Situational Crime Prevention in Two Parking Facilities

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Situational crime prevention measures were introduced into a multilevel town center parking garage and an open parking lot on a university campus. Both interventions reduced crime, but the effects were different in each situation. CCTV surveillance of the parking lot reduced theft of items from cars, whereas limiting access and providing informal surveillance at the entrance to the parking garage reduced the theft of cars. There was no evidence of any local displacement of crime to nearby parking, but there was some evidence that the "good effect" had spread to areas where no preventive measures had been implemented.

Keywords: Autocrime; car theft; CCTV surveillance; access control; car parking; crime prevention; displacement; campus crime

Introduction

Perhaps the simplest way to demonstrate the effectiveness of situational measures for crime prevention is to introduce them into an otherwise stable setting and monitor the effect on crime. This paper summarizes the effect on autocrime of introducing measures in two car parking lots in England.

Two kinds of autocrime are considered: stealing cars and the theft of items from cars. What the two case studies show is that these two types of autocrime require quite different preventive measures.

A Town Center Parking Garage

The first case study is a public parking garage in the town center of Dover in Kent. It is situated close to the main shopping street and next to the bus station and provides both short- and long-term parking. There are five floors of parking (11 split-levels) with about 400 parking places. There is only one entrance/exit for vehicles and one pedestrian access with a lift and staircase, as shown in *Figure 1.* The method of payment is "pay-and-display," which requires drivers to buy tickets from machines on each floor and display them inside the windshields of their cars. Such a payment

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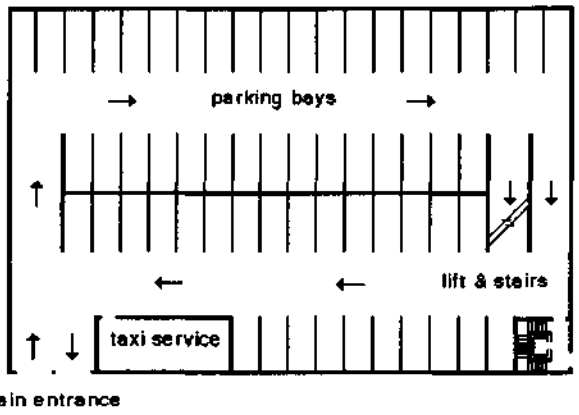

Figure 1. Diagrammatic plan of the entrance floor of the parking garage in the Dover town center.

system also means that there is no mechanical access control on entering or leaving the garage.

The building had suffered from vandalism and theft for a long time. Security for the garage had been provided by a private security company that patrolled at night, whereas inspectors from the town authority randomly visited the garage during the day. By 1983, it was recognized that this approach to security was not working. Vandalism had become a major problem with graffiti and frequent damage to windows, lifts, doors, and fire extinguishers. The staircase area was often used as a public toilet.

Autocrime was also a problem, with many thefts of and thefts from cars being reported to the police. Many of these thefts involved the cars of vacationers visiting the town, and this proved a serious embarrassment to local officials who became concerned about the image the parking garage presented of the town. There was also concern about the loss of revenue from local people who were not using the garage because of its reputation.

Improving Security of the Parking Garage

A package of measures was developed by local officials in consultation with a police crime prevention officer. It was believed that much of the problem stemmed from the use of the parking garage by youths who could readily gain access by climbing over ground level walls along two sides of the building and who also hung about in groups in the stair and lift lobby.

To discourage this use of the building, the gaps above the low-level walls at ground level were filled in with wire mesh. The pedestrian entrance by the stair and lift lobby was fitted with a self-closing steel door so that it could only be used as an exit, making the only pedestrian entrance via the main vehicle entrance. Two further measures were used to enhance the surveillance of the main entrance/exit: The lighting was improved at the main entrance and the pedestrian exit door, and an office was constructed next to the main entrance and leased to a taxi company to operate from the parking garage. This taxi business has been able to operate from 8:00 A.M. to 12:00 midnight on 5 days a week and from 8:00 A.M. until 2:00 A.M. on Fridays and Saturdays. The effect of this package of measures was to restrict entry to the main vehicle entrance, which was well lit and provided with indirect surveillance for most of the 24 hours of each day.

Effect of the Measures

The security measures were introduced during the last 3 months of 1983. Officials considered the measures a success because they saved in maintenance and repairs the cost of the improvements within the first year. In other words, damage to lifts, doors, lighting and windows, and graffiti was greatly reduced by the security package. Furthermore, the impression of greater security had begun to encourage greater use of the parking garage by the public. However, no formal assessment was made of the effect on autocrime.

