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### **Evaluating the push for tougher, more targeted policing in the Netherlands**

Evidence from a citizen survey

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## Abstract in English

In this study, we estimate the effects of a tougher, more targeted police response to criminal and disorderly behaviour ('proactive policing'). We use a citizen survey providing unique data on hard-to-observe dimensions of police work for every single municipality in the Netherlands. We relate variation in local policing strategies to individual data on victimisation of crime and experience of disorder and fear of crime over the period 1993-2001. The sample includes some 370,000 residents randomly selected from the Dutch population. We control for individual background characteristics and fixed municipality characteristics. We find evidence that stricter law enforcement is effective in reducing disorder, fear of crime, violent crime and property crime. Concentrating visible police presence at 'hot spots' is effective in combating disorder, fear of crime, and property crime. As a result of proactive policing during the period 2003-2005, crime and disorder went down substantially. Fear of crime has been reduced as well.

*Key words: police, effectiveness, proactive policing, disorder policing, hot spots policing.*

*JEL code: K4 – Legal procedure, the Legal System, and Illegal Behaviour*

## Abstract in Dutch

In deze studie schatten we het effect op de veiligheid van een strenger handhavingsbeleid en een politietoezicht dat gericht is op de meest onveilige plekken. Enquêtegegevens uit de Politiemonitor Bevolking vormen de bron van gegevens over de stijl van optreden van de lokale politie. We relateren variatie in het optreden van de lokale politie aan individuele gegevens over slachtofferschap van criminaliteit en ervaring van overlast en onveiligheidsgevoelens over de periode 1993-2001. De steekproef omvat circa 370.000 respondenten die willekeurig zijn geselecteerd uit de Nederlandse bevolking. We controleren voor individuele achtergrondkarakteristieken en over de tijd constante kenmerken van gemeenten. We vinden empirisch bewijs voor een effect van strenger handhaven op overlast, gevoelens van onveiligheid en vermogenscriminaliteit en geweldscriminaliteit. Meer gericht toezicht op de meest onveilige plekken resulteert in een afname van overlast, gevoelens van onveiligheid en vermogenscriminaliteit. Dankzij strenger en gericht politieoptreden in de periode 2003-2005 is de veiligheid verhoogd. Ook voelen mensen zich veiliger.

*Steekwoorden: politie, criminaliteit, overlast, effectiviteit, slachtofferenquête.*



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## Preface

Without empirical evidence on what works and what doesn't, policymakers are in the dark regarding the best way of enhancing police performance. This study contributes to the growing research efforts aimed at identifying the effect of policing strategies. This research report fits in a series of studies into policing within the CPB, with earlier work focusing on the value added of performance contracts for police forces, the effect of the police funding formula on performance of police forces, and the effect of an increase in police personnel on crime and disorder.

We gratefully acknowledge the Department of the Interior and the Department of Justice for providing survey data from the Dutch Victimization Survey (Politieonderzoek Bevolking, PMB). Mervin van Veen from Intomart GfK provided helpful assistance in working with the data from the PMB. We thank Jaap Bos from the Centraal Justitieel Incassobureau for providing data on the number of police fines at the level of municipalities.

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Coen Teulings, Director.





## Samenvatting

Zowel het veiligheidsbeleid van veel gemeenten als het beleid van dit kabinet is gericht op strenger en gericht politieoptreden. Verschillende gemeenten richten de aandacht van de politie op 'hot spots', de meest onveilige plekken. Daartoe monitoren zij ontwikkelingen in de lokale veiligheidssituatie nauwgezet. In het Veiligheidsprogramma geeft het kabinet aan dat de politie de handhaving en criminaliteitsbestrijding 'weer naar behoren' moet uitvoeren. Strenger politieoptreden staat daarbij voorop:

*Er is momenteel sprake van een op onderdelen te lang volgehouden gedoogcultuur en 'tolerantie' ten opzichte van criminogeen en overlastgevend gedrag in de (semi)-publieke ruimte. Hiermee is de burger rekening gaan houden. De eerste correctie op regelovertredend gedrag betreft vaak een strafrechtelijke. Het strafrecht is hierdoor vaak niet de laatste maar de eerste schakel in de handhaving. ('Naar een veiliger samenleving', Ministerie van BZK en Ministerie van Justitie, oktober 2002, p. 5, 6).*

Over het effect van strenger en gericht politieoptreden is nog weinig bekend, zeker binnen de Nederlandse context. Een dergelijk beleid zou juist provocerend kunnen werken of zou kunnen leiden tot verplaatsing van overlast en criminaliteit naar veiliger buurten. Zonder inzicht in de effecten van deze aanpak, dan wel een alternatieve aanpak, blijft het voor beleidsmakers onduidelijk wat de beste manier is om de criminaliteit en overlast te bestrijden. Om deze reden analyseert het Centraal Planbureau in deze studie het effect van strengere handhaving en gericht toezicht op de veiligheid. Onderzoeksvraag is of de veiligheid zich gunstiger ontwikkelt in gemeenten waarbinnen de politie relatief streng optreedt en relatief vaak zichtbaar is op de meest onveilige plekken. Bron van gegevens over het optreden van de politie vormt de Politiemonitor Bevolking, een jaarlijkse telefonische enquête onder de Nederlandse bevolking. Andere gegevensbronnen zijn minder betrouwbaar of minder volledig.

Na het presenteren van de resultaten van het onderzoek gaan we in op de manier waarop we het effect van de verandering in het politieoptreden hebben bepaald.

### Onderzoeksresultaten en lessen voor beleid

Op basis van de uitkomsten van de empirische analyse trekken we de volgende conclusies:

1. *Een strenger en meer gericht politieoptreden draagt bij aan een verhoging van de veiligheid.* Strenger politieoptreden en politietoezicht dat is gericht op de meest onveilige plekken verhoogt de effectiviteit van de politie. Dankzij een hardere en meer gerichte aanpak heeft de politie in de periode 2003-2005 de overlast met circa 5 procent verlaagd en de criminaliteit met 2 tot 3 procent. Ook voelen mensen zich veiliger. De effectievere inzet van politiemiddelen van de

laatste jaren vormt grotendeels een inhaalslag na een lange periode van voortdurend dalende politieprestaties. De Politiemonitor Bevolking laat zien dat in de ogen van de burger de politie sinds 2004 voor het eerst sinds 10 jaar beter is gaan presteren. Ontevredenheid over het ingrijpen van de politie bij problemen in de eigen buurt neemt voor het eerst weer af. In 2003 was 38 procent van de burgers het eens met de stelling dat de politie niet hard genoeg optreedt, in 2005 was dit percentage gezakt tot 34 procent. Daarnaast zien burgers de politie vaker op plaatsen waar zij dat het meest belangrijk vinden. In 2003 was 55 procent het eens met de stelling dat je de politie te weinig in de buurt ziet, in 2005 was dit percentage gezakt tot 48 procent.

2. *Voor een verdere verhoging van de veiligheid lijkt het prikkelen tot 'beter blauw' kosten-effectiever dan middelen vrijmaken voor 'meer blauw'.* Het kabinet heeft als doelstelling de criminaliteit en overlast over de periode 2002-2008/2010 met circa 20 procent te verlagen. Hiervan is inmiddels de helft gerealiseerd: het percentage mensen dat ten minste één keer per jaar slachtoffer wordt van criminaliteit is met 11 procent gedaald (van 50 procent in 2002 tot 44 procent in 2005); het percentage mensen dat vaak te maken heeft met overlast is met 8 procent gedaald (van 41 procent in 2002 tot 38 procent in 2005). Ook met de huidige effectiviteit van de politie blijft een verhoging van de veiligheid met 'meer blauw' een kostbare aangelegenheid. Een verdere daling van de criminaliteit en overlast met 10 procent is te bereiken met circa 20 procent extra politiepersoneel, zo blijkt uit een eerdere studie van het CPB. Dit zou neerkomen op minimaal 630 miljoen euro extra personeelskosten per jaar. De kosten die zijn gemoeid met het bereiken van een betere inzet van bestaande middelen zijn naar alle waarschijnlijkheid lager. Het gaat hierbij bijvoorbeeld om kosten van het monitoren van ontwikkelingen in de lokale veiligheidssituatie, het gebruiken van systemen om de inzet van politiepersoneel hierop af te stemmen en het systematisch evalueren van het effect van politieoptreden.
3. *Tevredenheid van de burger over het politieoptreden is een goede indicator om de politie op af te rekenen.* Gemiddeld genomen hebben burgers een goed idee van het presteren van de lokale politie. Als de overheid de politie ook in de toekomst wil prikkelen tot prestatieverbetering, dan biedt deze indicator een goede mogelijkheid voor bijvoorbeeld een onderlinge vergelijking van de prestaties van politiekorpsen ('benchmarking'). Voordeel van deze indicator vergeleken met 'output'-indicatoren zoals het aantal staandhoudingen is dat de politie minder mogelijkheden heeft alleen volgens de statistieken beter te presteren. Een eerdere studie van het CPB geeft ook aan dat het verhogen van de tevredenheid van de burger meer in lijn ligt met wat van de politie verwacht wordt dan het simpelweg verhogen van de 'output'.

## **Aanpak**

Hoe onderscheiden we het effect van strenger en gericht politieoptreden op criminaliteit van de vele andere factoren die de criminaliteit beïnvloeden? Schrijven we de invloed op de criminaliteit van bijvoorbeeld minder drugsverslaafden niet onbedoeld toe aan deze verandering in het politieoptreden?

Het basisidee achter de analyse is het volgende: *als strenger en gericht politieoptreden effect heeft, dan zal de criminaliteit en overlast relatief sterk dalen in gemeenten waarbinnen de politie relatief streng en gericht optreedt.* We kijken naar veranderingen over de tijd. Hierdoor hebben verschillen tussen gemeenten die constant zijn over de tijd geen invloed op de resultaten. Denk bijvoorbeeld aan het mogelijke verschil in houding van burgers ten opzichte van de politie in een gemeente in Drenthe en in een gemeente in Zuid-Holland. Als we geen rekening zouden houden met deze verschillen tussen gemeenten, dan zouden we al snel het effect van politieoptreden onderschatten. Zo lijkt harder politieoptreden samen te gaan met meer overlast, simpelweg omdat een grotere mate van overlast nu eenmaal om een harder optreden vraagt.

