian Bureau of Statistics, Canberra.
- 1999, *Recorded Crime Australia 1998*, cat. no. 4510, Australian Bureau of Statistics, Canberra.
- 2000, *Recorded Crime Australia 1999*, cat. no. 4510, Australian Bureau of Statistics, Canberra.
- 2001, *Recorded Crime Australia 2000*, cat. no. 4510, Australian Bureau of Statistics, Canberra.
- Bellamy, L.C. 1996, "Situational crime prevention and convenience store robbery", *Security Journal*, vol. 7, pp. 41–52.
- Bowers, K.J. 2001, "Small business crime: The evaluation of a crime prevention initiative", *Crime Prevention and Community Safety: An International Journal*, vol. 3, no. 1, pp. 23–42.
- Clarke, R. 1990, "Target hardening of banks and displacement of robberies", *Armed Robbery Interim Report 2*, National Police Research Unit, Adelaide.
- Fisher, B. & Looye, J.W. 2000, "Crime and small businesses in the Midwest: An examination of overlooked issues in the United States", *Security Journal*, vol. 13, no. 1, pp. 45–72.
- Gill, M. 1998, "The victimisation of business: Indicators of risk and the direction of future research", *International Review of Victimology*, vol. 6, pp. 17–28.
- Hopkins, M. & Ingram, M. 2001, "Crimes against business: The first Scottish business crime survey", *Security Journal*, vol. 14, no. 3, pp. 43–59.
- Hume, J. 1996, "Service stations: Training targets violence", *Security Australia*, vol. 16, no. 8, pp. 24–26.
- Mayhew, C. 2000, *Violence in the Workplace: Preventing Armed Robbery*, Research and Public Policy Series, no. 33, Australian Institute of Criminology, Canberra.
- Mouzos, J. & Carcach, C. 2001, *Weapon Involvement in Armed Robbery*, Research and Public Policy Series, no. 38, Australian Institute of Criminology, Canberra.
- Ogilvie, E. 2000, "Knives and armed robbery", *Trends and Issues in Crime and Criminal Justice*, No. 159, Australian Institute of Criminology, Canberra.
- Perrone, S. 2000, "Crimes against small business in Australia: A preliminary analysis", *Trends and Issues in Crime and Criminal Justice*, no. 184, Australian Institute of Criminology, Canberra.
- Rotherham, S. 1999, "Employers told to fix up security or else", *Security Australia*, vol. 19, no. 7, pp. 18–19.
- Taylor, N. & Mayhew, P. 2002, "Patterns of victimisation among small retail businesses", *Trends and Issues in Crime and Criminal Justice*, no. 221, Australian Institute of Criminology, Canberra.

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Project no: 0035 Ethics no: PO37, PO39