REPEATED BANK ROBBERY: THEME AND VARIATIONS

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Abstract: *This study examines all bank robberies, completed and attempted, reported to the U.K.'s Metropolitan Police in the years 1992-1994. It shows the rate of repetition against the same branches to be high, with each robbed branch suffering an average of 1.54 robberies, and the most robbed branch suffering six. Repeat robberies follow the success of earlier robberies, with the probability of repetition being roughly predictable from average sum taken (with attempts counting zero) at prior robberies of the same branch. Repeat robberies are less successful than first robberies, presumably because of security enhancements or staff training following the earlier event(s). Repeat robberies tend to happen soon after first robberies, and indirect evidence suggests — consistent with more direct evidence from other studies — that repeat robberies are substantially the work of the original robbers. A surprising and potentially important conclusion of the study is that banks differ greatly in their liability to repeat victimisation. Steps should be taken to supplement the data available, so as to confirm this. However, it is suggested that a meeting of senior bank security staff called*

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by the Home Office Crimes Prevention Agency to discuss the data would not be premature.

Commercial robbery, and especially armed commercial robbery, has attracted research interest in recent years (Morrison and O'Donnell, 1994; Hibberd and Shapland, 1993; Hunter and Jeffery, 1992; Challenger 1989; Walsh, 1986). A recent British study of armed robbery (Matthews, 1997) examined police responses in two force areas, the Metropolitan Police District (MPD) and South Yorkshire. In the course of this work, the extent of repeat victimisation by armed robbery seemed to emerge but within the context of that study, the matter was not dealt with in-depth. Other studies of armed robbery involving interviews with armed robbers (Gill and Pease, 1998; Gill and Matthews, 1994) suggest that some robbers do acknowledge their repeated victimisation of the same target, and that these repeaters differ interestingly from other robbers, primarily in being more professional. This supperts the findings of other studies of offenders (e.g., Ashton et al., 199E) and suggests that those who rob the same target repeatedly are more established in criminal careers, thus opening interesting possibilities of offender targeting through the detection of repeat crimes (Pease, 1997).

In the present brief study, we take further the analysis of bank robberies in the MPD in the period 1992-94, in order to examine data about the characteristics of such crimes and, in particular, the nature and extent of repeat bank robberies. In 1992, armed robberies with firearms in the MPD constituted some 47% of the total of such offences in England and Wales, although the proportion had declined from 69% in 1982. Nonetheless, the NIPD still accounts for a large proportion of the national problem as it relates to firearms.

DATA AND PREPARATION

The data comprised MPD records of all bank robberies that came to the force's notice and that took place between the beginning of 1992 and the end of 1994. These data were originally gathered for the Matthews (1996) study. They included address and name of the bank, time and date of the robbery, weapon(s) used, number and ethnicity of perpetrator(s), and whether the response to the robbery formed part of a police operation. Not included among the data was the identity of perpetrators, and hence whether perpetrators of repeats had also carried out the first offence. Also missing was the

number of branches of each bank in the *area,* so we could not calculate the probability of a branch being robbed during the three-year period. This also precludes the determination of whether the probability of a repeat among robbed branches was higher than the probability of a first victimisation among branches in general, as work in repeat victimisation generally would suggest.

Faced with a set of police data, it should be easy to establish which robberies are repeats; often, it is not (Anderson et al., 1995). It was not easy with this data set, and a full week was taken editing the data in an attempt to get it as near to perfect as possible. For example, if two branches of the same bank on the same street appeared in the data, one with and one without a street number, was this a repeat? In this case, the branch with a known address was telephoned, and the question posed whether it was and had in recent years been the only branch of that bank on that street. Where the answer came that it was, the missing street number was filled in as that of the known bank. Where it was said that it was not the only branch, or where it was said that there used to be another branch, the missing street number was left missing. This did not exhaust the problem of missing values. For example, when there was one branch of bank X that had been robbed at 100 Y Street, another at 300 Y street, and another with a missing number, it was impossible to assign the missing value to one or another of the known branches.

The other major problem came with branches on the same street with street numbers that were implausibly close (why would a bank have two branches of the same bank within a few doors?). In such cases, the Yellow Pages were consulted. When a number was given for one or another of the branches, that branch was phoned and asked whether there was another branch of the same bank on the same road. Of course, if both branches were featured in the Yellow Pages, the problem would have been solved without recourse to a call. In practice, this never happened. This quite lengthy process allowed clarification of some ambiguities. This method would have been better had copies of the Yellow Pages been available for each year of the period studied. Obviously, the up-to-date issue of the Yellow Pages did not include details of recently closed branches. Wherever data were inadequate, separate branches were assumed. The third, more trivial, problem came with the misspelling of roads, or the confusions between a branch described as having the address 40, High Street, Anytown, and another having the address 40, Anytown High Street. These were generally easy to edit appropriately, but the process was more troublesome when different areas were recorded for what was clearly the same bank, as in 1 Smith Street, Ealham SW1

and 1 Smith Street Seaham SW 1, where Ealham and Seaham are contiguous areas of London. In such cases, clarification was sought from the bank concerned. Sometimes, the area was not recorded, making checks impossible.

