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**Crime prevention that works:
the care of public transport in
the Netherlands**

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Summary

An experiment has been carried out in the Dutch public transport system to tackle fare-dodging, vandalism and aggression. On the tram and metro system the level of inspection has been increased by employing about 1200 young people. On buses the boarding procedure has been changed. The results show that the percentage of fare-dodgers fell after the introduction of the measures. The number of incidents decreased during the project; feelings of insecurity did not decrease. Damage experts, passengers and staff agree that the measures put a halt to trend for vandalism to increase. Given costs and benefits, the measures has made an important contribution to cutting petty crime on the public transport. This has improved the quality of public transport.

1 Introduction

When the present Government came to power in the Netherlands it expressed concern that, because of the massive scale on which they were taking place, minor traffic offences, petty offences against property and other forms of minor vandalism were seriously endangering safety on the streets. The response of the Minister of Justice was to set up a special committee in September 1983. The Minister took the line that petty crime not only had a negative impact on the quality of life in the Netherlands but also placed enormous demands on the police and the courts.

The committee produced its first report in December 1984. This contained an attempt to apply the theory of situational crime prevention to the phenomenon of petty crime (2). According to this theory certain forms of crime are committed simply because numerous opportunities for doing so present themselves (Mayhew, 1976; Clarke, 1983). It is not poverty or personality defect that makes the thief, but opportunity.

In addition to the question of whether the temptation does or does not exist, there is the importance of security measures. In view of the limited success of technical security measures (Mayhew; 1984), the committee recommended tackling petty crime by reinstating personnel (instead of machines) to perform supervisory functions in otherwise impersonal situations (the concept of occupational surveillance).

One of the areas considered by the committee was public transport. The increase in fare-dodging and vandalism on Dutch public transport is a good example of petty crime which can largely be attributed to a decline in functional supervision (i.e. the theory of opportunism). Conductors disappeared by economic reasons as long ago as 1963. This entailed a change in the procedure on boarding a bus or tram: the driver was now responsible for selling and checking tickets. The introduction in 1966 of automatic machines to stamp tickets relieved the driver of some of this responsibility but at the same time increased the opportunities for fare-dodging. In the case of trams the problem was compounded by the introduction of a new design of vehicle with more than one door by which

passengers could board and alight. Responsibility for ensuring that passengers had a valid ticket shifted from the driver to the individual passenger and contact between the two parties was reduced. The supervision of passengers in the bus or tram largely disappeared (Hauber, 1977).

In response to these developments, the Minister of Transport and Public Works announced in December 1984 the introduction of two measures: one for the tram and metro system and one for the bus system. In the first place the Minister authorised the public transport companies in the three major cities (Amsterdam, The Hague and Rotterdam) to take on as an experiment for a period of three years approximately 1200 unemployed young people to tackle fare-dodging, vandalism and aggression on the tram and metro system and to improve the information and service available to passengers. These new officials are responsible for safety, information and control (SIC) and are known in Dutch by the initials VIC. A sum of 33 million guilders was set aside each year for this purpose, reflecting the government's concern with combatting petty crime and with practical steps to reduce youth unemployment. In calculating this sum, allowance was made for some 13 million guilders per year in extra revenue for the public transport companies and a saving of 3 million guilders on the costs associated with vandalism. Thus the total budget of the experiment was 49 million guilders per year.

The second measure involved changing the procedure when boarding a bus. All passengers must now walk past the driver who checks their tickets to see if they are valid or sells them a new one.

The two measures, the SIC project (tram, metro) and the change in the boarding procedure on buses have been jointly evaluated by the Ministry of Transport and Public Works, the Ministry of Justice (3) and the public transport companies of the three cities. This article will briefly assess the extent to which the goals of the project have been realised in the first two years of its operation. The following questions will be considered: have the appointment of SICs and the change in the boarding procedure on the buses reduced fare-dodging and thus increased public

transport revenue? Has vandalism in vehicles, at bus and tram stops and in metro stations declined? Has passenger information improved? Do passengers and employees feel more secure? Before discussing the results, a brief description will be given of the measures themselves and the design of the evaluation.

