Crime in Amsterdam from 2003-2012

Explaining the decline of violent and property crimes in the city districts of Amsterdam

Author: Pim Foekens

UNIVERSITY OF TWENTE.

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Author

Name:	P.W. Foekens
Student number:	1387863
Location:	University of Twente, Enschede
Faculty:	Faculty of Management and Governance
Master:	Public Administration
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Supervisors

First supervisor:	Dr. Guus Meershoek
Second supervisor:	Dr. Ann Morissens

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Preface

This report is my master thesis. This research is the final product and final stage of the master Public Administration. I obtained my bachelor degree in Applied Safety and Security Studies at the Saxion University in Enschede in 2012 and decided to continue studying. The premaster program of Public Administration at the University of Twente started that same year and I finished it in 2013. After finishing the premaster I started the master program and this master thesis, roughly one year later, is the final result. During the master program I specialized in Public Safety and this research is therefore related to this topic.

This report is about the decline of violent and property crimes in the city districts of Amsterdam during the period 2003-2012. Main inspiration for this research is the book *the city that became safe* (2012) of Franklin E. Zimring about the causes of the spectacular crime decline in New York City with 80 percent during the period 1990-2009. An idea that was proposed to me by Guus Meershoek in November 2013. The focus of this research is on factors related to the demographic composition, socio-economic conditions, and law enforcement that could explain the crime decline in the city districts of Amsterdam during this period.

This research is carried out internally at the University of Twente. A special thanks goes to Guus Meershoek and Ann Morissens of the University of Twente for supervising this project and for the useful feedback and tips during this research. I also want to thank Harry Smeets from O+S Amsterdam for helping me collect the data that was necessary for carrying out this research and for the willingness to answer questions related to that.

Enschede, August 5th, 2014

Pim Foekens

Summary

Crime in New York City (NY) declined with 80 percent over a period of 19 years (1990-2009). Crime also declined during this period in other metropolitan areas of the United States (US). The crime decline in NY was remarkable because the decline was twice as large and twice as long compared to the crime decline in other cities in the US during the 1990s. Zimring (2012) sought in his research for reasons that could explain this difference between NY and other cities in the US. The results were remarkable. A structural decline in crime and disorder turned out to be possible without any structural changes in the population, social, and economic structure of the city of NY. Changes in police strategies explain, according to Zimring (2012), 40 percent of the crime decline. This is in contrast with the assumption of many researchers who claim that the effect of the police and policing on crime is limited. Researchers claim that order maintenance is the main function of the police and policing. This is in contrast with the assumption of the general public, politicians, and even police officers who think that the main function of the police and policing is fighting crime. The social, cultural, political, and economical structure of societies have, according to the theory, a larger impact on crime (Reiner, 2010).

The crime decline at the beginning of the 21st century in Amsterdam is the focus of this research. Goal of this research is examining to what extend the factors that explain the crime decline in NY are also applicable for the crime decline in Amsterdam. The structure of the city (demographic composition and socio-economic conditions) and law enforcement are taken into account. The next research question is examined with this research:

Which elements of the structure of the city and law enforcement explain the decline of violent and property crimes in the city districts of Amsterdam from 2003 to 2012?

The research design is a trend study comprising a period of 10 years. The development of macro- level variables, related to the structure of the city and law enforcement, is illustrated by making use of univariate analyses. Bivariate analyses are used for testing the correlation between the independent and dependent variables. Correlations are tested with the nonparametric test Spearman's rho. The dependent variables are six reported crimes to the police (theft of motor vehicles, theft out/from motor vehicles, pick pocketing, burglary, street robbery, and robbery). The independent variables are seven variables related to the demographic composition of the city districts of Amsterdam (population, share of ethnic minorities, Surinamese, Antilleans, Moroccans, Turkish, and age 15-29). Five variables are related to the socio-economic conditions of the city districts of Amsterdam (unemployment rate, unemployment benefit recipients, very low income households, social benefit recipients, and one parent families) and four variables are related to law enforcement in the city districts of Amsterdam (juvenile suspects, hard core youth, drug trafficking, and drugs and alcohol nuisance). According to the hypotheses there is a positive relationship between the dependent and independent variables. The expectation is that crime in the city districts of Amsterdam would most likely be explained by developments in the demographic composition and socio-economic conditions of the city districts in Amsterdam and to a lesser extent by law enforcement.

The results of the univariate analyses of these variables are as followed. The median crime decline in Amsterdam for the six crimes was approximately 45 percent between 2003-2012. The crime decline was stronger during the period 2003-2007 compared to the period 2008-2012. The decline was, from a geographical point of view, not of equal strength in every city district and for every type of crime. The

decline in the rates of pick pocketing, burglary, and street robbery was weaker, or even increased, in certain city districts compared to other city districts. The structure of the city districts is in 2012 relatively the same as the city districts in 2003. Minimal changes have occurred in the demographic composition and socio-economic conditions of the city districts. Certain high risk populations increased within the demographic composition and the socio-economic conditions in the city districts were slightly better. Law enforcement was concerned with approaches aimed at specific groups and areas during this period. This was different compared to the focus on crime rates that was used to be the main point of focus. Approaches were aimed at groups that are responsible for a large part of crime in the city, namely hard core youth and addicted repeated offenders. Goals were a decline of the size of these groups and crimes committed by them. The results showed that the number of juvenile suspects and hard core youth declined in (most of) the city districts. Drug trafficking and drugs and alcohol nuisance (both are related to addicted repeated offenders) declined too in (most of) the city districts during the period 2003-2012. The attention of law enforcement was also placed on neighbourhood combinations that had high crime rates and were assigned as hot spots.

The median crime decline in hot spot areas was between 11 and 44 percent higher than in non-hot spot areas. The results should be interpreted with caution because crime in certain non-hot spot areas declined with equal strength compared to hot spot areas. Other areas (for instance, public transport) were also selected as hot spots but were not part of the analysis. The bivariate analyses illustrated that 37 percent of the socio-economic variables, 33 percent of the variables related to law enforcement, and 21 percent of the demographic composition variables confirmed the hypotheses and are significant at least at the 0.05 level during the period 2003-2012. The three strongest predictors of crime are the unemployment rate with 57 percent, drugs and alcohol nuisance with 48 percent, and Surinamese with 45 percent. The weakest predictors of crime are the share of ethnic minorities with 19 percent, population with 2 percent, and age 15-29 with 0 percent. Crime rates in the city districts of Amsterdam proved to be capable of large changes irrespective of these significant correlations. Higher, lower, or equal changes in crime rates can't (always) be explained by changes in the demographic composition, socio-economic conditions, and law enforcement. In contrast with the theoretical expectations, the effect of law enforcement on the crime decline seems to be larger. The effect that demographic developments had on crime rates seems to be much lower than would be expected.

An exact explanation for the crime decline in the city districts of Amsterdam remains unclear because of the many causal factors that could affect crime rates. The major contribution of this research to this field of research (urban crime) is also important to take into account. According to Zimring (2012, p.173), ''it is more important to know that robbery rates can go down 84% than it is to know that police strategies are apparently responsible for about 40% of that decline. The volatility and variability of crime rates is a major signal to policy analysts, independent of a complete account of contributions to a decline.'' This pinpoints exactly to the major contribution of this research to this field of research. Half (and in some cases less or even more than half) of the volume of crime rates in the city districts of Amsterdam showed strong variability and volatility during this 10 year period. This happened without any large structural changes in the city districts of Amsterdam. This shows that with properly designed policies it should be possible to make a large difference in crime rates. The crime decline in NY (1990-2009) as well as the crime decline in Amsterdam (2003-2012) validate that a more critical view and position should be taken on popular explanations for crime in urban areas (Schuilenburg, 2013). The traditional theories of crime are still important for understanding crime. But it is also important to take into account the variable part of crime. Criminology and urban sociology should focus on ''a rebalancing to accommodate the variable as well as the fixed (Zimring, 2012, p.216)'' volume of crime.

Samenvatting

Criminaliteit in de stad New York (NY) is met 80 procent gedaald gedurende een periode van 19 jaar (1990-2009). Criminaliteit daalde gedurende deze periode in meerdere stedelijke gebieden van de Verenigde Staten (VS). De criminaliteitsdaling van NY was echter bijzonder omdat deze twee keer zo lang en twee keer zo groot was in vergelijking met de criminaliteitsdaling in andere stedelijke gebieden in de VS sinds het begin van de jaren 90. Zimring (2012) heeft onderzoek gedaan naar verklaringen voor het verschil in criminaliteitsdaling tussen NY en andere stedelijke gebieden in de VS. De resultaten waren opmerkelijk te noemen. Een daling in criminaliteit en wanorde bleek mogelijk te zijn zonder dat er structurele veranderingen plaatsvonden in de bevolking, sociale en economische structuur van de stad NY. Volgens Zimring (2012) was 40 procent van de criminaliteitsdaling veroorzaakt door veranderingen in politiestrategieën. Dit is in tegenstelling met de veronderstelling van verschillende onderzoekers dat de politie en politiezorg een beperkt effect hebben op de criminaliteit. Het handhaven van de openbare orde is de voornaamste taak van de politie en politiezorg. Handhaven van de openbare orde is in tegenstelling met de veronderstelling van burgers, politici en politiefunctionarissen die vinden dat de voornaamste taak van de politie en politiezorg is het bestrijden van de misdaad. De sociale, culturele, politieke en economische structuur van de samenleving hebben, volgens theorieën, een groter effect op de criminaliteit dan de politie en politiezorg (Reiner, 2010).

Dit onderzoek richt zich op de criminaliteitsdaling die in het begin van de 21ste eeuw is ingezet in Amsterdam. Het doel van dit onderzoek is dat wordt onderzocht in hoeverre de resultaten van de criminaliteitsdaling in NY ook van toepassing zijn op de criminaliteitsdaling in Amsterdam. De structuur van de stad (bevolkingssamenstelling en sociaaleconomische omstandigheden) en rechtshandhaving worden hierbij in beschouwing genomen. Daarbij is de volgende onderzoeksvraag onderzocht:

Welke elementen van de structuur van de stad en rechtshandhaving verklaren de daling van geweldsdelicten en vermogensdelicten in de stadsdelen van Amsterdam tussen 2003 en 2012?

Het onderzoeksontwerp is een trend studie gericht op een periode van 10 jaar. De ontwikkeling van variabelen op macro niveau, gerelateerd aan de structuur van de stad en rechtshandhaving, zijn geanalyseerd aan de hand van een univariate analyse. De correlatie tussen de afhankelijke en onafhankelijke variabelen is geanalyseerd aan de hand van een bivariate analyse. De (verdelingsvrije) test Spearmans rangcorrelatiecoëfficiënt is gebruikt om deze correlatie te testen. De afhankelijke variabelen zijn zes soorten aangiftecriminaliteit (diefstal van motorvoertuigen, diefstal uit/vanaf motorvoertuigen, zakkenrollerij, inbraak, straatroof en overvallen). De onafhankelijke variabelen zijn zeven variabelen gerelateerd aan de demografische samenstelling van de stadsdelen van Amsterdam (populatie, aandeel van etnische minderheden, Surinamers, Antillianen, Marokkanen, Turken en leeftijd 15-29 jaar). Vijf variabelen zijn gerelateerd aan de sociaaleconomische omstandigheden in de stadsdelen van Amsterdam (werkloosheidspercentage, ontvangers van werkloosheiduitkeringen, huishoudens met een zeer laag inkomen, ontvangers van bijstanduitkeringen en eenoudergezinnen) en vier variabelen gerelateerd aan rechtshandhaving in de stadsdelen van Amsterdam (jeugdige verdachten, harde kern jeugd, drugsmisdrijven en drugs- en alcoholoverlast). De verwachting voor dit onderzoek (hypotheses) is dat er een positieve relatie is tussen de afhankelijke en onafhankelijke variabelen. De daling van criminaliteit in de stadsdelen van Amsterdam is hoogstwaarschijnlijk te verklaren aan de hand van veranderingen in de demografische samenstelling en sociaaleconomische

omstandigheden van de stadsdelen van Amsterdam en in mindere mate door veranderingen in rechtshandhaving.

De resultaten van de univariate analyse zijn als volgt. De criminaliteitsdaling (mediaan) van de zes soorten aangiftecriminaliteit in Amsterdam was ongeveer 45 procent tussen 2003-2012. Hierbij viel op dat de daling in de periode 2003-2007 sterker was dan in de periode 2008-2012. Daarnaast bleek dat vanuit een geografisch oogpunt de daling niet even sterk is in elk stadsdeel en ook niet voor elk type delict. De daling van zakkenrollerij, inbraak en straatroof is, in vergelijk met andere stadsdelen, in enkele stadsdelen minder sterk, of zelfs gestegen, gedurende de periode 2003-2012. De structuur van de stad in 2012 is vergelijkbaar met die van 2003. De bevolkingssamenstelling en de sociaaleconomische omstandigheden zijn minimaal veranderd. De proportie van enkele risicogroepen binnen de bevolkingssamenstelling is licht gestegen en de sociaaleconomische omstandigheden zijn licht verbeterd. Rechtshandhaving richtte zich op de aanpak van specifieke groepen en gebieden gedurende deze periode. Dit is een andere aanpak dan voorheen, omdat de aanpak zich niet meer richt op specifieke delicten. De aanpak van groepen was gericht op daders die verantwoordelijk zijn voor een groot deel van de criminaliteit in de stad, namelijk de harde kern jeugd en de verslaafde veelplegers. Het doel was het verminderen van de omvang van deze groep en de criminaliteit gepleegd door deze groep. De resultaten laten zien dat het aantal jeugdige verdachten en harde kern jeugd is gedaald in de meeste stadsdelen gedurende de periode 2003-2012. Ook het aantal drugsmisdrijven en drugs- en alcoholoverlast is gedaald in de meeste stadsdelen (gerelateerd aan de verslaafde veelplegers) gedurende de periode 2003-2012. De aanpak richtte zich ook op enkele buurtcombinaties waar de criminaliteit hoog was. Deze gebieden werden aangemerkt als hot spots.

De criminaliteitsdaling (mediaan) in hot spots bleek tussen 11 en 44 procent hoger te zijn dan buurtcombinaties die niet als hot spots zijn aangemerkt. De resultaten moeten echter met voorzichtigheid worden geïnterpreteerd, omdat criminaliteit in sommige niet-hot spot gebieden een gelijkwaardige daling had als hot spots. Ook zijn sommige gebieden (bijvoorbeeld het openbaar vervoer) binnen buurtcombinaties ook als hot spots aangemerkt maar niet meegenomen in deze analyse. De bivariate analyse laat zien dat 37 procent van de sociaaleconomische variabelen, 33 procent van de variabelen gerelateerd aan rechtshandhaving en 21 procent van de variabelen gerelateerd aan de demografische samenstelling de hypotheses hebben bevestigd en een positieve en significante correlatie hebben met de criminaliteitsontwikkeling gedurende deze periode. De sterkste verklarende variabelen waren het werkloosheidspercentage met 57 procent, drugs- en alcoholoverlast met 48 procent en Surinamers met 45 procent. De zwakste verklarende variabelen waren het aandeel van etnische minderheden met 19 procent, populatie met 2 procent en leeftijd 15-29 jaar met 0 procent. Uit een nadere analyse van de criminaliteitsontwikkeling in de stadsdelen van Amsterdam bleek dat deze in sterke mate verschillend was tussen stadsdelen ongeacht welke correlaties significant waren. Hogere, lagere of gelijkwaardige criminaliteitsdalingen lieten zich over het algemeen niet verklaren aan de hand van ontwikkelingen in de demografische samenstelling, sociaaleconomische omstandigheden en veranderingen in rechtshandhaving. In tegenstelling tot de theoretische verwachting is echter gebleken dat rechtshandhaving een grotere impact heeft op criminaliteit dan verwacht. Het effect van demografische ontwikkelingen bleek lager te zijn dan verwacht.

Het is niet mogelijk gebleken om een exacte verklaring voor de criminaliteitsdaling in de stadsdelen van Amsterdam te geven vanwege de vele oorzakelijke factoren die de criminaliteit kunnen verklaren. Ondanks deze beperking is de bijdrage van dit onderzoek aan dit onderzoeksveld (criminaliteit in stedelijke gebieden) zeer belangrijk. Volgens Zimring (2012, p.173), ‘’is het belangrijker om te weten dat overval cijfers met 84% kunnen dalen dan dat politiestrategieën blijkbaar verantwoordelijk zijn

voor 40% van de daling. De volatiliteit en variabiliteit van criminaliteitscijfers is een belangrijk signaal richting beleidsmakers, ongeacht een volledige verklaring van de criminaliteitsdaling.'' Deze zin verwoordt de bijdrage van dit onderzoek over de criminaliteitsdaling in Amsterdam aan dit onderzoeksveld perfect. De helft (in enkele gevallen hoger of lager) van het volume van de criminaliteitscijfers in de stadsdelen van Amsterdam bleek in sterke mate variabel te zijn gedurende 10 jaar. Dit gebeurde zonder grote veranderingen in de structuur van de stad. Met goed ontworpen beleidsmaatregelen zou het mogelijk moeten zijn om (grote) veranderingen aan te brengen in de ontwikkeling van criminaliteit in de stad. De criminaliteitsdaling in NY (1990-2009) en Amsterdam (2003-2012) bevestigen dat er een meer kritische blik en positie moet worden ingenomen tegenover de populaire verklaringen voor criminaliteit in stedelijke gebieden (Schuilenburg, 2013). Traditionele theorieën die criminaliteit verklaren zijn nog steeds belangrijk, maar het is ook belangrijk om rekening te houden met het variabele deel van de criminaliteit. De criminologie en stadssociologie zouden zich moeten focussen op ''een evenwicht om zowel het variabele als het vaste volume van criminaliteit tegemoet te komen (Zimring, 2012, P.216).''

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1. Introduction

''Crime isn't a disease, it's a symptom. Cops are like a doctor that gives you aspirin for a brain tumour. Blackjacks (tough 'law and order' policing) and aspirin (community policing) can be only temporary palliatives without more fundamental social surgery (Reiner, 2000, p. 220).''

This introduction starts with a famous quote from Robert Reiner, the leading policing scholar in his field, from his book *The Politics of the Police*. Over the years there were many political myths about policing and the role of the police herein which led to many conflicting debates. The main question related to the police and policing is their societal function. Reiner has made comprehensive reviews of sociological research on policing and argued that the central function of policing is *order maintenance*. This is, however, in contrast with what politicians, the general public, and even many police officers assume. They believe that the central function of policing is *fighting crime* (Bittner, 2005; Jones, Newburn, & Smith, 2012; Manning, 2005). What all these myths have in common is that it ignores that an orderly society can't be created by just properly designed policing. It ignores the wider social structure, culture, and political economy in societies which are crucial elements when talking about crime (Reiner, 2000, 2010).

With this research, about the determinants of the decline of violent and property crimes in city districts of Amsterdam, the debate will continue. The main reason that led to this research has to do with a development that took place in this field of research. At the heart of this development lies New York City (NY), the largest city in the United States (US). Crime in NY, once one of the most dangerous places in world, dropped with 80 percent over a period of 19 years (1990-2009). Crime rates of different offences (homicide, rape, robbery, assault, burglary, car theft, and larceny) declined enormously during this period. Researchers were stunned about this development in crime in a city that had such high levels of crime (Zimring, 2012).

The crime decline of NY was different compared to other metropolitan areas in the US. The NY crime decline was different because the magnitude of the decline, the broadness of the decline, and the length of the decline were unique. The crime decline of the average city in the US was hovering around 40 percent and in 2000 the crime decline stopped. NY's crime decline was therefore twice as long and twice as large compared to other metropolitan areas in the US (Zimring, 2012). Zimring (2012) searched in his research for explanations of this bigger and longer crime decline in NY. He showed that a structural change in crime and disorder doesn't have to go together with a structural change in the city's population, social and economic structure and this was in contrast with criminological theories and conventional research. NY experienced, however, major changes in police force levels, organization, and tactics. These changes explain, according to Zimring, NY's bigger and longer crime decline for about 40 percent. The New York Police Department were self not shy to claim credit too (Reiner, 2010), mostly inspired by 'celebrity' police chief William Bratton (Greer & McLaughlin, 2012). Important lesson of this research by Zimring is that crime isn't just a natural phenomenon of the urban environment, but can be reduced by properly designed policy strategies, even though half of the crime decline in NY has no clear cause (Lub, 2013).

What makes this research, conducted in the US, interesting is that researchers claim that violent and property crimes also declined in the Netherlands since 2002 (Onrust & Voorham, 2013; Vollaard, Versteegh, & van den Brakel, 2009). Violent and property crimes also declined in Amsterdam during the period 2003-2012. Interesting point to study is whether these developments in crime rates in NY and their explanations also apply for developments in crime rates in other cities, in this case,

Amsterdam. Research in the US and the United Kingdom (UK) are many times used as a key point of reference by other societies and it is therefore not uncommon that developments in this field of research are considered in the Netherlands too (Hoogenboom & Punch, 2012; Van Swaaningen, 2013).

1.1 Goal of this research

The focus of this research is the effect that the demographic composition, socio-economic conditions, and law enforcement had on the decline of violent and property crimes in the city districts of Amsterdam during the period 2003-2012. The research area is urban crime and the research topic is factors associated with crime rates in urban areas. The aim of this research is explaining the decline of reported violent and property crimes in Amsterdam during the period 2003-2012 by checking whether elements that explain the crime decline in NY also explain the crime decline in Amsterdam during this period. Is the groundbreaking research about NY's crime decline applicable in other urban areas too?

1.2 Research questions

The following research question is studied with this research, based on the information provided in the previous sections and the goal of this research:

Which elements of the structure of the city and law enforcement explain the decline of violent and property crimes in the city districts of Amsterdam from 2003 to 2012?

This central question is elaborated with the use of five research questions. These research questions are as followed:

(1) How did the level of violent and property crimes develop in the city districts of Amsterdam from 2003 to 2012?
(2) How did the structure of the city districts of Amsterdam develop from 2003 to 2012?
(3) How did law enforcement develop in the city districts of Amsterdam from 2003 to 2012?
(4) What is the effect of the structure of the city districts on the decline of violent and property crimes in the city districts of Amsterdam from 2003 to 2012?
(5) What is the effect of law enforcement on the decline of violent and property crimes in the city districts of Amsterdam from 2003 to 2012?

1.3 Concepts defined

Five specific concepts that are mentioned in these research questions will be clarified in this paragraph. The violent crimes that are part of this research are street robbery and robbery. The property crimes in this study are related to theft of motor vehicles, theft out/from motor vehicles, pick pocketing, and burglary. With the city districts of Amsterdam is meant city districts Downtown, West, New-West, South, East, North, and Southeast which is the geographical distribution of Amsterdam since 2010. City district Westpoort is excluded because this is a business park and doesn't have its own administrative unit. The structure of the city refers to the demographic composition and socio-economic composition of the city. Law enforcement is related to the ''police as a particular kind of social institution and policing as a set of processes with some specific social functions (Reiner, 2010, p.4)''. The glossary in this report provides some background information about these and other important concepts used in this report.

1.4 Structure of this report

This entire report is constructed around nine chapters. After this chapter, the second chapter will provide the theoretical background of this research. The work of many leading scholars around this topic will be discussed. The difference between the police and policing will be explained, together with the pluralization of the crime control task. Other elements that will be discussed are the function of the police in societies and the effect that socio-economic conditions, youth, ethnic minorities, police, and policing have on crime rates. The third chapter is about the research method. The research design, data collection, and data analysis will be discussed in this chapter. In the fourth chapter the development of crime rates in the city districts of Amsterdam during the period 2003-2012 will be illustrated. Special attention is given to the size, length, and broadness of the crime decline in Amsterdam. In the fifth chapter the demographic and socio-economic developments of the city districts will be illustrated. The sixth chapter will be about the development of law enforcement during the period 2003-2012. There is special attention in this chapter for developments of law enforcement at a national, regional, and local level. The seventh chapter is about the effect that developments in the demographic composition and socio-economic conditions of the city districts had on the crime rates in Amsterdam from 2003-2012. The eighth chapter discusses the effect that law enforcement had on the crime rates in Amsterdam from 2003-2012. The final chapter gives the conclusion of this research, together with a discussion of the results, the contributions of this research to this field of research, and the limitations of this research.

2. Theoretical framework

The theoretical framework that is taken into account during this research will be provided in this chapter. Section 2.1 will start with a description of the concepts police and policing, for the purpose of understanding the basic differences between them. The pluralization of the policing task will be discussed too. Chapter 2.2 is about the function of the police and policing in societies. The necessity of the police and policing will be discussed. Section 2.3 is about the effect of socio-economic conditions on crime rates. The individual is still treated as the main unit of analysis in empirical research of criminology, but there is a shift in research that takes into account macro-level predictors of crime. Section 2.4 is about the usual suspects. Youth and ethnic minorities are disproportionally represented in the criminal justice system. They are the 'property' of the police. Section 2.5 is about the myths that are going around about the role of the police and policing in fixing the crime problem. A description of the police and policing in Amsterdam since the 1960s until the beginning of the 21st century will be given too. Section 2.6 is about the effect that traditional police functions and innovative policing strategies have on crime. Section 2.7 is the final section and is about the hypotheses that are tested with this research. The literature that is presented in this chapter will be linked to this research.

2.1 The police, policing, and pluralization

The difference between the police and policing will be explained in this section. These two concepts seem similar but are in fact really different. Another aspect that will be discussed is the pluralization of the crime control task. In the 1970s and 1980s this was solely the task of the (public) police service, but it is now characterized as a cooperative exercise in which information is shared and partnership flourishes between a variety of agencies. The broader task of policing is especially subjected to pluralization (Levi & Maguire, 2012). The discussion of these concepts is important, because chapter six of this report will illustrate that policing takes a prominent place in 'tackling' crime. The police alone aren't the sole partner in this (Banton, 2005).