To do this, permission was sought and gained by the author to access police records. Manual searches were made through crime reports from the relevant police subdivision that covered the town center, and notes were made of all crimes reported during the years 1982, 1983, 1984, and 1985 in the parking garage and in two nearby open parking lots that had a similar number of car parking places and that were operated by the same pay-and-display system. The 4 years chosen for the evaluation were the 2 years prior to the measures being installed and the 2 years after installation.

Table 1 summarizes the crime recorded in the three car parking facilities during these 4 years. It is quite clear that the parking garage had a more serious crime problem than did the two open parking lots, having a total 96 crimes compared with totals of 17 and 26 for the two parking lots. It is also clear that in the 2 years following the new measures crime in the parking garage was reduced to about half the level it had been in the 2 years prior to the measures being introduced.

Table 1. All Crime Recorded in Three Town Center Parking Facilities

	Parking Garage	Parking Lot 1	Parking Lot 2
1982	43	11	9
1983	53	6	17
Total crime before measures	96	17	26
1984	24	5	8
1985	25	8	4
Total crime after measures	49	13	12

Table 2. Theft from Cars Recorded in Three Town Center Car Parking Facilities

	Parking Garage	Parking Lot 1	Parking Lot 2
1982	19	4	4
1983	23	2	8
Total crime before measures	42	6	12
1984	17	0	4
1985	16	3	2
Total crime after measures	33	3	6

No Displacement of Crime

Since displacement is often assumed to occur with situational crime prevention, it is always useful to seek ways of testing this assumption. Here, the two nearby parking lots show no sign of crime being displaced from the parking garage. Indeed, there is some evidence of a reduction in crime in the two parking lots. The crime level in all three car parking lots was reduced even though no security initiatives were taken in the open parking lots. If the displacement theory is correct, it would be reasonable to expect at least some increase of crime in surrounding car parking lots following a reduction in the parking garage. The evidence here does not support the displacement theory.

Effects on Car Theft

Although the figures in *Table 1* refer to all crime, including criminal damage to both the facilities and to vehicles, the main categories of crime were the theft of cars and the theft of items removed from vehicles (components such as wheels, radios, or personal property left inside vehicles). The number of incidents of these two types of theft are given in *Tables 2* and *3.*

These crime data show a considerable difference in reductions for the two types of car theft. Both theft of cars and theft from cars were a problem in the parking garage before the new measures were introduced. However, the measures appear to have reduced the theft of cars far more effectively than they did the theft of items from cars. Indeed, the level of theft of cars in the parking garage was reduced to the low levels already existing in the open parking lots. The theft of items from cars was reduced only by a small number.

Table 3. Theft of Cars Recorded in Three Town Center Car Parking Facilities

	Parking Garage	Parking Lot 1	Parking Lot 2
1982	19	4	4
1983	19	3	6
Total crime before measures	38	7	10
1984	3	2	2
1985	4	3	2
Total crime after measures	7	5	4

Conclusions

Perhaps the first and most obvious conclusion is that parking garages are much more susceptible to crime than are open parking lots. Although the measures introduced concentrated on reducing accessibility, it seems unlikely that accessibility is the main reason why a parking garage is so vulnerable, because the parking lots are equally accessible. The real reason seems to be the lack of surveillance in a parking structure with 11 different levels. It must be comparatively easy for potential offenders to search upper floors for insecure or vulnerable cars without being observed. By comparison, the open parking lots can receive far more surveillance both from those using them and from people in adjacent streets and buildings.

Much more difficult is the explanation as to why the measures reduced the theft of cars but not theft from cars. The measures were designed to limit access by nonusers of the parking garage and to give some informal surveillance to the one entrance/exit. If these measures reduced the theft of cars, it could be that the main reason why car theft had been a problem was that youths hanging around the park had been tempted into stealing vulnerable cars. By making it

more difficult to gain access, this would reduce the number of youths hanging about the parking garage, and by providing surveillance of the exit, it would increase the risk of a thief being seen and being recognized driving a car out of the garage.

If the measures did discourage the theft of cars but not the theft of items from cars, there must be some important difference in the methods used to commit these two crimes. What the author suspects is that much theft of items from cars actually requires a car to carry out the crime. Some of the reported thefts involved the removal of wheels and suitcases and the siphoning of gasoline. It would arouse suspicion to carry these out of a car garage on foot, but once loaded into a car, there would be no reason to suspect the driver of theft, and he or she would be driving the car in and out of the garage quite legitimately. The lack of surveillance on upper floors and the lack of entry and exit controls in a pay-and-display system makes this kind of criminal activity comparatively easy, with little risk of being caught.