2 Description of the measures

2.1 *SIC project*

In autumn 1984 the public transport companies of Amsterdam, Rotterdam and The Hague were given permission to recruit the new employees, primarily responsible for safety, information and control (SIC). The transport companies were free to organise the project as they saw appropriate for their own situation.

Every effort was made in the recruitment campaign to employ unemployed young people aged 19-28 and to ensure that women and ethnic minorities were well-represented in the intake. There was a good response to the campaign. In the end only one in ten applicants could actually be recruited as SIC. Many of those who showed an interest in the work proved unsuitable because they did not demonstrate the required social skills. 50% of those taken on had been unemployed, 30% were women and 25% came from ethnic minority groups (blacks, Mediterranean, etc.).

The SICs received a short 2-3 month training comprising a number of courses in criminal law and legal theory and practical exercises in ticket inspection.

SICs are deployed in different ways in the three cities. In Amsterdam and Rotterdam they are authorised to impose fines. In Amsterdam they work in groups of 2-4, checking trams and the metro system on a random basis. Once they have checked a tram or metro train they get out and board another one. In Rotterdam the SICs check trams on a random basis, but man the metro stations permanently. However, their role in the metro stations is not to check passengers but to provide information and fulfil a preventive function. The Hague opted for a "customer friendly" approach. SICs travel in pairs the full length of the tram route and are not authorised to impose fines. If a passenger is caught without a valid ticket he/she is given the choice of buying one from the driver or leaving the tram.

In the event of problems with passengers SICs in all three cities can

obtain support from a special team or from the police. Therefore the tram driver uses his radiotelephone to summon assistance which should arrive within minutes.

On 1 January 1987 535 SICs were employed in Amsterdam, 375 in Rotterdam and 230 in The Hague.

2.2 *Change in boarding procedure on the buses*

Until the 1970s responsibility for both ticket sales and ticket inspection rested with the bus driver. Automatic machines for stamping tickets were introduced as a means of speeding up the service and improving punctuality. This reduced direct contact between the driver and passengers and was followed by an increase in fare-dodging. After a successful pilot project in which all passengers were required to board the bus at the door nearest to the driver and show their tickets or buy a new one, the new procedure was introduced on a permanent basis in Amsterdam in 1985 and in Rotterdam and The Hague a year later. The automatic machines for stamping tickets in buses have been taken out of service or removed altogether.

3 Design of the evaluation

The design of the research was to be quasi-experimental, involving both a pre-test and a post-test (Cook, 1979). The research was to comprise three elements:

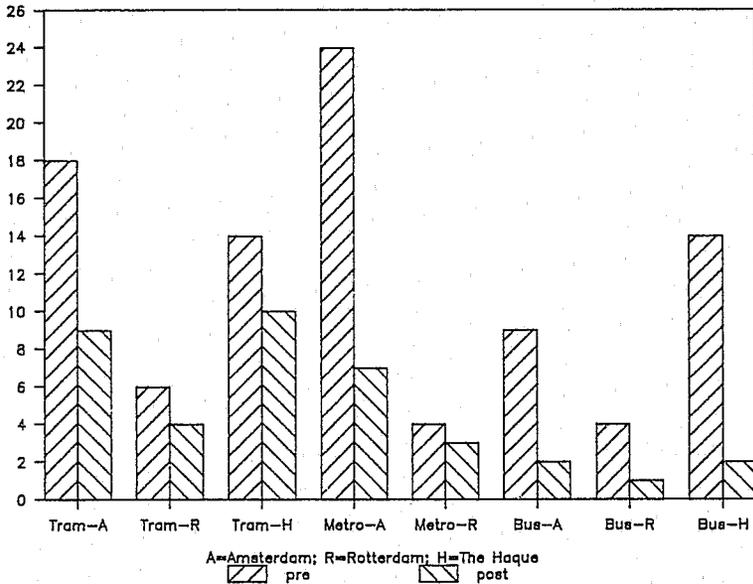
- a) A quantification of the extent of fare-dodging. The purpose of this research was to discover the extent to which the number of people illegally using public transport has fallen since the deployment of SICs and the introduction of the new boarding procedure for buses. For this purpose the public transport companies carried out a series of counts, making random checks (4) on all passengers in a tram, bus or metro train. These took place in March 1985 (base figure), November 1985, March 1986 and November 1986.
- b) Following trends in the costs associated with vandalism. This research used the costs of repairing damage and drew on the opinions of damage experts, passengers and staff.
- c) Interviews with passengers and staff. It was hoped that the measures taken would make public transport safer and more attractive. In order to ascertain whether this was indeed the case a survey was carried out among passengers and staff (including SICs). A representative sample of public transport users (N=900) were asked before and after the introduction of the new measures (6) to assess a large number of aspects of the public transport system. They were also asked about their experiences as regards safety, vandalism, information and inspection. The first survey was conducted in November 1985, the second in September 1986. A preliminary survey revealed that passengers regarded safety as the most important of the three SIC responsibilities for ensuring a high standard of public transport. The survey among SICs was useful for determining whether they consider their job worthwhile and whether they were motivated. A questionnaire was carried out in September 1986 among regular staff and SICs.