Daarnaast moeten we rekening houden met de reactie van de politie op *veranderingen* in de veiligheidssituatie in een gemeente. Niet alle gemeentelijke kenmerken die samenhangen met het optreden van de politie zijn immers constant over de tijd. Zo kan een gemeente met een relatief ongunstige economische ontwikkeling te maken krijgen met meer criminaliteit en bij de politie aandringen op harder ingrijpen. Harder optreden hangt dan samen met een ongunstige ontwikkeling in de lokale veiligheidssituatie. Als we hier geen rekening mee zouden houden, dan zouden we het effect van politieoptreden opnieuw onderschatten. Om dit te voorkomen richten we ons op de periode 1993-2001. Uit analyses van de werkwijze van de politie weten we dat gedurende deze periode zowel de verdeling van politiemiddelen als de keuze van aanpak nauwelijks op veranderingen in de veiligheidssituatie reageren. Dat dit inderdaad het geval is blijkt uit het feit dat onze resultaten niet veranderen wanneer we expliciet rekening houden met gemeentelijke ontwikkelingen in samenstelling van de bevolking, het type woningen en de werkloosheid gedurende deze periode. Een analyse voor de jaren 2003-2005 laat zien dat de politie de laatste jaren veel sterker is gaan reageren op veranderingen in de veiligheidssituatie. Dit resultaat bevestigt onze keuze om de meest recente jaren niet mee te nemen bij de analyse van de effecten van politieoptreden op de veiligheid.

Bron van gegevens over het optreden van de politie vormt de Politiemonitor Bevolking, een jaarlijkse telefonische enquête onder de Nederlandse bevolking. Een nadere analyse laat zien dat burgers gemiddeld genomen een goed idee hebben van het presteren van de politie. Zo blijkt het beeld dat burgers hebben van het presteren van een politiekorps overeen te stemmen met het beeld van direct betrokkenen. Dezelfde verschillen in het optreden van de politie tussen

politieregio's zien we jaar op jaar in de antwoorden van respondenten terug. Ook merken burgers het wanneer de politie vaker bekeurt. De perceptie van het lokale politieoptreden door burgers is dus niet willekeurig maar toont duidelijke patronen. We gebruiken de Politie-monitor Bevolking ook als bron van gegevens over criminaliteit, overlast en onveiligheidsgevoelens.

Kortom, in onze analyse relateren we de kans op slachtofferschap van criminaliteit en overlast aan het optreden van de lokale politie zoals burgers dat waarnemen, waarbij we rekening houden met alle verschillen tussen gemeenten die constant zijn over de tijd en met de meeste verschillen tussen gemeenten die veranderen over de tijd.

## Summary

Both municipalities and the current administration are pushing the police towards a more proactive approach: a tougher, more targeted police response to criminal and disorderly behaviour. Several municipalities target police presence on 'hot spots', places with an elevated risk on victimisation of crime and disorder. To that end, they closely monitor developments in the local safety situation. The administration has a strong focus on stricter law enforcement. The police should change its 'culture of tolerance' towards criminal and disorderly behaviour in public spaces. The first strategy has been coined 'hot spots policing', the second strategy 'disorder policing'. We use the term 'proactive policing' when referring to the combination of the two strategies.

The empirical evidence on the effectiveness of proactive policing is limited, with virtually no evidence within the Dutch context. Concentrating police presence at hot spots could lead to displacement of crime into adjacent neighbourhoods. Alternatively, strict law enforcement could undermine people's willingness to cooperate with the police. Without evidence on the effectiveness of this policing strategy, or other approaches, policy makers remain in the dark regarding the best way to fight crime and disorder. Given the lack of research in this area, the CPB Netherlands Bureau of Economic Policy initiated a study into the effects of proactive policing on crime and disorder. Research question is whether crime and disorder go down more rapidly in municipalities that follow a proactive approach to policing. Source of data on the style of policing is the Dutch Victimisation Survey (PMB), a yearly telephone survey among the Dutch population. Other sources of data are either less reliable or less complete.

Below, we first present our research findings and then discuss the way in which we analysed the effect of policing on safety.

### Findings and lessons for policy

Based on the results of the empirical analysis, we conclude the following:

1. *Proactive policing contributes to greater safety.* Both hot spots policing and disorder policing increase police effectiveness. As a result of a tougher, more targeted policing during the period 2003-2005, the police reduced disorder by some 5 percent and crime by 2 to 3 percent. Fear of crime has been reduced as well. The improvement in police effectiveness of the last years is mostly a 'reversal operation' after a long period of declining police performance. In 2004, dissatisfaction with police responsiveness to problems in the neighbourhood declined for the first time in 10 years. Additionally, since 2004, people see the police more often at places where they appreciate it most.

2. *For a further increase in safety, strengthening incentives to enhance police performance seems to be more cost-effective than increasing the level of police resources.* This administration's goal is to lower crime and disorder by some 20 percent over the period 2002-2008/2010. We are now halfway: the percentage of people who are victim of crime at least once a year declined from 50 percent in 2002 to 44 percent in 2005; the percentage of people that frequently experiences disorder declined from 41 percent in 2002 to 38 percent in 2005. Even with the current level of police effectiveness it is very costly to realise a further 10 percent decline in crime and disorder through greater numbers of police personnel. Based on findings from earlier studies, some 20 percent more police personnel per capita would be necessary to achieve this goal. That would mean some €630 million additional costs of personnel per year at a minimum. The costs of efforts related to strengthening incentives are likely to be lower than the costs of additional police personnel. The more so, since the long period of growing police resources but declining police performance suggests a great amount of slack within the police organisation.
3. *The police can be held accountable to citizen satisfaction with police work.* Not only do citizens have an idea of what the police do in their neighbourhood, their perceptions turn out to be important determinants of police effectiveness as well. Holding the police accountable to indicators of citizen satisfaction with police work is likely to provide incentives that are better in line with the objectives of police work than output measures such as the number of fines.

### **Approach**

How do we single out the impact of proactive policing from the many other factors affecting crime and disorder? The basic idea behind this study is as follows: *if proactive policing has an effect, then crime and disorder should go down more rapidly in municipalities that follow this approach to policing.* We focus on changes over time. As a result, differences between municipalities that are constant over time do not affect our estimates. Think of a difference in attitude to the police in a rural municipality versus an urban municipality. If we would not take these differences into account, we would underestimate the effectiveness of proactive policing. After all, proactive policing seems to be related to higher crime and disorder, simply because rougher conditions demand a tougher, more targeted approach.

We also need to account for the police response to changes in the local safety situation. Not all municipality characteristics that are related to the style of policing are constant over time after all. For instance, a municipality with a relatively unfavourable trend in unemployment could demand a tougher approach to criminal and disorderly behaviour. In that case, stricter law enforcement is related to unfavourable trends in crime and disorder. If we would not take this police response into account, we would underestimate the effectiveness of proactive policing. To prevent this estimation bias, we focus on the period 1993-2001. Studies into police work suggest that neither means nor strategies responded to changes in crime and disorder during this

period. Indeed, our estimates are not affected by including a host of time-varying municipality characteristics that are known to be drivers of trends in crime and disorder. An analysis for the period 2003-2005 shows that the police are becoming more responsive to changes in the local safety situation. This finding confirms our choice to exclude the most recent years from the empirical analysis.

Source of data on style of policing is the Dutch Victimization Survey. A closer analysis of the survey shows that dissatisfaction with policing strategies reflects actual local police work. Moreover, survey respondents are able to make a distinction between different dimensions of police work. Survey responses show clear patterns that correspond with other sources of information about police performance. We also use the Dutch Victimization Survey as source of data on crime, disorder, and fear of crime.

To conclude, in our analysis, we relate the probability of victimisation to the strategy of the local police department as perceived by citizens, while controlling for all differences between municipalities that are constant over time and for most differences between municipalities that vary over time.



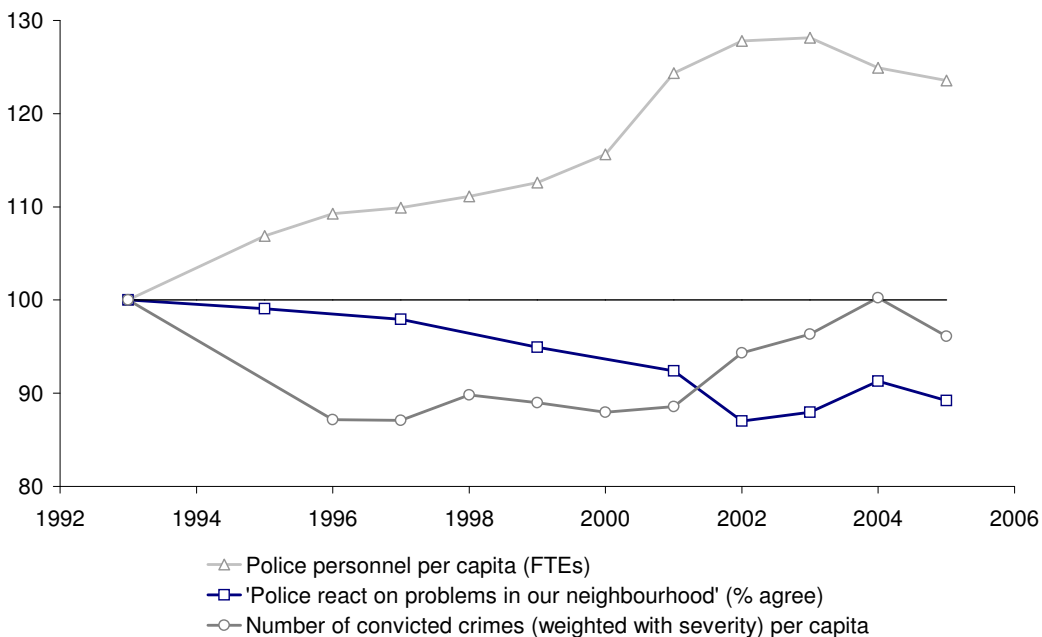


# 1 Introduction

## 1.1 Rationale

The police were doing less with more resources over the period 1993-2002. While police personnel per capita grew by 20 percent, the percentage of people who stated that the police react on problems in their neighbourhood *declined* from 63 percent in 1993 to 55 percent in 2002 (see figure 1.1). Even police visibility took a hit: the percentage of people who saw the police at least once a week in their neighbourhood declined from 39 to 30 percent. Not only did satisfaction with visible police work decline, productivity in criminal investigation went down as well (Wiebrens, 2002). Vollaard and Koning (2005) show that the growth in police resources did not go to complete waste as claimed by Vroegop and Tak (2005), but the effect of more police personnel was certainly lower than possible. The newly formed regional police forces enjoyed great freedom in their operations with little effective oversight at the national and local level (Vlek et al., 2004). This lack of oversight combined with continuous growth in resources contributed to ever-declining police performance.