A University Parking Lot

The second case study is of security measures introduced to car parking at the University of Surrey at Guildford, England. Parking is generally located in several large parking lots located along a perimeter roadway around the campus some distance from the university buildings. Access to these perimeter parking areas is via the perimeter road that has a manned security gate close to the campus entrance. Nevertheless, the perimeter parking lots suffered a considerable amount of crime.

Following the arrival of a new chief security officer in 1980, a new system was introduced for recording incidents of crime, antisocial behavior, and safety problems on the campus. It was soon recognized that autocrime was one of the main security problems facing the university. It was proposed that measures be introduced to increase surveillance of the three main perimeter parking lots in the form of improved lighting (which had earlier been reduced as part of an energy-saving program) and by cutting back or pruning of landscape planting and trees in and around the parking lots. In addition, a CCTV camera would be set up on a tower overlooking the two largest and adjacent parking lots. It would be able to scan most of the parking facilities and was equipped with infrared sensing and loudspeakers through which the security guards could give warnings or provide information. A diagrammatic plan of the campus showing the location of the CCTV tower and the main parking lots is shown in *Figure 2.*

The improvements to lighting, which involved extending the period during which the lighting was switched on, and the cutting back of landscape foliage was done in September 1985, in preparation for the return of students in October. The tower for the CCTV installation was erected in January 1986, but the actual installation of the camera and monitoring equipment was delayed for technical reasons until March 1986.

Effect of the Security Measures on Autocrime

The crime records for the university provided readily available information about autocrime for the whole campus. The data in *Table 4* show the recorded incidents for 1984, 1985, and 1986. The figures show an increase in crime experienced in 1985 and a much lower number of incidents for 1986, suggesting that the measures had been partly successful. However, the figures also show important differences for the different types of crime.

First, theft from cars was a much more frequently reported problem and it also produced the most dramatic drop, from 92 in the year when measures were introduced to 31 in the year following the introduction of security measures. The other two kinds of autocrime were not so frequent, and the degree of reduction much less certain.

Following from the findings in the Dover parking garage, it might be argued that the reason for relatively few thefts of cars was because the access to the campus was supervised by a manned security gate, and this might effectively reduce the risk of cars being illicitly driven off the campus passed this security point.

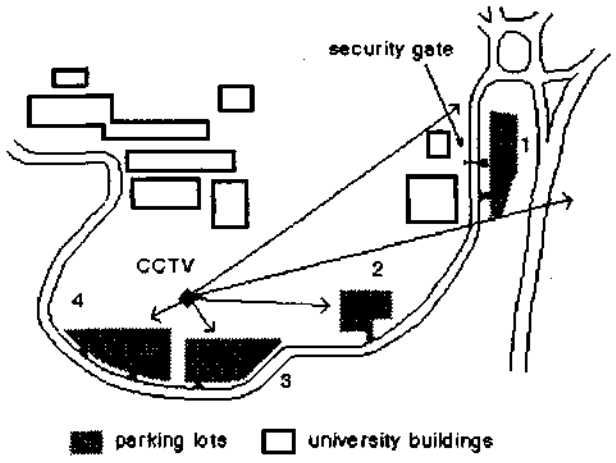

Figure 2. Sketch plan of Surrey University campus showing the location of the main parking lots.

Table 4. Autocrime Recorded by the Security Organization at Surrey University

	1984	1985	1986
Theft from cars	61	92	31
Theft of cars	5	15	12
Damage to cars	16	31	22
Total autocrime recorded	82	138	65

However, it is clear that the measures have been more effective in reducing the theft from cars.

The two largest parking lots (1 and 4) provide enough incidents to enable a more detailed month-by-month analysis of the theft from cars. Furthermore, it is interesting to compare these two parking lots because only one could be supervised by the CCTV camera. Lot 4 was easily covered by the camera, but lot 1 was out of sight of it (see *Figure 2). Figures 3* and *4* show histograms of the pattern of thefts from cars during the 3 years 1984-86.

It is very clear from both histograms that in the period immediately following the installation of the CCTV system the level of thefts had been dramatically reduced, with many months having no reported incident. However, it is also clear that the cutting back of landscape foliage and increased lighting times had no apparent impact on this crime problem. Some might argue that these were necessary conditions for the CCTV surveillance to work effectively, but they are clearly not effective measures by themselves.

What is much more interesting is that parking lot 1, which could not be monitored by the surveillance camera, still seems to have been effectively protected by it. The reason for the immediate drop in thefts for parking lot 1, even though it could not be viewed by the camera, is probably because the CCTV system enabled the security guards to make three arrests immediately after the system became operational and three further arrests and two specific loudspeaker warnings in the following 3 months. In one incident, a man was seen removing hubcaps from a car and putting them in his own car, an observation that supports the conclusion about these thefts suggested above.