4. Results

4.1 Fare-dodging

It is clear from the counts that the percentage of fare-dodgers (passengers without a valid ticket) fell in all three cities after the introduction of the SICs and the change in the boarding procedure for buses (see fig. 1). The decline was most pronounced during the rush hour on weekdays, largely because of the hours worked by the SICs: a 32-hour week with a heavy bias towards normal working hours. They are deployed less at weekends and late at night, and this is reflected in the higher percentage of fare-dodgers at these times.

Figure 1: Percentage of fare-dodgers before and after the introduction of the measures.



In Amsterdam the introduction of the SICs produced a sharp fall in the percentage of fare-dodgers on the tram (from 17.7% to 9.0%) and the metro (23.5% to 6.5%). The largest drop occurred in the first year. The

publicity surrounding the intensification of ticket inspection probably led to a sharp initial decline in fare-dodging which subsequently stabilised. The new boarding procedure on the buses also led to a sharp decline (from 9.2% to 1.7%).

A reduction in fare-dodging was also evident in Rotterdam, despite the fact that the percentage of fare-dodgers before the introduction of the measures was already low. On the trams the percentage of fare-dodgers fell from 5.8% to 3.7%, on the metro from 4.0% to 2.6% and on the buses from 3.8% to 1.3%.

The Hague experienced an initial decline in the percentage of fare-dodgers on the trams (from 13.7% to 9.5%) but this was not followed by any subsequent drop. The change in the boarding procedure on the buses did produce a large drop in fare-dodging (from 14.1% to 2.4%).

The survey carried out among passengers revealed that they had noticed an increase in ticket inspections. The percentage of passengers noticing an increase was higher in Amsterdam and The Hague than in Rotterdam. This can be explained by the proportionately greater increase in the number of ticket inspectors in these two cities. Rotterdam already employed a relatively large number of inspectors before the introduction of the SICs. The changes have produced a significant across-the-board increase in passenger satisfaction on this issue. In the 1985 survey passengers often awarded a low score to the transport company for the frequency of ticket inspection, a year later most considered this aspect highly satisfactory. Passengers apparently like being asked to show their ticket. The increase in passenger satisfaction is connected with passengers' impression that fewer people are dodging fares than they used to before the SICs. However, a quarter of passengers still think that fare-dodging is acceptable in certain situations (e.g. for people on low incomes).

As a result of increased ticket inspection respondents claim that they no longer dodge fares or that they do so less than before. There seems to be a strong correlation between behaviour and a person's views on fare-

dodging: those who regard it as acceptable show a greater tendency to dodge fares.

A closer analysis of fare-dodgers as a group reveals the following:

- young people dodge fares more often than old people and have been least influenced by the new measures; the average age of the fare-dodger has fallen in the period covered by the evaluation. Old people are apparently more afraid of being caught without a ticket or take being caught more to heart;
- men dodge fares more often than women; however, the difference has become less marked as a result of a more marked decline in fare-dodging among men (aged 25-40).

There remains, therefore, a specific group of young passengers who are little affected by the increased controls.

4.2 *Safety*

The number of incidents on public transport has fallen during the project. In 1985 11% of passengers reported having seen someone attacked or harassed in the three months preceding the survey, and 5% had themselves been the victim of such an attack. A year later, in 1986, the percentages had fallen to 3% and 2% respectively.