Figure 1.1 Police resources and performance over 1993-2005 (1993=100)



Note: All data for the 25 regional police forces only. Each conviction is weighted with the severity of the crime, which is equal to the number of days someone is on average incarcerated for having committed that crime. Other sanctions such as financial penalties are translated into 'prison day equivalents', following the guidelines of the prosecution council. Figure for 1993 is based on an estimate.

Source: Prosecution Council, Department of the Interior, Dutch Victimization Survey (PMB).

### **Outside intervention**

By 2002, the government decided to intervene. The national government and many local authorities called for a more 'proactive' approach to policing. The police should no longer accept disorderly and criminal behaviour; the time of tolerating deviant behaviour ('gedogen') is over. Visible police presence at 'hot spots' should increase and the police should take immediate action against disorder and crime, especially from frequent and young offenders. Government policy, laid down in the National Policing Plan 2003-2006 ('Landelijk Kader Nederlandse Politie'), also included other elements, such as a greater number of follow-up criminal investigations and closer cooperation between the police and partner agencies at the local and national level. As part of the new Policing Plan, the government introduced performance contracts for each of the police forces, which were signed in the summer of 2003. The performance contracts include a number of targets that should lead to a more proactive police response to crime and disorder. In many cases, the goals of the National Policing Plan are embedded in local initiatives to improve safety. Well-known examples include 'Rotterdam Veilig', 'Naar een veilig Den Haag', and 'Utrecht veilig!'. Figure 1.1 on the previous page shows that people notice the move towards proactive policing. Dissatisfaction with the police response to problems in the neighbourhood is no longer increasing. Additionally, productivity in criminal investigation is increasing for the first time since 1993.

A shift towards more effective strategies is most welcome for the Dutch police, given the high ambitions to improve safety and the modest growth in police resources. The goal is to lower crime and public disorder by some 20 percent over the period 2002-2008/2010. Only with greater efficiency and effectiveness of their operations, the police will be able to contribute to a further decline in crime and disorder.

### **A push in the right direction?**

Thus far, little firm empirical evidence is available on the effect of proactive policing and other policing strategies within the Dutch context. Looking through twenty years of (exclusively Dutch) material, Wittebrood and Van Beem (2004) find only two empirical studies on the effects of policing strategies on crime that meet minimum scientific standards (including a treatment and a control group, for instance).

Although the (almost exclusively American) literature on 'what works in policing' provides some guidance (see Weisburd and Eck, 2004), complementing Dutch empirical research is necessary. Not only is firm evidence scarce in the international literature, the situation in the Netherlands may also be somewhat unique. For example, whereas police aggressiveness is a major concern in the United States (and subject of endless study), many people in the Netherlands find the police too little aggressive (see chapter 3). Compared to their American colleagues, the Dutch police seem to be much more 'friendly' and 'understanding'. Empirical

research is necessary to evaluate whether the policing strategies advocated in the National Policing Plan are effective, and if so, what the size of the effect is. Such research informs policy makers on the best way of enhancing police performance. Without firm evidence on what works and what doesn't within the Dutch context, policy makers stay in the dark regarding the best way to improve police performance.

## 1.2 Research question

In this study, we address the following question:

*Do municipalities with a tougher, more targeted police response to criminal and disorderly behaviour ('proactive policing') achieve lower rates of crime, disorder and fear of crime?*

We focus on proactive policing, since it is an essential element in both local and national policy. Below, we discuss the scope of this study. First, we discuss our method to address this question.

## 1.3 Method

We use survey data from the Dutch Victimization Survey (PMB) to estimate the effect of proactive policing on crime, disorder, and fear of crime. Besides questions about victimisation of crime and experience of disorder and fear, the PMB includes a range of questions about local police work. Due to the large sample size of the PMB, we are able to take municipalities as the unit of analysis. At this level, initiatives to combat crime and public disorder – in line with the framework of the National Policing Plan – are made.<sup>1</sup> Police statistics are not an alternative to the survey data. Historic police statistics about policing strategies are either not available, incomplete or unreliable. Later in this study, we discuss the accuracy of people's perception of police work.

## 1.4 Contribution to the literature

Little substantive research has been conducted on many of the key elements of commonly used policing strategies (Weisburd and Eck, 2004). This study aims to contribute to this literature by using a new source of data: a citizen survey. Given the broad scope of the survey, we are able to incorporate a broad set of outcomes ranging from crime to disorder to fear of crime and two different policing strategies. A great advantage of using survey data is the sample size. When using observations of police work by researchers (the usual way of collecting data on police work that are not readily available) information is available for only a few localities. Due to the

<sup>1</sup> Another reason to choose the municipality as unit of analysis rather than the police region is the necessary number of observations to estimate an effect. In the Netherlands, there are only 25 police regions, compared to 467 municipalities.

large sample size of the PMB, we have information for every single municipality in the Netherlands.

## **1.5 Scope**

The use of a victimisation survey as our primary source of data implies a specific focus of this study:

- We focus on a more effective use of resources targeted at police patrol. We do not look into the effect of shifting resources away from visible police work to other police tasks such as criminal investigation.
- We focus on victims rather than offenders of crime. Consequently, policing strategies specifically aimed at offenders – including a focus on young and frequent offenders – are outside the scope. Victim-less crime and crime against business is not within the scope either.
- The questions in the survey specifically focus on police work, rather than the co-operation between the police and other local organisations. Thus, we do not discuss the effect of better co-operation between the police and partner organisations.

Additionally, it is not our aim to evaluate how well the outside pressure on the police was designed. We do not look into the costs of performance contracts in terms of distortion of effort. For an economic analysis of the performance contracts for police forces, see Vollaard (2003).

## **1.6 Structure**

The study is organised as follows. Chapter 2 describes the policy to improve police effectiveness and the existing evidence on their effectiveness. Chapter 3 describes our data. In Chapter 4 and 5, we discuss the empirical strategy and estimation results. Chapter 6 concludes.

## 2 A tougher and more targeted police response

As discussed in the introductory chapter, one of the main goals of the National Policing Plan and accompanying local initiatives is a tougher, more targeted police response to criminal and disorderly behaviour. Below, we discuss the key elements of ‘proactive policing’: hot spots policing and disorder policing – and the existing evidence on their effectiveness.

### 2.1 Greater police presence at hot spots (‘hot spots policing’)

Greater visible presence of the police at public spaces is central to the Policing Plan. With greater visible presence, the police are better able to control behaviour in public spaces, and intervene in case of offensive behaviour. Greater patrol presence should be concentrated on places and times where people have a higher than average risk of victimisation of crime and nuisance from public disorder. These are places like railway stations, shopping centres, areas around coffee shops, spots where youth hang out, and so on.

As we will discuss in chapter 3, the empirical evidence suggests that the police are more often visible in those places where people appreciate it most. The Hague is an example of a city that implemented hot spots policing (see text box, and the discussion in the next chapter).

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#### ‘Hot spots policing’ in The Hague

Since 2004, The Hague police identifies hot spots at the level of streets and places. The policing strategy involves three elements: first, intensified police presence at the hot spot for at least 12 months, second, a combination of law enforcement and purely preventative activities, and third, coordinated action of police, municipality and partner organisations. Every ten months, the situation at the hot spots is reported. For each hot spot, a number of indicators are chosen based on reports of crime and disorder (for example: reports of nuisance from prostitutes, reports of nuisance from public intoxication, reports of hemp growing, etc.). These statistics are combined with regular interviews with the local population to create a picture of the situation at the hot spot. If public order has been restored for eight months and people in the neighbourhood have been satisfied for the same period, then the hot spots is removed from the list. In total, The Hague had some 20 hot spots by the end of 2005.

Source: Municipality of The Hague, *Periodieke rapportage hotspots – mei-december 2005*, January 2006.

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The effectiveness of the hot spots policing approach has strong empirical support. Based on a review of a series of randomised field trials, Braga (2001) concludes that hot spots policing can result in substantial reductions in crime and disorder. Moreover, the evidence also suggests that hot spots policing does not simply lead to displacement of crime into adjacent neighbourhoods. Actually, intensive police intervention in one place turns out to have positive rather than negative effects on surrounding areas. This ‘diffusion of crime control benefits’ has been reported in a number of studies (Weisburd and Eck, 2004).

## 2.2 Disorder policing

In addition to targeting police presence at 'hot spots', the police should follow a strategy of stricter law enforcement. The police should change its 'culture of tolerance' towards criminal and disorderly behaviour in public spaces. Stricter enforcement means active intervention rather than 'leaving things as they are', and implies interventions invoking the criminal justice system. This approach should primarily lead to 180,000 additional fines and transactions after police stops per year, an increase of 15 percent. With stricter, more aggressive law enforcement, crime and public disorder are expected to go down. By 2005, the regional police forces had far surpassed the target: the number of fines and transactions after police stops increased from 1.3 million in 2002 to 1.9 million in 2005.

In the literature, disorder policing is also known by the term 'broken windows policing'. The hypothesis underlying this approach is that intensive enforcement applied broadly to incivilities and other types of disorder lead to reductions in serious crime (see Dur, 2006). The literature is mostly focused on investigating the effect of disorder policing on serious crime, whereas this is not the sole focus of the National Policing Plan. Whether disorder policing is successful in bringing down public disorder has not been subject of much study, which is to not surprising since police statistics provide a rather incomplete picture of disorder.

