# 6 Closed circuit television and crime on the London Underground

John Burrows

In Chapter 1 it was suggested that more use might be made of the surveillance role of certain employees who already have a responsibility for the security of their employer's property and for exercising some supervision over public behaviour. One approach which has already enjoyed some popularity in shops has been to provide employees with closed circuit television (CCTV). Such equipment extends the area which can be covered and in theory increases the chances of an arrest. Evidence about the value of CCTV used in this way is not substantial, a little more being known about its usefulness to the police (Hancox and Morgan, 1975). Costs are a severe limitation, of course, and effectiveness, even discounting the possibility of displacement, cannot be taken for granted. For instance, where crime is relatively infrequent the level of vigilance required from those manning a CCTV system may be unrealistic (Young, 1974). There may also be problems in controllers getting a quick enough reaction from other staff or being able to communicate a good enough description of the offender (cf. Home Office, 1973).

The present study assesses the effect - on theft and robbery offences - of equipping staff in the London Underground with CCTV. Some attention was paid in the evaluation to the costs of the system as well as to possible displacement effects. The opportunity for the study was provided by the installation in November 1975 of CCTV in four Underground stations, which were among a number that were particularly vulnerable to what are commonly known as 'mugging's'. These comprised attacks on passengers (involving varying degrees of force) for their personal property, committed characteristically by groups of male youths. As the installation of CCTV came after a year's special policing measures in the same vicinity, account also had to be taken of these in assessing the effectiveness of CCTV itself.

## THE DATA

The data used in the study came from statistical records of the London Transport (LT) division of the British Transport Police (BTP). With minor exceptions', these offences cover all offences reported on Underground stations and trains. The data analysed refer to all incidents of robbery, assault with intent to rob, and theft from the person[2] committed between October 1973 and November 1976.

[1] Twenty-nine of the 276 London Underground stations in operation when the study took place were policed by other divisions of the BTP. Offences committed at these stations are not included.

[2] These are referred to throughout as robbery and theft. A person may be found guilty of robbery if either before or at the time of committing an act of theft he subjects another to force or to the threat of force (Section 8, Theft Act 1968). Theft from the person technically involves no force.

The term 'mugging' (which has no definition in law) is most commonly used to refer to robbery or assault with intent to rob. However, particularly in press and popular usage (Hall *et al.,* 1978), it often embraces offences which are probably recorded as theft but which (as in the case of bag-snatching) might involve a measure of force. A distinction is maintained between theft and robbery in the discussion below, not least because despite concern about the supposed problem of violent 'mugging', it serves to show the extent to which the small number of serious offences of robbery are outweighed by the number of thefts.

This said, however, there is little way of knowing how complete a record of offences committed in the Underground is contained in BTP statistics. Inevitably, a proportion of offences will not be reported by victims at all, particularly thefts which are likely to involve less trauma; moreover, though the presence of station staff may faciliate reporting, thefts may not be discovered by passengers until they have left the Underground system. Apart from these omissions (which are probably constant over time), there is some likelihood that for other reasons BTP records underestimate the extent of crime which is reported. A substantial proportion of crime in BTP records is not notified directly by the complainant but is transmitted to the BTP after complaints made to LT staff and police officers of civil forces. Experience suggests that both parties sometimes fail to pass on crime complaints (cf. Crump and Newing, 1974). Furthermore, it seems that where the BTP have difficulty in contacting complainants (as in the case of tourists) to complete and verify details of alleged offences reported to station personnel, these offences are sometimes left unrecorded. The proportion of offences 'lost' in these two ways, however, may be small and is likely again to be fairly constant over the time period analysed. Possibly more theft offences than robberies are omitted from BTP records, one reason being that some of the former might find their way into the records of the civil police if the passenger cannot be certain that the loss occurred in the Underground itself.

## DISTRIBUTION OF OFFENCES

In comparison with theft, robbery occurs very infrequently on the Underground, although it has become relatively more common since 1974 (see Table 6:1).

**Table 6:1**
**Number of thefts and robberies on the London Underground system, 1973-1976**

| *Year* | *Robberies* | *Thefts* | *Ratio (R:T)* |
|---|---|---|---|
| 1973 | 70 | 3569 | 1:51 |
| 1974 | 74 | 6105 | 1:82 |
| 1975 | 121 | 5081 | 1:42 |
| 1976 | 109 | 3487 | 1:32 |

Although the number of offences on the Underground varies somewhat from

year to year, in terms of the very considerable number of users, the risk of being a victim of robbery or theft on the system as a whole is extremely small. Comparing journey figures for 1972 with the average annual offence figures for 1973-76, it appears that only one robbery occurred for each 8·4 million journeys made. With regard to theft offences, one offence occurred for each 173,000 journeys made[1].

