Target Hardening of Banks in Australia and Displacement of Robberies

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A reduction in robberies following improvements in the security of Australian banks has generated concern that robbery will be displaced to softer targets such as pharmacies, motels, petrol service stations, and convenience stores. The present study was based on robbery data for 1979—89 supplied by the Australian Bankers' Association and the Armed Robbery Squad of the Victoria Police. Little evidence was found that bank robberies had been displaced to other states in Australia or that the fall in bank robberies had led to increases in robberies of other targets in Victoria.

Keywords: Target hardening; bank robbery," displacement; rational choice; Australia

Introduction

Target hardening can reduce the risks of victimization for protected targets, but whether at the cost of displacing crime elsewhere is not usually known. This question, generally important for crime policy, has been raised in respect to recent security improvements to Australian banks. It has been suggested that these improvements may have reduced bank robberies, but only at the cost of increasing the risks of robbery for other targets such as "milk bars" (i.e., convenience stores) and petrol service stations (e.g., Kapardis, 1989; NSW Bureau of Crime Statistics and Research, 1987). Some support for this suggestion is provided by research in Britain (Ball *et ai,* 1978) and in Switzerland (Grandjean, 1990) where displacement to payroll robberies was found following increased bank security. Grandjean (1990) found little evidence, however, of displacement to other targets, such as post offices and railway station ticket offices, and explained

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this by the smaller amounts of money yielded by such robberies. Nevertheless, the banks are taking seriously the possibility of displacement as shown by their efforts, through the Australian Bankers' Association, to develop security training for small businesses.

It is against this background that the present study examines whether the recent marked decline of bank robberies in the State of Victoria has resulted in displacement of robberies to other targets.

Theoretical Context

Both criminological and lay theorizing tends to regard displacement as inevitable, the consequence of relatively unmodifiable criminal personality. Existing research suggests that this view is too pessimistic and that, while some displacement is always likely, net reductions in crime have been achieved through target hardening or other measures to reduce criminal opportunities (Clarke, in press). Much appears to depend on the ease or difficulty for the offender of meeting his needs by some alternative crime.

This is consistent with a view of the offender as making "rational" choices about crime (Cornish and Clarke, 1986). Although these may not be fully considered and offenses may not be carefully planned, some rudimentary judgments about the risks, effort, and rewards of crime will always be made. Moreover, criminal activity is not the only way for most offenders to meet their material and financial needs. Many are already in employment or quite capable of obtaining money in legitimate ways. It may also be simplistic to assume that offenders' actions are determined by some notional amount of a desired or minimum income from crime. Although this may hold for some addicts and "professional" criminals, many offenders will only commit crimes that they can easily get away with. Nor is it true that offenders never give up, crime. Indeed, most desist from crime in their early to middle twenties, and interviews with recidivist robbers in Canada have shown that there comes a point for many of them when the risks of the offense seem too great (Cusson and Pinsonneault, 1986).

In predicting the likelihood of displacement, information is, therefore, needed about the offenders involved. As for bank robbers in Australia, the police believe that there are two main groups—the more organized professionals or gangs ("good crims") and lone, often drug-dependent offenders—a view broadly confirmed by recent interview studies of armed robbers (NSW Bureau of Crime Statistics and Research, 1987; Kapardis, 1989; Nugent *et al,* 1989). The so-called "good crims" are likely to displace to alternative targets so long as the monetary rewards are sufficiently large, though their self-esteem may prevent them from robbing "kid's" targets, such as corner groceries or petrol service stations. Some may move onto more lucrative crimes such as drug dealing, while others may scale down their criminal activities or even give up crime altogether. Many of the addicts who appear to plan their offenses less carefully and be less concerned with security may be less deterrable and may continue to attempt perhaps increasingly unsuccessful bank robberies. Others may make do with fewer fixes or be prepared to settle for smaller sums from alternative targets, perhaps hit more frequently. Increased bank security may, therefore, have a variety of outcomes, only one of which is an equivalent displacement of robbery to other kinds of targets.

Improvements in Bank Security

Salter (1978) has described how the "marketing" of Australian banks in the 1950s and 1960s, designed to increase their accessibility and attractiveness, resulted in a number of changes that at the same time reduced security. These included the lowering of counters, the removal of screens and grilles between teller and customer, and the replacement of steel with glass doors. In addition, managers' residences were no longer provided on the premises, branches tended to be located in shops rather than in purpose-built stone or brick buildings, managers and staff were deprived of their pistols, and the work of tellers was frequently undertaken by very young individuals, many of whom were female.