2.1.1 The difference between the police and policing

The majority of people have a similar idea about the police and what they do. The police would be explained by them as an organization that is patrolling public places in a blue uniform, have a mandate on crime control and the use of violence, should maintenance order, and have some other social functions. It is useful to get a better understanding of what the police and policing are, because there are many incorrect interpretations of what they mean. It is assumed that the police are necessary in every society because otherwise there would be chaos. Throughout history, however, many societies have actually existed without a kind of organization that we call the police (Reiner, 2010).

As will be discussed in more detail in section 2.6, the effect of the police and policing on crime rates and the maintenance of order is debatable. The notions of the police and policing are distinguished by Reiner (2010) as followed. ''Police refers to a particular kind of social institution, while policing implies a set of processes with specific social functions (Reiner, 2010, p.4).'' The police, as we know it, aren't to be found in every society. Policing, however, is a necessary element in every society. Policing can be carried out by different institutions and processes (Newburn & Reiner, 2012). The modern idea that we have of the police is an example of policing. This brings this chapter to the next element widely discussed in the literature, the pluralization of the crime control task.

2.1.2 Pluralization of the crime control task

In the 1970s and the 1980s the crime control task was mostly seen as the main task, domain, and responsibility of the police. Investigating crimes and the prosecution of offenders was in that period, in

a nutshell, the main function of crime control (outside traditional police functions such as preventative police patrols). In the past decades the crime control task, and especially the much broader task of policing, has become more and more a collective task. Many agencies have resources and share information with each other. They become partners in performing the policing task (Levi & Maguire, 2012; Stenning & Shearing, 2012). The crime control task is subjected to pluralization in many countries, including the Netherlands (Van Steden & Jones, 2010). This may be due to fragmentation and expansion of the police function. The use of force is always reserved for the police, but many police tasks are performed by organizations within and outside the government. The police is therefore to a lesser extend the monopolist of the police function (Mein, Schutte, & Van Sluis, 2004).

The boundaries between public and private policing have become blurred (Stenning & Shearing, 2012). Three developments have caused the flourishing of the term pluralization according to Jones and Newburn (2006). The first development is the growing size of the commercial security sector. The size of the private sector is growing in many countries. The private sector is present in several places of society. For instance, in 2009 the size of the private security sector in the Netherlands was 55 private security personal against 100 public police officers (Haagsma, Smits, Waarsing, & Wiebrens, 2012). The activities in which the private sector got involved in were used to be activities by which public policing was associated. The second development is that public policing is subjected to commercialisation. The concepts managerialism, consumerism, and promotionalism clarify this. The business model is used in public policing (managerialism), public policing is considered as a service for the general public and the general public is approached as consumers (consumerism), and the products of the policing task are promoted (promotionalism). The third development is that many governmental agencies also perform important policing tasks. All these developments lead to a pluralization of the crime control task (Jones & Newburn, 2006). An element that is important to consider when assessing what the effect of the police and policing is on crime rates. The upcoming section is about the function of the police and policing in societies.

2.2 The function of the police and policing in the society

Robert Reiner is one of the leading policing scholars of the past decades. His work has changed and developed over time, but many of his works have key themes (Jones et al., 2012). Two of his key themes are about the necessity of public policing and the function of the police in democratic societies, which are widely elaborated in his book *The Politics of the Police* (Reiner, 2000, 2010). It is problematic to give a proper definition of the function of the police because they have to perform a wide array of tasks (Reiner, 2010). Egon Bittner describes quite aptly the tasks of the police in one of his books as ‘’something-that-ought-not-to-be-happening-and-about-which-someone-had-better-do-something-now! (Bittner, 2005, p. 161).’’ This definition explains that the police deals with emergencies of any kind and that they have the capacity to deal with emergencies unimpeded.

Public policing is in every society a vital component. This component is important because it is necessary to have a body that possesses the legitimacy to react when conflicts (emergencies) arise in a society. In some cases it is necessary that the democratic social authority is backed up by a force for the protection of some basic liberties that citizens have. Reiner has made comprehensive reviews of sociological research on policing and argued that the central policing function is *order maintenance*. Many regard the policeman as a peacekeeper, and not a law enforcer. The general public, politicians, and even police officers have, however, a contrasting view about the central function of policing. They perceive the police as primarily *crime-fighters*, as a unit for crime prevention and criminal apprehension (Bittner, 2005; Jones et al., 2012; Manning, 2005; Reiner, 2010; Westley, 2005). These are two very different views.

Policing work is rather similar in many places (for instance, when different countries are compared), regardless of the social circumstances in which this work is done (Bayley, 2005). As stated in the previous paragraph, many assume that the central function of policing, and especially the police, is fighting crime. However, criminal law enforcement is actually something that is rarely exercised by police officers during the job (Banton, 2005; Bayley, 2005; Bittner, 2005; Ericson, 2005; Manning, 2005; Westley, 2005). It is an incidental part of the work that the police do. They deal with many other tasks than crime, and can make a little contribution to crime control because of this. Its contribution to social order and peace is more symbolic than instrumental (Manning, 2003; Reiner, 2010). This is a crucial problem in police work, because fighting crime is the one thing that is expected of the police (Punch, 2006). A large part of the work they do is more reactive rather than preventive (Bayley, 2005; Ericson, 2005). They are also highly dependent on citizens in performing their tasks and act as servants for public demands (Ericson, 2005).

The priority on crime control emerged during the 1990s in the UK and the US. During this time there was a shared commitment to toughness in the war against crime. In the Netherlands the toughness against crime also started in the early 21st century under the control of former Dutch Prime Minister Balkenende and the implementation of the safety program *Naar een veiliger Samenleving* (translates as 'towards a safer society') in 2002 (Ministerie van Justitie & Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2002). In most police research this is now the driving paradigm. Policy makers and researchers from the UK and US now belief that a key element to make crime control successful is policing. This can be realized through, for instance, tougher direct patrol and detective work, but also with community strategies. The 'nothing works thought', that was illustrated in the previous paragraph, is rejected by this shared commitment to toughness against crime (Reiner, 2010). Research was in that period primarily critical on police practices because it pointed mainly to the limitations of policing in controlling crime.

The question is how these different views can be explained. Reiner (2010) explains these different views of the relationship between crime and policing by a factual and fictional (mis-) representation of the role of the police by the media. The police and some academics also produce and reinforce this picture (Ericson, 2005). According to Reiner, the causes of crime are beyond the control of the police. The causes of crime are located in the social and economic structures of societies. The role of the police is subjected to misunderstanding and this has major implications for politics. Police and governments are trying to solve crime, or at least letting crime fall to lower rates, but more, different or better policing isn't the answer in solving the crime problem. That policing have only a limited marginal impact on overall crime rates is been demonstrated by numerous empirical researches (as will be discussed more thoroughly in section 2.3 and 2.6). The greatest impact on aggregate rates of crime is achieved by governmental policies that are outside the realm of policing and criminal justice. These policies can be a range of social, educational, and welfare interventions that foster equality in society and also protects the worst-off in society. Social pathologies can't be solved by proper policing on its own (Jones et al., 2012). These matters are out of the control of the police, and crime control is therefore an impossible responsibility (Ericson, 2005; Manning, 2005).

All the information provided in this chapter seems to point out that the police is rather useless to a large extend. On the contrary, although the police doesn't enforce the law during a large part of their work, it doesn't mean that they are unimportant (Bayley, 2005). They still have many important functions. They need to respond to troubling situations, one of them is crime, and they have a symbolizing function to take care of justice and victims. This doesn't mean, and it is therefore incorrect, to see the police as the primary means of controlling crime (Reiner, 2010). The next two

sections are therefore about the effect of socio-economic conditions and usual suspects (youth and ethnic minorities) on crime rates, elements that are considered by scholars as having the largest impact on crime rates.

2.3 The effect of socio-economic conditions on crime rates

As became clear in the previous chapter, proper policing itself doesn't have a great impact on overall crime rates. Social, educational, and welfare interventions that foster equality in society and also protects the worst-off in society have a greater impact on aggregate rates of crime (Jones et al., 2012). Multiple studies assess the effect that socio-economic conditions within societies have on crime rates. In the late 1960s the economic contributions in the area of crime started. Theories of crime in the period before the 1960s were largely based on contributions that were made by, for example, sociologists, criminologists, and political scientists. These weren't based on rigorous empirical investigations, crime was explained by factors like insanity and abnormality, not at all linked to economic factors (Entorf & Spengler, 2000). In the late 1970s and the beginning of the 1980s the macro-level approach re-emerged as a criminological paradigm. With the use of macro-level or ecological analysis characteristics of delimited geographical areas are studied for the purpose of explaining how these characteristics are related to crime rates in a certain area and which are predictors of statistical variations in crime rates. Examples of these areas are neighbourhoods, cities, counties, and states. Although the individual is still treated as the main unit of analysis in empirical research of criminology, there is a shift in research conducted in which the focus is on macro-level predictors of crime (Pratt & Cullen, 2005).

Economic factors can affect crime in multiple ways. There are several preconditions for crime to occur and economic factors are in potential relevant for all of these conditions. The preconditions for crime are labelling, motive, means, opportunity, and the absence of control (Greer & Reiner, 2012; Reiner, 2007, 2012). These will be discussed subsequently. The political economy shapes the labelling of crimes and criminals in several ways. For instance, the strategies and enforcement decisions of the police shape criminal labels. These are usually the result of the poor, disadvantaged, high crime hot spots, and offenders that become property of the police. Economic factors have also showed to be factors that influence the motivation of people to commit crime. The anomie theory of Merton is one of the influential sociological attempts to explain this motivation. Merton sees economic aspirations and strains on these aspirations as a significant explanation for crime (Reiner, 2012; Rubington & Weinberg, 2011). The means to commit crime might, for example, be influenced by unemployment because of the available time and extra hands to commit crimes. A flourishing economy also gives the opportunity to commit crimes. Available targets increase because of the proliferation of more valuable and easily stolen goods. The informal and formal controls can also be affected by economic factors. Employment limits the opportunity and temptation for people to commit crimes, but economic downfall might also lead to cut backs in the resources of formal control such as the police and policing (Reiner, 2012).

Pratt and Cullen (2005) have made a review of more than 200 empirical studies exploring the correlation between crime and ecological characteristics. With this analysis of Pratt and Cullen (2005) it is possible to determine the best predictors of crime. The predictor domains of all these studies are social-structural, socio-economic, and criminal justice system related predictors. The results of their analysis are in line with the assumption of leading scholars in the field of policing. Most predictors (with the exception of incarceration) related to the criminal justice system are weakly related to crime rates. These predictors are related to policing effects and get-though policies. The strongest predictors of crime are, on the other hand, multiple social factors. Factors related to concentrated disadvantage,

for instance, economic deprivation, racial heterogeneity, and family disruption, are especially strong macro-level predictors of crime. Reiner (2007, 2012) also concludes after a review of econometric evidence that many studies confirm that crime of any kind is linked to inequality, relative deprivation, and unemployment.

2.4 Youth and ethnic minorities: the usual suspects

Some members within societies are called the 'usual suspects'. The general public and the police regard these members, frequently and disproportionately, as suspects of violent and property crimes. In the nineteenth century some of these groups have been labelled the 'dangerous' classes and they became frequently the 'property of the police' because they posed a great threat for social order in societies (Bittner, 2005; Bowling, Phillips, & Sheptycki, 2012; Reiner, 2000, 2010; Waddington, 2012). Inequality, injustice, and discrimination are all aspects that are frequently coming forward during policing. Characteristics of these groups are that they are low in power and status. Groups that can be seen as such are, for instance, the poor, unemployed, ethnic minorities, and young men. Discovering the 'real' rate of crime among ethnic minority and treating these groups as high risk groups should be treated with great caution, because the media have created distorted and/or exaggerated images about crime in which certain groups of the society are involved (Phillips & Bowling, 2012).

The result of this is that these groups are many times disproportionally being represented in the criminal justice system (Phillips & Bowling, 2012; Reiner, 2000, 2010). This happens ultimately in every stage of the criminal justice system (stop and search, arrest, detention, charge, and prosecution). The underlying reason for this is that the police are in practice focusing on crimes that are related to property and violent crimes. Ethnic minorities, young, and poor men, are more likely to commit these types of crimes. These groups don't have the resources to invest in private property that is expected in a culture of consumption and spend more time in public places. The police regard these groups as suspicious and these groups have less change of effectively challenge coercive police actions (Ericson, 2005). The other end of the story is that these groups are also more likely to be the victims of crime, they don't get the same treatment of the police as other groups, and are also not being recruited into the police. Discrimination and disparity are therefore major reasons for the disproportional involvement of these groups in crime (Reiner, 2010).

The question is whether this is entirely the result of discrimination and unfair treatment of the police or policing practices, or that these people are actually more involved in crime than other groups of the population. International literature shows that (some) disadvantaged ethnic minorities are many times more likely to get involved in crime. This can be seen in every Western country, for instance, the United Kingdom, France, The Netherlands, Sweden, Belgium, Germany, and the United States (Junger & Polder, 1992). Specifically, black and Afro-Caribbean's in Canada, England, and the United States, and African Arabs in France and the Netherlands. Irrespective of race and ethnicity, this is also true for migrants from other countries, for instance, Eastern Europeans in Germany (Tonry, 1997).

Every country has its 'own' ethnic minority groups related to, for example, historical events. Two types of immigrants can be distinguished in the Netherlands. The first group consists of immigrants from ex-colonies of whom a large part are Dutch citizens, and the second group consists of foreigners who were recruited as unskilled workers. Those foreigners became permanent residents within the Netherlands (Junger-Tas, 1997). Police data and victimization data of the Netherlands suggests that there are several ethnic minority groups who commit more crime and are involved in more serious crimes compared to Dutch offenders than, based on their proportion of the population, would be

expected. Ethnic minorities who are many times under study are from Moroccan, Turkish, Surinamese, and Antillean origin. Many times, these groups are (over) represented by (juvenile) offenders in the criminal justice system of the Netherlands (Engbersen, Van der Leun, & De Boom, 2007; Junger-Tas, 1997; Junger & Polder, 1992; Komen & Van Schooten, 2009; Veen, Stevens, Doreleijers, & Vollebergh, 2011).

This is also supported by data of the Dutch criminal justice system (Kalidien & De Heer-De lange, 2013). 53 percent of the number of uniquely registered suspects in the Netherlands was from native origin in 2012. 7 percent of the suspects is from Moroccan origin, followed by the Surinamese (6 percent), Turkish (almost 5 percent), and Antillean (3.5 percent) population. The same numbers are in order when the age distribution of suspects is taken into account. The highest number of suspects per 1000 population in 2012 can be found between the ages of 15-17 (34.9 per 1000 population), followed by the ages of 18-24 (34.8 per 1000), and the ages 25-34 (21.7 per 1000).Young people commit a significant proportion of the crimes that are committed and are also frequently victims of crime (McAra & Susan, 2012; Morgan & Newburn, 2012). The age distribution of crime is one of the few facts about which criminology agrees (Hirschi & Gottfredson, 1983). Another group under the category of usual suspects consists of the so called career criminals (repeated offenders). Repeated offenders commit a disproportionate amount of street crimes and receive much attention from a policy perspective as well as from a scientific perspective (Bayley, 1994; Tollenaar, Meijer, Huijbrechts, Blom, & El Harbachi, 2007; Tollenaar & Van der Laan, 2013). The repeated offenders are especially causing disturbances in the largest cities in the Netherlands (Tollenaar et al., 2007; Vollaard, 2010).

2.5 The police and policing: myths and history

A historical perspective of the police and policing can't be missed in this chapter. This section is about debates that took place about the role of the police and policing in 'fixing' the crime problem. This section also provides a historical perspective of the police and policing in Amsterdam when these debates are taken into account. The first part is about the myths of fighting crime that developed in the UK and US. Two countries that are often leading in developments that take place in this field of research in the Netherlands. A historical perspective of the police and policing in Amsterdam is presented in the second part which starts in the 1960s. This section is written in support for section 2.6 which is about the effect of the police and policing on crime rates.

Myths about fighting crime

In the past decades there were many debates about the role of the police and policing in fixing the crime problem. These debates can be more or less summarized in three eras. The first myth emerged in the late 1970s. This was called the 'law and order' myth and saw the police as an effective force that can prevent and detect crime. Police power was according to this myth the perfect way for law enforcement and public order problems. The second myth flourished in the 1970s and 1980s and can be considered as the antithesis of the 'law and order' myth. This myth was called the 'repressive state apparatus'. This myth holds that the police create crime and criminals by labelling. Public safety should thus be guaranteed by restraining police power. The third myth was raised in the 1990s. This myth goes under the name of 'community policing' and a tougher version called 'magic bullet' or 'forensic crime reduction'. On the basis of community policing, police work is only possible with the active consent and cooperation of the public. The magic bullet holds that due to developing tactics it is possible to deliver the precise and right amount of force that is necessary to effectively control crime and maintenance order. With forensic crime reduction it is possible to deal with crime and disorder by intelligently targeted policing. It is a more sophisticated version of the law and order myth. What all these myths have in common is that is ignores that an orderly society can't solely be created with

properly designed policing, it ignores the wider social structure, culture, and political economy of societies which are crucial elements when talking about crime (Reiner, 2000, 2010). Historically seen the police organization is continually shifting between two kinds of paradigms, which are two characteristics of the police organization. The repressive side of the police and policing by consent (Punch, 2006; Reiner, 2000).

From everything is allowed to zero tolerance in Amsterdam

The 1960s and 1970s were turbulent years for Amsterdam. This was a period in which the international youth culture was prominently present in Amsterdam. A group that had its own lifestyle and manners. A period moved by riots and other public safety problems in Amsterdam. Also a period in which the criminal environment started to expand with prostitution, drug- use and trafficking, and (lethal) violence related to that. Maurice Punch typified the habits in the early 1970s in Amsterdam as ‘’everything is allowed (Hell, Hofman, Knevel, Meershoek, & De Rooy, 2011, p. 525).’’ The problems in the city, and especially Downtown, were related to crime and tourists, heroin trade by the Chinese, and disturbance and crime committed by young Surinamese people. Drugs were a problem in the city, with almost four thousand heroin addicts half way of the 1970s. Radical youth were also against renovations in Amsterdam. The big question in this period was: who rules the city? The problems continued in the 1970s with demonstrations on the Nieuwmarkt, high crime rates and social problems in the Bijlmer, alleged corruption related to heroin trade and Chinese gambling practices at the bureau Warmoesstraat, and the squatter of houses by youth, which resulted in a ‘city war’ at the end of the 1970s and beginning of the 1980s (Hell et al., 2011).

The 1980s were a starting period for changes that took place within the police. The Dutch government started in 1985 with the implementation of new approaches that were started by Amsterdam with the memorandum *Samenleving en Criminaliteit* (translated as ‘society and crime’). The local administration got the leading role in prevention and supervision of approaches towards petty crimes and nuisance. Criminal justice, on the other hand, was fighting the organized crime (Hell et al., 2011). The police became an organization that was locally oriented and socially concerned, with an external perspective towards society (Punch, 2006). Amsterdam started to implement district (neighbourhood) teams that performed all the tasks of the police, to the idea of the report *Politie in Verandering* (translated as ‘police in transition’) (Hell et al., 2011). The concepts of changes in the 1980s that took place in the Netherlands were mostly based on inspirations gained from the US, and to a lesser extend from the UK. Community oriented policing and problem oriented policing were central aspects that were taken into account during this period. The Netherlands, however, made their own model with a more democratic and social component. Main reasons for this are the differences, socially and economically, between the US and the Netherlands. For instance, the Netherlands was and is a country with a stable and prosperous climate. This country has a low level of violence, has few racial problems, and is a welfare state. Very different compared to the US (Punch, 2006).

At the end of the 1990s the new police chief of Amsterdam, Jelle Kuipers, was inspired by the successes that NY experienced (Hell et al., 2011). The Dutch were, however, less positive about the punitive aspects and justice system in the zero tolerance policing model of the US. Some parts of zero tolerance policing were, however, implemented by the police (Punch, 2006). The style of the police in Amsterdam was in many ways similar to that of NY when it comes to zero tolerance (Punch, 2006). Streetwise was in 1998 one aspect of this model. With streetwise, small violations and disturbances in the city were tackled. Writhing at least one ticket per day became the standard. Crime declined, but also in other countries, so the precise effect of streetwise is unknown. Kuipers also started with neighbourhood directors. A closer step towards the society, which led to a recognizable police. The

gap between the police that started to grow in the 1960s was closed in the beginning of the 21st century. The police task is one that needs care, attention, and reflection in order to be successful (Hell et al., 2011).

2.6 The effect of the police on crime rates

The effect that the police or policing practices have on crime rates is hard to assess. What makes this more difficult is that innovations in policing are hard to study in research because of the absence of reliable and valid measures. However, many studies have undertaken such research by studying the effect that the police and policing have on the level of crime. These studies take into account traditional aspects of policing, for example, patrolling, detection, and manpower. Other researchers take into account innovative policing strategies which can be distinguished as forms of 'hard cop' (for instance, zero tolerance policing), 'good cop' (community policing), and 'smart cop' (problem-oriented, and intelligence-led policing) approaches (Reiner, 2010). This part will provide an overview of studies aiming to assess the impact of either police or policing strategies, and whether there are any differences in effectiveness between them. This section is inspired by the reviews of Weisburd and Eck (2004) and Reiner (2010) about the effect of the police and policing on crime rates.

2.6.1 Studies assessing the impact of traditional police functions on crime rates

Many studies have aimed to assess the effect that some traditional police functions have on crime rates. Weisburd and Eck (2004) provided a standard model of policing in which they reviewed studies conducting research about strategies related to the standard model. They found five broad strategies that have been the focus of research in the last three decades, namely ''increasing the size of police agencies, random patrol across all parts of the community, rapid response to calls for service, generalized investigations of crime and, generally applied intensive enforcement and arrest policies (Weisburd & Eck, 2004, p. 49).'' Inspired by this research, the effect that these traditional police functions have on crime rates will be discussed in the following paragraphs.

Police manpower

Research has shown that the police and general public both think that increasing the number of the police is an effective method of reducing crime. Politicians are responding to this by increasing the number of the police, especially promised during electoral campaigns (Eck & Maguire, 2000; Levitt, 1997; McCrary, 2002). An interesting question is whether a marginal increase in the number of police officers will lead to reductions in crime. The research evidence is contradictory about this. Another aspect that is problematic with these studies is that the study design often fails to distinguish between the effect of more police manpower and changes that are related to police hiring (Weisburd & Eck, 2004). Does more police decrease crime rates or does higher crime rates lead to hiring more police? Most studies have found that changes in police strength didn't affect crime rates (Chamlin & Langworthy, 1996; Eck & Maguire, 2000; Loftin & McDowall, 1982; Vollaard et al., 2009). Other studies (Van Tulder, 1992; Vollaard, 2005), however, did find an effect of police strength on crime rates and some studies used, according to Weisburd and Eck (2004), a more sophisticated research design (Levitt, 1997, 2004; Marvell & Moody, 1996). Levitt (1997) found, for instance, that police strength substantially reduced violent crimes. The impact on property crimes was smaller. Bayley (1994) provides an example by discussing crime rates and police per capita among cities with a population over one million in the US. The strength of the police forces wasn't connected with the level of crime. Some cities had almost exactly the same number of police per capita, but differed drastically in crime rates.

Patrol studies

Well known are patrol studies (Reiner, 2010). In the past decades many studies have been carried out to assess the impact that foot and car patrol have on crime rates. If patrol strength is enhanced, they assumed, crime rates would decline. Patrol is after all the biggest task in policing (Bayley, 2005). A well known study conducted about patrol is the Kansas City preventive patrol experiment (Reiner, 2010). Although there were methodological criticisms about this research (Larson, 1976; Sherman & Weisburd, 1995), the results were generally accepted and indicated that increasing or decreasing routine preventative patrol didn't have an effect on crime rates (G. L. Kelling, Pate, Dieckman, & Brown, 1977), even though some studies found an impact of preventative patrol on crime rates (Dahmann, 1975; Sherman & Weisburd, 1995). The problem is related to the size of the area that a patrolling officer covers. The area in which potential targets could be active is simply too large for effective coverage by the patrolling officer in terms of visibility and frequency (Reiner, 2010). Beside this, crime control is a selective task, not all crimes can be covered by the police and not every offender can be arrested (Bittner, 2005).

Rapid response

Routine preventative patrol didn't seem to have an impact on crime rates. Rapid responses to emergencies could be another explanation that has an impact on crime rates, especially because technological developments (cars, radios, and computers) in the past decades should have enhanced rapid responses to calls. The chance that criminals will be arrested could be enhanced because of technological developments. However, most research evidence points out that a rapid response to calls didn't increase the chance that more criminals are being caught and that it reduced crime (Reiner, 2010). This has multiple reasons. Research evidence suggests that most crimes are discovered only after a certain period of time after they have been committed. Criminals have therefore enough time to escape from the crime scene. Beside this, most citizens don't call the police immediately when crimes are committed (Weisburd & Eck, 2004).

Generalized investigations of crime

The most important factor leading to an arrest is, according to research, the presence of witnesses or physical evidence. These factors aren't under the control of the police which make it difficult to manipulate it with investigation approaches (Weisburd & Eck, 2004).