Cleaning the data set substantially increases the number of identified repeats, and incidentally illustrates one of the common reasons for overlooking the extent of repeat victimisation. Even so (as is evident in the process described above), the level of identified repeats will always remain below the true level.

A convention in what follows should be stated. A "bank" refers to the institution, e.g., Natwest. A "branch" refers to the premises of a bank at a particular address. Thus, the Natwest has a branch at 1 University Precinct, Manchester M139F L.

FINDINGS

Repeats

In total, there were 734 robberies (including attempts) distributed among 508 victimised branches. Table 1 shows the number of victimisations per victimised branch. It shows that some 35% of victimised branches suffered more than one robbery, with forty-five branches suffering three, fourteen, four; six, five; and one, six robberies over the three-year period.

Table 1: Number of Victimisations Suffered by Robbed Branches

Number of Robberies	Number of Branches
1	327
2	115
3	45
4	14
5	6
6	1

Generally, it seemed that after any robbery, around 50% of robbed premises would be robbed again during the balance of the three-year

period. It would be beneficial to contrast this with the prior probability of a bank being robbed, but as noted above, it proved impracticable to gather the relevant lists of branches. The point to be remembered is that the risk period diminishes as the number of robberies increases, so that (for instance) a bank robbed for the third time at the end of 1993 will have only one year left of its risk period in which a fourth robbery may occur. This contrasts with a risk period for a first robbery of three years. Thus, the relatively constant rate of repeats in fact denotes an increasing risk per unit time.

Which Banks Were Robbed Again?

Looking at the first robberies of the banks that were not robbed again, 38% were unsuccessful in that no money was taken. This contrasts with 27% of the first robberies of those that were robbed again. The difference is statistically reliable (Chi-square = 6.15 l df $p<.025$). Where money was lost, less was taken from those branches that did not suffer repeats (a median of £2,200) than at the first robbery of those that did suffer repeats (a median of £2,800). ($z=2.67$, $p<.01$). Taken together, these findings suggest that a second robbery is more often a response to prior success than a response to being thwarted first time round. This is consistent with the accounts of burglars, for whom success leads to repetition.

The next question concerns the success of first and subsequent victimisations. The question can be framed in terms of whether bank or robber learned more from a failure. If the robber learned more, success of second and subsequent robberies should be greater than the success of the first. If the bank learned more, the success of the second and subsequent attack should be less than that of the first. The answer seems to be that the bank learned more. Forty percent of second robberies were unsuccessful, compared to 27% of first robberies of the same banks. The data also show that banks from which no money was taken on a first robbery also tended to have nothing taken at the second robbery. Table 2 summarises numbers and proportions. It shows that when no money was taken on the first occasion, in 70% of cases no money was taken on the second occasion, either. Conversely, when money was taken at the first robbery, in 71% of cases money was also lost at the second (Chi-square = 24.38, $p<.0001$).

Differences between Banks in Rates of Repeat Robbery

One finding that was entirely unexpected was the difference between banks in the rates of repetition (Chi-square = 20.91, 6df,

p<.005). It seemed appropriate to anonymise the banks, because we had no wish to give information about apparent crime opportunities. Six banks were included as having more than 40 robbed branches. Bank 7 in Table 2 is a composite of all the smaller banks. Concentration rate in Table 2 is a measure of the number of victimisations per victimised branch, reflecting differences in levels of repeat robbery. The meaning of the remaining columns will be explained below.

Table 2 shows that robbed branches of Bank 5 averaged nearly two robberies per branch, whereas Bank 1 averaged only 1.2. There are many possible reasons for this, not mutually exclusive and all interesting. Some of them are listed below. Reasons one and two would be testable only by knowing the number of branches per bank.

(1) Banks differ in their locations, with some being more prone to both initial and repeated robbery.

(2) Banks differ in their business practices, with some being more prone to both initial and repeated robbery.

(3) Banks differ in the "service" that they offer to robbers, which leads them to differ in the level of "repeat business" which robbers give them.

(4) Banks differ in the changes that they make after a robbery, some of which may dissuade robbers from repetition.