Whether this increased "openness" contributed to the increasing rate of bank robberies in the 1960s is unclear, but, since then, the banks have been systematically attempting to increase security without sacrificing openness. According to Weston (1989), photo surveillance cameras, upgraded alarm systems, and staff training in procedures to be followed during a robbery were widely introduced between 1969 and 1975. Banks have also made increasing use of guards, dye bombs, and time-delay locks. More recently, pop-up or bulletproof screens have been installed in vulnerable premises at an average cost of A$ 100,000 per branch. According to Griffiths (personal communication), 30% of 2555 suburban and city branches he surveyed at the end of 1986 had such screens in place.

Little hard data exist about the value of most of these measures. The principal benefit of training may be the avoidance of injury and perhaps also the reduction of losses. Alarms are activated in about 90% of robberies (Marsden, 1989) and sometimes contrib-

ute to the apprehension of robbers [in 6.4% cases of solved bank robberies in the United States studied by Baumer and Carrington (1986)]. Alarms also undoubtedly minimize losses by ensuring that the robbers remain on the premises a very short time. Although no evaluations have been published of cash-reduction policies in banks, these have been effective in preventing robberies from convenience stores (Crow and Bull, 1975), from betting shops (Clarke and McGrath, 1990), and on public transport (Stanford Research Institute, 1970). As for surveillance cameras, Marsden (1989) reports that in 1987 these produced usable pictures in about 80% of robberies in Australia. The police are firmly convinced of their value as an aid to identification (Delianis, 1978), and Baumer and Carrington (1986) also report that cameras contributed to the solution of nearly a quarter of the solved bank robberies in their sample.

Interviews with robbers (NSW Bureau of Crime Statistics and Research, 1987; Nugent £/ *aL,* 1989) and evaluative research (Hannan, 1982) suggest that armed guards are the most powerful deterrent to robbery, but they are expensive. These studies have also shown that robbers would generally avoid any bank with screens, while further evidence of their preventive value comes from two studies undertaken by the Home Office Crime Prevention Unit of post offices (Ekblom, 1987) and building societies (Austin, 1988).

In summary, there is little doubt that security measures introduced by banks in recent years have increased the risks of apprehension and reduced the chances of injury to staff, but whether they have also reduced the incidence of robberies is much harder to determine. A study in Canada (Gabor, 1989) found that banks that were robbed had no worse security than did other banks (though there was no control included in the study for initial risk of robbery). Moreover, bank robberies have greatly increased in Australia since the start of the security upgrades in the late 1960s, though at a rate no greater than for other armed robberies (Clarke, 1990).'

Data Sources

The main source of data for this research was the record of armed robberies maintained by the Armed Robbery Squad (ARS) of the Victoria Police for 1979-1988. Despite a requirement that the ARS should be informed of all robberies committed in the state, work by the National Police Research Unit (McGrath *et al,* 1989) revealed that the ARS records appear to substantially undercount armed robbery offenses, at least in comparison with those recorded in the Statistical Review of the Victoria Police. Further exploration revealed that the discrepancies were less marked for armed robberies involving a firearm, and it was therefore decided to focus on these offenses for the present study.[2] Most bank robbers use firearms and it is unlikely that they would abandon these if they were to displace their attention to other targets.

Displacement to Other Targets

Table 1 shows armed robberies with a firearm for a variety of targets, including banks, for Victoria from 1979 to 1989. Inspection of these data reveals that the decline in bank robberies since the peak of 1987 was paralleled by declines (in all cases somewhat smaller) in all other categories of targets.

This pattern is not suggestive of displacement, an inference supported by correlation coefficients calculated on quarterly breakdowns of the data *(Table 2).* In all cases, these were positive and generally high, which seems to reflect the generally increasing trend of robberies and the effect of seasonality with more robberies in the latter part of each year.

Displacement to Other States

Table 3 shows the number of bank robberies in Victoria and other states between 1979 and 1989. It can be seen that the decline of bank robberies in Victoria since the 1987 peak was accompanied by a similar but not quite^as large decline of bank robberies in New

'Between 1979 and 1988, there were some 1850 bank premises. The robbery rate per 1000 for each year (beginning in 1979) was as follows: 19, 24, 22, 33, 56, 53, 49, 44, 70, 33 (Clarke, 1990).