New York City under mayor Giuliani and chief of police Bratton provides the most prominent example of broken windows policing. The effectiveness of their 'get tough' approach is hotly debated. Claims of large effects on the crime rate have been challenged because the benefits attributed to disorder policing are possibly confounded with other factors, such organisational changes within the police and the end of the crack epidemic. In a recent study of monthly time-series data spanning 1974-1999, Corman and Mocan (2005) include these possible confounding factors, including economic conditions, the 'Giuliani-factor' (affecting police morale and productivity) and deterrence variables such as number of police as well as felony arrests. They conclude that the broken-windows hypothesis has validity in the case of robbery, motor vehicle theft, and grand larceny. Earlier studies that investigate the impact of aggressive policing on serious crime do not shed substantial light on the issues because of their empirical shortcomings (Weisburd and Eck, 2004). In addition to standard identification difficulties, earlier papers suffer from omitted-variable bias (Corman and Mocan, 2005, note 12).

## 2.3 Conclusion

The 'what works in policing' literature provides evidence on the effectiveness of hot spots policing. The evidence for the effectiveness of disorder policing is more limited, with little to no evidence for public disorder and one study about the effect on serious crime.

### 3 Dutch Victimization Survey

We use the Dutch Victimization Survey (PMB) as source of data on crime, disorder, fear of crime and policing strategies. The PMB is a repeated cross-section telephone survey that is unique in its sampling size. Whereas the US National Crime Victimization Survey covers 1 out of 2,000 of the population above 12 years of age, the PMB covers some 1 out of 200 of the population above 15 years of age. As a result of PMB's sample size, variables can be disaggregated to the level of municipalities.

**Table 3.1 Dutch Victimization Survey, sample statistics**

	Mean <sup>a</sup>			Standard deviation 1993-2001
	1993-2001	2003	2005	
<b>Perception of local police work</b> (agree, %)				
Dissatisfaction with police visibility ('Too little visible')	54.4	55.0	48.4	1.7
Dissatisfaction with police aggressiveness ('Too little aggressive')	35.9	38.3	33.8	0.6
Dissatisfaction with police fining ('Fine too little')	30.5	29.3	25.5	1.6
Police visibility ('See police at least once a week')	33.1	29.9	30.6	2.6
<b>Public disorder</b> (frequently occurring problem, %)				
Youth nuisance	11.4	13.2	11.9	1.3
Drugs nuisance <sup>b</sup>	4.3	6.2	5.3	3.2
Public intoxication	7.6	7.4	7.0	0.3
Vandalism	18.1	20.0	18.3	1.5
Graffiti	15.2	12.5	10.5	1.1
Aggressive driving (tail gaiting, passing on the right)	20.9	17.7	14.9	2.1
<b>Fear of crime</b> (frequently occurring problem, %)				
Feels unsafe (every now and then)	29.4	27.7	24.0	0.8
Avoids unsafe places <sup>c</sup>	11.1	9.9	8.0	0.4
Keeps child at home <sup>c</sup>	23.3	23.1	18.7	1.6
Fear of theft <sup>c</sup>	17.2	15.8	14.3	1.3
<b>Property crime</b> (victimised at least once last year, %)				
Burglary	7.1	4.9	4.1	1.2
Car theft and theft out of car	7.0	6.6	5.7	0.7
Bicycle theft	6.4	5.2	4.5	0.4
Purse theft (both violent and non-violent)	4.3	3.6	2.7	0.3
<b>Violent crime</b> (victimised at least once last year, %)				
Threat with violence	5.1	5.9	4.9	0.5
Assault	1.0	0.9	1.0	0.0

Notes: (a) All variables are weighted; sample weights are based on age and gender. (b) Drugs nuisance was included in the survey as of 1997. (c) These three measures of fear are based on the survey responses on the following statements: 'Drive or walk around to avoid unsafe places'; 'Not allowing children to go out because of safety reasons'; 'Leaving valuable properties at home to prevent theft'.

For every survey wave, respondents have been selected at random from the total population over 15 years of age. Per police region (and sometimes smaller areas), the interviewers used stratified sampling. A minimum of 1,000 respondents were interviewed in each of the 25 police regions. In many cases, police regions opted for a greater number of respondents. In total, 460,844 people were surveyed over the period 1993-2005. In recent years, the survey had a response rate of about 70 percent.

All victimisation and police practices are observed at the individual level, only some property crimes are measured at the household level (bicycle theft, burglary, car theft, theft from cars). We look at car theft and theft from cars together, since car theft is a rare offence. In a victimisation survey, rare offences are measured with greater uncertainty than frequently occurring offences. Respondents are interviewed in the first ten weeks in the year a survey is held, with victimisation reflecting the twelve months preceding the interview date. Table 3.1 summarises the key variables we use for the empirical analysis. Background characteristics of respondents include age, gender, education level, ethnicity, housing type, household size, and income status (employed, student, housewife, or else).

### 3.1 From survey questions to policing strategies

Part of the Dutch Victimisation Survey is dedicated to people's perceptions of policing strategies and satisfaction with police work in their own neighbourhood. Below, we discuss how we match survey questions with the policing strategies discussed in chapter 2. Table 3.2 provides an overview of the way in which we match survey questions with policing strategies. Typical of all selected survey questions is that they ask how well the police address local needs. Respondents are asked to take the local situation into account when judging police work.

**Table 3.2 Matching survey questions with policing strategies**

<b>Policing strategy</b>	<b>Related survey question</b> (selected response)
<b>Hot spots policing:</b> the more precisely patrol presence is concentrated at the 'hot spots' and 'hot times' of criminal activity, the less crime occurs in those places and times.	Do you see the police too little in the neighbourhood? (yes) How often do you see the police in the street where you live? (at least once a week)
<b>Disorder policing:</b> the more aggressive the police response to disorderly behaviour, the less crime and public disorder occurs.	The police do not act sufficiently forcefully, do you agree? (yes) The police fine too little here, do you agree? (yes)

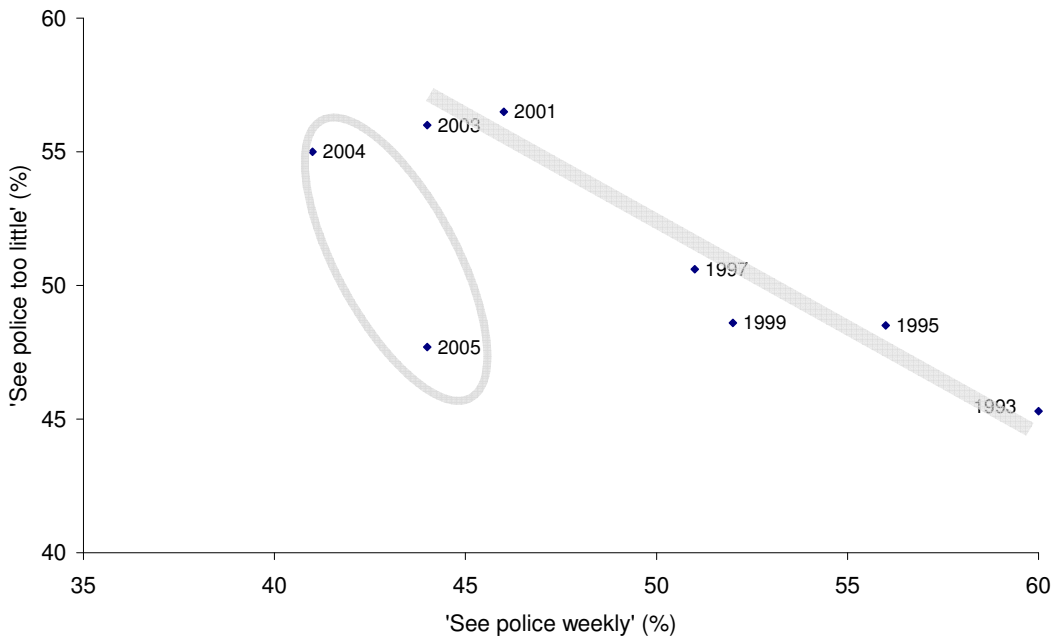
#### **Hot spots policing**

Hot spots policing implies shifting resources to those places where people need them most. Even when keeping overall resources constant, a shift of resources to the places with an elevated risk on victimisation should lower dissatisfaction about lack of police presence in a municipality. In



that case, the decline in dissatisfaction resulting from of a shift of police resources into bad neighbourhoods will be greater than the increase in dissatisfaction resulting from a shift of resources out of safe neighbourhoods. After all, in safe neighbourhoods people are satisfied with lower levels of police presence than in unsafe neighbourhoods. Thus, with the two survey questions ‘Do you see the police too little in the neighbourhood?’ and ‘How often do you see the police in your street?’, we can determine whether a police department is implementing a strategy of hot spots policing. Our method leaves open at which level local police departments define hot spots; these can be neighbourhoods, streets or places (see Eck et al., 2005). In line with the National Policing Plan, the evidence suggests that hot spots policing became more prominent over the period 2003-2005. Dissatisfaction with police visibility declined from 55 to 48 percent, while actual visibility remained constant.