One of the ways to clarify the picture is to contrast the banks in the circumstances of the first offence, i.e., are the banks most subject to repetition also those prone to lose large sums in the first robbery, where robbers are least likely to come away with no money, and so on? The data are summarised in the other columns of Table 2. First, we looked at the proportion of robberies that were successful, i.e., in which money was taken, by bank. It will be seen that although banks do vary significantly in the proportion of first robberies that succeed (Chi square = 112.02, 6df, p<.00001), banks high in this respect are not necessarily high in rates of repeat. Thus, for instance, Bank 1 is low in the rate of repeats but quite high in the percentage of successful robberies. This means that probability of success in a bank robbery is not the complete reason for the probability of a bank to be robbed again.

There are two ways in which the analysis can clarify this point. The first is to look at expected gain for a robbery event, by bank. Thus, a robbery that yields nothing may be frustrating, but one that yields trivial amounts of money may be only slightly less so. Thus, we can calculate the expected (median) take from each bank, and see whether it is highest in those banks that are most prone to revictimisation. The columns headed Median Take in Table 2 reflect this. The

two columns differ in that the one on the right includes attempts, so that for Banks 2 and 4, since attempts outnumbered completions, the expected take was £0. It will be seen that expected take (including attempts) roughly coincides with levels of repetition. Excluding the composite Bank 7, the three banks with the lowest expected take were also the banks with the lowest rates of repetition. Bank 7, which is a composite of smaller banks (with by far the highest level of expected take), may be characterised by special features, such as greater liability to staff collusion with robbers, which make onetime robberies relatively successful, but where repetition is known to be less profitable.

Table 2: Concentration Levels and First Robbery Outcome, by Bank

Bank	Concentration	% Success, First Robbery	Median Take £ (excluding attempts)	Median Take £ (including attempts)
1	1.20	73	1940	1415
2	1.52	43	3135	0
3	1.73	81	2223	1925
4	1.35	30	2550	0
5	1.90	90	2070	2007
6	1.83	82	2605	2410
7	1.31	86	4900	3852

Much of what is written above is predicated upon the assumption that the same robbers (or their associates) are responsible for all the robberies against the same branch. There are some ways of testing this indirectly and imperfectly. First, we can compare the number of robbers. After a first robbery, it would be possible for: a group to recruit more members, some of the group to opt out, witnesses to be mistaken about the number of robbers involved, or robber roles to change, so that the number physically present in the bank also change. However, if precisely the same people committed the crime, obviously, the same *number of* people would commit the crime!

The simplest way of comparing the number of people robbing the same premises is to restrict attention to the first two events (where the numbers allow sensible comparison), to construct contingency tables of the number of people involved in first and second robberies as rows and columns, and then to contrast observed and expected values in the diagonals, where the same number of robbers were involved. (Analyses were attempted that summed across pairs of events, first-second, second-third, etc. This produced results consistent with those presented below, but caution about violating principles of independence in the data led us not to present these data.) The analysis showed an association between the number of robbers in the two events (Cramer's V = .22, $p<.025$). Observed cases where the same number of robbers were identified in the two cases exceeded expected levels by 20%.

Where a different number of people returned, there were more often fewer rather than more. Examination of the data shows that this is not because the number of robbers differs between the first robbery in a series and a one-time robbery, but because the number of robbers involved as a series unfolds tends to decline. Table 3 shows the number of robbers involved in a first, second, etc. robbery against a branch.

Table 3: Number of Robbers by Robbery Position in Series

Number if Robbery **in series**	Mean Number of Robbers
1	1.40
2	1.31
3	1.25
4	1.19
5	1.14
6	1.00

The patterns are consistent with — but by no means prove — the frequent return of the same people, with some (less bold or committed?) robbers dropping out as the series progresses. Interestingly, whether a first robbery was successful is not linked to whether the same number, fewer or more robbers essayed a repetition.

The only other variables that allow speculation about whether the same people were involved are race of robber, time of robbery and weapon used. First, let us consider race, using the same method as before. Cross-tabulation of ethnicity of robbers in the first and second events of a series shows an association (Cramer's V = .37, $p<.001$). Comparing observed and expected levels of robbers of the same ethnicity being involved in the two events shows an excess of observed over expected of 35%. Thus, as for numbers of robbers, the suggestion is that the same robbers were involved to a considerable extent. There was incidentally no suggestion that when the ethnic mix of robbers changed over a series, it did so in a way that led particular ethnic categories to represent a higher proportion of robbers later in a series.