Although in general theft and robbery offences occur with the greatest frequency at those stations dealing with the heaviest passenger traffic[2], user levels alone do not explain all the variation in risk figures for theft; certain highly-used stations located in office areas (e.g. Bank/Monument, Liverpool Street) have relatively low levels of theft, while theft levels are high at some stations dealing with fewer passengers but located in shopping or tourist areas (e.g. Knightsbridge, Gloucester Road).

The risk of robbery and to a lesser extent theft was disproportionately high in the southern sector of the system (particularly at stations close to the Stockwell interchange) which first attracted attention in 1972 on account of'muggings' (see Baxter and Nuttall, 1975). As Table 6:2 shows, during 1974-75, the 19 stations

**Table 6:2**
**Risk of robbery and theft on the London Underground system**

| *Stations* | *Annual users* 1972 (000,000s) | *Thefts (annual average* 1974-1975) | *Robberies (annual average* 1974-1975) | *Risk of theft per million users* | *Risk of robbery per million users* |
|---|---|---|---|---|---|
| All southern sector stations (n = 19) | 111-3 | 651 | 37 | 5-8 | •33 |
| All other stations (n = 228) | 1462-9 | 4942 | 60-5 | 3-4 | **•04** |
| All stations (n = 247) | 1574-2 | 5593 | 97-5 | 3-6 | **•06** |

(8% of all stations for which data were available) south of the Thames on the Northern, Victoria and Bakerloo lines accounted for 74 reported offences of robbery (38% of the total)[3]. Theft figures also reflect this pattern but much less markedly: 12% of all thefts were committed in the same area. While it may be that stations in the southern sector were genuinely riskier with regard to robbery offences, it is also possible that the attention paid by the media to 'muggings' in this locality resulted in certain marginal offences being inflated in seriousness and defined as robbery. Nevertheless, the vulnerability of southern sector stations with regard to offences against passengers is clear.

[1] 'Journeys' refer to journey stages taken; 'user' levels (see Table 6:2) to passenger traffic entering, leaving or interchanging at individual stations.

[2] Over all stations, the correlation between the estimated annual user level (1972 figures) and the theft rate for 1974 was high (r=0-85).

[3] The BTP practice is followed of allocating offences committed between stations to the next station in the direction of travel.

## CRIME PREVENTION MEASURES

The concentration of offences in the southern sector led in the first place to the setting up of special police patrols in station areas. These began at the end of 1974. The information available about these patrols is incomplete. Broadly speaking, police effort was concentrated in the vicinity of Stockwell on Friday and Saturday evenings, high-risk times for 'muggings' to occur. It fell into three stages. For an initial period, between the end of September and the beginning of November 1974, the patrols involved both the Metropolitan Police and British Transport Police CID officers. Following this, plaincloths CID officers from the BTP policed the area alone. At the end of March 1975 the CID patrols were replaced by uniformed squads from the BTP which operated until the beginning of December 1975. There is, however, no detailed record of which particular stations were subject to police vigilance, of the numbers of police involved, or of further patrols, additional to those mentioned above, conducted by civil police forces at this time. Because of this, there is some difficulty in interpreting how effective the special patrols were.

As Table 6:3 indicates, the number of thefts recorded in the southern sector during the main period of heightened police activity was 27% less than in the preceding period of normal policing, a fall that was significantly more marked ($p < \cdot 001$) than that recorded at other Underground stations. There was a marked *increase* in robberies in the southern area over the same period; this was of greater magnitude than a similar increase at other stations, though the difference was not significant.

Three explanations of these results suggest themselves. First, with regard to the more statistically pronounced trends in relation to thefts, it is possible that the decrease at southern sector stations was the result simply of an atypically high level of theft at these stations prior to special policing (i.e. a regression to the

**Table 6:3**
**The effects of special policing**

| | *Theft* | | *Robbery* | |
|---|---|---|---|---|
| | *12 months before special policing* | *12 months during special policing* | *12 months before special policing* | *12 months during special policing* |
| **All** southern sector stations (n = 19) | 778 | 571 | 22 | 49 |
| Other stations (n = 228) | 4884 | 4490 | 43 | 67 |
| All stations (n = 247) | 5662 | 5061 | 65 | 116 |

NB: To enable comparison to be made with the figures in Table 6:4, the 'before special policing' figures in this table refer to crimes recorded in the 12 month period October 1973-September 1974. As the police activity continued for 14 months, the 'during special policing' figures represent 12/14 of actual reported crime.

mean effect). A second explanation is that the conflicting trends in relation to robbery and theft are largely spurious: one might assume that the distinction between the two offences is so unreliable that they can only legitimately be considered together. (Doing this, the combined offences fell by 23"„ in the southern stations during police activity and by 8"o elsewhere ($p < \cdot 01$.)