**Figure 3.1** Relation between actual police visibility and dissatisfaction with visibility, The Hague, 1993-2005

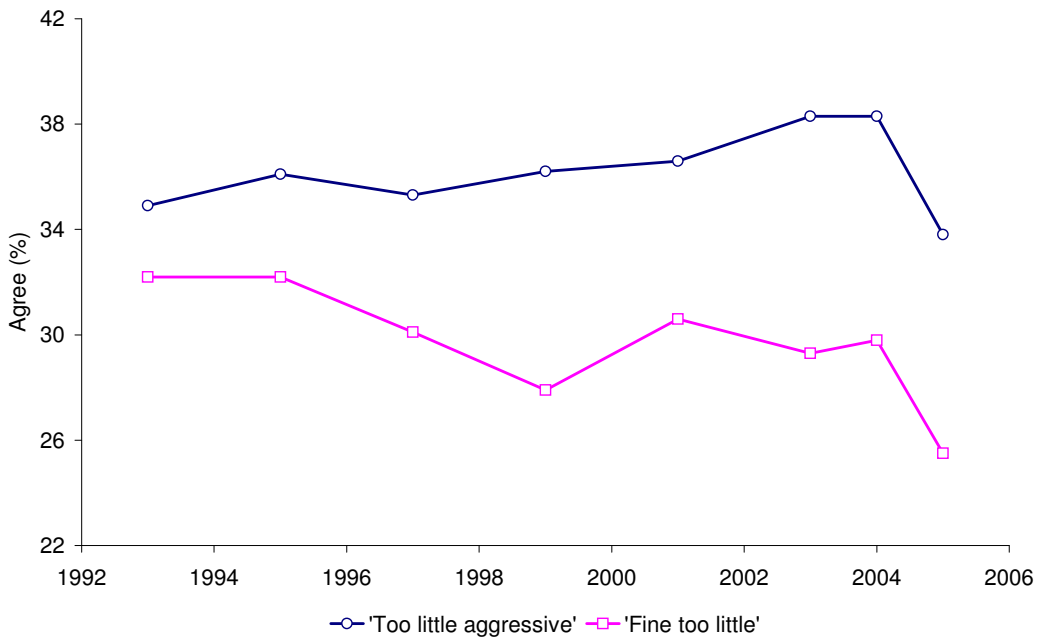


Source: Dutch Victimization Survey.

The city of The Hague is a good example of what we see when hot spots policing is implemented. As discussed in chapter 2, hot spots policing was introduced as an explicit strategy in 2004. Figure 3.1 shows that changes in actual police visibility were strongly related to changes in dissatisfaction with police visibility during the period 1993-2003. This suggests that the police did not shift its resources between neighbourhoods within the city; only its overall visibility changed. As of 2004, the police is able to create lower levels of dissatisfaction without an increase in overall visibility. In 2005, overall visibility was equal to 2003, but dissatisfaction was much lower. Apparently, the police was better able to be present in those places where people appreciate it most. Indeed, visible police presence strongly increased in

relatively unsafe neighbourhoods like Schilderswijk and Laakkwartier, and remained more or less constant in relatively safe neighbourhoods like Archipel and Ypenburg-Leidschenveen. The anecdotal evidence for The Hague provides support for the two assumptions underlying our method of measuring the implementation of hot spots policing. First, stronger hot spots policing should not affect overall visibility over the municipality – barring other simultaneous changes (the level of (visible) police resources did not change substantially over 2003-2005). Second, dissatisfaction with police visibility should be strongly correlated with actual visibility. Such was clearly the case during the period 1993-2001.

**Figure 3.2 Dissatisfaction with police aggressiveness and police fining, the Netherlands, 1993-2005**



Source: Dutch Victimization Survey.

### Disorder policing

The questions ‘The police do not act sufficiently forcefully, do you agree?’ and ‘The police fine too little here, do you agree?’ are related to dissatisfaction with disorder policing. For crime and disorder police fining is of limited information, however. Some 90 percent of all fines after police stops are traffic related. For this reason, we use dissatisfaction with police fining in the sensitivity analysis only. Figure 3.2 shows the development in dissatisfaction with police aggressiveness and police fining over the period 1993-2005.

## 4 Research design

We use the variation in (satisfaction with) policing strategies between municipalities to identify the impact on the probability of becoming victim of crime or experiencing disorder:

$$(1) \Pr (y_{ijt} = 1 \mid \eta, X) = \alpha \text{HOT SPOTS}_{jt} + \beta \text{DISORDER}_{jt} + \gamma \text{VISIBILITY}_{jt} + X_{ijt} \delta + \eta_j + \mu_t + \varepsilon_{ijt}$$

In this linear probability model,  $\text{HOT SPOTS}_{jt}$  and  $\text{DISORDER}_{jt}$  represent dissatisfaction with these strategies in municipality  $j$  at time  $t$ ;  $\alpha$  and  $\beta$  are the parameters describing the effect of these strategies.  $\text{VISIBILITY}_{jt}$  reflects the actual visibility of the police in municipality  $j$  at time  $t$ .  $X_{ijt}$  is a matrix representing the characteristics of individual  $i$ , with  $\delta$  as a vector describing the effects of  $X$ .  $\eta_j$  indicates an effect on  $y$  specific for municipality  $j$ . To filter out any trends in dissatisfaction with policing strategies across the nation, we include year fixed effects  $\mu_t$ . Finally,  $\varepsilon_{ijt}$  is the error term of the model. We assume this error term to be identically and independently distributed, with mean zero. Given the large sample size, we expect the linear probability model to provide consistent estimates of the effect of policing strategies, provided that estimation techniques are robust to heteroscedasticity (Wooldridge, 2002).

### 4.1 Modelling policing strategies

Local policing strategies enter the model as separate factors, which implies that they affect the overall performance of the police. In other words: the policing strategies are not tied to one specific production factor, but to the productivity of all production factors together.

As discussed in the previous chapter, when we control for overall police visibility, dissatisfaction with visible police presence provides an indication of (the lack of) hot spots policing. We measure the effect of a change in dissatisfaction with police visibility, keeping overall visibility constant. When estimating the effect of hot spots policing, we control for disorder policing, and vice versa. Otherwise, we are likely to overstate the effect of a single strategy if it happens to be correlated with the other strategy. We are able to include both strategies in the estimation equation since they are not fully complementary. Being present at hot spots more often is most likely to lead to more fines and arrests; a policy of disorder policing goes further than that.

Since we control for actual visibility of the police, we do not estimate the effect of allocating resources to visible police presence at the cost of non-visible police activities such as back office work or criminal investigations. The latter effect is captured by including the frequency at which people see the police after all.

## 4.2 Heterogeneity

We include individual characteristics  $X_{ijt}$  to prevent estimation bias through (observable) factors that affect both dissatisfaction with policing strategies and victimisation levels. Individuals with a higher probability of victimisation, such as adolescents, may also be living in municipalities with very strict law enforcement, for example. Moreover, dissatisfaction with policing strategies may also be affected by individual characteristics. For example, unemployed people may be more likely to complain about the police – and their risk on victimisation may be higher as well (see the text box). Ignoring the correlation between someone’s perception of policing strategies and his or her probability on victimisation would bias the estimated effectiveness of policing strategies towards zero. We control for a broad set of individual characteristics that are known to be related to both the perception of police work and victimisation, including age, gender, education, employment, household type, ethnicity and housing type.

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### The role of individual characteristics in the dissatisfaction with police performance

To see how much of a role individual characteristics play in dissatisfaction with police performance, we relate perception to background characteristics of respondents living in a confined geographical area. They share the same police services, but have different background characteristics. If they differ in their perception, then these differences are more likely to be related to their individual background characteristics than to differences in police services. We choose a high-crime urban neighbourhood, Rotterdam Maashaven, and a low-crime rural town, Werkendam. Regression analysis shows that relatively young males, who are highly educated, employed and from Dutch descent, and have a family are generally less dissatisfied about police work than females, who are lower educated, unemployed, from foreign descent, and who live in an apartment with few or no children. A possible explanation of this difference in dissatisfaction is that the first category of people are less dependent on police protection than the second group. Their probability of victimisation is also lower.

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Victimisation is not determined by individual characteristics alone – and policing strategies are based on the characteristics of all people living in a municipality, not the characteristics of a single individual. Heterogeneity across municipalities is actually limited since we measure *dissatisfaction* with policing strategies rather than the absolute level of police performance. As a result, police in a low-crime municipality can do just as well as police in a high-crime municipality (as discussed later in this chapter). To control for any unobserved municipality-characteristics factors that co-determine policing strategies and victimisation levels however, we include municipality fixed effects  $\eta_j$  in the estimation equation. Consequently, we focus on changes over time rather than differences between municipalities.

## 4.3 Simultaneity

To estimate the causal effect of policing strategies on crime and disorder, changes in (dissatisfaction with) policing strategies should not be prompted by changes in the local safety

situation. Below, we discuss two ways in which a simultaneity bias may occur, and the way we address simultaneity.

### **Simultaneity in policing strategies**

With rampant crime and disorder, a police department may opt for a tougher response. When this change in strategy affects citizen satisfaction, we will find that ‘being tough’ ‘results’ in more crime, simply because the two variables are correlated through the police response. Thus simultaneity in policy results in underestimation of the effect of policing strategies.

Of old, changes in local policing strategies show little relation with changes in the local safety situation. A number of studies shows that neither resources, nor strategies are responsive to trends in disorder and crime (see Vlek et al., 2004, for instance). This finding suggests that simultaneity is limited, but it does not exclude the possibility of some bias. We control for fixed municipality characteristics that could be related to trends policy makers respond to, like a large immigrant population. Additionally, we control for a range of individual background characteristics that could be related to such trends as well. Still, if the trends are not picked up by the individual background characteristics and the municipality fixed effects, we underestimate the effect of changes in policing strategies.

The outside pressure as of 2002/2003 provided a call on the police to address the most pressing problems – and to address public disorder in particular. As a result of this pressure from the authorities, hot spots policing and disorder policing could have been more ambitious in the municipalities with relatively unfavourable trends in disorder. Since simultaneity could be more of a problem during the period 2003-2005, we exclude these years from the analysis. Indeed, as we will see in the sensitivity analysis, we find evidence for a greater simultaneity problem during 2003-2005.