Intensive enforcement and arrest policies

There are several tough law enforcement strategies that are applied by the police when they fight crime. The standard model of policing is comprised of three broad areas of intensive enforcement (Weisburd & Eck, 2004). The first area is disorder policing. The idea of disorder policing is inspired by the broken windows hypothesis. This hypothesis holds that policing can affect crime by preventing that the conditions in neighbourhoods will decline. A deterioration of neighbourhoods is prevented, according to this hypothesis, by making sure that minor offences or nuisance (disorder) will not lead to more serious and embedded problems and higher levels of crime (George L. Kelling & Coles, 1996; Skogan, 1992; Wilson & Kelling, 1982). This type of policing became to be known as broken windows policing and zero tolerance policing (Reiner, 2010; Weisburd & Eck, 2004). The empirical and theoretical basis of the broken windows thesis has been challenged (effectively) by multiple studies (Harcourt, 2001; Sampson, 2009; Sampson & Raudenbush, 1999; Taylor, 2001). Other factors in neighbourhoods cause a high level of disorder and crime. These factors are, for instance, poverty, trust, cohesion, and a lack of collective efficacy. The root causes of crime and disorder are therefore much deeper (Reiner, 2010). The second area is generalized field interrogations and traffic enforcement. The evidence for field interrogations and traffic enforcement in reducing specific types

of crimes is limited and not consistent (Weisburd & Eck, 2004). The third area is mandatory preferred arrest policies in domestic violence. The effect of mandatory arrest policies for domestic violence shows that the effect of arrests varies among cities, neighbourhoods, and the characteristics of the offender (Weisburd & Eck, 2004).

2.6.2 Studies assessing the impact of innovative policing strategies on crime rates

Based on the evidence discussed in the previous section it seems that the effect that traditional police functions have on crime rates is limited. Innovative policing strategies were advocated and introduced in order to improve this. Innovative policing strategies are linked to the idea that policing work has been to reactive and should adopt a more proactive style of work (Newburn & Reiner, 2012; Tilley, 2011). According to Reiner (2010), innovative policing strategies can be distinguished as forms of 'hard cop' (zero tolerance policing), 'good cop' (community policing), and 'smart cop' (problem-oriented, and intelligence-led policing) approaches.

Hard cop

Police effectiveness is undermined because of sensitivities towards human rights and political correctness which restrained the use of vigorous and forceful tactics. Aggressive patrol was one of the earliest versions of hard cop tactics (Reiner, 2010). The effect of aggressive patrol on crime rates was under debate (Jacob & Rich, 1980; Wilson & Boland, 1978, 1981). Other forms of hard cop tactics, for instance, targeting hot spots for police crackdowns did show some effects, but only in combination with other problem-solving approaches. With stop and search methods it is possible to uncover mainly petty crimes. The downside is, however, that the number of successful searches is small and some sections of the public are more likely to be stopped and searched. Zero tolerance policing is often times seen as the reason that crime in NY has declined, but evidence suggests that this isn't the case because in other cities crime also declined were zero tolerance wasn't adopted. Zero tolerance was part of more changes in policing during that time. The use of aggressive tactics could even foster crime. Aggressive tactics enhance brutality, discrimination and alienation of those who are targeted and this may even lead to an increases of crime on the longer term (Reiner, 2010).

Good cop

Good cop strategies fall under the name of community policing. It is introduced under the contention that due to declining public consent and cooperation other policing strategies have failed to work well. According to community policing it is possible to enhance crime control when legitimacy and public support is restored. It is difficult to measure the general effect of community policing on crime because of the wide array of tactics and changing strategies involved with it (Reiner, 2010; Weisburd & Eck, 2004). Researchers in the US and UK have demonstrated that the effect of community strategies on crime isn't strong. However, the evidence points more to the (strong) effect that community policing has on reducing the fear of crime (Weisburd & Eck, 2004).

Smart cop

When traditional policing tactics and resources aren't used in the right way, they are spread thinly across victims, targets and offenders. The use of proactive, problem-oriented, and intelligence-led policing can improve the application of tactics and resources in the right way. By analysing crime and disorder patterns it is possible to fit the means at hand better on the possible victims and offenders (Reiner, 2010). Although there are doubts that these strategies lead to a substantial decrease in crime, research evidence for problem-oriented policing points to the direction that it is an effective approach in reducing crime, disorder, and fear (Braga, Kennedy, Waring, & Piehl, 2001; Braga et al., 1999; Weisburd & Eck, 2004; Weisburd, Telep, Hinkle, & Eck, 2008, 2010). The effect however is modest

and should be interpreted with caution because of the small number of methodologically rigorous studies (Weisburd et al., 2008).

Police resources applied in a focused way

The standard model of policing allocates resources across urban areas and individuals in a universal way, whereas more and more police strategies allocate these resources in a more focused way. Evidence from researches suggests that the effect of focusing on specific types of offenders is weak. The effectiveness of policing in specific areas is more positive about the effect that it has on reducing crime and disorder. Three types of these areas are police crackdowns, hot spot policing, and the focus on repeated offenders (Weisburd & Eck, 2004). Research showed that crackdowns have a short term deterrent effect and that it didn't lead to a spatial displacement of crime in other nearby areas (Sherman, 1990). The effect that hot spot policing has on crime and disorder has received strong empirical support (Braga, 2001; Braga & Bond, 2008; Weisburd & Eck, 2004). It is important to see if crime has displaced because of hot spots policing, otherwise it isn't useful as a strategy to implement. Most studies didn't find a (significant) displacement of crime (Braga & Bond, 2008; Weisburd & Eck, 2004; Weisburd & Green, 1995). The displacement effect of crime was reported by Hope (1994), but the effect of displacement was much smaller than the effect on crime prevention. The effect that focusing on repeated offenders has on crime is inconsistent and weak. However, some studies in which the focus was on youth gangs showed that gang related killings declined (Kennedy, Piehl, & Braga, 1996). Other studies use property sting operations to identify repeat offenders. There is consensus that repeated offenders are more likely to get caught using these methods, the effect that it has on crime isn't proven (Weisburd & Eck, 2004).

2.7 Hypotheses

The review of the literature during this chapter illustrated many factors that can (or can't) influence crime rates. This is done by making use of literature of the most important scholars in the field of policing. The central thought in this field of research is that the role of the police and policing is order maintenance and not fighting crime that is according to the general public, politicians, and even police officers the main function. Reiner (2010) has made comprehensive reviews about these views in his work. The causes of crime seem to be lying in the much deeper social and economic structures of societies. Something that can't be changed fundamentally by proper police or policing strategies. The review of Pratt and Cullen (2005) of 200 empirical studies also illustrated that the best predictors of crime are related to the socio-economic structure and not criminal justice. Zimring (2012) changed this view completely if his research about the crime decline in NY is taken into account. Crime declined incredibly in a city without any structural changes in the city's population, social, and economic structure. Changing police strategies were even responsible for 40 percent of this decline.

The next step is the formulation of hypotheses that are tested with this research. Hypotheses are statements that are expected to be observed if the theory is correct (Babbie, 2012). As stated in chapter one, the goal of this research is to test whether the results of the crime decline in NY also explain the crime decline in the city districts of Amsterdam. The assumptions of Reiner (2010) will be leading in this. Three predictor domains can be uncovered when the research questions are decomposed. These domains are the demographic composition, socio-economic conditions, and law enforcement. The hypotheses are formulated below. The next chapter will provide more information about these specific variables.

Demographic composition

Hypothesis 1 Increases of the population, share of ethnic minorities, Surinamese, Antillean, Moroccan, Turkish, and 15-29 year old population will most likely lead to increasing crime rates in the city districts of Amsterdam, and decreases of the population, share of ethnic minorities, Surinamese, Antillean, Moroccan, Turkish, and 15-29 year old population will most likely lead to decreasing crime rates in the city districts of Amsterdam.

Socio-economic conditions

Hypothesis 2 Increases of the unemployed labour force, unemployment benefit recipients, very low income households, social benefit recipients, and one parent families will most likely lead to increasing crime rates in the city districts of Amsterdam, and decreases of the unemployed labour force, unemployment benefit recipients, very low income households, social benefit recipients, and one parent families will most likely lead to decreasing crime rates in the city districts of Amsterdam.

Law enforcement

Hypothesis 3 Increases of the drug trafficking rate, drugs and alcohol nuisance, hard core youth, and juvenile suspects will most likely lead to increasing crime rates in the city districts of Amsterdam, and decreases of the drug trafficking rate, drugs and alcohol nuisance, hard core youth, and juvenile suspects will most likely lead to decreasing crime rates in the city districts of Amsterdam.

The overall expected effect of the above mentioned elements

Hypothesis 4 The decline of crime in the city districts of Amsterdam is most likely to be the result of a declining proportion of high risk groups in the demographic composition and better socio-economic conditions in the city districts of Amsterdam, than that it is the result of changing law enforcement practices in the city districts of Amsterdam.

3. Research method

This chapter is about the research method that is used for conducting this research. The research questions that were introduced in chapter one will be connected in this chapter to the data together with the tools and procedures used for answering these questions. This chapter is constructed in the following fashion. The research design will be discussed in section 3.1. Section 3.2 is about the data collection method that is used, the sources that were used for collecting the data, and the procedures that were used for making the data suitable for the analyses. Section 3.3 is about the methods that were used for statistical analysis. Information about the limitations of this research design will be discussed in more detail in the final chapter of this report.

3.1 Research design

The research design for this research is a trend study. This is a type of longitudinal study in which data is collected at different points in time (Babbie, 2012). The time period for this research is a 10 year period based on data that represent the years 2003-2012. The units of analysis are the city districts of Amsterdam. Trends in crime rates and the differences among them between city districts will be studied. According to Vollaard et al. (2009) there are three common ways, in the literature, by which trends in crime rates can be explained. The first method is an indicative approach. This means that explanations for trends are found by taking into account crime rates and trying to find possible explanations for it. The explanations are not selected before doing the analysis, but are possible leads according to crime developments. These kinds of studies are qualitative of nature, and not based on quantitative analyses. The second method is the multiple regression method. Developments in crime rates are related to several explanatory variables. The regression analyses is, however, more suitable for predicting crime rates, and not for showing causality. The risk with this kind of analyses is that many explanatory variables are omitted from the analyses and this will lead to an omitted variable bias (De Veaux, Velleman, & Bock, 2011; Gerring, 2012). This is enhanced by the small number of observations used during this study. It is possible to get some singings of correlation with 10 observations, but it is impossible to make use of a regression line (Brinkman, 2006, p. 243). The third method is taking into account the explaining variables separately and determining, with the use of empirical studies, the effect of these variables on crime rates. The final approach is used during this research for explaining the trend in crime rates in the city districts of Amsterdam during the period 2003-2012. In comparison with the other two approaches, this approach gives the best possible explanation for crime rates. Zimring (2012) used in his study about the crime decline in NY a similar kind of approach which makes it more suitable to compare the results of this research about Amsterdam with that of NY. A disadvantage of this approach is that the interaction effect of different kind of explanations isn't taken into account (Vollaard et al., 2009).

The theoretical framework that is used with this research is presented in chapter two. A macro-level paradigm is used during this research. The dependent variables in this research are six types of reported crimes to the police, namely theft of motor vehicles, theft out/from motor vehicles, pick pocketing, burglary (aggregate rate of burglary in houses, barns, and businesses), street robbery and robbery. The independent variables related to the demographic composition are the population, share of ethnic minorities, Surinamese, Antillean, Moroccan, Turkish, and the population between the ages of 15-29. The socio-economic variables are the unemployment rate, unemployment benefit recipients, very low income households, social benefit recipients, and one parent families. The variables related to law enforcement are the number of juvenile suspects, hard core youth, drug trafficking, drugs and alcohol nuisance, and crime rates in different geographical areas of the city. An overview of the concepts and the operationalization of these variables are presented in appendix A.

3.2 Data collection

The data is collected by making use of existing data (Babbie, 2012). All the data sources that are used are described in appendix A. The largest part of the data is collected by making use of publications of the Bureau of Research and Statistics of the municipality of Amsterdam (O+S Amsterdam). Data about reported crimes to the police are also derived from O+S Amsterdam. These are official crime statistics that this bureau uses for making their own safety index of Amsterdam. Several procedures were used for making the data suitable for analysis. The data needed to be transformed into data for the seven city districts of Amsterdam because the city consisted of fifteen city districts before 2010 and the data was presented as crimes per neighbourhood combination. As can be seen in the glossary, this was carried out easily because the geographical regions before and after 2010 overlap each other. The data that was provided in the publications were in absolute numbers and were transformed into proportions (if necessary) and the crime rates into the rate per 10,000 population and index numbers. The final procedure used concerns the timing of the data in the publications. Crime rates contain the number of reported crimes in a given year. So, the rate of 2012 represents the number of reported crimes over an entire year. A large part of the independent variables represents the period 1 January 2004 to 1 January 2013. This time period is chosen because otherwise there would be a time gap of one year between the dependent variable and some of the independent variables. The time gap is closed by making use of data between these time periods. The time period used is also described in appendix A. The final section is about the data analyses used during research.

3.3 Data analysis

The programs that were used for data analysis are Excel and SPSS. Univariate analysis is used for research question one to three for the purpose of describing the development of single variables during the period 2003-2012. Bivariate analysis is used for research questions four and five for the purpose of determining an empirical relationship between the dependent and independent variables (Babbie, 2012). There isn't one single cause that can explain crime rates fully (Zimring, 2007). That is the most important lesson provided in chapter one and two. Therefore it is important to make a distinction between causation and correlation.

The omitted variable bias will most likely affect the analysis because too many factors are involved in explaining crime rates. The relationship between variables will therefore be described as a correlation and not causation. This will be done by making use of correlation coefficients. With correlation the strength and direction of a linear association between two quantitative variables is measured (De Veaux et al., 2011). Three conditions are in order when using this kind of analysis. The quantitative variable condition, straight enough condition, and the outlier condition. The straight enough and the outlier conditions are possibly violated when using crime rates and the variables in this study. Because of the small N per city district it is possible that an outlier affects the relationship between two variables. Another possibility is that the relationship between two variables isn't linear. Many times crime rates don't follow a consistent pattern. This is also the case when other variables are taken into account, for instance, unemployment rates.

With the use of the nonparametric measure Spearman's rho it is possible to deal with these problems. The original data values are replaced with their ranks within each variable with the use of Spearman's rho. The advantage of this method over the correlation coefficient *r* is that it can be used even if only the ranks are known. The consistency of the trend between two variables is measured without making the assumption that the trend is linear. This measure isn't much affected by outliers because the original values are replaced with their ranks. The disadvantage of this statistic is that it can't be used for more complex methods. It is a specialized method if you are only interested in a consistent trend

between two variables (De Veaux et al., 2011). The hypotheses are tested with a one-tailed t-test because the assumption (see section 2.7) is a positive direction of the relationship between variables (Huizingh, 2007). The hypotheses will be tested at the 0.05 significance level. As stated in the introduction of this chapter, the last chapter of this report will be about the limitations of this research design. For now, this chapter provided an overview of the research methods used.

4. The development of crime rates in Amsterdam from 2003-2012

The content of this chapter is about the development of crime rates in the city districts of Amsterdam during the period 2003-2012. It addresses the first research question *how did the level of violent and property crimes develop in city districts of Amsterdam from 2003 to 2012?* Six types of crimes were selected for this research. Four related to property crimes, and two related to violent crimes. In this chapter it will also be explained why these types of crimes were selected for this research. Some vital statistics about the development in crimes rates will be provided in this chapter in order to provide an answer for this research question. This means that a closer look will be taken into the size of the decline in crime rates, how long this decline in crime rates took place and fluctuated during this period, and how broad the crime decline was from a geographical point of view. These statistics will be presented subsequently in this chapter. Section 4.1 is about the size of the crime decline, section 4.2 is about the length of the crime decline, and section 4.3 is about the broadness of the crime decline. Section 4.4 contains the conclusion and will provide an answer for the first research question. Tables that belong to the figures that are presented in this chapter are provided in appendix B.

4.1 The size of the crime decline

This section is about the size of the decline of crime rates in Amsterdam during the period 2003-2012. There are several ways for determining the size of a crime decline in a city. One is measuring recent crime levels against the highest point of crime rates in a city, and the other one involves the comparison of current crime rates with that of more typical crime years (Zimring, 2012). The first measurement will be used in this section because of data availability. Figure 1 compares crimes rates per 10,000 population of eight crimes in Amsterdam which had its peak rates in 2003 during the period 2003 to 2012. Other crimes were left out because their peak rates weren't in 2003, but in another year during this 10 year period.

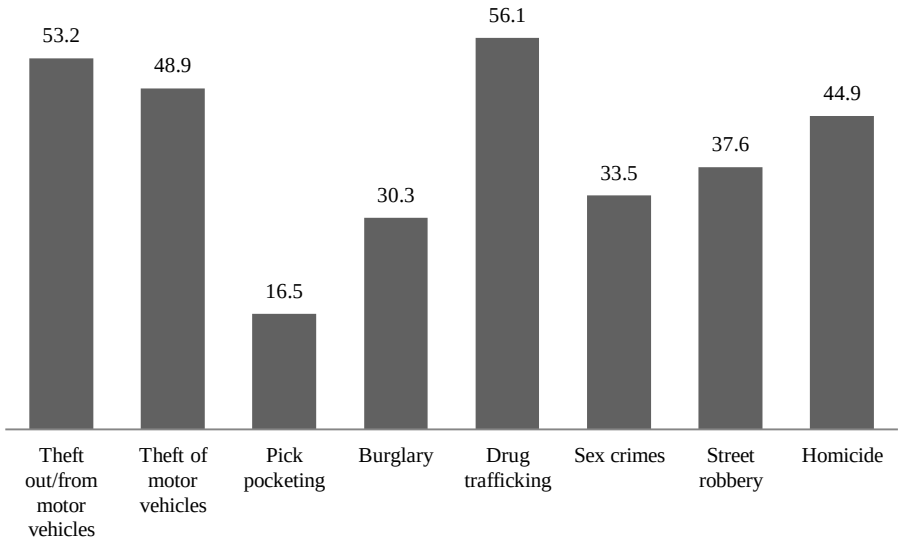

Figure 1. Percentage decline in eight crimes since 2003, Amsterdam, 2012. Source: (processed data from) O+S Amsterdam.

When taking into account all these crime rates, the magnitude of the crime drop is ranged from a decline between 16.5 to 56.1 percent. Four of these eight crimes showed a decline between 40 and 60 percent (homicide, theft of motor vehicle, theft out/from motor vehicle, and drug trafficking). Three of the eight crimes declined between 30 and 40 percent (burglary, street robbery, and sex crimes). One crime declined around 16 percent (pick pocketing). Figure 2 illustrates a different way of comparing

these crime rates per 10,000 population by taking into account the lowest rate with that of the highest rate during the period 2003-2012. These numbers could say something about the length and consistency of the crime decline in Amsterdam, something that will be discussed more thoroughly in section 4.2. This figure illustrates that three of the eight crimes would show a bigger (but modest) decline compared to the 10 year period used in figure 1. This involves street robbery (difference of 2.9 percent), burglary (3.1 percent), and sex crimes (5.8 percent). One out of eight crimes shows a much bigger drop in this case, namely pick pocketing. The decline is with 39.3 percent much higher in the second situation (figure 2) compared to the decline of 16.5 percent in the first situation (figure 1). The length of the decline in crime rates in Amsterdam will be discussed in more depth in the next section.

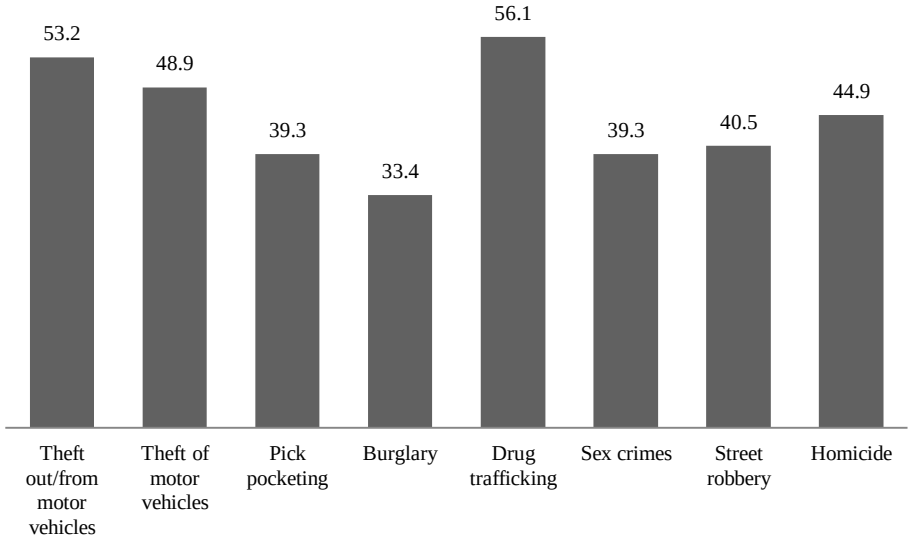

Figure 2. Percentage decline between highest rate and lowest rate in eight crimes, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

The development of other types of crimes in Amsterdam

Three other types of crimes were left out so far because their peak rates weren't in 2003, but they did show a large decline during the period 2003-2012. These crimes are vandalism, robbery, and violence against persons. Figure 3 illustrates the decline of these types of crimes when the highest and lowest rate during the period 2003-2012 are taken into account and the overall decline when the rate of 2012 is compared with that of 2003. The level of robbery declined with 55.3 percent, violence against persons declined with 37.3 percent, and vandalism declined with 35.3 percent when the rates of 2012 are compared with the rates of 2003. However, when the highest rate of these crimes during this period is taken into account and compared with that of the lowest rate, which is in 2012, the decline is much higher. The decline for robbery is 60.9 percent (highest rate is in 2009), violence against persons declined with 53.0 percent (highest rate is in 2007), and vandalism declined with 43.6 percent (highest rate is in 2006).

Although not every type of crime showed a similar decline during this period in Amsterdam, for example, threat and assault declined only with, respectively, 7.5 and 3.4 percent, it becomes clear that crime declined in the city during this 10 year period. Initially, sixteen crime rates were taken into account before this research was conducted. Only two of them increased during this period, namely theft of other motor vehicles 6.7 percent and theft of bicycles and moppets with 19.4 percent. Not every type of crime will and can be studied with this research. The crimes that are selected are based on the results above and the priorities of the police of Amsterdam-Amstelland during the period 2003-

2012[1]. It becomes clear that six types of crimes that declined during this period under study were also the priority of the police during (a large part of) this period and are therefore selected as the dependent variables. It concerns theft of motor vehicles, theft out/from motor vehicles, pick pocketing, burglary, street robbery, and robbery. These are, in that order, four types of property crimes and two types of violent crimes. Drug trafficking is excluded as the crime (dependent variable) that will be studied, but will serve as a independent variable during the analyses in chapter eight. There is a link between (illegal) drug use and the amount of property and violent crimes that occurs in the city (Zimring, 2012). This will be clarified in chapter six.

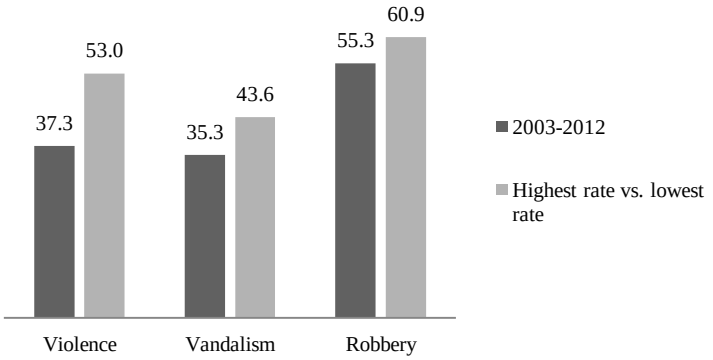

Figure 3. Percentage decline between highest rate and lowest rate and when 2012 is compared to 2003 in three crimes, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

4.2 The length of the crime decline

The second aspect of the crime decline in Amsterdam that will be discussed is the length that crime has a downwards trend during the period 2003-2012. This will be done by looking at the trend line of all six crimes separately and taking into account different periods within this 10 year period under study. The period will be divided in five year periods from 2003-2007 and 2008-2012. Figure 4 presents the trend in crime rates for six crimes in Amsterdam. All crime rates are presented as the rate per 10,000 population. The rates for property crimes are the highest. The rates of violent crimes, on the other hand, are fewer in number. These rates are in accordance with the theoretical expectation, because property crimes are many times more reported than violent crimes (Reiner, 2007). Several points are in order when taking into account figure 4. Firstly, not a single crime shows a consecutive decline during this period. All the crime rates rise at one point in time. Secondly, with the exception of burglary, pick pocketing, robbery, and theft of motor vehicles a (more or less) clear downwards trend can be detected for two of the six crimes. The rate of theft of motor vehicles is relatively steady from 2006-2012 but declined mostly during the period 2003-2005. The rate of burglary declined mostly in the period 2003-2005, but was steady during the period 2005-2012. The rate of pick pocketing declined during the period 2003-2011, but increased rapidly in 2012. The rate of robbery is relatively stable from 2003-2008, but declined rapidly from 2009-2012. Thirdly, the most steady drop in crime seem to be street robbery and theft out/from motor vehicles (small increase during the period 2004-2006) during this period under study. In chapter seven and eight it will be analysed why some crimes show a steady decline but others increase, decrease or remain stable in certain periods. Crime declined in Amsterdam, that is clear, but which factors are associated with this decline remains unclear in this chapter. The consistency of the crime decline will be discussed in more depth by the numbers in table 1 on page 33 of this report.

[1] Gemeente Amsterdam (2003); Gemeente Amsterdam, Regiopolitie Amsterdam-Amstelland, and Arrondissementsparket Amsterdam (2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013).