Again, the fact that crime was reduced in a parking lot without the benefit of the surveillance system but close to areas with surveillance sheds doubt on the theory of displacement. Rather than displace crime to less well protected targets on the campus, the "good effect" has spread out beyond the immediate area of application. This is very reminiscent of the Findings from another case study of surveillance on buses in

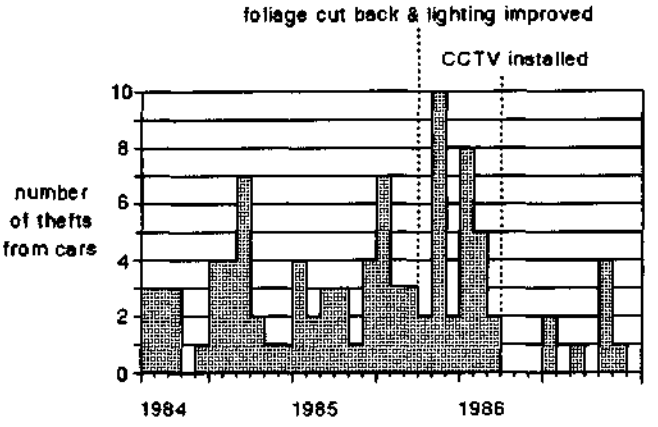

Figure 3. Histogram showing the number of thefts from cars in parking lot 4 at the University of Surrey in each month of 1984, 1985, and 1986.

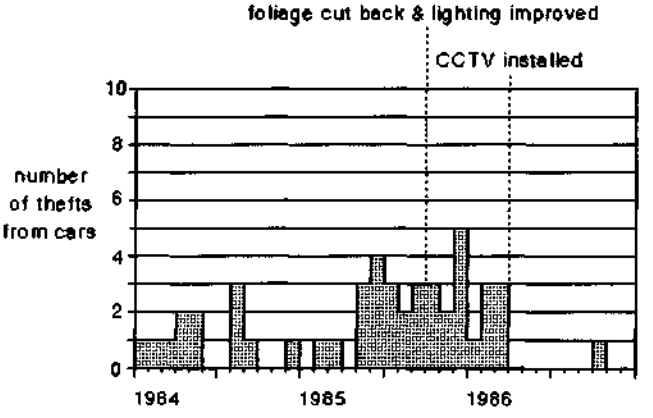

Figure 4. Histogram showing the number of thefts from cars in parking lot 1 at the University of Surrey in each month of 1984, 1985, and 1986.

the North of England by the same research team (Poyner, 1988). In that study, it was found that the impact of video cameras fitted to a few buses affected vandalism on the whole bus fleet. Indeed, although the data in *Table 1* are rather weak for the two open parking lots in Dover, that case study also appears to reflect the same idea of the "good effect" of measures spreading beyond the immediate situation in which they were implemented. Is this not a cue for an alternative theory to displacement?

Conclusions from Both Case Studies

It is clear that the design and management of parking facilities has a crucial influence on the risk of auto-

crime. It would appear that surveillance, whether formal or informal, is probably the most effective situational measure at reducing both kinds of autocrime. The open parking lots in Dover that had more natural surveillance had less crime of both kinds than did the multilevel parking garage. It was also found that surveillance of the entry/exit points at the university and the modified parking garage seemed to keep the theft of cars down to a low level, and no doubt much tighter controls on access and exiting would have a more complete effect.

The lesson from this must be that secure car parking must permit a good deal of surveillance. This is easiest to achieve with parking lots that, if not naturally supervised by frequent movements of legitimate users or by being overlooked from surrounding streets and buildings, might be satisfactorily covered by properly monitored electronic surveillance. Security would be enhanced against the theft of cars by supervision of access and exit points.

If multilevel parking structures are to be used, the solution is more difficult. Certainly, what should be avoided is creating a large number of relatively small parking floors that are likely to be deserted for most of the time. How far electronic surveillance can be successfully adapted to multilevel parking garages is unclear. Surveillance might be achieved by a mixture of strategies to increase informal surveillance. Floors might be designed to be as large as possible to maximize the presence of legitimate users and to be as open as possible to maximize visibility across the floor. Other strategies might be to link garages at upper levels to other facilities such as restaurants or department stores to increase the presence of legitimate users. It may be that much tighter control of the entry and exiting of cars would limit the attraction of the garage for drivers intending to steal items from other cars.

Acknowledgment

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Reference

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