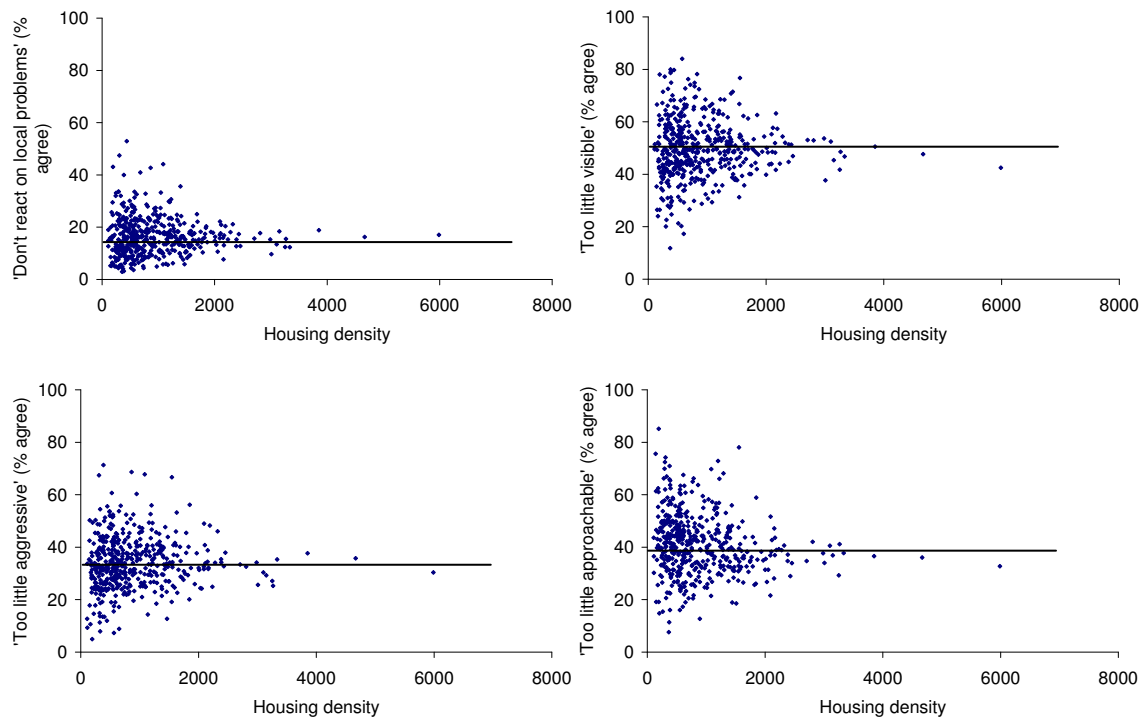
### **Simultaneity in survey responses**

Dissatisfaction with police work could be based on the local safety situation rather than information about police work. In that case, people in safe municipalities say that the police do well and people in unsafe municipalities say that the police do poorly. The underlying reasoning is: ‘it is safe, the police must be doing a good job’ and vice versa. Similarly, victimisation could be a driver of people’s perception of police work. Simultaneity in survey responses leads to overestimation of the effect of policing strategies: a positive evaluation of police work is correlated with low rates of crime and disorder. A related argument pointing in the same direction is that the need for police work goes down in safer communities. With higher safety, people expect less from the police, and give a more positive judgment of police performance (assuming that the distribution of resources follows the work load of the police). Again, this

would lead to overestimation of the effectiveness of policing strategies. The evidence contradicts the presence of simultaneity bias in survey responses.

First, even when victimisation of crime and experience of disorder were going down during the period 1993-2002, people became more negative about police work. Apparently, perception of police work is not simply based on actual trends in victimisation of crime and disorder (included in the same survey). Second, figure 4.1 shows that we do not find that police in rural municipalities (with relatively little crime) do relatively well and police in highly urbanised municipalities (with relatively much crime) do relatively poorly in the eyes of citizens. Thus the police are just as likely to do poorly as they are to do well in relatively safe (or unsafe) municipalities. To conclude, we do not find any evidence supporting the idea of simultaneity in survey responses.

**Figure 4.1** Dissatisfaction with local police work in rural and urban municipalities, 2005, 459 municipalities



Source: Dutch Victimisation Survey, Netherlands Statistics.

Note: Housing density is defined as the number of addresses per squared kilometre (\*1000) in a municipality.

#### 4.4 Measurement error

When conducting the survey, the interviewers explicitly state that they are interested in perceptions of *local* police work. By introducing the questions this way and by repeatedly referring to the respondent's *neighbourhood* in the questions, the responses should reflect perceptions of local policing strategies rather than more general perceptions of how the police

perform. Citizens only observe some dimensions of police work and they do so imperfectly, however. Perceptions of local police work are influenced by non-local factors (such as national news reports) or by local factors that provide a distorted perspective of police services (for example, local politicians wrongfully raving about poor police performance, biased news from public relations department of the police). Consequently, using perceptions of local police work may introduce measurement error in the analysis. A comparison between survey responses and other sources of data shows that this noise is limited.

First, people notice it when the police fine more often. The relation between actual and perceived police fining holds both across municipalities and over time. From systematic observations of police work, we know that the single most noticeable change in police work over the period 1993-2001 is more active police fining (Stol et al., 2004, p. 185). Indeed, police fining is the only dimension of policing performance that improved over this period in the perspective of citizens (see also figure 3.2).

**Table 4.1 Dissatisfaction with police fining and the actual number of fines, data for 2003 and 2005, 472 municipalities**

Dependent variable	(1) 'Police fine too little'	(2) 'Police fine too little'
Number of fines after police stops per capita	- 0.11 (0.05)**	
Number of <i>non-traffic related</i> fines after police stops per capita		- 0.21 (0.30)
Year fixed effect (2005)	- 0.07 (0.00)***	- 0.07 (0.00)***
Number of observations	128,751	128,627
R <sup>2</sup>	0.01	0.01

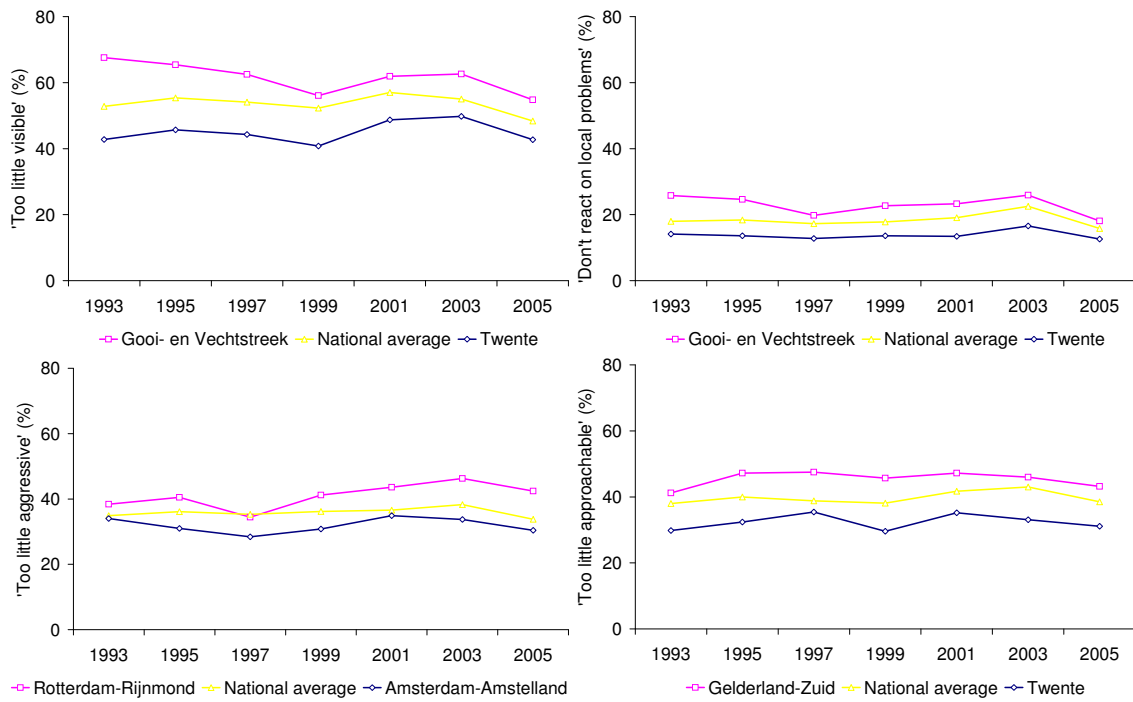
Notes: Municipality fixed effects not shown. \* Statistically significant at the 10-percent level. \*\* Statistically significant at the 5-percent level. \*\*\* Statistically significant at the 1-percent level.

Dissatisfaction with police fining is also related to the actual number of police fines. Table 4.1 presents the results of a regression analysis of the relation between the change in the actual number of fines (after police stops) and the changes in dissatisfaction with police fining. The relation between the two variables is statistically significant at the 5 percent level. Based on this estimate, the 15 percent increase in fines per capita over 2003-2005 resulted in a 1 percent decrease in dissatisfaction about police fining. The second column of table 4.1 shows that perceived police fining includes traffic fines: we do not find a statistically significant relation between non-traffic related fines and dissatisfaction with police fining.

Second, differences in the perceived performance of police forces correspond with anecdotal evidence about their performance. Figure 4.2 presents consistently underperforming and overperforming police forces on four dimensions over the period 1993-2005. In two of the four cases, Gooi- en Vechtstreek's performance compares poorly to the national average. Of all

police forces, time and again people living in Gooi- en Vechtstreek are most dissatisfied about their police force. In interviews, several practitioners stated that Gooi- en Vechtstreek is a poorly performing police force, with the lowest performance in criminal investigation as well. Twente performs best in three of the four cases. In line with this finding, Twente received the honour of being called ‘best performing police force’ by the Interior Secretary in 2003.<sup>2</sup>

**Figure 4.2 Consistently underperforming and overperforming regional police forces, 1993-2005**



Source: Dutch Victimisation Survey.

The differences are related to performance rather than other factors. The level of resources is not a determining factor: Twente and Gooi- en Vechtstreek have a similar level of police personnel per capita. Moreover, there is no simple urban-rural divide: Rotterdam-Rijnmond and Amsterdam-Amstelland are both highly urbanised regions; Gelderland-Zuid and Twente are both more rural regions.

To conclude, closer analysis of the survey responses shows that dissatisfaction with policing strategies reflects actual local police work. Moreover, survey respondents are able to make a distinction between different dimensions of local police work.

<sup>2</sup> The ‘performance contest’ was based on 19 performance indicators (three of which were part of the PMB), see Secretary of the Interior, Brief aan de Tweede Kamer over Prestatiebekostiging Politie 2002, December 10, 2003.



## 5 Estimation results

In this chapter, we present the estimation results. We start by presenting the results of the fixed effects model introduced in the previous chapter. To assess the robustness of our findings, we re-estimate our model using various other specifications.