The same analysis was applied to the weapon specified as being used in the robbery. When more than one was specified, only the first was analysed. Contingency table analysis of the same kind as used above showed that there was an association (Cramer's V = .37, $p<.001$). Comparing observed and expected levels of weapon types involved in the two event; shows an excess of observed over expected of 37%. Thus, as for number and ethnicity of robbers, similarity of weapons suggests that the same robbers were involved to a considerable extent. Incidentally, there was no suggestion that where a weapon changed over a series, it did so in a way that led to a greater use of more lethal weapons.

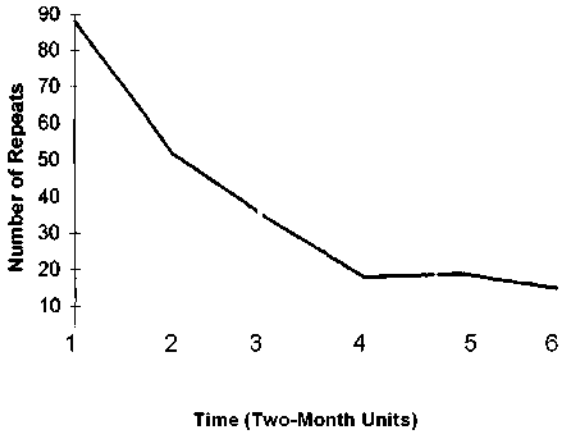
Finally, time of first and second robbery was compared. Hour of robbery was rounded, so that, for example, anything between 2:30 p.m. and 3:30 p.m. was set at 3 o'clock. Then all first robberies (whether or not they were followed by others) were divided randomly into two equal-sized groups, and arbitrarily paired. This gives an indication of how similar in time any two robberies selected randomly are likely to be. Differences in time of the robbery between the pairs were then compared to the actual differences in time between first and second robberies in a series. This showed that repeats were no more predictable in time of day than when pairs of robberies were selected randomly. Thus, protections in the wake of a robbery should not be restricted to the time of day at which the earlier robbery occurred.

The Time Course of Repeat Bank Robbery

In all offences so far examined in the literature of repeat victimisation, repeats tend to occur quickly after the previous crime. Is that also the case for bank robbery? Figure 1 shows that indeed it is. One

third of all repeat offences in the three year period took place within two months of the earlier robbery. This has the same implications as described elsewhere (for example Hobbs and Bridgeman, 1997), namely that staff should be aware, and security measures be taken, so that the bank is ready for swift repeat robberies if and when they take place.

Fig 1. Repeats by Time Elapsed from Prior



DISCUSSION

This study of repeat bank robberies does not exhaust the extractable value of the data set. For example, it allows the examination of whether raids are more successful when there is more than one robber, using certain kinds of weapons, at certain times of the day. All these data would have prevention implications. However, the focus in the present study has been on repetition. Within that focus, the by now familiar characteristics of repetition have been in evidence. Repeats occur quickly, and the analyses suggest that the similarities between repeated robberies of the same branch, in weapon use, and in number and ethnicity of robbers strongly suggests that repeats are committed by the same people. More direct evidence of this has also

been presented in the recent and forth coming literature cited in the introduction. Repeats follow robber success rather than robber failure..

The analyses that do break new ground are those that concern differences in liability to repeat bank robbery. We did not anticipate such differences. The most obvious and plausible explanation for this is that something about the security arrangements of the banks that do not suffer repeats leads to the lower expected take, and/or is changed to deter repeats. If this is the explanation, some banks exhibit much better security practices than others, and sharing those practices would be generally beneficial. The only alternative accounts seem implausible. One would be that the naive and easily deterred targeted some banks rather than others. Another would be that the rates of reduction in number of branches differed so dramatically between banks as to yield the differences. (You can't rob a bank that has closed down!)

The bank analysis could be taken forward in two ways. First, the banks could be approached to give precise details of which branches closed when, and the addresses of all the branches that were open for any part of the period. This would allow calculation of the probability of first victimisations and exclude the (already unfeasible) differential branch-closure-rate explanation of bank differences in liability to repeats. Second, more recent robbery data could be collected to confirm (or demonstrate changes in) interbank differences in rates of repeat robbery. In the writers' view, neither of these enterprises should delay the Home Office Crime Prevention Agency calling an informal meeting of senior security staff of the banks represented to exchange ideas about the reasons for the observed differences. Such a meeting may well involve some denial of the patterns, or assertions of change. No data are unambiguous in their interpretation, but the data presented are sufficiently interesting in their own right, and their implications so important that they could form the basis for a constructive exchange of views.

The bank robbery data reported here are only part of those available. There remain building society, jeweller and betting shop robberies all of which can be analysed in the same terms, as time allows. There is also, as noted earlier, the descriptive data (e.g., what times of day are associated with least and most successful robberies), which should certainly follow the study of repeats.

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