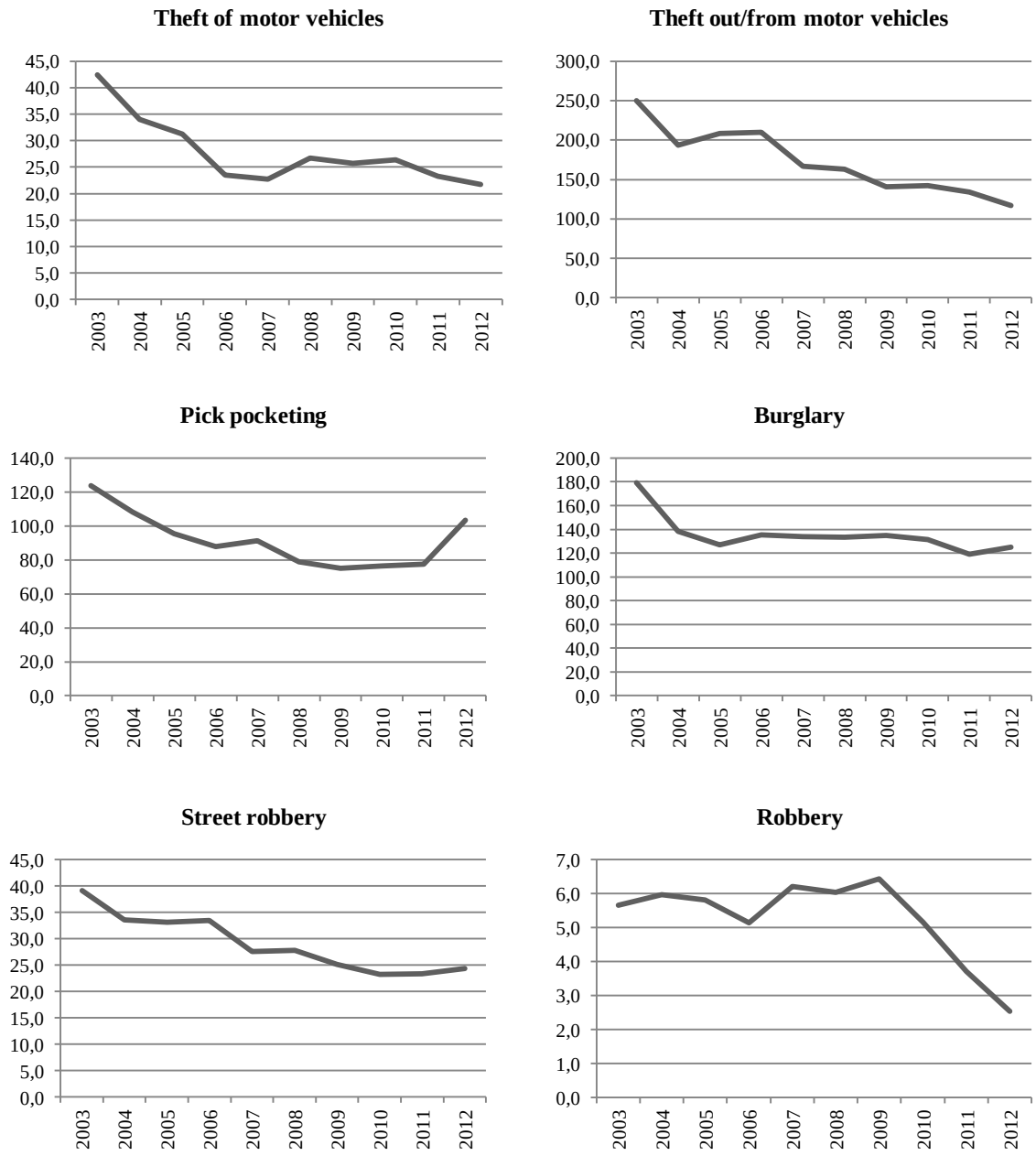

Figure 4. Trends in rates of six crimes, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

	Theft of motor vehicles	Theft out/from motor vehicles	Pick pocketing	Burglary	Robbery	Street robbery
2003-2007	-46.5%	-33.3%	-26.3%	-25.2%	+9.5%	-29.4%
2008-2012	-18.8%	-28.1%	+30.9%	-6.2%	-58.1%	-12.1%

Table 1. Movement in rates of six crimes in two consecutive periods, Amsterdam. Source: (processed data from) O+S Amsterdam.

Table 1 gives the results of the differences in percentages between crime rates during two consecutive periods, 2003-2007 and 2008-2012. The purpose of this is to give an impression of the consistency of the decline of these crime rates. The results indicate that the rate of four of the six crimes declined in both periods. The most remarkable results are the rates of pick pocketing and robbery. Pick pocketing declined during the period 2003-2007 with 26.3 percent, but the period 2008-2012 shows a rapid increase of 30.9 percent. Robbery increased during the period 2003-2007 with 9.5 percent, but the period 2008-2012 shows a rapid decline of 58.1 percent. Not a consistent decline compared to other crimes in Amsterdam. One type of crime remained stable in its decline during both periods, namely theft out/from motor vehicles (around 30 percent). Theft of motor vehicles, burglary, and street robbery declined more in the first period compared to the second period. Theft of motor vehicles declined with 46.5 percent and 18.8 percent, respectively, burglary declined with 25.2 percent and 6.2 percent, respectively, and street robbery declined with 29.4 percent and 12.1 percent, respectively.

4.3 The broadness of the crime decline

The decline of crime rates in Amsterdam will be taken to another level by including the seven city districts (Downtown, West, New-West, South, East, North, and Southeast). The most important question is how broad the crime decline in Amsterdam is during this period seen from a geographical point of view. This will be done by taking into account the development of six crimes in the seven city districts of Amsterdam. It gives the opportunity to discuss differences and similarities among the trend in crimes. Figure 5 on page 35 of this report shows the trend (index numbers) for these six crimes in the seven city districts of Amsterdam during the period 2003-2012. Index numbers give the opportunity to discuss differences and similarities among the trends in crime rates between city districts because the crime rates aren't influenced by the size of the city districts. Some city districts have, for instance, a higher number of population which most likely influences the amount of crimes committed in these city districts. The main points that are observable in figure 5 will be discussed in the following paragraphs.

Trends in the rates of theft of motor vehicles

A similar kind of pattern is observable for theft of motor vehicles in all city districts. During the period 2003-2007 there is a sharp decline, followed by an increase after this period until, roughly spoken, 2010, and then a decline in crime rates until 2012. The magnitude of the decline is different in most city districts, but theft of motor vehicles declined in every city district during the period 2003-2012. Taking into account the percentage decline per 10,000 population for theft of motor vehicles, the largest decline was in Downtown with 67.6 percent, followed by Southeast (58.6), West (55.9), East (55.4), North (52.7), New-West (36.7), and South (28.6).

Trends in the rates of theft out/from motor vehicles

Two extremes in the trends of theft out/from motor vehicles are East and Southeast. Theft out/from motor vehicles increased in East during the period 2003-2006, but declined rapidly after this period. Theft out/from motor vehicles decreased in Southeast incredibly with 67 percent during the period 2003-2006, but increased during the period 2006-2009 and declined again since 2009. The index rate of South in 2005 (102) and East in 2005 (113) and 2006 (114) is higher than the index rate of 2003. The trends in South, New-West, North, and West illustrate an irregular pattern. Theft out/from motor

vehicles only showed a consistent trend in Downtown. The overall decline during the period 2003-2012 was the highest in Southeast with 66.1 percent, followed by West (61.7), Downtown (57.9), New-West (53.8), North (52.0), East (45.6), and South (40.6).

Trends in the rates of pick pocketing

A different trend for pick pocketing is observable for Southeast, New-West, and North compared to the other city districts. Pick pocketing in North decreased enormously during the period 2004-2007 and increased fast during the period 2007-2009. The index rate of pick pocketing in North also exceeded the rate of 2003 in 2004 (111) and in 2009 (108). Pick pocketing declined rapidly in Southeast and New-West during the period 2003-2007 compared to the other city districts. During the period 2007-2012 the rate increased slightly in New-West, but remained relatively stable in Southeast. The trends in Downtown, West, South, and East are more or less similar and close in magnitude. The rate of pick pocketing in Downtown, however, increased rapidly in 2012. The overall decline of pick pocketing during the period 2003-2012 was the highest in Southeast with 58.5 percent, followed by New-West (43.3), West (31.1), East (28.3), South (26.7), Downtown (5.3), and North (2.9).

Trends in the rates of burglary

The trends for burglary were rather similar in every city district during the period 2003-2005. After this period the rates went differently for every city district. The index rate of burglary in North was in 2012 (102) higher than the rate in 2003. Other interesting developments are the decline of burglary in North from 2003-2008, followed by a rapid increase from 2009-2010 and a rapid decrease in the rate of burglary in Southeast from 2008-2012. The overall decline during the period 2003-2012 was the highest in Southeast with 46.1 percent, followed by Downtown (44.4), South (41.4), East (35.0) West (33.2), and New-West (5.3). The rate of burglary increased with 1.6 percent in North during the period 2003-2012.

Trends in the rates of street robbery

The trends of street robbery showed a steady decline in New-West and Downtown. The remaining five city districts show trends that varied during this 10 year period. The index rate of West, South, East, and North were during certain years higher than the rate of 2003. In North (135) and East (102) the index rate of 2012 was higher than that of 2003. Street robbery increased therefore with 35.4 percent in North and 2.2 percent in East. The biggest decline during the period 2003-2012 was in Southeast with 58.2 percent, followed by New-West (44.9), Downtown (43.2), South (31.4), and West (30.8).

Trends in the rates of robbery

The rates of robbery during the period 2003-2012 exceeded the rates of 2003 in every city district. Robbery declined in the beginning period in New-West, North, and Southeast, but robbery increased in Downtown, West, South, and East. An interesting decline started during the period 2009-2012 in every city district. The decline started somewhat earlier in 2007 in West and in 2008 in Southeast. The overall decline of robbery during the period 2003-2012 was the highest in North with 70.0 percent, followed by West (63.6), Southeast (60.0), New-West (56.2), East (49.3), Downtown (44.6), and South (37.2).

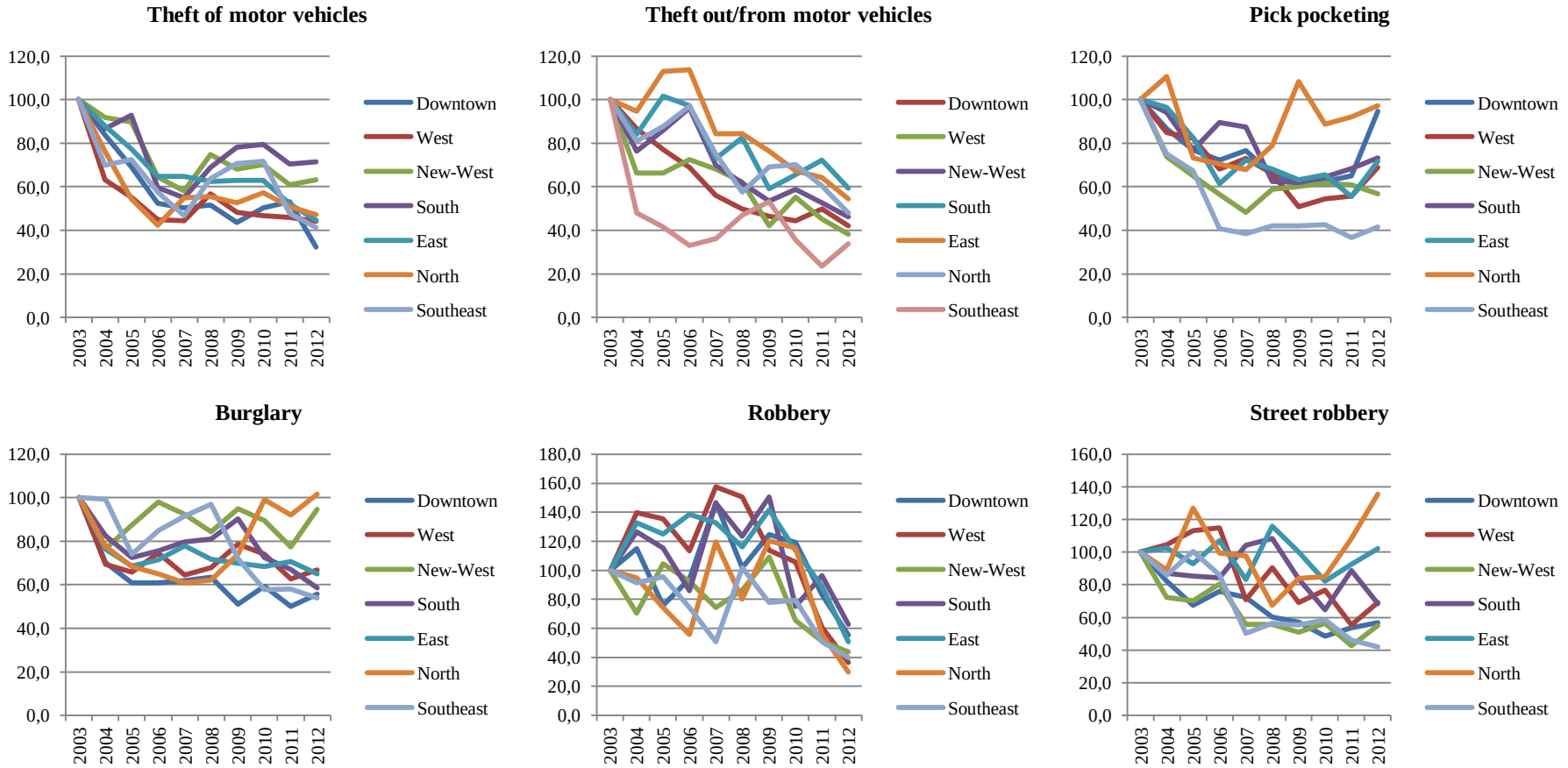

Figure 5. Trends in index rates for six crimes (2003 rate=100), city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

4.4 Conclusion

During this chapter the question *how did the level of violent and property crimes develop in city districts of Amsterdam from 2003 to 2012?* was addressed. The results indicated that there is indeed a crime decline in Amsterdam during the period 2003-2012. This supports the results of previous studies that crime declined in the Netherlands since 2002 (Onrust & Voorham, 2013; Vollaard et al., 2009). Although there are differences in magnitude of the crime decline, most of the crimes reported declined during this period. The length of the crime decline isn't consistent for every type of crime during this period in Amsterdam. Interesting point is why certain types of crimes declined, increased or remain stable in a certain period. The broadness of the crime decline showed a different pattern per type of crime. Theft of motor vehicles showed a similar pattern across all the city districts during the entire period 2003-2012, and the same situation was observed for the trend in robbery from 2009-2012. The trend lines of theft out/from motor vehicles, pick pocketing, burglary, and street robbery varied more across city districts and over time. The range (in percentage points) of the decline from 2003 to 2012 between city districts and crime rates was the lowest for theft out/from motor vehicles (25.5 percentage points), followed by robbery (32.8), theft of motor vehicles (39.0), burglary (47.8), pick pocketing (55.6), and the highest for street robbery (93.6).

5. Demographic and socio-economic developments in Amsterdam from 2003-2012

This chapter is about the demographic and socio-economic development of the seven city districts in Amsterdam from 2003-2012. In this part the question *how did the structure of the city districts of Amsterdam develop from 2003 to 2012?* will be addressed. The structure of the city refers to those elements that define the demographic composition and the socio-economic conditions in the city districts. This means that the development of the number of the population, share of ethnic minorities, and age groups in the city, but also developments in the proportion of one parent families, unemployed labour force, unemployment benefit recipients, social benefit recipients, and very low income households in the city will be taken into account. During this part the city districts will be compared with each other. This chapter is constructed in the following fashion. Section 5.1 is about the development of the population in Amsterdam, section 5.2 is about the development of ethnic groups in Amsterdam, section 5.3 is about the development of youth and young adults in Amsterdam, and section 5.4 is about the socio-economic developments in Amsterdam. Section 5.5 contains the conclusion and provides an answer for the second research question. Tables that belong to the figures that are presented in this chapter are provided in appendix C.

5.1 The development of the population in Amsterdam

Figures 6 and 7 show the trend in population of Amsterdam and the city districts during the period 2003-2012. The population of Amsterdam grew with 8.2 percent during this period. From 2003-2005 the population remained relatively stable, but a rapid increase of the population took place from 2006-2012. The number of the population of the city districts could be divided into three groups. The first group includes North, Southeast, and Downtown with a population between 80 and 90 thousand. The second group includes West, New-West, and South with a population between 130 and 140 thousand. Finally there is East which population grew the strongest with 23.3 percent during the period 2003-2012. Large part of this increase was due to the growth of the neighbourhood combination IJburg, which developed since 2004. The population grew in every city district between 2003 and 2012. The population also increased during this period in New-West (10.0 percent), Downtown (7.1), West (6.2), South (6.2), Southeast (2.2), and North (0.8).

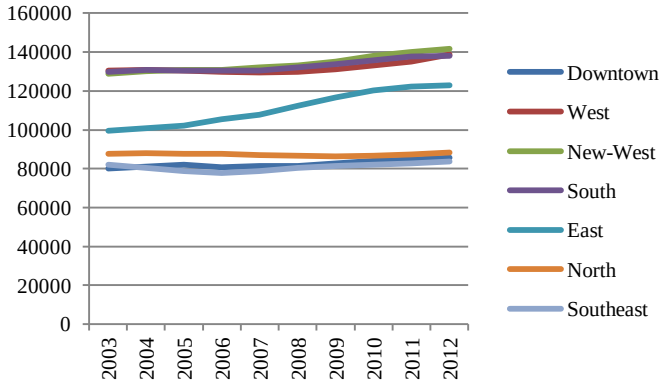

Figure 7. Trends of the population, city districts, Amsterdam, 2003-2012. Source: O+S Amsterdam.

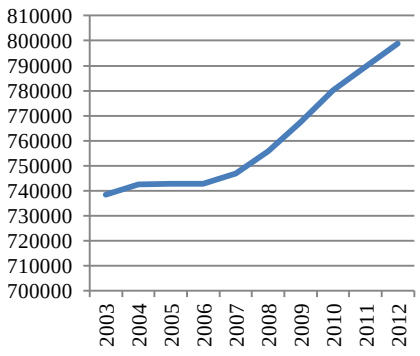

Figure 6. Trend of the population, Amsterdam, 2003-2012. Source: O+S Amsterdam.

5.2 The development of ethnic groups in Amsterdam

This section starts with the development of ethnic minority groups in Amsterdam. Figure 8 illustrates that the share of ethnic minorities remained relatively stable in Amsterdam. In 2003 the population consisted of 33.9 percent ethnic minorities and this increased to 34.9 percent in 2012. The share ethnic minorities is spread differently across the city districts. Whereas the largest share of ethnic minorities are located in Southeast (between 61.3 and 64.0 percent) and New-West (between 43.3 and 50.5 percent), the smallest share of ethnic minorities are located in Downtown (between 14.0 and 14.5 percent) and South (between 16.4 and 16.9 percent). The share of ethnic minorities decreased during the period 2003-2012 with 4.3 percent in West and with 3.2 percent in East. The share of ethnic minorities increased in New-West (7.1 percent), North (5.1), Southeast (2.7), Downtown (0.5), and South (0.5).

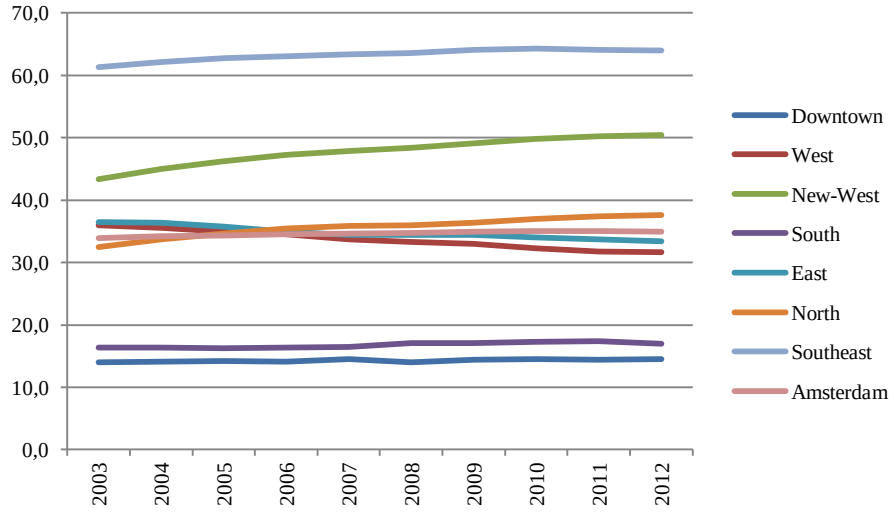

Figure 8. Share of ethnic minorities, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

Main ethnic minority groups in Amsterdam in 2012 are the Moroccan (9.1 percent of the total population of Amsterdam), Surinamese (8.5), Turkish (5.3), and Antillean (1.5) population. Figure 9 illustrates the development of these groups in Amsterdam during the period 2003-2012. The proportion of Surinamese and Antilleans declined during this period with, respectively, 1.1 and 0.1 percent as a part of the population of Amsterdam. The proportion of Moroccan and Turkish people, however, increased with, respectively, 0.5 and 0.2 percent.

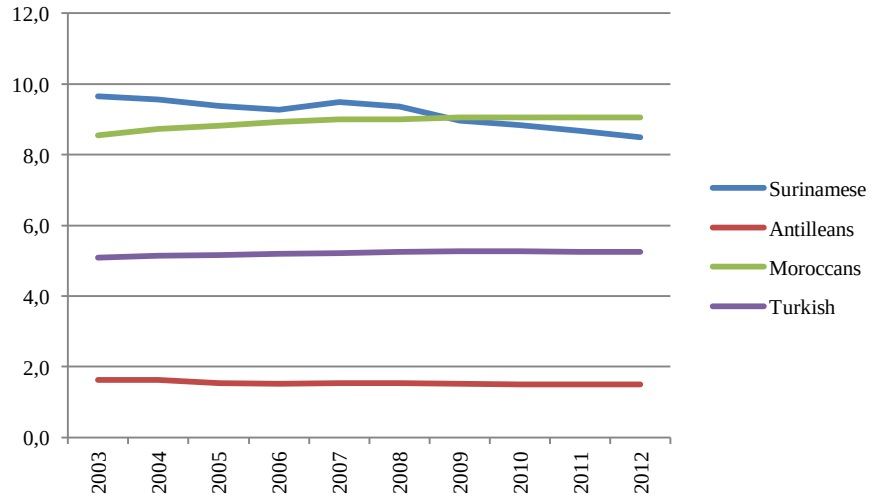

Figure 9. Proportion of four ethnic groups, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

These four ethnic groups are located in every district of the city, but certain parts of the city contain a larger share of these groups in their population. Figure 10 presents the development of the proportion of Surinamese, Antillean, Moroccan, and Turkish people as a part of the population of the city districts of Amsterdam. The largest proportion of Surinamese and Antillean people are living in Southeast. In 2012 the population of this city district consisted of 31.7 percent Surinamese and 5.5 percent Antillean people. The largest proportion of Moroccan and Turkish people are living in New-West. In 2012 the population of this city district consisted of 20.3 percent Moroccan and 12.7 percent Turkish people. The proportion of Surinamese people declined in every city district during the period 2003-2012. The decline was the highest in East (1.9 percent), followed by West (1.6), New-West (1.1), North (0.8), Downtown (0.6) and South (0.6). The proportion of Antillean people decreased in two city districts. Their proportion declined in Southeast with 0.7 percent and with 0.2 percent in Downtown. The proportion of Antillean people increased slightly with 0.1 percent in North and remained stable (with a change of 0.0 percent) in four city districts (West, New-West, South, and East). The proportion of Moroccan people as a part of the population in the city districts increased in three city districts. In New-West their proportion increased with 3.7 percent, followed by North (2.1) and Southeast (0.1). Their proportion decreased in four city districts. The decline was the highest in West (1.6 percent), followed by East (0.9), South (0.5), and Downtown (0.1). The proportion of Turkish people as a part of the population in the city districts increased in two city districts. Their increase was with 2.5 percent the highest in New-West, followed by North (1.5). The Turkish population decreased in three city districts, namely with 1.6 percent in West, followed by East (1.3), and South (0.2). In Downtown and Southeast the proportion of the Turkish population remained stable (0.0 percent change).