[2]All firearm robberies were counted, including attempts and those where it was subsequently discovered that an imitation weapon was involved. This count produced a smaller discrepancy between the official statistics and those kept by the ARS; in 1987/88, the discrepancy was 12% in favor of the official statistics compared with 24% for all forms of armed robberies. Some independent confirmation of the ARS statistics for robbery with a firearm was provided for two important categories of armed robberies: those from banks and those from Totalizer Agency Board Offices (i.e., TABs or betting shops). The correlation between the Australian Bankers' Association independently collected quarterly statistics on bank robberies and the ARS figures for the 40 quarters for 1979-88 was very high *(r* = .97). A similarly high correlation was found between the ARS betting shop robbery figures and the quarterly robbery figures independently collected by the TAB security department. It was concluded that, for at least the more serious forms of armed robbery, the ARS data serve as an adequate basis for the proposed study of displacement (Clarke, 1990).

Table 1. Armed Robbery with a Firearm: Victoria, 1979-1988

	Banks	BS/ TAB/ Payroll	PSS/ Pharmacy/ Motel	Convenience Stores/ Shops	Dwelling/ Street/ Other	Total
1979	**32**	67	94	110	127	430
1980	**39**	46	122	136	102	445
1981	38	36	97	102	106	379
1982	57	34	76	137	97	401
1983	97	60	122	121	134	534
1984	84	67	60	84	121	416
1985	78	46	**87**	113	**72**	396
1986	**77**	79	119	**125**	103	503
1987	110	55	120	152	76	513
1988	46	40	82	**94**	60	322
(1989)-	**(16)**	**(13)**	**(38)**	**(48)**	**(27)**	**(H2)**

Source: Armed Robbery Squad records. Small numbers of robberies for various targets necessitated their being combined. BS refers to building and credit societies. PSS refers to petrol service stations. TAB refers to betting shops.
••January-June only.

Table 2- Correlations among Armed Robberies for Various Targets in Victoria, 1979-1989

	Banks	BS/ TAB Payroll	PSS/ Motel/ Pharmacy	Shops/ Convenience Stores	Street/ Dwelling/ Other	AH but Banks
Banks	—	—	—	–	—	—
BS/TAB/payroll	0.36	—	—	—	—	—
PSS/motel/pharmacy	0.13	0.10	—	—	—	—
Shops/convenience	0.22	0.10	0.43	—	—	—
Street/dwelling/other	0.23	0.38	0.02	-0.04	—	—
All but banks	0.37	0.56	0.65	0.70	0.52	—
All targets	0.67	0.59	0.57	0.64	0.50	0.94

BS refers to building and credit societies. PSS refers to petrol service stations. TAB refers to betting shops.

Table 3. Bank Robberies in Australia, 1979-1989

	New South Wales	Victoria	All Other States	Total
1979	**87**	33	17	137
1980	162	46	21	229
1981	148	39	20	207
1982	153	56	22	231
1983	357	100	76	533
1984	308	94	50	452
1985	198	86	73	357
1986	132	74	95	301
1987	293	130	122	545
1988	174	52	123	349
(1989)'	**(51)**	(21)	**(55)**	(127)

Source: Australian Bankers' Association.
'January-June only.

South Wales (NSW). In other states, bank robberies were unchanged though they had generally been increasing since 1979.

This pattern of results does not suggest that displacement of bank robberies between states has occurred on any major scale. A correlational analysis on quarterly data *(Table 4)* yielded generally positive correlations, probably reflecting increasing robberies and the effect of seasonality.

Regression Analyses

Although these correlations suggest that any displacement, either between states or between targets in Victoria, has been limited at best, it was decided to undertake a series of regression analyses to take account of both the seasonal effect and the generally increasing trend of robberies throughout the period. It could be that these factors disguise displacement.

A total of seven regression models were constructed and tested as described in the Addendum.[1] In short, these produced (i) no evidence of any displacement of bank robberies between states, and (ii) no evidence of any displacement among the various targets in Victoria. A possible exception to the latter finding was a hint of displacement between banks and the combined variable representing robberies of service stations/pharmacists/motels.

Conclusions

The marked decline of bank robberies in Victoria in 1988/89 seems not to have resulted in an increase of bank robberies in other states. Nor has there been a resultant increase in Victoria of robberies of other targets such as building societies, payrolls in transit, pharmacies, convenience stores, and petrol service stations.

Although these results do not completely rule out displacement effects, they do suggest that improved bank security has not generally been to the detriment of other businesses. Whether there has been displacement between more and less protected banks or displacement to crimes other than robbery (such as drug offenses) was not investigated in the present research. Indeed, the latter form of displacement is almost impossible to study because of the very large number of alternative crimes. The displacement of robberies from more to less protected banks did occur in Switzerland (Grandjean, 1990), and it should be possible for the banks to check whether it has also occurred in Australia.