### 5.1 Effect of proactive policing

Table 5.1 provides an overview of the estimated effects. Since we measure dissatisfaction with policing strategies, a positive coefficient implies a desirable effect on safety. The effects are expressed in hundreds of percentage points. For example, a 10 percentage point decrease in dissatisfaction with police visibility (keeping all else constant) brings down youth nuisance by an estimated 0.5 percentage point ( $-0.1 \times 0.05 \times 100$ ). In the next section, we discuss the size of the effects.

**Table 5.1** Estimated effect of proactive policing on disorder, fear of crime and crime (municipality fixed effects, 1993-2001, all variables in percentage points \* 100)

Dependent variable (↓)	Explanatory variables <sup>a</sup>	
	Hot spots policing ('Too little visible')	Disorder policing ('Too little aggressive')
<b>Public disorder</b>		
Youth nuisance	0.05 (0.01)***	0.14 (0.02)***
Drugs nuisance <sup>b</sup>	0.00 (0.02)	0.09 (0.02)***
Public intoxication	0.03 (0.01)**	0.06 (0.01)***
Vandalism	0.10 (0.02)***	0.16 (0.02)***
Graffiti	0.07 (0.02)***	0.07 (0.02)***
Aggressive driving	0.04 (0.02)**	0.09 (0.02)***
<b>Fear of crime</b>		
Feels unsafe	0.11 (0.02)***	0.11 (0.02)***
Avoids unsafe places	0.03 (0.01)*	0.02 (0.01)*
Fear of theft	0.06 (0.02)***	0.02 (0.01)
Keeps child at home	0.02 (0.03)	0.09 (0.03)***
<b>Property crime</b>		
Burglary	0.02 (0.01)**	0.03 (0.01)**
Car theft and theft out of car	0.01 (0.01)	0.02 (0.01)*
Bicycle theft	0.03 (0.01)**	0.03 (0.01)***
Purse theft	0.00 (0.01)	0.01 (0.01)
<b>Violent crime</b>		
Threat with violence	0.01 (0.01)	0.03 (0.00)***
Assault	0.00 (0.00)	0.01 (0.00)***

Notes: (a) Other explanatory variables include: individual background characteristics, fixed municipality characteristics, actual visibility of the police in the municipality, and other policing strategies in the municipality (disorder policing in the case of hot spots policing and vice versa). We cluster individuals per municipality. Each estimate is based on a separate estimation equation. Full estimation results are available upon request. (b) Drugs nuisance was included in the survey as of 1997. Standard errors are between parentheses. \* Statistically significant at the 10-percent level. \*\* Statistically significant at the 5-percent level. \*\*\* Statistically significant at the 1-percent level.

We find statistically significant effects for both policing strategies, which implies that citizens' dissatisfaction with policing strategies are not just based on 'noise'. If perceptions of local police work are solely based on incorrect information such as sensational national news reports, then we would not find an effect of policing strategies. Moreover, each policing strategy has a separately identifiable effect, which differs from the other strategy. This finding provides further evidence that people do not simply lump together all policing activities.

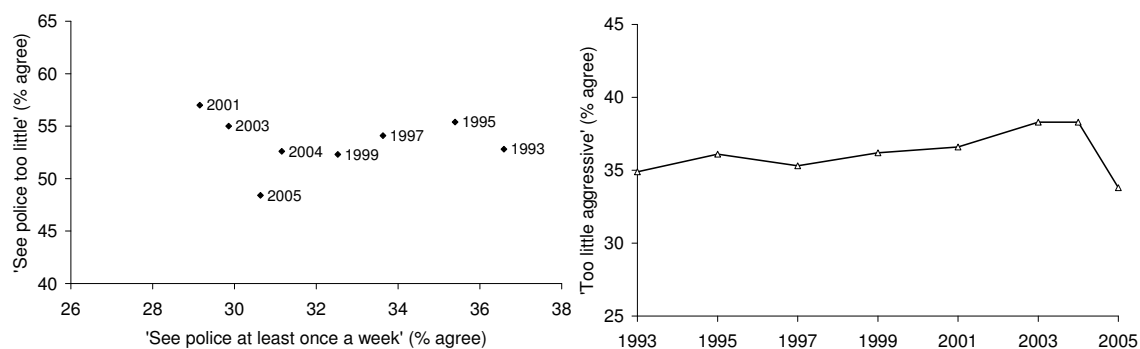
Disorder policing has an impact on all types of disorder, property crime and violent crime and also fear of crime, save purse theft and fear of theft. The effect of disorder policing on property crime and violent crime lends support to the hypothesis of broken windows. Clearly, (dissatisfaction with) disorder policing is an important determinant of police effectiveness.

Hot spots policing – being visibly present where people appreciate it most – is effective in bringing down disorder and property crime. Hot spots policing also makes people feel safer. Apparently, concentrating visible police presence at 'hot spots' is an effective deterrence against youth causing trouble in public spaces, drunks, vandals, graffiti sprayers, aggressive drivers, burglars and bicycle thieves. We do not find an effect of better police visibility on violent crime. This finding may be due to the fact that violent crime varies across individuals rather than places, whereas experience of disorder is mostly a characteristic of the place in which someone lives (Vollaard and Koning, 2005).

## 5.2 Size of the effect

To assess how large the estimated coefficients are, we relate them to changes in policing strategies over the last twelve years. Figure 5.1 shows the development in disorder policing and hot spots policing over the period 1993-2005. The graphs suggest two distinct periods in policing strategies: increasingly lax law enforcement until 2003 and a reversal since then. The year 2005 clearly stands out, both in terms of hot spots policing and disorder policing.

**Figure 5.1 Disorder policing and hot spots policing, the Netherlands, 1993-2005**



Source: Dutch Victimisation Survey.

In table 5.2, we apply the estimated coefficients to the two distinct periods in style of policing: 1993-2003 and 2003-2005. The last two columns show the overall effect of proactive policing for the periods 1993-2003 and 2003-2005, including the total effect on disorder, property crime and violent crime.<sup>3</sup> The positive effect on safety of the increase in proactive policing over the last years stands in contrast with the negative effect of increasingly lax police performance until 2003.

**Table 5.2 Estimated effect of proactive policing, 1993-2003 vs. 2003-2005 (point estimates)**

	1993-2003		2003-2005		1993-2003 vs. 2003-2005	
	Less proactive policing		More proactive policing		Overall effect policing strategy	
	(Lack of) hot spots policing	(Lack of) disorder policing	Hot spots policing	Disorder policing	1993-2003	2003-2005
<b>Public disorder</b>						
Youth nuisance	+ 1 %	+ 4 %	- 3 %	- 5 %	+ 5 %	- 8 %
Drugs nuisance	.	+ 5 %	.	- 7 %	+ 5 %	- 7 %
Public intoxication	+ 1 %	+ 3 %	- 2 %	- 4 %	+ 3 %	- 6 %
Vandalism	+ 1 %	+ 3 %	- 4 %	- 4 %	+ 4 %	- 7 %
Graffiti	+ 1 %	+ 2 %	- 4 %	- 3 %	+ 3 %	- 6 %
Aggressive driving	+ 0 %	+ 2 %	- 1 %	- 2 %	+ 2 %	- 4 %
Total disorder	+ 1 %	+ 2 %	- 3 %	- 2 %	+ 3 %	- 5 %
<b>Fear of crime</b>						
Feels unsafe	+ 1 %	+ 1 %	- 2 %	- 2 %	+ 2 %	- 4 %
Avoids unsafe places	+ 1 %	+ 1 %	- 2 %	- 1 %	+ 2 %	- 3 %
Fear of theft	+ 1 %	.	- 3 %	.	+ 1 %	- 3 %
Keeps child at home	.	+ 1 %	.	- 2 %	+ 1 %	- 2 %
<b>Property crime</b>						
Burglary	+ 1 %	+ 2 %	- 3 %	- 3 %	+ 3 %	- 6 %
Car crime	.	+ 1 %	.	- 1 %	+ 1 %	- 1 %
Bicycle theft	+ 1 %	+ 2 %	- 4 %	- 3 %	+ 3 %	- 7 %
Purse theft	.	.	.	.	.	.
Total property crime	+ 1 %	+ 1 %	- 2 %	- 2 %	+ 2 %	- 3 %
<b>Violent crime</b>						
Threat with violence	.	+ 2 %	.	- 3 %	+ 2 %	- 3 %
Assault	.	+ 3 %	.	- 4 %	+ 3 %	- 4 %
Total violent crime	.	+ 2 %	.	- 2 %	+ 2 %	- 2 %

Notes: Table only includes estimated effects which are statistically significant at the 10 percent level or higher.

<sup>3</sup> Estimated coefficients of hot spots policing and disorder policing for total disorder are 0.18 (0.04)\*\*\* and 0.21 (0.04)\*\*\*, respectively. For total property crime: 0.05 (0.02)\*\*\*; 0.06 (0.02)\*\*\*. For total violent crime: 0.01 (0.01); 0.03 (0.01)\*\*\*.

Overall, public disorder first increased by 3 percent as a result of lax policing over the period 1993-2003 and then decreased by 5 percent as a result of the recovery in proactive policing during 2003-2005. Fear of crime first increased by 2 percent, then decreased by 4 percent; total property crime first increased by 2 percent, then decreased by 3 percent; total violent crime first increased by 2 percent, then decreased by 2 percent.

### 5.3 Robustness

To test the robustness of our findings, we re-estimate our model using data from another period (2003-2005) and other indicators of disorder policing.