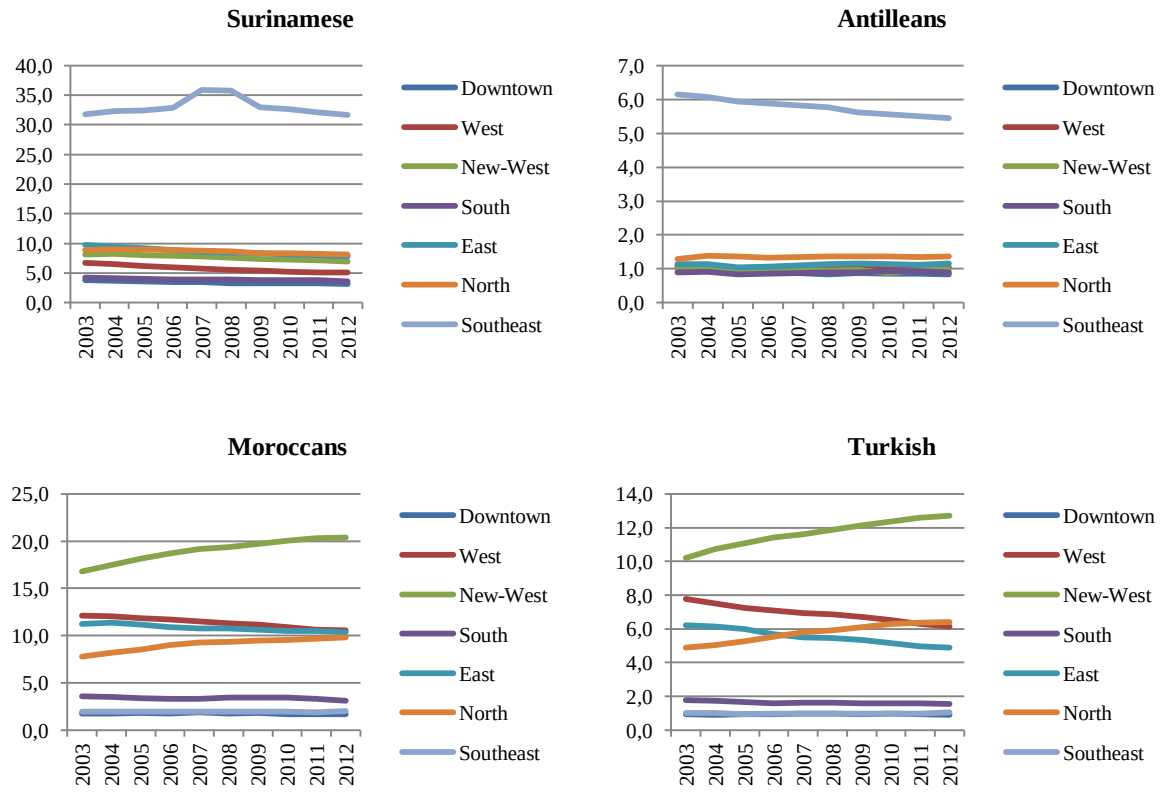

Figure 10. Proportion of Surinamese, Antilleans, Moroccans, and Turkish population, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2012	Percentage change
Downtown			
Population	79919	85618	7.1
Surinamese	3056	2726	-10.8
Antillean	840	714	-15.0
Moroccan	1413	1449	2.5
Turkish	732	772	5.5
High risk (%)	**7.6**	**6.6**	**-1.0**
West			
Population	130441	138568	6.2
Surinamese	8746	7024	-19.7
Antillean	1404	1447	3.1
Moroccan	15837	14600	-7.8
Turkish	10110	8494	-16.0
High risk (%)	**27.7**	**22.8**	**-4.9**
New-West			
Population	128897	141825	10.0
Surinamese	10482	9908	-5.5
Antillean	1308	1397	6.8
Moroccan	21603	28949	34.0
Turkish	13148	18023	37.1
High risk (%)	**36.1**	**41.1**	**5.0**
South			
Population	129890	137901	6.2
Surinamese	5458	4902	-10.2
Antillean	1155	1232	6.7
Moroccan	4645	4282	-7.8
Turkish	2290	2133	-6.9
High risk (%)	**10.4**	**9.1**	**1.3**
East			
Population	99597	122847	23.3
Surinamese	9676	9638	-0.4
Antillean	1128	1431	26.9
Moroccan	11203	12671	13.1
Turkish	6191	6011	-2.9
High risk (%)	**28.3**	**24.2**	**-4.1**
North			
Population	87712	88434	0.8
Surinamese	7767	7145	-8.0
Antillean	1128	1200	6.4
Moroccan	6814	8692	27.6
Turkish	4275	5676	32.8
High risk (%)	**22.8**	**25.7**	**2.9**
Southeast			
Population	81978	83743	2.2
Surinamese	26059	26554	1.9
Antillean	5033	4569	-9.2
Moroccan	1563	1675	7.2
Turkish	836	864	3.3
High risk (%)	**40.9**	**40.2**	**-0.7**

Table 2. Proportion of high risk groups, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

Table 2 illustrates another way by which the development of traditional high risk groups of crime can be presented. The proportion of Surinamese, Antillean, Moroccan, and Turkish population as a part of the total population is an indication of developments of these risk groups. The results indicate that the biggest decline took place in West (4.9 percent) and East (4.1). The share of high risk groups also declined in Downtown (1.0) and Southeast (0.7). The share of high risk groups increased in New-West (5.0), North (2.9) and South (1.3).

5.3 The development of youth and young adults in Amsterdam

Figure 11 illustrates the proportion of youth and young adults between the ages of 15-29 as a part of the total population of Amsterdam. This age group is selected because it contains the age group that is at maximum current risk of arrest for serious crime (Zimring, 2012). Normally this age group isn't a leading indicator when it comes to crime risk, but this is a measure of the current indicator of the risk of crime. This means that increases and decreases in this age group should correlate with contemporary changes in crime. When taking a younger group, for instance, 10 to 17 years old, they would be a leading indicator for changes in crime trends. Increases in the proportion of this group

would predict higher crime rates, approximately, five to ten years later. In 2003, 20.8 percent of the population of Amsterdam was between the ages of 15 and 29. This increased in 2012 to a percentage of 22.9. The results of figure 11 indicate that there are slight changes in the proportion of the age group 15-29 as a part of the population of the city districts. In every city district the proportion of this age group increased. The highest increase was in New-West with 3.6 percent, followed by Downtown (3.3), South (2.3), East (2.0), North (1.6), Southeast (0.8), and West (0.7). Overall, the total amount of youth and young adults is similar across most of the city districts, with North having the lowest proportion of youth and young adults and West the highest proportion.

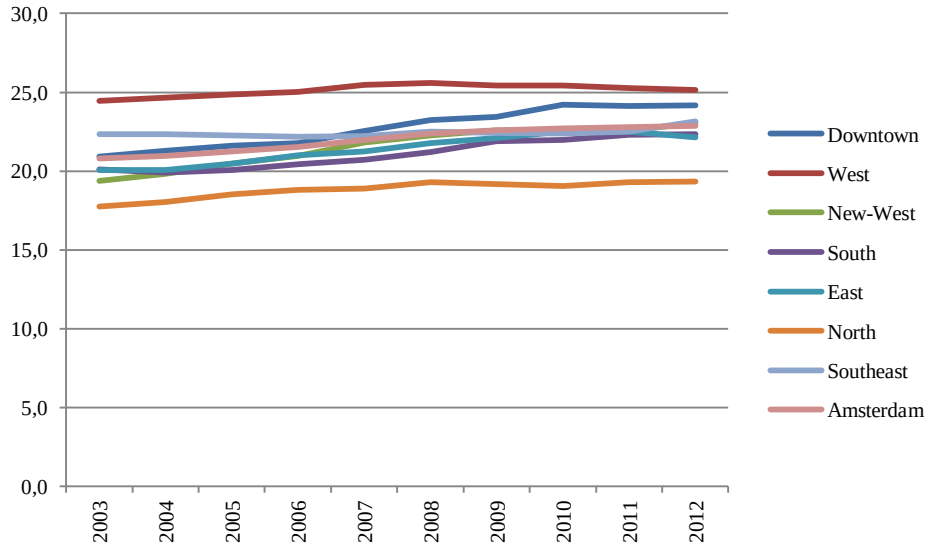

Figure 11. Proportion age 15-29, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

5.4 Socio-economic developments in Amsterdam

Socio-economic developments will be explained in terms of several aspects. The proportion of unemployment benefit recipients and the unemployment rate are examples of short term developments within the labour market. The proportion of social benefit recipients and the number of very low income households in Amsterdam are examples that represent the poverty level of Amsterdam. Finally, the proportion of one parent families represents family disruption and could also be an indicator of developments in crime trends. These aspects will be elaborated in the upcoming paragraphs.

Unemployment rate and unemployment benefit recipients

Figures 12 and 13 illustrate the proportion of unemployed and unemployment benefit recipients as a part of the labour force in Amsterdam and city districts. The unemployment rates show a clear trend across the entire city. First it goes up in 2004, than a decline until 2008/2009, it goes up again until 2010, and then it declines from 2010- 2012. The magnitude of unemployment rates is different across the city districts, with the lowest level of unemployment in Downtown and South. Overall, the decline was the highest in West (4.9 percent), followed by East (4.4), New-West (4.1), Downtown (2.4), North (2.3), Southeast (2.2), and South (2.0). The trend line for the proportion of unemployment benefit recipients also illustrates a clear trend over the entire city although the magnitude of unemployment benefit recipients differs slightly across the city districts. The proportion of unemployment benefit recipients increased in 2003-2004, followed by a decrease from 2004-2007. The years 2007-2012 show a turbulent period, probably as a cause of the economic crisis since 2007/2008, in which the proportion of unemployment benefit recipients started to increase again. The period 2009-2011 illustrates a declining proportion of unemployment benefit recipients, but an increasing trend of unemployment benefit recipients can be detected during the period 2007-2012. Overall, the proportion

of unemployment benefit recipients was in 2012 almost on the same level as in 2003 but declined in five of the seven city districts. The decline was the highest in West (0.4 percent), followed by South (0.4), East (0.3), Downtown (0.2), and New-West (0.2). In Southeast (0.6) and North (0.3) there was an increase in the proportion of unemployment benefit recipients. In the entire city of Amsterdam the proportion of unemployment benefit recipients declined with 0.2 percent.

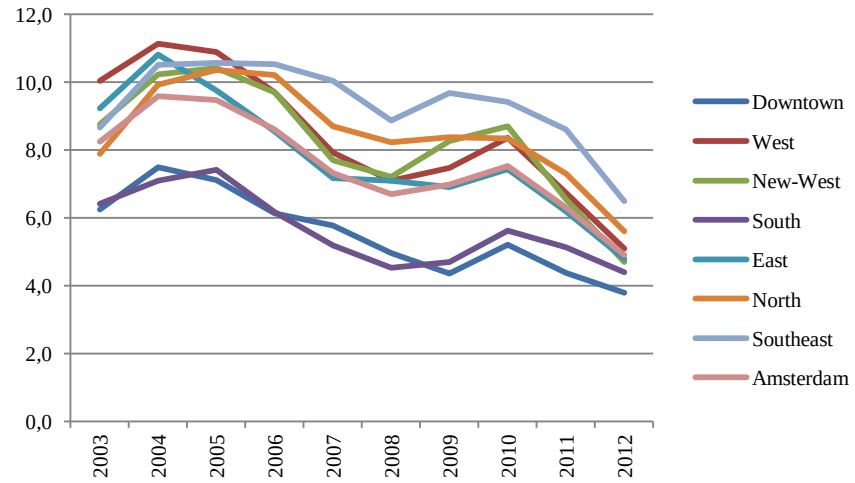

Figure 12. Unemployment rate, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

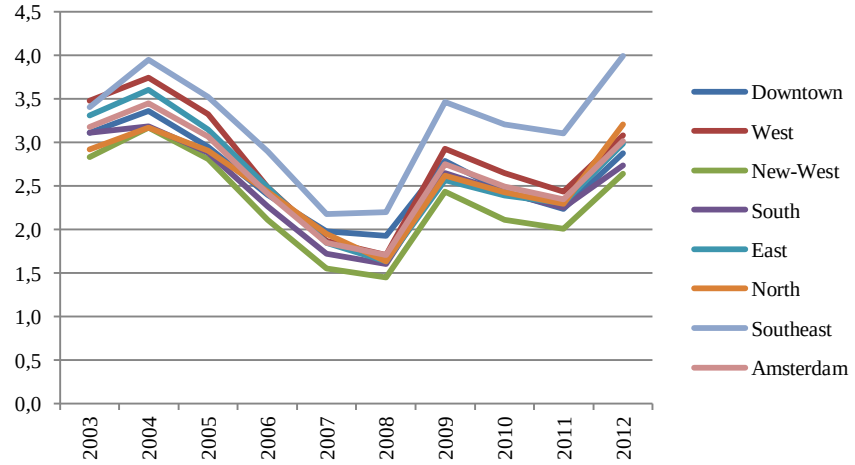

Figure 13. Proportion of unemployment benefit recipients, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

Very low income households and social benefit recipients

Figures 14 and 15 illustrate the development of the proportion of very low income households as a part of the total number of households in Amsterdam and the proportion of social benefit recipients as a part of the labour force in Amsterdam. These numbers give an image of the poverty level in Amsterdam. Very low income households have an income at or below 110 percent of the legally determined social minimum (O+S Amsterdam, 2013). The largest proportion of very low income households is in Southeast. The lowest proportions are in Downtown and East and the remaining city districts have rather similar levels of very low income households. Overall, in Amsterdam the proportion of very low income households declined with 0.7 percent in 2012 compared to 2003. The largest decline was in Downtown with 2.6 percent, followed by East (1.7), South (1.0), and West (0.6). The level remained the same in New-West and increased in North (1.4) and Southeast (1.0). The largest proportion of social benefit recipients is in Southeast. The lowest proportions of social benefit

recipients are in Downtown and East, and the remaining city districts have rather similar proportions of social benefit recipients. The development of social benefit recipients is similar to that of very low income households. Overall, in Amsterdam the proportion of social benefit recipients declined with 1.1 percent in 2012 compared to 2003. The largest decline of the city districts was in East with 2.2 percent, followed by Downtown (2.1), West (1.4), South (1.0), and New-West (0.9). The proportion of social benefit recipients increased in North with 0.3 percent and remained the same in Southeast (0.0).

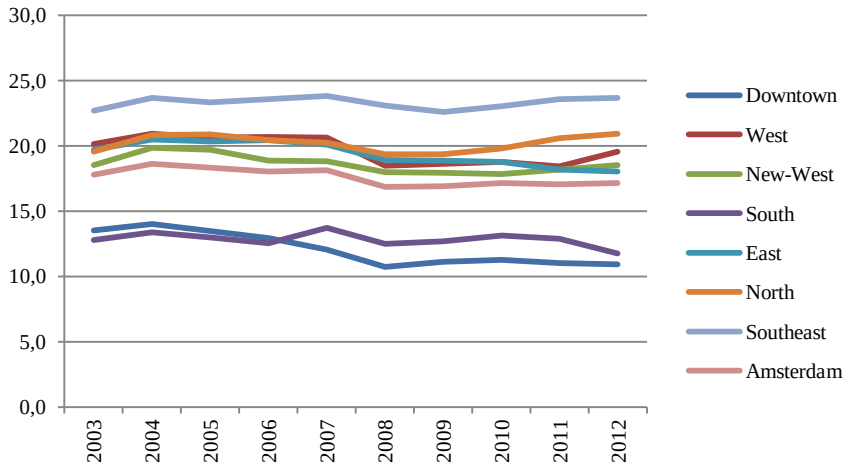

Figure 14. Proportion of very low income households, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

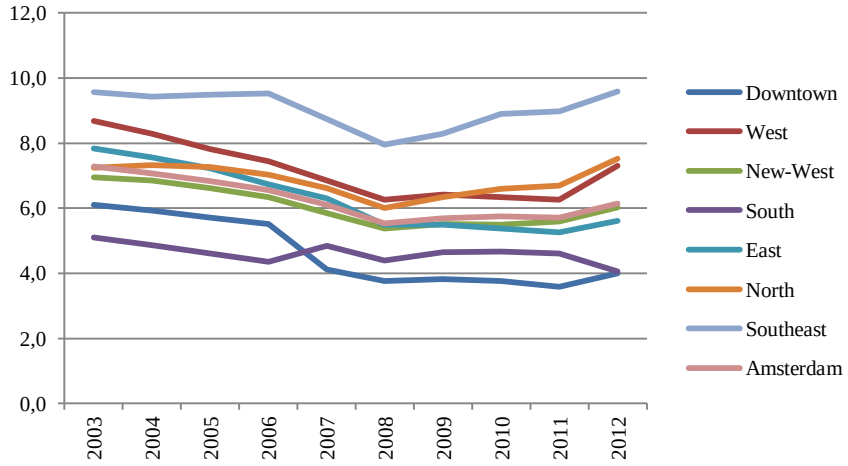

Figure 15. Proportion of social benefit recipients, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

One parent families

The final aspect that will be elaborated is the proportion of one parent families in Amsterdam. The proportion of one parent families as a part of the number of populated addresses in Amsterdam remained relatively stable during the entire 10 year period, as is illustrated in figure 16. The differences between 2003 and 2012 are negligible in most of the city districts. Interesting point is the relatively high proportion of one parent families in city district Southeast with approximately 17 percent of the populated addresses being these type of families. North also has a high proportion of one parent families around 11 percent. The lowest proportion can be found in Downtown with 6 percent of the populated addresses being one parent families. Overall, the proportion of one parent families declined with 0.4 percent in Amsterdam. The decline was the highest in Southeast with 0.9

percent, followed by Downtown (0.8), West (0.7), New-West (0.2), South (0.2), and North (0.2). The proportion of one parent families remained stable in East (0.0).

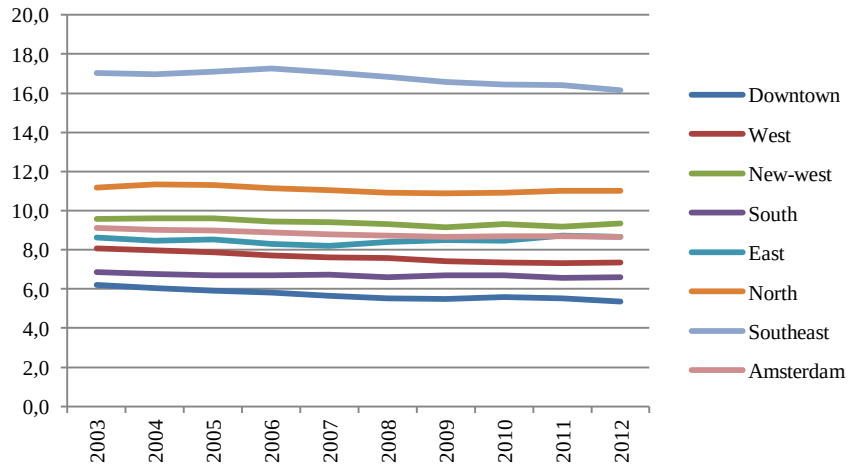

Figure 16. Proportion of one parent families, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

5.5 Conclusion

The second research question *how did the structure of the city districts of Amsterdam develop from 2003 to 2012?* was addressed during this chapter. The population increased in every city district during this period. The share of ethnic minorities declined in West and East but increased in other city districts. The proportion of Moroccan and Turkish population increased in Amsterdam, but the proportion of Surinamese and Antillean population decreased. The proportion of Surinamese population stands out because it decreased in very city district. It is also interesting to take a look at the large increases of the Moroccan and Turkish population in city districts New-West and North. The proportion of 15-29 year olds increased in every city district. The trends in the rate of unemployment and unemployment benefit recipients are similar across all the city districts. The level of unemployment seems to decline, whereas the unemployment benefit recipients increased since the period 2007/2008 and have reached similar levels in 2012 compared to 2003. The proportion of very low income households, social benefit recipients, and one parent families remained relatively stable during the period 2003-2012 in every city district. Interesting point is that the level of these variables is the highest in Southeast, and the lowest in Downtown and South. Overall, the structure of the city didn't seem to be very different in 2012 compared to 2003. Most of the economic developments seem to be the result of the economic crisis since 2007. More importantly is that certain segments of the population, who are called the usual suspect, increased during this period under study while a decreasing population would be expected given the crime decline in Amsterdam.

6. The development of law enforcement in Amsterdam from 2003-2012

The developments of crime rates (chapter four), the demographic composition, and socio-economic conditions (chapter five) in the city districts of Amsterdam during the period 2003 to 2012 were analysed in the previous chapters. The third research question *how did law enforcement develop in the city districts of Amsterdam from 2003 to 2012?* will be elaborated in this chapter. This will be done by, firstly, focusing on the crime decline in different regions of the Netherlands. This chapter clarifies that the crime decline in the beginning of the 21st century is a national phenomenon and this means that the focus is, secondly, on developments that took place in law enforcement on a national level. The third and final aspect that will be discussed is the approaches of law enforcement that were aimed at specific groups and areas that could have had an impact on crime rates. The final section contains the conclusion and answer of the third research question. Tables that belong to figures that are presented during this chapter are provided in appendix D.

6.1 Was the crime decline a national or urban phenomenon?

It is necessary to compare the crime rates in Amsterdam with that of other urban areas in the Netherlands, in order to select the elements of law enforcement for this study that could have had an impact on the crime decline in Amsterdam. This will answer the question whether the crime decline in Amsterdam needs to be considered as a national phenomenon or an urban phenomenon specific for Amsterdam. Figures 17 and 18 illustrate the development of reported property and reported violent crimes in four police regions that contain the four largest cities of the Netherlands (Amsterdam, The Hague, Rotterdam, and Utrecht). These results illustrate that the decline of crime in Amsterdam isn't extraordinary compared to other urban areas in the Netherlands and can be considered as a national phenomenon. The crime decline seems to have started somewhat earlier in Amsterdam-Amstelland since 2000, but a sharp decline started since 2001. In Utrecht the decline started in 2002, in Haaglanden the decline started in 2003, and in Rotterdam-Rijnmond the decline started in 2002. The trends for violent crime don't seem to be a national trend in particularly. In 2001 the trend in violent crimes started to decline in Amsterdam-Amstelland, but in other police regions the trend seems to be steady since the year 2003/2004. The main focus during this chapter will still be a national phenomenon because property crimes comprise the largest amount of reported crimes compared to violent crimes. However, it should be noted that for violent crimes there could be an element (of law enforcement) that is responsible for the decline that is specific for the region of Amsterdam.

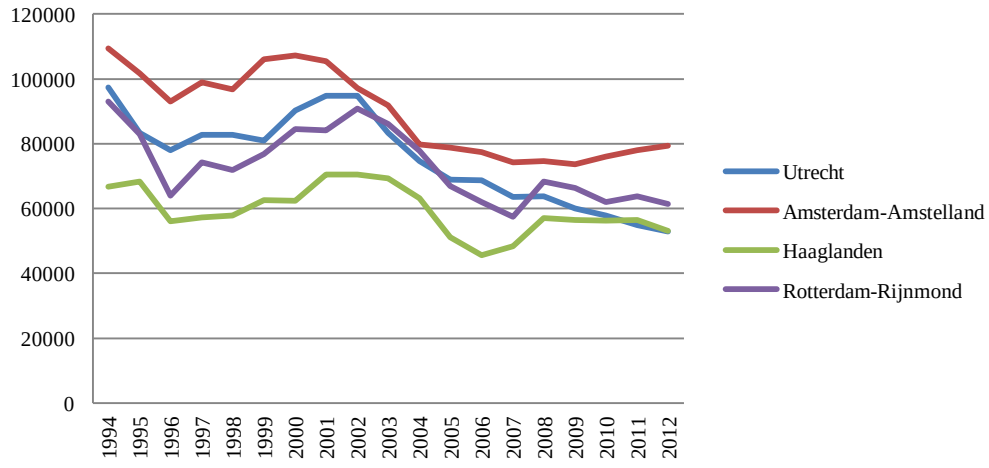

Figure 17. Reported property crimes in four police regions, Netherlands, 1994-2012. Source: Centraal Bureau voor de Statistiek (2009b, 2013a).

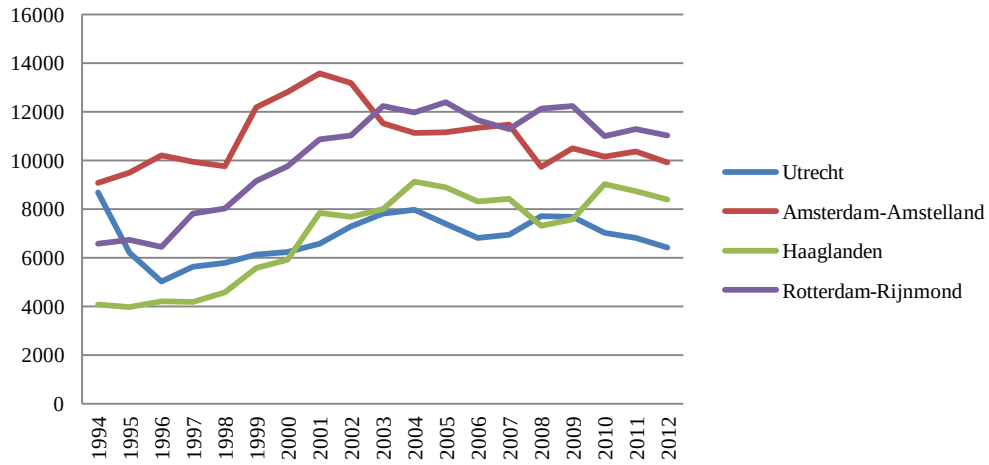

Figure 18. Reported violent crimes in four police regions, Netherlands, 1994-2012. Source: Centraal Bureau voor de Statistiek (2009b, 2013a).

6.2 Policing in the Netherlands and its impact on a regional and local level

In NY crime declined spectacular in the 1990s with tougher and more specific actions of the police under the direction of mayor Guiliani and police chief Bratton. The credits for this decline are often subscribed to Guiliani and Bratton, although a declining youth and economic windfalls are seen as causes for this decline too. The Netherlands experienced similar kind of events with the introduction of the safety program *Naar een veiliger samenleving* (translated as 'towards a safer society') of the Dutch former Prime Minister Balkenende and former Minister of Internal Affairs Remkes in 2002 (Vollaard et al., 2009). The intended effect of this policy strategy in 2002 (which was continued with the program *Veiligheid begint bij voorkomen* (translated as 'safety starts with prevention') in 2007) was a 25 percent decline of crime and nuisance in the Netherlands by 2010. The most important measurements that took place during this period can be grouped into three key points. The first is tougher and more specific police actions, the second point is intensification of detection and prosecution, and the third point is approaches towards repeated offenders. Research shows that these three elements probably had an effect on the decline of crime since 2002 in the Netherlands (Vollaard et al., 2009). These elements will be elaborated in more depth in the upcoming paragraphs.