One in three passengers thinks that safety has improved because of the increase in the number of staff. However, the level of feelings of insecurity has declined only slightly and such feelings remain common: 24% of passengers sometimes feel unsafe and 13% occasionally avoid public transport for this reason (the corresponding figures before the changes were 27% and 15%). Clearly, feelings of insecurity are influenced by many social factors, and being the victim of an incident makes a lasting impression on a person's perception of the situation (Heijden, 1984).

4.3 Vandalism

In the years preceding the new measures the public transport companies were faced with ever-rising costs as a result of vandalism. The deployment of SICs to combat vandalism is just one of the many projects which have been started in response to this problem. The municipal authorities, for example, have initiated various projects to tackle vandalism and apprehend young vandals and the public transport companies have invested large sums in materials designed to withstand vandalism.

A slight reduction in repair costs for vehicles and rolling stock was evident in Amsterdam in 1986 after the introduction of the SICs (7), but there was no noticeable difference for metro stations. The reduction in the other two cities was less marked. The figures show no consistent trend.

A study was carried out in Amsterdam into the cleaning times for two virtually identical tram routes. For a three-week period SICs were present in the trams on one line for 29% of the time but never boarded trams on the other line. All of the trams on both lines were inspected every night and cleaned and repaired as thoroughly as possible ready for re-use. The trams on the line without SICs took roughly 15% more time to clean than those on the line patrolled by SICs. In Rotterdam and The Hague the decline in damage and graffiti in buses and trams does not show up in the figures, but experts and depot managers have the impression that less time has been spent on vehicle repairs and cleaning to remedy the effects of vandalism.

Since SICs have been on duty in the metro stations in Rotterdam the amount of graffiti on the external walls has remained virtually unchanged, but the amount inside the stations has fallen by roughly 30% (8). There has also been a decline in the number of broken windows in the metro stations. At tram and bus shelters at street level, however, the number of windows that had to be replaced in the same period doubled.

Passengers reported seeing fewer cases of people damaging or defacing

property in 1986. In the survey they gave a higher rating (higher level of satisfaction) to the appearance and cleanliness of the public transport system (9). Vandalism usually occurs out of sight of employees. A quarter of the staff interviewed did discover at the end of the shift that something had been damaged or defaced anything from several times a week to every day. At least half of the staff felt that vandalism had declined since the introduction of SICs.

It is impossible on the basis of the various figures available to draw any firm conclusions about the impact of the measures on the costs associated with vandalism. The variations are too marked and vandalism also depends on other factors. However, damage experts, passengers and staff unanimously agree that the introduction of SICs and the new boarding procedure on the buses have put a halt to the long-standing trend for vandalism to increase.

4.4 *Information*

Passengers' assessment of the information provided on public transport has been almost unaffected by the measures. Passengers are, however, pleased that there are more opportunities for asking staff questions. The number of people dissatisfied on this score has fallen from 37% to 26%. The number of people who regularly ask employees questions inside the vehicles has increased from 9% to 28%.

4.5 *What the changes mean to passengers and staff*

The introduction of SICs and the change in the boarding procedure on the buses have not gone unnoticed among passengers and have improved the image of public transport. Passengers now give a higher rating to many aspects which affect the quality of public transport. Aspects which were rated unsatisfactory before the introduction of the SICs (such as ticket inspection) are now judged satisfactory.

Despite the fact that passengers give a positive verdict on the performance of the SICs and have noted a number of improvements, this has

not led to an increase in the use made of public transport in Amsterdam and Rotterdam. Only in The Hague do 7% of respondents now claim to use the system more frequently. On the other hand, there is no indication that former fare-dodgers have abandoned public transport: they are now more likely to buy a ticket.

Employees are in general well-disposed to the new measures. A large percentage of the staff believe that thanks to the SICs the number of fare-dodgers and incidences of vandalism have decreased and information on services has improved. Tram drivers do not feel that their personal safety has improved, but do feel less lonely. There has been no change in the level of aggression by passengers against tram drivers. Bus drivers feel that they now have more authority and are in favour of the new boarding procedure.