Thirdly - and this is a more convincing explanation - it is likely that police action, while effective in deterring thefts committed largely as opportunities present themselves, often in crowds, has considerably less effect on more serious offences involving premeditation and usually taking place in situations where it is clear that the police are not present. This explanation is supported by other research (Chaiken *et ai,* 1974) which showed that additional night patrols in the New York system were more effective in reducing minor crimes that serious offences. In any event, the evidence in this case suggests that the pattern of robbery offences was unaffected by the police initiatives. The presence of the police may even have elicited a higher reporting rate from the public - one which did not apply to thefts because losses are not always discovered in the Underground or its close vicinity.

## THE INSTALLATION OF CCTV

Special police patrols operating in the southern sector of the Underground were removed at the end of the first week of December 1975. This decision was taken following the installation of a CCTV monitor control at Stock well which began to operate on 24 November 1975; the CCTV provided the facility to view from the Stockwell control, station areas at Stockwell, Clapham North, Clapham Common and - a matter of weeks later - at Brixton. The units installed at these stations combined fixed cameras fitted with 35mm lenses with microphones. They were mounted externally at vantage points in each station and provided a view of all principal station areas - platforms, ticket halls, interchange concourses, areas at the foot and head of escalators, together with other high-risk points for crime or vandalism. Where necessary wide-angle lenses were fitted. The cameras were quite conspicious to passengers and notices were also posted in the stations informing the public that CCTV was in operation.

Signals from the equipment are relayed to four 12" monitor screens[1] and speakers at Stockwell, which are continually manned during passenger traffic hours. The controller can either elect to observe a scene of his choice on these monitors or may switch them to scan all station areas automatically at seven second intervals. The controller has several means of dealing with an incident: contact may be made with station staff or the nearest police room; public address announcements may be made to any station areas selected; and - in the case of incidents on the Victoria line - contact may be made through the line controller,

[1] There are now eight monitor screens (arranged in two banks of four) in the Stockwell control room; of the additional four, three provide surveillance of South Wimbledom, Balham, and Tooting Broadway stations. The fourth monitor provides the facility to playback pictures video-recorded by the others.

with train drivers. A further feature of the crime control measures taken in the four stations at this time was the installation of alarms in all ticket collectors' boxes; when pressed these operate sirens on the top of the boxes and hold the camera on the collector's box until such time as the Stockwell operator cancels the signal.

The method used to evaluate the effectiveness of the CCTV installations was to compare the distribution of reported cases of theft and robbery between the four stations subject to surveillance and other stations in the Underground, particularly the remaining stations in the southern sector, during the first year of complete CCTV operation (December 1975-November 1976) and an earlier one-year period before the commencement of police patrols at the end of September 1974.

## RESULTS

At those stations subject to CCTV surveillance, recorded thefts were *nearly four times* lower during the period of CCTV compared to the period before police patrols began (see Table 6:4). This reduction was significantly greater than that at the 15 other stations in the southern sector not subject to CCTV surveillance where theft offences were about 1·4 times lower ($p<001$). It was also greater than the slightly more pronounced fall at the remaining Underground stations ($p<001$). With regard to robbery, the decrease in the small number of such offences at the four stations with CCTV was significantly different from the doubling of robbery offences at the stations not in the southern sector ($p<·05$), though it was not significantly different from the slight increase in these offences at the other southern sector stations. Taken together these results suggest therefore that CCTV reduced the incidence of both theft and robbery in the four stations where it was installed.

**Table 6:4**
**The effects of CCTV**

| | *Theft* | | *Robbery* | |
|---|---|---|---|---|
| | *12 months before special policing and CCTV* | *First 12 months of CCTV* | *12 months before special policing and CCTV* | *First 12 months of CCTV* |
| Stations with CCTV (n = 4) | 243 | 66 | 9 | 7 |
| Other southern sector stations (n = 15) | 535 | 393 | 13 | 16 |
| Other stations (n = 228) | 4884 | 2962 | 43 | 93 |

NB: The periods compared here comprise the 12 months directly before the introduction of special policing patrols (October 1973-September 1974; as in Table 6:3), and the 12 months directly following the start of CCTV operations (December 1975-November 1976).

Some attempt was made to consider whether any displacement of offences occurred as a result of the CCTV installations. Temporal displacement was unlikely because the CCTV system operated at all times, but some geographical displacement of offences could not be ruled out, either to locales outside the Underground, or to stations within the system not covered by CCTV. There was little possibility of knowing whether any incidents were displaced outside, as such offences were likely to be 'lost' in the greater volume of street offences. However, comparison of crime levels between stations subject to CCTV and other nearby stations in the southern sector provides evidence that is consistent with (though not proof of) some displacement of theft offences. Comparison of the first twelve months of CCTV operations with an equivalent period before special police patrols (see Table 6:4) shows that at the fifteen southern sector stations not subject to CCTV thefts fell by 27%, while in other stations of the Underground they fell by 39% - a significant difference ($p < .01$).