Three policing strategies that fit the concept of tougher and specific police actions

Tougher and more specific police actions fit the concepts of hot spots policing, disorder policing, problem-oriented, and intelligence-led policing. In chapter two the effect of these policing strategies on crime was discussed. The effect that hot spot policing has on crime and disorder has received strong empirical support (Braga, 2001; Braga & Bond, 2008; Weisburd & Eck, 2004). Problem-oriented and intelligence-led policing have a modest effect on crime, but seems to be effective in reducing crime (Braga et al., 2001; Braga et al., 1999; Weisburd & Eck, 2004; Weisburd et al., 2008, 2010). The evidence for disorder policing is subjected to discussion. Some researchers seem to confirm the theory but many have doubts about the effect of disorder policing on crime. The root causes for crime and disorder seem to be much deeper (Reiner, 2010; Van Stokkom, 2008). In practice, with hot spot policing the police is present at certain places and times were there is a higher risk for crime, which improves the visibility of the police. Addicted repeated offenders and youth with a higher risk of becoming criminals are many times active in these kind of areas. This approach is about tackling systematic offenders and this is done in collaboration with local actors, for example, schools and municipalities. The central actors with disorder policing are again the addicted repeated offenders and youth. Law enforcement is the central aspect with disorder policing. This means a

higher amount of ticketing, stops and frisks, and camera surveillance. Problem-oriented policing and intelligence-led policing are aimed at preventing crime by making use of safety analyses and the involvement of other law enforcement agencies (Vollaard et al., 2009).

Improving law enforcement and approaching specific groups

Goal of the safety program of 2002 was that the entire criminal justice system should process more cases for public prosecution. Specific groups (repeated offenders and youth) would be sanctioned quicker and with more certainty. The capacity of detention was increased to realize this. For juvenile suspects this means that they would be sentenced more quickly and the probability of detection would be higher. For repeated offenders this means longer detention and also an increase in the probability of detection. Repeated offenders will receive a sentencing of maximum two years and specific support and care. Their entire criminal past will be processed during prosecution and not just the one offence they have committed. These measurements should keep these groups of the streets and crime should be reduced as a result (Vollaard et al., 2009).

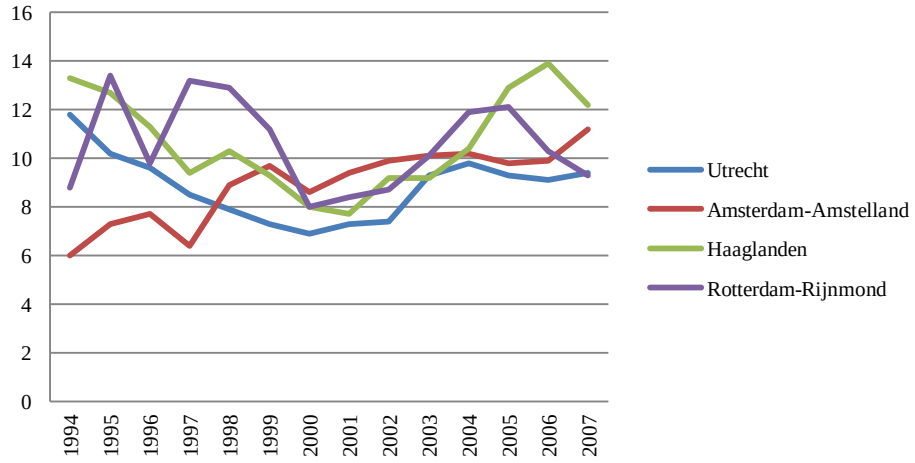

Figure 19. Percentage of cleared up property crimes, four police regions, 1994-2007. Source: Centraal Bureau voor de Statistiek (2009a).

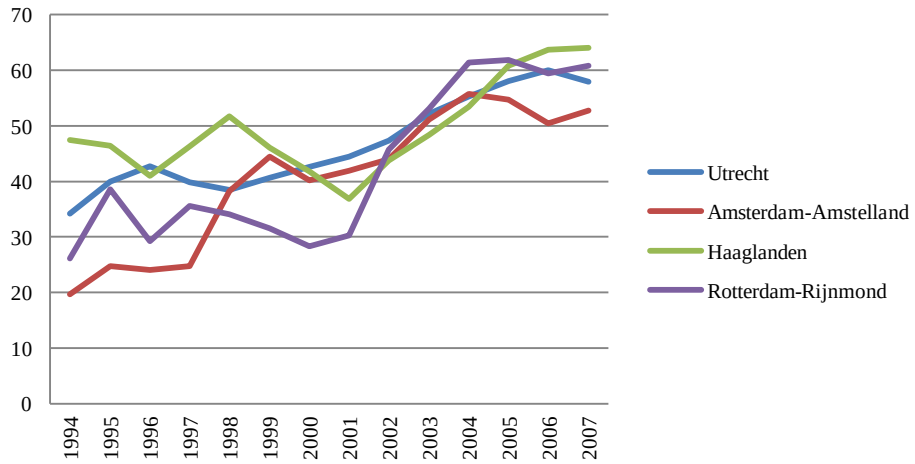

Figure 20. Percentage cleared up violent crimes, four police regions, 1994-2007. Source: Centraal Bureau voor de Statistiek (2009a).

Figures 19 and 20 illustrate the percentage of cleared up violent and property crimes in four police regions. The clearance rate for violent crimes is much higher than the clearance rate for property crimes. Figures 19 and 20 illustrate that for Amsterdam improvements in law enforcement and detection rates probably didn't have a large effect on crime rates. The timing of the decline is the main evidence for this. The percentage of cleared up crimes for violent and property crimes already started to increase since 1994. An improvement in law enforcement didn't seem, therefore, to be particularly the result of the introduced safety program in 2002. Approaches aimed at specific groups and areas in Amsterdam seem to be the best alternatives for explaining the effect of law enforcement on the crime decline in Amsterdam, which will be discussed in the upcoming section.

6.3 Policing in Amsterdam

The results above showed that the crime decline in Amsterdam can be considered as a national phenomenon. Therefore the safety program that was introduced in 2002 on a national level is leading for explaining the crime decline. Research showed that some of those elements probably had an impact on the crime decline on a national level. Improvements in law enforcement didn't seem to be an explanation for the crime decline in Amsterdam because of the timing of the decline. The focus on specific groups of offenders and areas with high crime rates seem to be better explanations for the crime decline in Amsterdam. Law enforcement in Amsterdam was marked by these two key aspects during the period 2003-2012. The approaches in the safety plan of Amsterdam from 2002-2006 are new because the approaches were aimed at specific groups of offenders and the focus wasn't on specific types of crimes (Gemeente Amsterdam, 2003). The remaining part of this section elaborates these two aspects in more detail.

6.3.1 Specific groups: juvenile suspects and (addicted) repeated offenders in Amsterdam

Certain groups in Amsterdam are responsible for most of the crimes committed in the city. Amsterdam already had experiences in the beginning of the 21st century when it comes to tackling crime by focusing on specific groups. The safety program of Amsterdam from 2002-2006 mentions five specific groups for enforcement, namely hard core youth, addicted repeated offenders, non-addicted repeated offenders, illegal criminals, and perpetrators of domestic violence (Gemeente Amsterdam, 2003). The size of illegal criminals and non-addicted repeated offenders were small and in 2006 the region of Amsterdam-Amstelland decided that these groups should be tackled via the regular procedures (Gemeente Amsterdam et al., 2006). The group that is responsible for domestic violence will not be studied with this research because this group is responsible for other types of violent crimes than the crimes under study. The development of four variables will be illustrated during this section that also will be used for the analyses in chapter eight, namely the proportion of juvenile suspects, the proportion of hard core youth, drug trafficking rate per 10,000 population, and the reported number of drugs and alcohol nuisance per 10,000 population in the city districts of Amsterdam. Goals of the approaches were a substantial decline of these groups and crimes (or nuisance) committed by these groups.

Juvenile suspects and hard core youth

The types of crimes that juvenile suspects in Amsterdam commit are mostly violent and property crimes (both approximately 40 percent). Typical crimes related to juvenile suspects are street robbery, robbery, and burglary (Smeets, De Waal, & Lindeman, 2013). Figures 21 and 22 illustrate the trend of the numbers of juvenile suspects in the Netherlands from 1999-2012 and in Amsterdam from 1996-2011. The trends illustrate similar results. The number of juvenile suspects for property crimes increased in the Netherlands during the period 2000-2005 and for violent crimes in 2000-2007. When comparing the number of juvenile suspects in Amsterdam during the period 1996-2002 and 2004-

2011, it becomes clear that the total number of suspects is higher in the second period compared to the first period. Part of this difference can be explained in terms of measurement (Smeets et al., 2013). The first period only consisted of suspects from Amsterdam who committed their crimes in Amsterdam; the second period also consisted of crimes committed by suspects from Amsterdam outside of Amsterdam. This difference, however, doesn't affect the overall image. The overall image is a small increase in the number of juvenile suspects during the period 1996-2001 and a higher increase of the number of juvenile suspects during the period 2002-2006. The decline of juvenile suspects started since 2007. Especially the number of juvenile suspects between the ages 12-17 during the period 2007-2011 started to decline with 51.2 percent, compared to 13.9 percent in the age group 18-24. The total amount of juvenile suspects declined in that period (2007-2011) with 28.4 percent. Although the increase started since 2000, the increases could be the result of a higher detection rate for juvenile suspects as a result of the safety program of 2002.

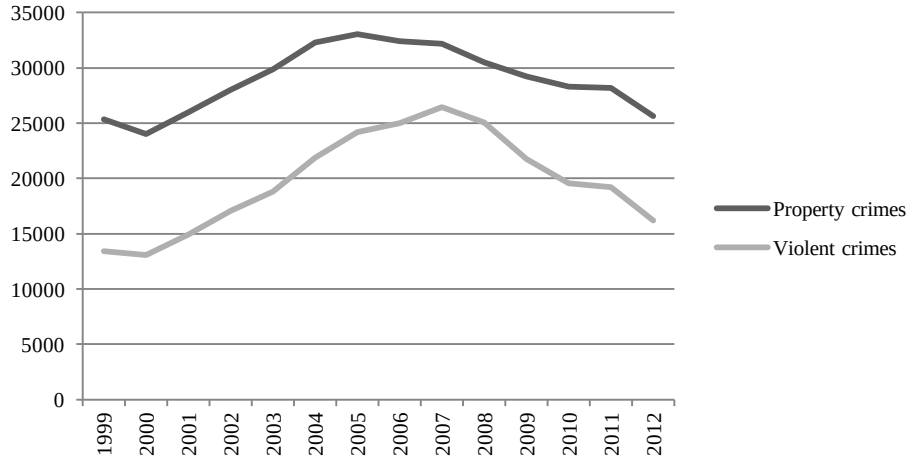

Figure 21. Number of juvenile suspects between the ages 12-25, Netherlands, 1999-2012. Source: Centraal Bureau voor de Statistiek (2013b).

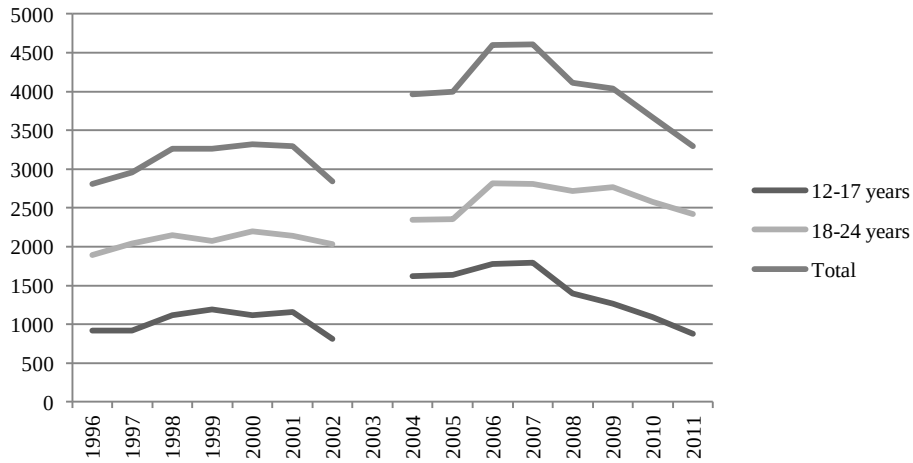

Figure 22. Number of Juvenile suspects, Amsterdam, 1996-2011. Source: 1996-2002 (Nauta & Rietveld, 2004) and 2004-2011 (Smeets et al., 2013).

For making a comparison possible between city districts, figure 23 illustrates the development of hard core youth as a part of the population between the ages 13-24 in the city districts of Amsterdam from 2004-2011 in index rates. The years 2003 and 2012 are therefore missing. The rates of West and South weren't larger than the rate of 2004 in any year during this period. Other city districts showed higher rates than that of 2004 during the period 2004-2011. Especially the rate in Downtown was high in 2006 with an index of 238 and this was also the case in North that same year with 168. Overall, the

decline was the highest in New-West with 54.6 percent, followed by West (45.5), East (42.4), South (38.0) and Southeast (23.0). The proportion of hard core youth increased during this period in Downtown with 27.2 percent and with 3.3 percent in North.

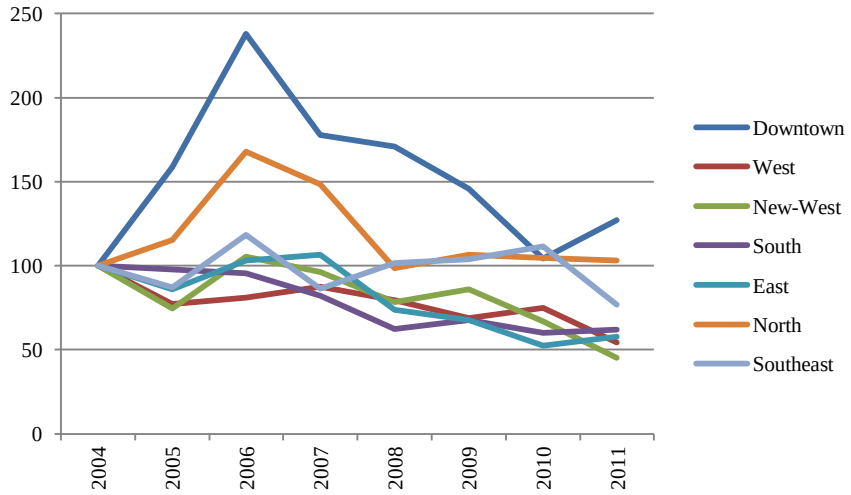

Figure 23. Index hard core youth (2003=100), city districts, Amsterdam, 2004-2011. Source: (processed data from) Smeets et al. (2013).

Figure 24 illustrates the development of juvenile suspects in the city districts of Amsterdam from 2004-2011 in index rates for comparing the proportion of juvenile suspects as a part of the 13-24 year old population. The trend is similar in every city district during this entire period. The trends in every city district were at some point in time higher than the rate of 2004, with the highest rate in Southeast in the year 2006 with an index of 124. The years 2006/2007 can be considered as a turning point in which the number of juvenile suspects declined. Overall, the decline was the highest in West with 33.4 percent, followed by Downtown (32.8), New-West (29.9), South (26.7), East (25.7), Southeast (17.7), and North (15.5).

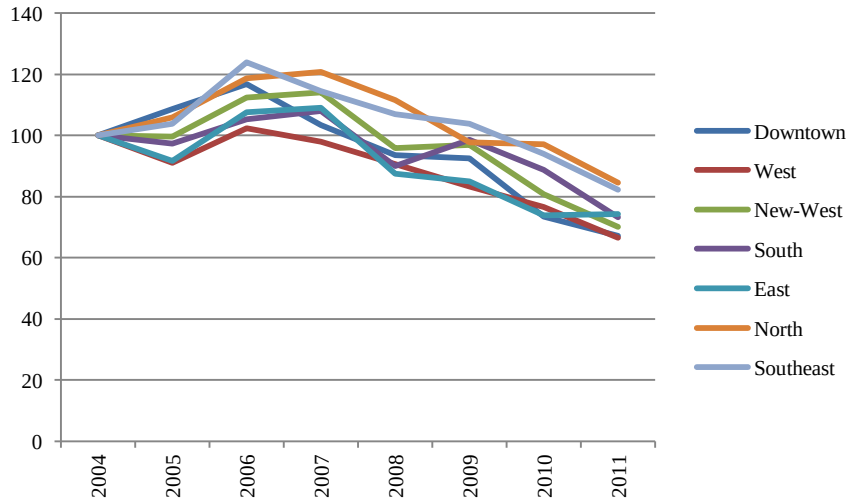

Figure 24. Index juvenile suspects (2003=100), city districts, Amsterdam, 2004-2011. Source: (Processed data from) Smeets et al. (2012).

Addicted repeated offenders in Amsterdam

According to several studies there were two types of measures related to addicted repeated offenders that could have had an impact on crime rates. The 'strafrechtelijke opvang verslaafden (SOV)' and its successor 'inrichting voor stelselmatige daders (ISD)' were implemented in, respectively, 2001 and 2004. Most of the active offenders are locked up with these measures for a longer period of time and this could have had an impact on crime. The basic idea behind the SOV and its successor ISD is that (addicted) repeated offenders are getting long-term treatment in prison. The prospects for the future are that offenders will have a better life when they leave prison, combined with a life without drug use and housing. It is normal in many countries to put repeated offenders in prison when they are arrested multiple times by the police. The Netherlands, however, is different in this instance because of the treatment that (addicted) repeated offenders get during detention. With this perspective a repeated offender isn't in prison for the rest of his life, like in the US, but is released after 2 years (6 months detention and 1.5 years active treatment) (Vollaard, 2010; Vollaard et al., 2009).

In practice this measurement is almost always given to drug addicts who are highly active repeated offenders. This group is mostly male, average age of 40, spend lots of money on drugs, and their main source of income is crime. The types of crimes they mostly commit are theft out/from motor vehicles, burglaries, pick pocketing, and street robbery. Approximately 70 to 80 percent of the crimes committed by this group are related to property crimes (Biesma & Snippe, 2009; Tollenaar et al., 2007; Vollaard, 2010). The capacity for ISD is the highest in the four largest cities in the Netherlands because most of the problems related to addicted repeated offenders are in those cities. The SOV/ISD measure was applied 83 times in 2001 in the Netherlands, and after the introduction of the ISD in 2004 this increased to 775 times in 2007. In the urban area of Amsterdam the SOV/ISD was applied 32 times in 2001 and 189 times in 2007 (Vollaard, 2010).

It is impossible to get a precise image of the number of addicted repeated offenders in the city districts of Amsterdam with the data that is currently available. One challenge is, for example, determining the city in which the repeated offender is active and lives (Hipp & Yates, 2009). Research shows that they mostly work on a local level but not necessarily in one and the same city. They are, however, mostly active in one urban area (Vollaard, 2010). Safety reports of the region Amsterdam-Amstelland show that the group of (addicted) repeated offenders declined in Amsterdam. In 2004 there were 814 repeated offenders in Amsterdam and 716 of them were addicts. This means that 87.9 percent of all the repeated offenders were in that year addicted repeated offenders. In 2011 the number of repeated offenders was 442, a decline of 45.8 percent compared to 2003. In 2011 the number of addicted repeated offender was 255, a decline of 64.4 percent compared to 2003. The proportion of addicted repeated offenders as a part of all the repeated offenders decreased with 30.2 percentage points to 57.7 percent (Gemeente Amsterdam et al., 2006, 2007, 2008, 2009, 2010, 2011, 2012).

According to the literature there are several ways by which the effect of the ISD can be measured. One way of measuring the effect of this measure is by taking into account the number of reported drugs and alcohol nuisance in the city (Vollaard et al., 2009). A decline could be an indication that the measurement works. Figure 25 illustrates the index rates of the number of reported drugs and alcohol nuisance per 10,000 population in the city districts of Amsterdam from 2003-2012. The rates of reported drugs and alcohol nuisance remained in North and Southeast under the level of 2003 during this entire period. The highest rate was measured in 2005 for Downtown with an index of 173 points and the most stable decline was in Southeast. Overall, the highest decline was measured in Southeast with 77.5 percent, followed by East (56.0), Downtown (46.8), North (46.7), West (37.2), South (35.0), and New-West (25.4).

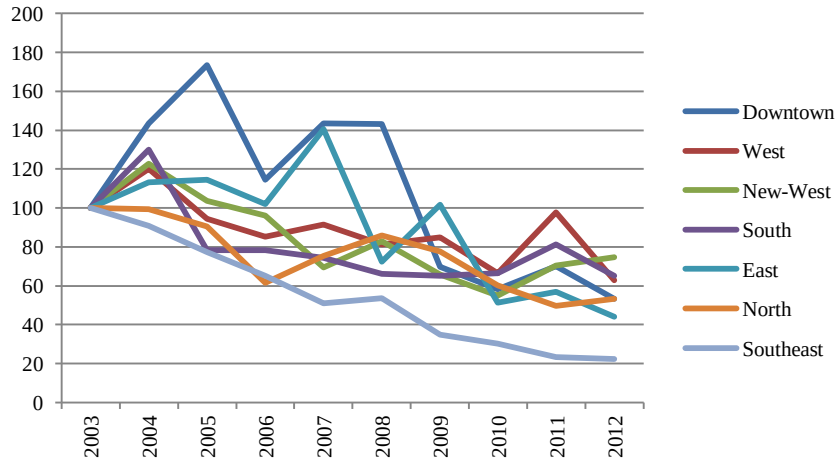

Figure 25. Index rates reported drugs and alcohol nuisance, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

Figure 26 illustrates the index rates for drug trafficking per 10,000 population in the city districts of Amsterdam from 2003-2012. The trends in the rates of drug trafficking show similar patterns in most of the city districts, although the magnitude is different. New-West's trend is aberrant from the other city districts with a drug trafficking rate in 2008 that is roughly 3.5 times higher compared to the rate of 2003. By 2012, the other six city districts have all rates of drug trafficking that is lower compared to the rate of 2003. Overall, the biggest decline in this 10 year period was in Downtown with 75.6 percent, followed by East (52.9), West (46.9), North (36.2), Southeast (25.6), and South (10.5). The rate increased with 106.2 percent in New-West.

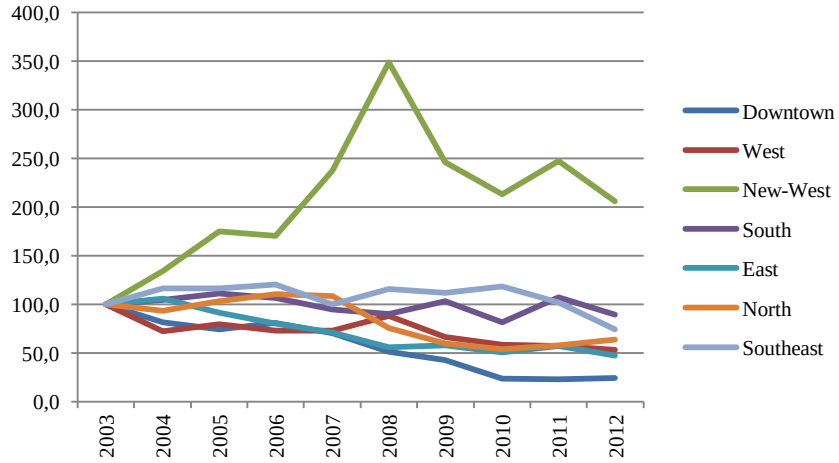

Figure 26. Index rates drug trafficking, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

6.3.2 Specific areas: hot spot policing in neighbourhood combinations

An integral approach in Amsterdam was designed to 'tackle' crime in specific areas (hot spots). The safety programs in Amsterdam during this period were focused on several areas that were selected by taking into account the objective and subjective safety, and also the quality of life within these areas. Several areas that were under the attention during the period 2003-2012 were for instance, risk locations and lines in the public transport, business park Westpoort, areas with urban innovations, and threatened shopping areas and business park areas. Several neighbourhood combinations in the city districts were also entitle for hot spot policing, this is illustrated in table 3. An overview of the map of Amsterdam is provided in appendix E.

City District	Neighbourhood	Year(s)
Downtown	A00 Burgwallen-Oude Zijde	2003-2012
	A01 Burgwallen-Nieuwe Zijde	2003-2012
	A03 Grachtengordel-Zuid	2003-2006, 2012
	A04 Nieuwmarkt/Lastage	2007-2011
	A07 Weteringschans	2003-2006, 2012
	A08 Weesperbuurt/Plantage	2007-2011
Southeast	T93 Bijlmer Centrum	2003-2012
	T94 Bijlmer Oost	2003-2012
	T96 Holendrecht	2012
New-West	F76 Slotermeer-Noordoost	2012
	F77 Slotermeer-Zuidwest	2012
	F81 Osdorp-Oost	2012
	F85 Slotervaart	2012
	F86 Overtoomse veld	2012
	F87 Westlandgracht	2012
West	E38 Erasmuspark	2012
	E41 Van Galenbuurt	2012
	E42 Hoofdweg e.o.	2012
North	N60 Volewijck	2012
East	M30 Transvaalbuurt	2012
	M31 Indische buurt West	2012
	M35 IJburg	2012

Table 3. Hot spot neighbourhoods, city districts, Amsterdam, 2003-2012. Source: Gemeente Amsterdam (2003); Gemeente Amsterdam et al., (2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013).