The SICs themselves take a positive view of the project. They think their work is effective and have a high opinion of the cooperation and supervision from the public transport companies. The SICs feel that they have managed to establish a clear role in the eyes of the passengers. Their only regret is that they cannot devote more time to the safety aspect of their work which, they feel, has yielded the fewest results.

5 Evaluation

5.1 *Deployment of SICs*

The public transport companies have adopted different policies as regards the powers allocated to SICs and the way in which they are deployed. The principal differences relate a) to whether they are authorised to impose fines and b) to whether they carry out random checks or travel on particular vehicles.

One of the most important tasks of the SICs is to inspect tickets on trams and in the metro. Counts show that the percentage of fare-dodgers has fallen sharply on all three public transport systems. In The Hague, however, the percentage soon stabilised at a relatively high level. This may be explained by the following factors:

- a) Passengers, and fare-dodgers in particular, quickly realised that the SICs in The Hague were not authorised to impose fines, and this has undermined the effectiveness of the checks. People would pay only if confronted by an SIC, and even then would not receive a fine.
- b) The disadvantage of the system of assigning SICs to particular trams is that passengers can see whether there are SICs on board and decide to wait for the next tram instead. With 250 SICs working in pairs in The Hague it is never possible to man more than 20% of the tram services (10).

The greatest improvement in safety seems to have been achieved in those places where staff (SICs) monitor the situation for longer periods of time. In particular the passengers on the trams in The Hague, where SICs accompany particular vehicles, and on the metro in Rotterdam, where they are deployed in a particular metro station, feel that safety has improved.

The decrease in graffiti and damage in the metro stations in Rotterdam which are permanently manned by SICs, and the lower cleaning costs on tram lines in Amsterdam which are inspected by SICs suggest that their presence over a longer period of time has a stronger preventive effect on vandalism.

The foregoing suggests that from the point of view of ticket inspection, SICs who accompany particular trams for the length of their journey are less effective than those who carry out random checks, because their movements are more predictable. On the other hand, however, the presence of SICs in a particular place for longer periods does improve safety and reduce vandalism. If SICs are to carry out their inspection duties effectively they must be authorised to impose fines.

5.2 *Financial costs and benefits of the SIC project*

It costs 49 million guilders per year to deploy the SICs. This figure is built up as follows: employment costs for SICs (Fl. 43 million); management costs (Fl. 2.5 million) and overheads (Fl. 3.5 million).

The benefits which the public transport systems derive from the deployment of SICs may be classified as follows:

- Counts suggest that there has been a significant decline in fare-dodging as a result of the introduction of SICs. Depending on the type of journey and the sort of ticket bought, the extra revenue from ex-fare-dodgers on the trams and metro is estimated at between 12 and 14 million guilders.
- The introduction of SICs has led to an increase in the number of fines imposed. The extra revenue generated (for the Ministry of Justice) is estimated at 1 million guilders per year.
- It was noted earlier that it was difficult to determine the extent of the reduction in the costs associated with vandalism as a result of the introduction of SICs. There is clear evidence that costs have stabilised or even fallen slightly. However, the change cannot be ascribed exclusively to the introduction of SICs; other measures to tackle vandalism have undoubtedly also played a part. A sum of 1.5 million guilders has been credited on the benefit side of the project: this does not represent an actual cost reduction but a levelling off of the trend for costs to rise each year.

Given that the benefits to the public transport systems are worth between 14.5 and 16.5 million guilders and total costs are 49 million

guilders, the SIC project in its current form covers roughly 1/3 of its costs. This is more or less what was expected when the project was started.

5.3 *Financial costs and benefits of the new boarding procedure on the buses*

Reactions to the new boarding procedure have been overwhelmingly positive, even though buses are delayed longer at the stops as a result. This has forced the bus companies to put on extra buses on some routes, given that passengers regard punctuality as the most important criterion in their assessment of public transport.

The new boarding procedure entails extra costs of 6.1 million guilders. The benefits take the form of increased revenue because fewer people are dodging fares. One obvious difference between this and ticket inspection by SICs is that everyone boarding the bus is checked. The benefits for the three cities together are estimated at 3.6 million guilders. In Amsterdam and The Hague the new boarding procedure almost completely covers its costs. In Rotterdam where an effective inspection system already operated so that the percentage of fare-dodgers was relatively low in the first place, the costs were relatively high.