Moreover, closer examination of the pattern of thefts in the southern sector shows that the eight stations furthest away from those with CCTV (to which it might be assumed crime was least likely to be displaced) experienced a drop in thefts (45%) similar to that outside the southern sector. In contrast, at the seven nearer stations (which admittedly had higher levels of crime, more akin to those at stations where CCTV was installed) the drop in thefts was less pronounced at 24%.

Whether or not some thefts were displaced by the CCTV installations, the number of robbery offences is too small to conclude much about any displacement of robbery. In fact, though, the increase in robbery in the southern sector stations without CCTV was less than that at other stations, which does not suggest that displacement occurred.

## CONCLUSIONS

This analysis of the effects of equipping station staff with a CCTV system in four relatively high-risk stations in the London Underground suggests that CCTV was useful, at least in the first year of its operation, in reducing the number of thefts and robbery offences at target stations. There is some evidence consistent with the fact that some theft offences might have been displaced to nearby stations, though it cannot be taken as definite proof that displacement occurred. If it did, it may have nullified up to 85% of the savings in theft offences apparently produced by the CCTV installations.

The usefulness of CCTV at the stations where is was installed supports London Transport's view that the cameras have proved effective in combatting vandalism and theft. (Their value for transport operations has been the main factor in the decision to extend CCTV to six central Underground stations, but the anticipated crime prevention benefits have not been ignored.) It would seem that the publicity given to the installations, particularly at the stations where they were located, the visibility of the cameras, and the fact that station users were able to

see that monitor controllers could communicate to other staff, all acted as a deterrent to potential thieves. It also seems possible, though there is no evidence available to test this, that a deterrent effect was further realised by improved arrest rates. It is possible, though again untestable, that the installation of alarms in ticket collectors' boxes was additionally useful in preventing crime. There is no reason to think, however, that the change in crime at the four stations studied would have been greatly different had CCTV been the only preventive measure introduced. A caveat that must be made is that the effectiveness of the system might have resulted to some extent from its novelty and that as time goes on offenders may discover that CCTV is less to be feared than they had imagined. This implies that effectiveness should continue to be monitored.

The study has been useful, therefore, in providing some further evidence of the value of CCTV as a surveillance aid for employees. The present results are in line with informal opinion that CCTV in the new Metro system in Washington has been a valuable part of the security measures which were incorporated into the design of the system (see *Nation's Cities, 1977),* though it should be said that detailed information about the part CCTV plays there is riot yet available. They also appear to confirm a point which has emerged from retailers' experience with CCTV (Home Office, 1973): namely, the need for sophisticated equipment and communication systems which can be seen to result in action. In this case, camera coverage was extensive and several means were provided of establishing contact with the police or other station personnel. However, whether simpler equipment (perhaps even 'imitation' cameras) can operate as a less costly deterrent to crime, at least in certain circumstances, is a question which cannot be satisfactorily answered at present.

Although this study included an assessment of the effectiveness of extra policing in relation to Underground crime, as well as that of CCTV, it is difficult to draw any conclusions about the relative merits of the two strategies. This is because there is not enough information about the policing measures to decide how any effects were produced. In any case, the result of police action in apparently 'increasing' robbery (theft declined significantly) is particularly difficult to interpret.

Assessing the cost-effectiveness of the two strategies is problematic also, not least because there is virtually no information available on the police resources used. With regard to the CCTV system, installation and operating costs in the first year are known (the four installations studied cost London Transport £128,000 at 1975 prices)[1]. Thus, taking crime figures for the first year only, and assuming that theft and robbery would have followed the trend at other southern stations not covered by CCTV, the cost per prevented theft was about £ 1140 (discounting any possibly displaced thefts), and per prevented robbery £31,450. (Other assump-

[1] This includes the cost of the Stockwell control rooms. To incorporate the facilities necessary to extend surveillance to South Wimbledon, Balham and Tooting Broadway stations, and to video-record events, raised the final cost of the 'Stockwell system' to £200,000.

tions can be made. If theft and robbery had followed the trend for stations outside the southern sector, the cost per prevented theft was £1570 and £10,270 per prevented robbery.) It would be dangerous, however, to place much weight on these figures, the uncertainty of displacement apart. The costs of the system will be written off over a number of years and might be offset by a number of benefits other than reduced robbery and theft offences: as mentioned earlier, London Transport view the installations as useful for crowd control, as a means of reducing vandalism (which it is claimed is now at a lower level), reducing assaults on staff, and promoting a greater willingness on the part of the public to use a 'safer' Underground system. In addition, the reduced rate of robberies and thefts might have led to some saving of police time and of other costs associated with bringing offenders to justice.