**Table 5.3 Estimated effect of dissatisfaction with policing strategies, 1993-2005 vs. 2003-2005**

	Hot spots policing		Disorder policing	
	1993-2001	2003-2005	1993-2001	2003-2005
<b>Public disorder</b>				
Youth nuisance	0.05 (0.01)***	0.05 (0.02)***	0.14 (0.02)***	0.10 (0.02)***
Drugs nuisance	0.00 (0.02)	0.03 (0.02)*	0.09 (0.02)***	0.01 (0.01)
Public intoxication	0.03 (0.01)**	0.02 (0.02)	0.06 (0.01)***	0.05 (0.01)***
Vandalism	0.10 (0.02)***	0.04 (0.05)	0.16 (0.02)***	0.12 (0.03)***
Graffiti	0.07 (0.02)***	0.05 (0.03)*	0.07 (0.02)***	0.03 (0.02)
Aggressive driving	0.04 (0.02)**	0.05 (0.02)**	0.09 (0.02)***	0.08 (0.02)***
<b>Fear of crime</b>				
Feels unsafe	0.11 (0.02)***	0.11 (0.03)***	0.11 (0.02)***	0.12 (0.03)***
Avoids places	0.03 (0.01)*	0.04 (0.02)	0.02 (0.01)*	0.04 (0.01)***
Fear of theft	0.06 (0.02)***	0.04 (0.03)	0.02 (0.01)	0.04 (0.02)**
Keeps child home	0.02 (0.03)	0.05 (0.07)	0.09 (0.03)***	0.12 (0.05)**
<b>Property crime</b>				
Burglary	0.02 (0.01)**	0.03 (0.01)**	0.03 (0.01)**	0.01 (0.01)
Car theft, theft out of car	0.01 (0.01)	0.06 (0.02)***	0.02 (0.01)*	0.01 (0.01)
Bicycle theft	0.03 (0.01)**	-0.02 (0.02)	0.03 (0.01)***	0.04 (0.02)***
Purse theft	0.00 (0.01)	0.04 (0.01)***	0.01 (0.01)	0.01 (0.01)
<b>Violent crime</b>				
Threat wt. violence	0.01 (0.01)	0.01 (0.01)	0.03 (0.00)***	0.03 (0.01)***
Assault	0.00 (0.00)	0.00 (0.01)	0.01 (0.00)***	0.01 (0.00)

Notes: Each estimate is based on a separate estimation equation including municipality fixed effects. Full estimation results are available upon request. Standard errors are between parentheses. \* Statistically significant at the 10-percent level. \*\* Statistically significant at the 5-percent level. \*\*\* Statistically significant at the 1-percent level.

#### Simultaneity

We aim to lower the bias from possible simultaneity in policing strategies by excluding the years 2003-2005. As argued in the previous chapter, policing strategies had a larger ‘random element’ before this period. Indeed, table 5.3 shows that the estimates for 1993-2001 are generally higher than the estimates for 2003-2005. Thus, local policing strategies have become more responsive to local trends in crime and disorder. The only (statistically significant)

exceptions to this rule are car crime and purse theft. It could be that the police no longer focus their efforts on these offences since 2003. We find the largest differences in estimates for the effect of disorder policing on drugs nuisance and graffiti and the effect of hot spots policing on vandalism, suggesting that the police has been particularly responsive to trends in these types of disorder.

When we include municipality averages of all individual characteristics in the estimation equation for the period 1993-2001, we find exactly the same estimation results (not shown). Thus, policing strategies are not responsive to trends in employment, demography, education level, ethnicity, housing type, and household size. This finding suggests that simultaneity was not a major issue during these years. The estimates for the period 2003-2005 tend to be somewhat higher when we include the time-varying municipality characteristics – again implying a greater responsiveness of the police to (observable) trends during these years.

#### Alternative indicators for disorder policing

We re-estimate the model using an alternative indicator of disorder policing from the survey, dissatisfaction with police fining, and an alternative source of data: police statistics on fines.

**Table 5.4** Size of the effect of changes in policing strategies over the period 2003-2005, alternative indicators for disorder policing (point estimates)

	(1) 'Too little aggressive'	(2) 'Fine too little'	(3) Actual number of police fines <sup>a</sup>
<b>Public disorder</b>			
Youth nuisance	- 5 %	- 2 %	.
Drugs nuisance	- 7 %	.	- 10 %
Public intoxication	- 4 %	- 1 %	.
Vandalism	- 4 %	- 1 %	- 2 %
Graffiti	- 3 %	.	.
Aggressive driving	- 2 %	- 2 %	- 3 %
<b>Fear of crime</b>			
Feels unsafe	- 2 %	- 1 %	.
Avoids unsafe places	- 1 %	.	- 7 %
Fear of theft	.	.	.
Keeps child at home	- 2 %	.	- 6 %
<b>Property crime</b>			
Burglary	- 3 %	.	.
Car theft and theft out of car	- 1 %	.	- 5 %
Bicycle theft	- 3 %	.	- 8 %
Purse theft	.	.	.
<b>Violent crime</b>			
Threat with violence	- 3 %	- 1 %	.
Assault	- 4 %	.	.

Notes: (a) Because of data availability, estimates for the actual number of police fines are based on data for 2003-2005.

Table 5.4 provides an overview of the estimated effects on safety. The estimates in the second column show that dissatisfaction with police fining is limited to disorder, fear of crime and threat with violence. Not surprisingly, police fining has a less wide-ranging impact than more generally defined aggressive policing (which also includes all other types of intervention, including warnings and arrests). Since most police fines are traffic-related, the effect on aggressive driving provides the most relevant comparison. Columns 2 and three show that we find similar results for perceived and actual police fining, which lends credibility to using the Dutch Victimisation Survey as data source for police performance. Apparently, using administrative data rather than survey data does not substantially change the size of the estimated effect. If anything, our indicators from the survey result in underestimation of the effect (the more so, since the estimates in the third column are based on the period 2003-2005).

We find actual police fining to have an effect on property crime as well. Discussions with police officers suggest that these findings many reflect an active, tougher approach in these municipalities rather than greater police fining only. The approach may include such methods as ‘adopting’ drug addicts, making sure that they are institutionalised.

To conclude, the analysis suggests that the simultaneity bias is limited since our estimates are not affected by including a host of time-varying municipality characteristics that are known to be drivers of trends in crime and disorder. We limited the simultaneity bias further by excluding the years 2003-2005. The estimates for this latter period show that the police has become more responsive to changes in the local safety situation, and to trends in disorder in particular. Our results are robust to the choice of source of data. Police fining has a similar impact on aggressive driving – whether the variable is based on survey data or administrative data from the police.

## **5.4 Conclusion**

Based on the empirical analysis, we conclude that proactive policing is effective in lowering crime, disorder and fear of crime. More specifically, disorder policing is effective in bringing down all types of disorder, crime and fear of crime, save fear of theft and purse theft. The effects on violent and property crime support the broken windows hypothesis. In line with literature, we find hot spots policing to be effective in combating disorder, fear of crime and property crime. We find evidence that the simultaneity bias over the period 1993-2001 is limited and that the responsiveness of the police to local trends in crime and disorder increased over the period 2003-2005. As a result of proactive policing since 2003, disorder declined by 5 percent and crime by 2 tot 3 percent. People felt safer as well. The increase in police effectiveness stands in contrast to a long decline in police performance over the period 1993-2003.

## 6 Conclusions

### **Proactive policing is an effective policing strategy**

Based on the empirical analysis, we conclude that proactive policing (a tougher, more targeted police response to criminal and disorderly behaviour) is effective in lowering crime, disorder and fear of crime. Over the period 2003-2005, proactive policing reduced disorder by an estimated 5 percent, property crime by 3 percent, violent crime by 2 percent and fear of crime by 4 percent. The increase in police effectiveness of the last years is a clear break in a long trend of ever-declining performance. During the period 1993-2003, increasingly lax law enforcement actually resulted in an increase in crime and disorder. Since 2003, the police are recovering lost ground.

### **Style of policing, not level of resources determines effect of police on safety**

The increase in police effectiveness of the last years coincides with a more active involvement in police work by municipalities and the national government. Both local and national authorities are pushing the police towards a more proactive approach. As of 2003/2004, several municipalities closely monitor local trends in crime and disorder and target police presence on 'hot spots'. As of 2003, the national government holds the police forces accountable to a number of performance targets laid down in 'performance contracts'. It is not clear to what extent the change in police effectiveness can be attributed to local or national policy. We can only conclude that proactive policing is an effective policing strategy, not whether the performance contracts are a good way of providing incentives to the police.

It is clear, however, that the contribution of the police to safety is primarily related to police effectiveness, not the level of resources. During the period 1993-2003 the number of police personnel increased, but satisfaction with police work decreased. Since 2003, we see the reverse: police resources are slightly decreasing, and satisfaction of citizens is increasing.

Strengthening incentives seems to be a more cost-effective way of improving safety in the coming years than providing means to increase the number of police personnel. This administration's goal is to lower crime and disorder by some 20 percent over the period 2002-2008/2010. We are now halfway: the percentage of people who are victim of crime at least once a year declined from 50 percent in 2002 to 44 percent in 2005; the percentage of people that frequently experiences disorder declined from 41 percent in 2002 to 38 percent in 2005. Even with the current level of police effectiveness it is very costly to realise a further 10 percent decline in crime and disorder through greater numbers of police personnel. Based on the effect of more police personnel estimated in Vollaard and Koning (2005), some 20 percent more police personnel per capita would be necessary to achieve this goal. That would mean some €630 million additional costs of personnel per year at a minimum (9,200 additional FTEs, each

at the annual cost of €68,542). The costs of efforts related to strengthening incentives are likely to be lower than the costs of additional police personnel. The more so, since the long period of growing police resources but declining police performance suggests a great amount of slack within the police organisation.

**Incentives could be based on citizen satisfaction with police work**

Our findings suggest that incentives for the police could be based on citizen satisfaction with police work. Not only do citizens have an idea of what the police do in their neighbourhood, their perceptions turn out to be important determinants of police effectiveness as well. Holding the police accountable to indicators of citizen satisfaction with police work is likely to provide incentives that are better in line with the objectives of police work than output indicators such as the number of fines (Vollaard, 2003).

As a final methodological note: our estimates of the effect of policing strategies could be biased towards zero due to simultaneity in policing strategies. Additionally, we may overestimate the effect of policing strategies as a result of simultaneous changes in other policing strategies that we do not observe and as a result of simultaneity in survey responses on questions about police work. We find evidence suggesting that these types of simultaneity bias are likely to be small, but we cannot exclude the possibility that they affect our estimates. Therefore, further empirical research into the determinants police effectiveness is necessary to put our findings to the test.



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