All the areas named above had priority in the city, because the high crime rates in these areas needed to be grasped quickly and effectively. The city districts in Amsterdam also had their own safety plans by which multiple areas and places received more attention in their local policies, but the main attention is given to these areas. The neighbourhood combinations that were hot spot locations during the entire period 2003-2012 will be taken into account in this report. The development of crimes in neighbourhood combinations with hot spot policing will be compared in chapter eight with that of neighbourhood combinations without hot spot policing, so that can be determined if this type of approach had an effect on crime rates.

6.4 Conclusion

This chapter addressed the third research question *how did law enforcement develop in the city districts of Amsterdam from 2003 to 2012?* The results indicated that the crime decline can be considered as a national phenomenon (although this is possibly different for violent crimes). The introduction of the safety program of Dutch former Prime Minister Balkenende in 2002 is often called by researchers as a factor responsible for the crime decline in the Netherlands. Although the approaches aimed at improving law enforcement probably aren't the result of this program, approaches aimed at specific groups of offenders and specific areas (hot spots) probably are. This is also the main focus of the safety program in Amsterdam during the period 2003-2012. Specific groups of offenders during this study are juvenile suspects (specifically hard core youth) and (addicted) repeated offenders. Goals of these approaches were a substantial decline of the size of these groups and crimes (or nuisance) committed by these groups. Four variables will be used to test for the correlation between these variables and crime rates, namely the proportion of juvenile suspects and hard core youth as a part of the population between the ages of 13-24, drug trafficking rate per 10,000 population, and reported drugs and alcohol nuisance per 10,000 population. Finally, an overview was presented of the neighbourhood combinations in Amsterdam that were entitled for hot spot policing. Crime rates of those areas will be compared with that of neighbourhood combination without hot spot policing for studying the effect of hot spot policing on crime.

7. The effect of demographic and socio-economic conditions on crime

The fourth research question will be addressed in this chapter *what is the effect of the structure of the city districts on the decline of violent and property crimes in the city districts of Amsterdam from 2003 to 2012?* The structure of the city refers to developments in the demographic composition and socio-economic conditions in the city. These developments were discussed in chapter five of this report. The main conclusion was that the structure of the city was relatively similar in 2012 compared to 2003. Although some city districts had changes larger than other city districts, the overall image was a city that did not change that drastically compared to the decline in crime. Table 4 provides information about the developments in crime rates from 2003-2012 for six crimes in every city district.

	Theft of motor vehicles	Theft out/from motor vehicles	Pick pocketing	Burglary	Street robbery	Robbery	Median crime decline
Downtown	-67.6	-57.9	-5.3	-44.4	-43.2	-44.6	-44.5
West	-55.9	-61.7	-31.1	-33.2	-30.8	-63.6	-44.6
New-West	-36.7	-53.8	-43.3	-5.3	-44.9	-56.2	-44.1
South	-28.6	-40.6	-26.7	-41.4	-31.4	-37.2	-34.3
East	-55.4	-45.6	-28.3	-35.0	+2.2	-49.3	-40.3
North	-52.7	-52.0	-2.9	+1.6	+35.4	-70.0	-27.5
Southeast	-58.6	-66.1	-58.5	-46.2	-58.2	-60.0	-58.6

Table 4. Percentage change in the rates of six crimes, city districts, Amsterdam, 2003-2012. Source: (processed data from) OS Amsterdam.

Two interesting developments can be observed from this table. Firstly, the rates of theft of motor vehicles, theft out/from motor vehicles, and robbery show a substantial decline in every city district. Secondly, the rates of pick pocketing, burglary, and street robbery didn't show a substantial decline in every city district. The rates of pick pocketing in Downtown (-5.3) and North (-2.9) didn't decline as much compared to the decline in other city districts. The rates of burglary in New-West (-5.3) and North (+1.6) were aberrant and the rates of street robbery increased in East (+2.2) and North (+35.4) compared to a decline in the rest of the city. This chapter addresses the above mentioned question and tries to explain why some crimes didn't decline as much in certain city districts compared to other city districts. Section 7.1 is about the effect of the demographic composition on crime rates. In section 7.2 the effect of socio-economic conditions on crime rates will be discussed and in section 7.3 explanations for the developments in crime rates will be discussed. A general description of the results will be given in section 7.1 and 7.2, whereas in section 7.3 inferences are drawn between these results and crime rates. Hypotheses one and two, formulated in chapter two, are tested during this section too. Section 7.4 is about alternative explanations for a weakened crime decline in Amsterdam since 2007. Section 7.5 contains the conclusion and an answer for the fourth research question will be given.

7.1 The effect of demographic conditions on crime rates

This section will be about the effect that demographic developments in the city had on crime rates. This is done by making use of the Spearman's rho test. The results of this test are reported in this chapter too. Positive and significant correlations mean that hypothesis one is confirmed. Tables 5 and 6 illustrate the percentage change in demographic variables and the distribution of the population in the city districts of Amsterdam. Increases of these variables are expected to increase crime rates, whereas decreases of these variables are expected to decrease crime rates. The results of the Spearman's rho test will be discussed separately per type of crime in the upcoming paragraphs. Only significant correlations that confirm the hypothesis will be discussed during this section.

	Population	Share of ethnic minorities	Surinamese	Antilleans	Moroccans	Turkish	Age 15-29
Downtown	+7.1	+0.5	-0.6	-0.2	-0.1	0.0	+3.3
West	+6.2	-4.3	-1.6	0.0	-1.6	-1.6	+0.7
New-West	+10.0	+7.3	-1.1	0.0	+3.7	+2.5	+3.6
South	+6.2	+0.5	-0.6	0.0	-0.5	-0.2	+2.3
East	+23.3	-3.1	-1.9	0.0	-0.9	-1.3	+2.0
North	+0.8	+5.1	-0.8	0.1	+2.1	+1.5	+1.6
Southeast	+2.2	+2.7	-0.1	-0.7	+0.1	0.0	+0.8

Table 5. Percentage change in demographic variables, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

	Population	Share of ethnic minorities	Surinamese	Antilleans	Moroccans	Turkish	Age 15-29
Downtown	85618	14.5	3.2	0.8	1.7	0.9	24.2
West	138568	31.6	5.1	1.0	10.5	6.1	25.1
New-West	141825	50.5	7.0	1.0	20.4	12.7	23.0
South	137901	16.9	3.6	0.9	3.1	1.5	22.4
East	122847	33.4	7.8	1.2	10.3	4.9	22.1
North	88434	37.6	8.1	1.4	9.8	6.4	19.3
Southeast	83743	64.0	31.7	5.5	2.0	1.0	23.1

Table 6. Distribution of the population in percentages, city districts, Amsterdam, 2012. Source: (processed data from) O+S Amsterdam.

Theft of motor vehicles in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 7. 31 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The correlations between theft of motor vehicles and the variables population and age 15-29 aren't significant and in confirmation with the hypothesis for the period 2003-2012. The variable Surinamese is significant in four city districts (Downtown, West, New-West, and East). The variable Moroccans is significant in three city districts (West, South, and East), followed by the share of ethnic minorities (West and East), Turkish (West and East), and Antilleans (Downtown and Southeast) in two city districts. Four variables are significant in East and West (in both city districts the share of ethnic minorities, Surinamese, Moroccans, and Turkish) if the city districts are taken into account. Two variables are significant in Downtown (Surinamese and Antilleans) and one variable in New-West (Surinamese), South (Moroccans), and Southeast (Antilleans). The development of theft of motor vehicles during the period 2003-2012 can't be explained in terms of the demographic composition in North.

	Statistics	Population	Share of ethnic minorities	Surinamese	Antilleans	Moroccans	Turkish	Age 15-29
Downtown	Correlation Coefficient	-,549*	-,708*	,723**	,723**	,085	-,237	-,808**
	Sig. (1-tailed)	,050	,011	,009	,009	,408	,255	,002
West	Correlation Coefficient	-,176	,673*	,673*	,200	,673*	,673*	-,389
	Sig. (1-tailed)	,314	,017	,017	,290	,017	,017	,133
New-West	Correlation Coefficient	-,567*	-,685*	,673*	,091	-,685*	-,685*	-,656*
	Sig. (1-tailed)	,044	,014	,017	,401	,014	,014	,020
South	Correlation Coefficient	-,075	-,256	,455	,067	,624*	,455	-,389
	Sig. (1-tailed)	,418	,238	,093	,427	,027	,093	,133
East	Correlation Coefficient	-,954**	,969**	,957**	-,506	,902**	,957**	-,868**
	Sig. (1-tailed)	,000	,000	,000	,068	,000	,000	,000
North	Correlation Coefficient	-,256	-,539	,358	,018	-,539	-,539	-,509
	Sig. (1-tailed)	,238	,054	,155	,480	,054	,054	,066
Southeast	Correlation Coefficient	-,092	-,310	-,079	,576*	-,503	-,358	-,310
	Sig. (1-tailed)	,400	,192	,414	,041	,069	,155	,192

Table 7. Results of the Spearman's rho test for theft of motor vehicles and demographic conditions (N=10).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Theft out/from motor vehicles in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 8. 36 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The correlations between theft out/from motor vehicles and the variables population and age 15-29 aren't significant and in confirmation with the hypothesis for the period 2003-2012. The variable Surinamese is significant in six city districts (with the exception of Southeast). The variable Turkish is significant in three city districts (West, South, and East), followed by two city districts for the share of ethnic minorities (West and East), Moroccans (West and East), and Antilleans (Downtown and Southeast). Four variables are significant in West and East (in both city districts the share of ethnic minorities, Surinamese, Moroccans, and Turkish) if the city districts are taken into account. Two are significant in Downtown (Surinamese and Antilleans) and South (Surinamese and Turkish), and one in New-West (Surinamese), North (Surinamese), and Southeast (Antilleans).

	Statistics	Population	Share of ethnic minorities	Surinamese	Antilleans	Moroccans	Turkish	Age 15-29
Downtown	Correlation Coefficient	-,739**	-,650*	,891**	,855**	,406	-,152	-,960**
	Sig. (1-tailed)	,007	,021	,000	,001	,122	,338	,000
West	Correlation Coefficient	-,853**	,867**	,867**	,176	,867**	,867**	-,419
	Sig. (1-tailed)	,001	,001	,001	,314	,001	,001	,114
New-West	Correlation Coefficient	-,957**	-,939**	,903**	,333	-,939**	-,939	-939**
	Sig. (1-tailed)	,000	,000	,000	,173	,000	,000	,000
South	Correlation Coefficient	-,797**	-,781**	,879**	-,600*	,309	,709*	-,827**
	Sig. (1-tailed)	,003	,004	,000	,033	,192	,011	,002
East	Correlation Coefficient	-,875**	,869**	,879**	-,673*	,879**	,879**	-,820**
	Sig. (1-tailed)	,000	,001	,000	,017	,000	,000	,002
North	Correlation Coefficient	,125	-,867**	,818**	-,685*	-,867**	-,867**	-,939**
	Sig. (1-tailed)	,366	,001	,002	,014	,001	,001	,000
Southeast	Correlation Coefficient	-,092	-,456	,103	,600*	-,176	-,103	-,161
	Sig. (1-tailed)	,400	,093	,388	,033	,314	,388	,328

Table 8. Results of the Spearman's rho test for theft out/from motor vehicles and demographic conditions (N=10).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Pick pocketing in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 9. 26 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The correlations between pick pocketing and the variables population and age 15-29 aren't significant and in confirmation with the hypothesis for the period 2003-2012. The variable Surinamese is significant in three city districts (West, South, and East). Two correlations are significant for the variables share of ethnic minorities (West and East), Moroccans (West and East), Turkish (West and East), and Antilleans (West and Southeast). Five correlations are significant in West (share of ethnic minorities, Surinamese, Antilleans, Moroccans, and Turkish) if the city districts are taken into account. Four correlations are significant in East (share of ethnic minorities, Surinamese, Moroccans, and Turkish). One correlation is significant in Southeast (Antilleans) and South (Surinamese). The development of pick pocketing during the period 2003-2012 can't be explained in terms of the demographic composition in Downtown, New-West, and North.

	Statistics	Population	Share of ethnic minorities	Surinamese	Antilleans	Moroccans	Turkish	Age 15-29
Downtown	Correlation Coefficient	-,314	-,273	,442	,333	,091	-,527	-,559*
	Sig. (1-tailed)	,189	,223	,100	,173	,401	,059	,046
West	Correlation Coefficient	-439	,745**	,745**	,624*	,745**	,745**	-,693*
	Sig. (1-tailed)	,102	,007	,007	,027	,007	,007	,013
New-West	Correlation Coefficient	-,311	-,467	,455	,079	-,467	-,467	-,485
	Sig. (1-tailed)	,191	,087	,093	,414	,087	,087	,087
South	Correlation Coefficient	-,646*	-,726**	,697*	-,442	,103	,503	-,699*
	Sig. (1-tailed)	,022	,009	,013	,100	,388	,069	,012
East	Correlation Coefficient	-,705*	,663*	,673*	-,079	,636*	,673*	-,758**
	Sig. (1-tailed)	,011	,018	,017	,414	,024	,017	,005
North	Correlation Coefficient	,125	-,018	-,224	,394	-,018	-,018	-,080
	Sig. (1-tailed)	,366	,480	,267	,130	,480	,480	,413
Southeast	Correlation Coefficient	-,006	-,529	-,273	,636*	-,164	,018	-,167
	Sig. (1-tailed)	,493	,058	,223	,024	,326	,480	,322

Table 9. Results of the spearman's rho test for pick pocketing and demographic conditions (N=10).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Burglary in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 10. 21 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The correlations between burglary and the variables population and age 15-29 aren't significant and in confirmation with the hypothesis for the period 2003-2012. The variable Surinamese is significant in three city districts (Downtown, South, and East). Two correlations are significant for the variables Moroccans (South and East) and Turkish (South and East). One correlation is significant for the variables share of ethnic minorities (East) and Antilleans (Southeast). Four correlations are significant in East (share of ethnic minorities, Surinamese, Moroccans, and Turkish) if the city districts are taken into account. Three correlations are significant in South (Surinamese, Moroccans, and Turkish). One correlation is significant in Downtown (Surinamese) and Southeast (Antilleans). The development of burglary during the period 2003-2012 can't be explained in terms of the demographic composition in West, New-West, and North.

	Statistics	Population	Share of ethnic minorities	Surinamese	Antilleans	Moroccans	Turkish	Age 15-29
Downtown	Correlation Coefficient	-,782**	-,632*	,709*	,491	,442	,067	-,790**
	Sig. (1-tailed)	,004	,025	,011	,075	,100	,427	,003
West	Correlation Coefficient	-,144	,382	,382	-,115	,382	,382	-,310
	Sig. (1-tailed)	,345	,138	,138	,376	,138	,138	,192
New-West	Correlation Coefficient	-,250	-,127	,018	,236	-,127	-,127	-,055
	Sig. (1-tailed)	,243	,363	,480	,255	,363	,363	,440
South	Correlation Coefficient	-,533*	-,274	,636*	-,115	,758**	,661*	-,638*
	Sig. (1-tailed)	,056	,221	,024	,376	,006	,019	,024
East	Correlation Coefficient	-,675*	,681*	,697*	-,358	,648*	,697*	-,630
	Sig. (1-tailed)	,016	,015	,013	,155	,021	,013	,025
North	Correlation Coefficient	,505	,261	-,418	,236	,261	,261	,018
	Sig. (1-tailed)	,068	,234	,115	,255	,234	,234	,480
Southeast	Correlation Coefficient	-,477	,-802**	,200	,867**	-,200	,164	-,477
	Sig. (1-tailed)	,082	,003	,290	,001	,290	,326	,082

Table 10. Results of the Spearman's rho test for burglary and demographic conditions (N=10).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Street robbery in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 11. 24 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The correlations between street robbery and the variable age 15-29 aren't significant and in confirmation with the hypothesis for the period 2003-2012. The variable Surinamese is significant in three city districts

(Downtown, West, and New-West). Two correlations are significant for the variables Antilleans (Downtown and Southeast) and Turkish (West and South). One correlation is significant for the variables population (North), share ethnic minorities (West), and Moroccans (West). Four correlations are significant in West (share of ethnic minorities, Surinamese, Moroccans, and Turkish) if the city districts are taken into account. Two correlations are significant in Downtown (Surinamese and Antilleans). One correlation is significant in New-West (Surinamese), South (Turkish), North (population), and Southeast (Antilleans). The development of street robbery during the period 2003-2012 can't be explained in terms of the demographic composition in East.

	Statistics	Population	Share of ethnic minorities	Surinamese	Antilleans	Moroccans	Turkish	Age 15-29
Downtown	Correlation Coefficient	-,880**	-,650*	,855**	,745**	,527	-,176	-,942**
	Sig. (1-tailed)	,000	,021	,001	,007	,059	,314	,000
West	Correlation Coefficient	-,692*	,790**	,790**	-,152	,790**	,790**	-,509
	Sig. (1-tailed)	,013	,003	,003	,338	,003	,003	,066
New-West	Correlation Coefficient	-,848**	-,830**	,806**	,309	-,830**	-,830**	-,828**
	Sig. (1-tailed)	,001	,001	,002	,192	,001	,001	,002
South	Correlation Coefficient	-,414	-,085	,406	-,152	,285	,709*	-,377
	Sig. (1-tailed)	,117	,407	,122	,338	,213	,011	,142
East	Correlation Coefficient	-,262	,210	,237	,097	,365	,237	-,399
	Sig. (1-tailed)	,232	,280	,255	,395	,150	,255	,127
North	Correlation Coefficient	,846**	,055	-,006	-,176	,055	,055	-,104
	Sig. (1-tailed)	,001	,441	,493	,314	,441	,441	,387
Southeast	Correlation Coefficient	-,532*	-,663*	-,006	,830**	-,273	-,176	-,669*
	Sig. (1-tailed)	,057	,018	,493	,001	,223	,314	,017

Table 11. Results of the Spearman's rho test for street robbery and demographic conditions (N=10).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Robbery in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 12. 7 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The correlations between robbery and the variables population, share of ethnic minorities, Surinamese, and age 15-29 aren't significant and in confirmation with the hypothesis for the period 2003-2012. Two correlations are significant in Downtown for the variables Moroccans and Turkish. In Southeast the variable Antilleans is significant. The development of street robbery during the period 2003-2012 can't be explained in terms of the demographic composition in West, New-West, South, East, and North.

	Statistics	Population	Share of ethnic minorities	Surinamese	Antilleans	Moroccans	Turkish	Age 15-29
Downtown	Correlation Coefficient	-,308	,142	,200	,152	,564*	,552*	-,036
	Sig. (1-tailed)	,194	,347	,290	,338	,045	,049	,460
West	Correlation Coefficient	-,746**	,462	,462	-,365	,462	,462	,338
	Sig. (1-tailed)	,007	,089	,089	,150	,089	,089	,169
New-West	Correlation Coefficient	-,561*	-,588*	,539	-,018	-,588*	-,588*	-,497
	Sig. (1-tailed)	,046	,037	,054	,480	,037	,037	,072
South	Correlation Coefficient	-,370	-,104	,273	-,055	,382	,539	-,438
	Sig. (1-tailed)	,146	,388	,223	,441	,138	,054	,103
East	Correlation Coefficient	-,405	,442	,410	-,349	,428	,410	-,318
	Sig. (1-tailed)	,123	,101	,120	,162	,109	,120	,185
North	Correlation Coefficient	-,811**	-,256	,110	-,183	-,256	-,256	-,284
	Sig. (1-tailed)	,002	,238	,381	,306	,238	,238	,213
Southeast	Correlation Coefficient	-,255	-,442	,134	,626*	-,517	-,340	-,171
	Sig. (1-tailed)	,239	,100	,356	,026	,063	,168	,319

Table 12. Results of the Spearman's rho test for robbery and demographic conditions (N=10).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

7.2 The effect of socio-economic conditions on crime rates

This section will be about the effect that socio-economic conditions in the city had on crime rates. This is done by making use of the Spearman's rho test. The results of this test are presented in this chapter too. Positive and significant correlations mean that hypothesis two is confirmed. Tables 13 and 14 will also be used for drawing inferences about the results; it contains the percentage change in socio-economic explanations for crime and the distributions of socio-economic conditions in the city. Increases of these variables are expected to increase crime rates, whereas decreases of these variables are expected to decrease crime rates. The results of the correlation coefficients will be discussed separately per type of crime. Only significant correlations that confirm the hypothesis will be discussed in this section.

	Unemployment rate[2]	One parent families	Very low income households	Unemployment benefit recipients	Social benefit recipients
Downtown	-3.7	-0.8	-2.6	-0.2	-2.1
West	-6.0	-0.7	-0.6	-0.4	-1.4
New-West	-5.5	-0.2	0.0	-0.2	-0.9
South	-2.7	-0.2	-1.0	-0.4	-1.0
East	-6.0	0.0	-1.7	-0.3	-2.2
North	-4.3	-0.2	+1.4	+0.3	+0.3
Southeast	-4.0	-0.9	+1.0	+0.6	0.0

Table 13. Percentage change in socio-economic variables, city districts, Amsterdam, 2003-2012**.** Source: (processed data from) O+S Amsterdam.

	Unemployment rate[3]	One parent families	Very low income households	Unemployment benefit recipients	Social benefit recipients
Downtown	3.8	5.4	10.9	2.9	4.0
West	5.1	7.3	19.6	3.1	7.3
New-West	4.7	9.3	18.5	2.6	6.0
South	4.4	6.6	11.8	2.7	4.1
East	4.8	8.7	18.0	3.0	5.6
North	5.6	11.0	20.9	3.2	7.5
Southeast	6.5	16.1	23.7	4.0	9.6

Table 14. Distribution of socio-economic conditions, city districts, Amsterdam, 2012. Source: (processed data from) O+S Amsterdam.

Theft of motor vehicles in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 15. 46 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The correlations between theft of motor vehicles and the variable unemployment rate are significant in five city districts (Downtown, West, New-West, South, and East). One parent families in significant in four city districts (Downtown, West, New-West, and South), unemployment benefit recipients in three city districts (New-West, South, and East), and very low income households and social benefit recipients in two city districts (both Downtown and East). Four variables are significant in Downtown (unemployment rate, one parent families, very low income households, and social benefit recipients) and East (unemployment rate, very low income households, unemployment benefit recipients, and social benefit recipients) if the city districts are taken into account. Three variables are significant in New-West (unemployment rate, one parent families, and social benefit recipients) and South (unemployment rate, one parent families, and social benefit recipients). Two variables (unemployment rate and one parent families) are significant in West. The development of theft of motor vehicles during the period 2003-2012 can't be explained in terms of socio-economic conditions in North and Southeast.

[2] For unemployment rates it is the difference between the years 2003 and 2011.
[3] For unemployment rates this is the year 2011.

	Statistics	Unemployment rate	One parent families	Very low income households	Unemployment benefit recipients	Social benefit recipients
Downtown	Correlation Coefficient	,609*	,812**	,695*	,426	,559*
	Sig. (1-tailed)	,041	,002	,013	,110	,046
West	Correlation Coefficient	,733*	,691*	,116	,455	,321
	Sig. (1-tailed)	,012	,013	,375	,093	,183
New-West	Correlation Coefficient	,817**	,611*	,189	,624*	,430
	Sig. (1-tailed)	,004	,030	,300	,027	,107
South	Correlation Coefficient	,750**	,570*	,164	,855**	,442
	Sig. (1-tailed)	,010	,043	,326	,001	,100
East	Correlation Coefficient	,899**	-,284	,840**	,585*	,854**
	Sig. (1-tailed)	,000	,213	,001	,038	,001
North	Correlation Coefficient	,350	,204	-,328	,030	-,091
	Sig. (1-tailed)	,178	,286	,177	,467	,401
Southeast	Correlation Coefficient	,477	,232	-,734*	,224	,006
	Sig. (1-tailed)	,097	,260	,008	,267	,493

Table 15. Results of the Spearman's rho test for theft of motor vehicles and socio-economic conditions (N=10 and N=9 for unemployment rate).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Theft out/from motor vehicles in the city districts of Amsterdam

The results of the spearman's rho test are presented in table 16. 49 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The correlations between theft out/from motor vehicles and the variable social benefit recipients aren't significant and in confirmation with the hypothesis for the period 2003-2012. The variable unemployment rate is significant in five city districts (Downtown, New-West, East, North, and Southeast). One parent families (Downtown, West, New-West, and North), very low income households (Downtown, West, New-West, and East), and social benefit recipients (Downtown, West, New-West, and East) are significant in four city districts. Four variables are significant in Downtown and New-West (in both city districts the unemployment rate, one parent families, very low income households, and social benefit recipients) if the city districts are taken into account. Three variables are significant in West (one parent families, very low income households, and social benefit recipients) and East (unemployment rate, very low income households, and social benefit recipients). Two variables are significant in North (unemployment rate and one parent families) and one variable is significant in Southeast (unemployment rate). The development of theft out/from motor vehicles during the period 2003-2012 can't be explained in terms of socio-economic conditions in South.