5.4 *Social benefits*

In addition to the financial costs and benefits which are important for the public transport companies, the measures also have a social significance. In most cases it is impossible to place a monetary value on the social benefits, so they are described below largely in qualitative terms.

- a) The measures have made an important contribution to cutting petty crime on the public transport system. This improves the quality of public transport.
- b) The SIC project has created approximately 1200 new 32 hour-a-week jobs. Savings on unemployment benefits amount to some 21 million guilders per year. Many of the new jobs have been taken by unemployed young people who thereby gain work experience and training.

- c) The SIC project has provided an opportunity for putting into practice the government's policy of opening up employment opportunities for women and members of ethnic minorities.

6 Discussion

In the light of the results, the increased level of ticket inspection achieved by the deployment of SICs on the trams and in the metro and the introduction of tighter controls when boarding the buses may be said to have succeeded in the short term in reducing petty crime on public transport. The increased staff presence did not, however, reduce passengers' feelings of insecurity, although safety in a number of places did improve. Certain other effects may become apparent in the longer term. Feelings of insecurity, for example, might still diminish. Passengers think that fewer people dodge fares and this may lead to a shift in norms: fare-dodging may come to be seen as less acceptable. The employees' positive attitude towards the SIC project probably has an effect on their manner towards passengers which can in turn improve relations between staff and passengers and increase social control. So the results can be seen as a confirmation of the close link between the concepts of situational crime prevention and occupational surveillance. Shaw (1986) came to similar conclusions referring to the evaluations of crime projects: employing people such as caretakers is more effective in preventing crime than any amount of hardware.

Notes

1. With thanks to Marianne Hoekert, Corina de Jongh, Liesbeth Nuijten, Jan van Dijk, Guus Roell and Gert-Jan Veerman for their contribution.
2. The committee defines the term "petty crime" in its first report (page 12) as follows: "... punishable forms of behaviour occurring on a large scale which can be dealt with by the police on a discretionary basis or, in the case of a first offence, are generally handled by the Public Prosecutor or are dealt with by the courts at the most through the imposition of a fine and/or a conditional custodial sentence and which - mainly because of the scale on which they occur - are a source of nuisance or engender feelings of insecurity among the public".
3. Following its first report the committee received funds to carry out a number of experiments. These built on the recommendations to the Minister of Justice made in the plan for fighting crime entitled "Crime and Society" (Bottomley, 1986). The evaluation of the SIC project is just one instance of this.
4. The research used a national registration system in which the public transport network was divided into a number of equal areas/routes. For each area and time of day (peak hours, off-peak hours and evening), a sample was taken among those passengers who had their tickets checked.
5. In Rotterdam the measure for the base figure was taken in November 1985.
6. The study began at a time when the change in the boarding procedure had been operating for over six months in Amsterdam and only one month in The Hague. Some transport companies had already recruited the full number of SICs on certain sections of the system. Because of this, and the fact that changes in attitude and behaviour take much longer to manifest themselves than the period covered by the counts, the results do not convey a complete picture. The results should be seen as an indication of what actually happened.
7. The damage repair costs represent the adjusted calculations of damage clearly identified as being the result of vandalism. Repair costs are calculated on the basis of repair work and replacement costs using new or old parts which are still in stock and in working order. In some cases repairs are combined with regular servicing. Not all costs are recorded immediately. In addition, damage to vehicles and street furniture as a result of football hooliganism or squatters' riots is not recorded separately but included in the general figures for damage.
8. However, most graffiti is done after 23.00 hours when SICs are no longer on duty in the metro stations.

9. In Amsterdam in particular it was found that benches, arm and back rests and seats were damaged less frequently. This is partly connected with the fact that seats with padding, which are easily slashed, have been replaced by hard, polyester ones that are less easily vandalised.
10. The Hague has since experimented with a new approach. At the end of 1986, in an effort to increase the surprise factor in inspections, the transport company started to deploy SICs on particular sections of a route: on certain sections of a tram route all vehicles are manned by SICs.

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