Table 4. Correlations among Bank Robberies in Australian States, 1979-1988

	Victoria	NSW
Victoria	—	—
New South Wales	.56	—
Other States	.43	.24

It is no doubt encouraging for the banks that their better security has not, to date, increased the risks for other targets, but other aspects of the findings are less satisfactory. In particular, it is far from clear that the recent reductions in bank robbery are, in fact, due to the increased security. Although bank robberies have declined both in NSW and Victoria, where target-hardening efforts have been concentrated, the decline might have been expected to be more gradual if it were the result of increased security (unless, and this is an important rider, some critical point has been reached in the number of banks with antirobbery screens). In addition, some displacement to softer targets might also have been expected. In fact, bank robbery has generally increased during the period, [1] tl^e recent decline has been rather precipitous, and robberies of some similar targets such as credit societies, payrolls, and TAB offices have also declined.

On the face of it, this pattern of results is more consistent with an "incapacitation" hypothesis. The police believe that they have had many recent successes in apprehending some highly active bank robbers (one arrested early in 1988 in Victoria was charged with 18 bank robberies), and, particularly in Victoria, there has been a crackdown on known robbers as the result of the robbery-related murders of two policemen in 1988. Other features of the results, however, are not specially consistent with the incapacitation hypothesis. In particular, it is puzzling that robberies of targets not generally attacked by bank robbers, such as convenience stores, petrol service stations, and motels, should also have declined in Victoria. This suggests that other factors may also be at play such as the

'A further regression analysis was undertaken to confirm the existence of a significant decline in bank robberies in Victoria since 1987. This was done by constructing a simple regression model for bank robbery in Victoria and introducing eight dummy variables for the final eight quarters in the time series (setting them equal to unity tor the relevant quarter, zero otherwise). This tests whether the pattern of previous years effectively predicts the final period, in which case the coefficients on the dummies should not be significantly different from zero. Results indicated significant variation over the whole time series, but with only the final quarters in the series showing significantly negative coefficients on their dummies.

economic cycle and street price of heroin (Marsden, 1989).[4] If so, bank robberies might again increase as the economy changes or, indeed, as formerly incarcerated robbers are released.

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'Subsequent research failed to confirm another possibility, which is that lesser criminal actors are encouraged to try their hands at robbery of smaller targets whenever successful bank robberies are reported in the press (Clarke and McGrath, in preparation).

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Addendum: Statistical Methods Used

The regression procedure employed logarithms of the crime variables and quarterly data for the 1978—88 period. Two regression models were constructed using bank robberies in other parts of Australia (New South Wales and all other parts) as dependent variables. Five further regression models were constructed using armed robberies directed at targets other than banks (building societies betting shops and gas stations, shops, pharmacists, street robberies, and all other categories) as dependent variables. In each case, the initial model was constructed by regressing the crime dependent variable against a constant term, three quarterly dummies, and sufficient lags of the dependent variable to eliminate serial correlation in the residuals. (Only three quarterly dummies are required to reflect the seasonality in the series because the fourth dummy is implicitly included in the constant term.) Each model was then subjected to standard tests for functional form, normality, and heteroskedasticity. All models passed all tests, except the model for building societies, etc., where the re-

siduals were non-normal effectively because of a large outlying value for this variable for the first quarter of 1984.

To test for displacement, five regressors were added to each model: For the model for different parts of Australia, the regressors were the logarithm of the current level of bank robberies in Victoria plus the first four lags on the same variable; for the models for different robbery targets, the regressors were the logarithm of the current value of armed bank robbery plus the first four lags. If displacement from Victoria to other parts of Australia is occurring, or from bank robbery to other types of crime, we would expect the estimated coefficients on some of the added regressors to be significantly negative, indicating that a fall in bank robbery in Victoria is associated (after the specified lag) with a rise in robberies elsewhere or directed at other targets.

The individual /-statistics on the added regressors taken singly, and the/-statistics on the whole five taken together, were largely non-significant. Some of the current values had significantly *positive* coefficients, indicating a correlation between robbery of different types and in different areas, but no evidence of displacement. Only when some of the additional lagged values of bank robbery were removed from the regressions (to reduce collinearity) did some marginal evidence of displacement emerge. In the regression for service stations, motels, and chemists, when the added regressors were reduced to the second and fourth lag, the estimated coefficient on the second lag became (just) significantly negative (/ = 1.91, $P < .05$ in the one-tailed test). These results yield very little evidence of displacement from bank robberies in Victoria, either to different sorts of crime or different parts of Australia.

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