	Statistics	Unemployment rate	One parent families	Very low income households	Unemployment benefit recipients	Social benefit recipients
Downtown	Correlation Coefficient	,820**	,914**	,833**	,430	,770**
	Sig. (1-tailed)	,003	,000	,001	,107	,005
West	Correlation Coefficient	,500	,856**	,620*	,127	,588*
	Sig. (1-tailed)	,085	,001	,028	,363	,037
New-West	Correlation Coefficient	,600*	,860**	,579*	,370	,648*
	Sig. (1-tailed)	,044	,001	,040	,147	,021
South	Correlation Coefficient	,517	,479	,188	,285	,164
	Sig. (1-tailed)	,077	,081	,302	,302	,326
East	Correlation Coefficient	,683*	-,508	,866**	,321	,721**
	Sig. (1-tailed)	,021	,067	,001	,183	,009
North	Correlation Coefficient	,633*	,712*	,024	,224	,273
	Sig. (1-tailed)	,034	,010	,473	,267	,223
Southeast	Correlation Coefficient	,603*	,195	-,514	,236	-,188
	Sig. (1-tailed)	,043	,295	,064	,255	,302

Table 16. Results of the Spearman's rho test for theft out/from motor vehicles and socio-economic conditions (N=10 and N=9 for unemployment rate).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Pick pocketing in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 17. 46 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The variables unemployment rate (Downtown, West, New-West, East, and Southeast) and unemployment benefit recipients (Downtown, West, New-West, East, and North) are significant in five city districts. Social benefit recipients is significant in three city districts (Downtown, West, and East). The variable one parent families is significant in two city districts (West and South) and the variable very low income households is significant in one city district (West). Five variables are significant in West (unemployment rate, one parent families, very low income households, unemployment benefit recipients, and social benefit recipients) if the city districts are taken into account, followed by three in Downtown and East (in both city districts the unemployment rate, unemployment benefit recipients, and social benefit recipients). Two variables are significant in New-West (unemployment rate and unemployment benefit recipients), and one in North (unemployment benefit recipients), South (one parent families), and Southeast (unemployment rate).

	Statistics	Unemployment rate	One parent families	Very low income households	Unemployment benefit recipients	Social benefit recipients
Downtown	Correlation Coefficient	,770*	,485	,462	,576*	,758**
	Sig. (1-tailed)	,008	,078	,089	,041	,006
West	Correlation Coefficient	,683*	,758**	,717**	,564*	,830**
	Sig. (1-tailed)	,021	,005	,010	.045	,001
New-West	Correlation Coefficient	,583*	,411	,098	,661*	,442
	Sig. (1-tailed)	,050	,119	,394	,019	,100
South	Correlation Coefficient	,483	,662*	,309	,503	,394
	Sig. (1-tailed)	,094	,018	,192	,069	,130
East	Correlation Coefficient	,750**	,025	,457	,600*	,782**
	Sig. (1-tailed)	,010	,473	,092	,033	,004
North	Correlation Coefficient	,200	-,012	-,091	,612*	,248
	Sig. (1-tailed)	,303	,486	,401	,030	,244
Southeast	Correlation Coefficient	,753**	,159	-,434	,479	,200
	Sig. (1-tailed)	,010	,331	,105	,081	,290

Table 17. Results of the spearman's rho test for pick pocketing and socio-economic conditions (N=10 and N=9 for unemployment rate).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Burglary in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 18. 31 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The variable unemployment rate is significant in four city districts (Downtown, West, South, and Southeast). One parent families is significant in three city districts (Downtown, South, and Southeast) and social benefit recipients is significant in two city districts (Downtown and South). Very low income households (Downtown) and unemployment benefit recipients (North) are significant in one city district. Four variables are significant in Downtown (unemployment rate, one parent families, very low income households, and social benefit recipients) if the city districts are taken into account, three in South (unemployment rate, one parent families, and social benefit recipients), two in Southeast (unemployment rate and one parent families), and one in West (unemployment rate) and North (unemployment benefit recipients). The development of burglary during the period 2003-2012 can't be explained in terms of socio-economic conditions in New-West and East.

	Statistics	Unemployment rate	One parent families	Very low income households	Unemployment benefit recipients	Social benefit recipients
Downtown	Correlation Coefficient	,653*	,730**	,553*	,285	,673*
	Sig. (1-tailed)	,028	,008	,049	,213	,017
West	Correlation Coefficient	,583*	,410	,134	,394	,358
	Sig. (1-tailed)	,050	,120	,356	,130	,155
New-West	Correlation Coefficient	,050	,081	-,152	,152	,224
	Sig. (1-tailed)	,449	,412	,337	,338	,267
South	Correlation Coefficient	,600*	,675*	,115	,248	,612*
	Sig. (1-tailed)	,044	,016	,376	,244	,030
East	Correlation Coefficient	,417	-,376	,530	,006	,491
	Sig. (1-tailed)	,132	,142	,057	,493	,075
North	Correlation Coefficient	-,033	-,037	,225	,648*	,479
	Sig. (1-tailed)	,466	,459	,266	,021	,081
Southeast	Correlation Coefficient	,728*	,634*	-,061	-,248	-,067
	Sig. (1-tailed)	,013	,024	,433	,244	,427

Table 18. Results of the Spearman's rho test for burglary and socio-economic conditions (N=10 and N=9 for unemployment rate).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Street robbery in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 19. 43 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The correlations between street robbery and the variable unemployment benefit recipients aren't significant and in confirmation with the hypothesis for the period 2003-2012. The variables unemployment rate (Downtown, West, New-West, and Southeast), one parent families (Downtown, West, New-West, and Southeast), and social benefit recipients (Downtown, West, New-West, and North) are significant in four city districts. The variable very low income households is significant in three city districts (Downtown, West, and North). Four variables are significant in Downtown and West (in both city districts the unemployment rate, one parent families, very low income households, and social benefit recipients) if the city districts are taken into account. Three variables are significant in New-West (unemployment rate, one parent families, and social benefit recipients) and two are significant in North (very low income households and social benefit recipients) and Southeast (unemployment rate and one parent families). The development of the level of street robbery during the period 2003-2012 can't be explained in terms of socio-economic conditions in South and East.

	Statistics	Unemployment rate	One parent families	Very low income households	Unemployment benefit recipients	Social benefit recipients
Downtown	Correlation Coefficient	,845**	,804**	,723**	,394	,855**
	Sig. (1-tailed)	,002	,003	,009	,130	,001
West	Correlation Coefficient	,600*	,834**	,756**	,328	,602*
	Sig. (1-tailed)	,044	,001	,006	,177	,033
New-West	Correlation Coefficient	,600*	,873**	,524	,503	,648*
	Sig. (1-tailed)	,044	,000	,060	,069	,021
South	Correlation Coefficient	-,267	,020	,152	-,345	,285
	Sig. (1-tailed)	,244	,478	,338	,164	,213
East	Correlation Coefficient	,360	-,148	,254	,158	,286
	Sig. (1-tailed)	,171	,342	,240	,331	.212
North	Correlation Coefficient	,167	,514	,778**	,503	,782**
	Sig. (1-tailed)	,334	,064	,004	,069	,004
Southeast	Correlation Coefficient	,795**	,683*	-,355	,091	,248
	Sig. (1-tailed)	,005	,015	,157	,401	,244

Table 19. Results of the Spearman's rho test for street robbery and socio-economic conditions (N=10 and N=9 for unemployment rate).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Robbery in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 20. 6 percent of the possible correlation coefficients are significant at least at the 0.05 level and confirming the hypothesis. The correlations between robbery and the variables one parent families, unemployment benefits, and social benefit recipients aren't significant and in confirmation with the hypothesis for the period 2003-2012. The

variables unemployment rate (southeast) and very low income households (East) are significant in one city district. The development of the level of robbery during the period 2003-2012 can't be explained in terms of socio-economic conditions in five city districts (Downtown, West, New-West, South, and North).

	Statistics	Unemployment rate	One parent families	Very low income households	Unemployment benefit recipients	Social benefit recipients
Downtown	Correlation Coefficient	-,134	,117	,097	-,236	-,067
	Sig. (1-tailed)	,366	,374	,395	,255	,427
West	Correlation Coefficient	,109	,445	,357	-,274	-,036
	Sig. (1-tailed)	,390	,099	,156	,222	,460
New-West	Correlation Coefficient	,567	,293	,055	,212	,188
	Sig. (1-tailed)	,056	,206	,440	,278	,302
South	Correlation Coefficient	,167	,308	,370	-,042	,455
	Sig. (1-tailed)	,334	,193	,147	,454	,093
East	Correlation Coefficient	,304	-,744**	,692*	,031	,269
	Sig. (1-tailed)	,213	,007	,013	,467	,226
North	Correlation Coefficient	-,168	-,159	-,667*	-,262	-,537
	Sig. (1-tailed)	,333	,331	,018	,232	,055
Southeast	Correlation Coefficient	,613*	,303	-,592*	-,024	-,213
	Sig. (1-tailed)	,039	,198	,036	,473	,278

Table 20. Results of the Spearman's rho test for robbery and socio-economic conditions (N=10 and N=9 for unemployment rate).
**. Correlation is significant at the 0.01 level (1-tailed).
*. Correlation is significant at the 0.05 level (1-tailed).

7.3 Explaining crime by the structure of the city

The inferences that can be drawn from the results in the previous sections will be discussed in this section. Hypotheses one and two are partially confirmed based on these results. 37 percent of the socio-economic variables and 21 percent of the demographic composition variables are positive and significantly correlated with crimes rates. Point of discussion is, however, also the large amount of variables that are negatively correlated with crime rates in the city districts. 21 percent of the demographic variables and 2 percent of the socio-economic variables are negative and significantly correlated with crimes rates. Developments within the socio-economic conditions of the city districts of Amsterdam therefore seem to be better and more robust explanations for developments in crime rates compared to developments within the demographic composition during the period 2003-2012. The strength of the correlations between crime rates and the demographic composition and socio-economic conditions weren't discussed so far, besides a general description of the results of the statistical tests. This will be done in the upcoming paragraphs by presenting several examples on which the final conclusion of this chapter will be based. The examples are based on three type of crimes that declined substantially in every city district and the three type of crimes that didn't declined substantially in every city district (see table 4). The examples will show that crime rates can vary to a large extend independent of the variables discussed during this chapter, this is in contrast with the theoretical assumptions presented in chapter two.

Three types of crimes that declined substantially in every city district

The first example is that theft of motor vehicles declined in every city district with a similar trend. The magnitude of the decline differed among city districts between 28.6 and 67.6 percent. This type of crime declined with 55.4 percent in East and with 52.7 percent in North. The difference between these two city districts is that 67 percent of the demographic and socio-economic variables are significantly correlated with theft of motor vehicles in East, but none of the variables are significant in North. The strength of the correlations (one correlation with ,585 and seven correlations between ,840 and ,969) is high in East, most of them are significant at the 0.01 level, and all those variables declined during the period 2003-2012. The assumption would be a much higher decline of theft of motor vehicles in East compared to North, but this isn't the case.

The second example is theft out/from motor vehicles which declined (with a different trend) between 40.6 and 66.1 percent in the city districts. The decline was high in Downtown with 57.6 percent, but higher in Southeast with 66.1 percent. 50 percent of the correlations between theft out/from motor vehicles and the variables were significant in Downtown and 17 percent of the variables were significant in Southeast. In Southeast it concerned the variables unemployment rate (correlation strength is ,603) and Antilleans (correlation strength is ,600) and these were also significant in Downtown. These two variables declined with similar percentages in both city districts, but the decline of theft out/from motor vehicles was larger in Southeast compared Downtown. What is even more remarkable is that the strength of these significant correlation coefficients is even higher in Downtown (,855 for Antilleans and ,820 for unemployment rate).

The third example is that robbery declined in every city district between 37.2 and 70.0 percent. A remarkable result is that robbery declined in West (63.6 percent), New-West (56.2), South (37.2), and North (70.0), while none of the correlations between robbery and the variables were significant. Robbery declined with 70 percent in North and 63.6 percent in West and this is higher than the decline of Downtown with 44.6 percent and Southeast with 60 percent. Downtown and Southeast even had 17 percent significant correlations. A larger decline in robbery would be expected, based on these statistics, in Downtown and Southeast, but this didn't resulted into a larger decline of robbery in these city districts.

Three types of crimes that did not declined substantially in every city district

The first example is the decline of pick pocketing that was lower in Downtown with 5.3 percent and North with 2.9 percent, compared to the decline in other city districts between 26.7 and 58.3 percent. The low amount of significant correlations between the variables and pick pocketing in Downtown (25 percent) and North (8 percent) could be an explanation for this. Table 13 illustrated, however, that the significant correlations for Downtown all declined and this can't be a logical explanation for the much smaller decline in pick pocketing. The single significant variable (social benefit recipients) increased in North, so that could be an explanation, although its increase is small with 0.3 percent. Pick pocketing declined with 31.1 percent in West and with 58.3 percent in Southeast. 83 percent of the correlations between pick pocketing and the variables were significant in West, against 17 percent in Southeast. All the significant variables showed a decline in 2012 compared to 2003, which could explain the decline of pick pocketing. Although the strength of the significant correlations in Southeast (,636 for Antilleans and ,753 for unemployment rate) are (slightly) higher compared to West (,624 for Antilleans and ,683 for unemployment rate), the higher decline of pick pocketing in Southeast is remarkable compared to West given the much smaller amount of significant correlations.

The second example is the decline of burglary which is lower in New-West with 5.3 percent and even increased in North with 1.6 percent, compared the decline in the other city districts between 33.2 and 46.2 percent. None of the correlations between burglary and the variables were significant in New-West. The only correlation that is significant between burglary and the variables in North is unemployment benefit recipients and this variable increased with 0.3 percent during this 10 year period. Most of the developments in the demographic composition were deteriorated in 2012 compared to 2003 in both city districts and most of the socio-economic conditions in North deteriorated. However, the results of the statistical tests didn't confirm that this could be the explanation for the aberrant trends of burglary in New-West and North. It is also unlikely to account the entire increase of burglary in North to an increase of 0.3 percent of unemployment benefit recipients.

The third example is street robbery which increased with 2.2 percent in East and 35.4 percent in North, compared to the decline between 30.8 and 58.3 percent in the other city districts. None of the correlations between street robbery and the variables were significant in East and 25 percent of the correlations are significant in North. A comparison with South shows that the Turkish population is significant in South and street robbery declined in South with 31.4 percent. The Turkish population, however, declined with 0.2 percent and its proportion as a part of the total population in South is with 1.5 percent small. It is unlikely that such a large decline of street robbery in South, compared to East, would be due to a small change in the Turkish population. In North the possible explanations for the increase in street robbery are an increasing proportion of very low income households with 1.4 percent, social benefit recipients with 0.3 percent, and an increasing population with 0.8 percent. These changes are small and the question is if these changes are responsible for the large increase in burglary of 35.4 percent in North. The results are inconsistent because other city districts also have conditions that deteriorated during this period, but the difference is that the statistical tests showed that these conditions weren't significant.

Large variation in crime rates without structural changes in the city districts

The above paragraphs illustrated that crime rates can vary to a large extend without any structural changes in the city districts or logical explanations for it. The results of the statistical tests are inconsistent. The examples showed that significant correlations don't always explain a smaller, equal, or larger decline in the crime rates of the city districts of Amsterdam. There are of course also examples of cases that show something different. North experienced, for instance, one of the worst conditions during the period under study with increases in high risk populations and socio-economic conditions and aberrant trends in the rate of pick pocketing, burglary, and street robbery. However, just 12 percent of North's correlations were significant and the impact of those variables on crime rates is therefore probably low.

	Variable	Percentage	Domain
Strong predictors	1.Unemployment rate	57%	Socio-economic conditions
40-59%	2.Surinamese	45%	Demographic composition
	3.One parent families	40%	Socio-economic conditions
Modest predictors	4.Social benefit recipients	36%	Socio-economic conditions
20-39%	5.Very low income households	29%	Socio-economic conditions
	6.Turkish	29%	Demographic composition
	7.Moroccans	26%	Demographic composition
	8.Antilleans	24%	Demographic composition
	9.Unemployment benefit recipients	21%	Socio-economic conditions
Weak predictors	10.Share ethnic minorities	19%	Demographic composition
0-19%	11.Population	2%	Demographic composition
	12.Age 15-29	0%	Demographic composition

Table 21. Percentage significant correlations per variable, city districts, Amsterdam, 2003-2012.

Table 21 illustrates the percentage of significant correlations per variable. The strongest predictors of the crime decline in the city districts of Amsterdam seem to be the unemployment rate (57 percent), Surinamese (45 percent), and one parent families (40 percent). Modest predictors of the crime decline are social benefit recipients (36 percent), very low income households (29 percent), Turkish (29 percent), Moroccans (26 percent), Antilleans (24 percent), and unemployment benefit recipients (21 percent). The weakest predictors seem to be the share of ethnic minorities (19 percent), population (2 percent), and age 15-29 (0 percent).

7.4 Alternative explanations for a weakened crime decline since 2008

The figures in table 1 on page 33 showed that the crime rates for especially property crimes showed a weakening in their decline in de period 2008-2012 compared to the period 2003-2007. Two alternative explanations, not discussed so far, are the economic crisis since 2007 and the enlargement of the European Union (EU) in 2004 and 2007 with countries from mainly Central and Eastern Europe. In 2007 the credit crisis started and in 2010 the European sovereign debt crisis started. According to figure 12 on page 42 the unemployment rate declined since 2007, but figure 13 on page 42 showed that the proportion of unemployment benefit recipients increased since 2007. The decline of the rates in figure 12 could be caused by the so called 'discouraged worker effect'. This means that people move in and out of the labour force. They will search for jobs when jobs are available, but are giving up the job search when there is a recession. This could give a lowering of the number of unemployed labour force, while they are actually drawing themselves back from the labour market in search for a job. This gives a distorted picture (Benati, 2001). The precise effect of the economic crisis on crime rates remains unclear because of this.

The enlargement of the EU in 2004 and 2007 could also have played a role. Citizens from other countries move more freely around in Europe with the enlargement of the internal market. This could have caused more problems for crime in other countries, for instance, the Netherlands. In Amsterdam it is known that many professional pick pockets are active in Downtown which has caused an increase in the rates of this type of crime. The number of Romanian suspects is strikingly. Approximately half of the suspects that were arrested for this type of crime in 2012 are from Romanian origin (Gemeente Amsterdam, 2013). This could be an indication of other groups of suspects that made its appearance in the city, especially those from Central and Eastern European countries. That crime amongst Central and Eastern Europeans is becoming a larger problem in recent years can also be seen by the attention that is paid by politicians for the problems within these groups (De Boom, Seldier, & Weltevrede, 2014). Several political and social-economic processes have facilitated the enlargement of these problems. Transnational and organized crime is facilitated by the enlargement of the EU and by the transition of countries from the socialistic to the capitalistic market system (Siegel, 2013).

7.5 Conclusion

The question *what is the effect of the structure of the city districts on the decline of violent and property crimes in the city districts of Amsterdam from 2003 to 2012?* was addressed in this chapter. Hypotheses one and two are partially confirmed. However, the percentage of significant correlations seems to be low given the expectations. 37 percent of the socio-economic variables and 21 percent of the demographic variables are positive and significantly correlated with crimes rates. Point of discussion is, however, also the large amount of variables that are negatively correlated with crime rates in the city districts. 21 percent of the demographic variables and 2 percent of the socio-economic variables are negative and significant. Socio-economic developments are, based on these numbers, better explanations for the crime decline in the city districts of Amsterdam than developments in the demographic composition. The strongest predictor is the unemployment rate with 57 percent significant correlations and the weakest predictor is age 15-29 with 0 percent significant correlations. The overall conclusion is that the effect of the structure of the city on the decline of violent and property crimes in the city districts of Amsterdam is modest during the period 2003-2012. When the crime rates, significant correlations and the strength of the correlations between city districts are compared, it is remarkable to see that crime rates can vary to a large extend. The variables can't always explain the larger, equal, or smaller decline in crime rates between the city districts of Amsterdam.

8. The effect of law enforcement on crime rates in Amsterdam

This chapter is about the effect that law enforcement had on the crime rates in Amsterdam. Specifically, it will address the fifth research question stated in the introduction *what is the effect of law enforcement on the decline of violent and property crimes in the city districts of Amsterdam from 2003 to 2012?* In chapter six some specific developments, related to law enforcement, during the period 2003-2012 in Amsterdam were clarified. Two key elements came forward in Amsterdam during this period, namely approaches of law enforcement aimed at specific groups and specific areas. The specific groups are related to juvenile suspects, specifically hard core youth, and (addicted) repeated offenders. The specific areas are related to hot spot policing in those areas. Section 8.1 is about approaches aimed at specific groups and section 8.2 is about approaches aimed at specific areas in Amsterdam. Section 8.3 is about the inferences that can be drawn from the results in the first two sections. This means that the results of those sections will be interpreted. Section 8.4 is about the effect of the SOV/ISD measure on crime and section 8.5 contains the conclusion of this chapter and the answer of the fifth research question.

8.1 Specific groups: juvenile suspects and (addicted) repeated offenders

This section is about the approaches of law enforcement that were aimed at specific groups in order to tackle crime in Amsterdam. The specific groups were juvenile suspects (specifically hard core youth) and (addicted) repeated offenders. Main task during the period 2003-2012 in Amsterdam was lowering the number of suspects within these groups and this should subsequently lead in a lower level of crime and nuisance committed by these groups. Four variables will be discussed, namely juvenile suspects, hard core youth, drug trafficking, and reported drugs and alcohol nuisance. This is done by making use of the Spearman's rho test and the results of this test will be presented in this chapter too. Positive and significant correlations mean that hypothesis three is confirmed. Tables 22 and 23 illustrate the percentage change of law enforcement variables and the distribution of law enforcement variables between the city districts of Amsterdam. Increases of these variables will most likely lead to increasing crime rates and decreases of these variables will most likely lead to decreasing crime rates. The results of the Spearman's rho test will be discussed separately per type of crime. Only significant correlations that confirm the hypothesis will be discussed during this chapter.

	Juvenile suspects	Hard core youth	Drug trafficking	Drug and alcohol nuisance
Downtown	-32.8	+27.2	-75.6	-46.8
West	-33.4	-45.5	-46.9	-37.2
New-West	-29.9	-54.6	+106.2	-25.4
South	-26.7	-38.0	-10.5	-35.0
East	-25.7	-42.2	-52.9	-56.0
North	-15.5	+3.3	-36.2	-46.7
Southeast	-17.7	-23.0	-25.6	-77.5

Table 22. Percentage change in law enforcement variables, city districts, Amsterdam, 2003-2012 (juvenile suspects and hard core youth 2004-2011). Source: (processed data from) O+S Amsterdam and Smeets et al., (2013).

	Juvenile suspects	Hard core youth	Drug trafficking	Drug and alcohol nuisance
Downtown	5.4	7.5	31.7	47.3
West	13.4	11.0	13.1	13.9
New-West	21.2	11.0	11.6	7.7
South	10.4	10.9	8.7	13.2
East	18.0	18.0	10.4	8.3
North	14.3	21.0	5.6	4.4
Southeast	17.3	20.6	18.8	5.3

Table 23. Distribution of law enforcement variables, city districts, Amsterdam, 2011 (juvenile suspects and hard core youth) and 2012 (drug trafficking and drug and alcohol nuisance). Source: (processed data from) O+S Amsterdam and Smeets et al., (2013).

Theft of motor vehicles in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 24. 32 percent of the possible correlations are significant at least at the 0.05 level and confirming the hypothesis. Drugs and alcohol nuisance is significant in four city districts (New-West, East, North, and Southeast) and drug trafficking is significant in three city districts (Downtown, West, and East). Hard core youth and juvenile suspects are significant in one city district (East). Four variables are significant in East if the city districts are taken into account. One variable is significant Downtown (drug trafficking), West (drug trafficking), New-West (drugs and alcohol nuisance), North (drugs and alcohol nuisance), and Southeast (drugs and alcohol nuisance). The development of the level of theft of motor vehicles during the period 2003-2012 can't be explained by law enforcement variables in South.

	Statistics	Juvenile suspects	Hard core youth	Drug trafficking	Drugs and alcohol nuisance
Downtown	Correlation Coefficient	.287	-,252	,650*	,535
	Sig. (1-tailed)	,245	,274	,021	,056
West	Correlation Coefficient	,000	,180	,650*	,539
	Sig. (1-tailed)	,500	,335	,021	,054
New-West	Correlation Coefficient	-,095	,024	-,539	,624*
	Sig. (1-tailed)	,411	,478	,054	,027
South	Correlation Coefficient	-,381	,317	,140	,321
	Sig. (1-tailed)	,176	,222	,350	,183
East	Correlation Coefficient	,663*	,663*	,921**	,695*
	Sig. (1-tailed)	,037	,037	,000	,013
North	Correlation Coefficient	-,048	-,635*	-,067	,685*
	Sig. (1-tailed)	,455	,045	,427	,014
Southeast	Correlation Coefficient	-,311	,357	,297	,612*
	Sig. (1-tailed)	,226	,193	,202	,030

Table 24. Results of the Spearman's rho test for theft of motor vehicles and law enforcement (N=10 for drug trafficking and drugs and alcohol nuisance and N=8 for juvenile suspects and hard core youth).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Theft out/from motor vehicles in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 25. 71 percent of the possible correlations are significant at least at the 0.05 level and confirming the hypothesis. Drugs and alcohol nuisance is significant in every city district. Hard core youth is significant in five city districts (West, New-West, South, East, and North). Juvenile suspects (Downtown, West, New-West, and East) and drug trafficking (Downtown, West, East, and North) are significant in four city districts. All four variables are significant in West and East if the city districts are taken into account. Three variables are significant in Downtown (juvenile suspects, drug trafficking, and drugs and alcohol nuisance), New-West (juvenile suspects, drug trafficking, and drugs and alcohol nuisance), and North (hard core youth, drug trafficking, and drugs and alcohol nuisance). Two variables are significant in South (hard core youth and drugs and alcohol nuisance) and one variable is significant in Southeast (drugs and alcohol nuisance).

	Statistics	Juvenile suspects	Hard core youth	Drug trafficking	Drugs and alcohol nuisance
Downtown	Correlation Coefficient	,690*	,095	,855**	,697*
	Sig. (1-tailed)	,029	,411	,001	,013
West	Correlation Coefficient	,905**	,814**	,748**	,588*
	Sig. (1-tailed)	,001	,007	,006	,037
New-West	Correlation Coefficient	,762*	,667*	-,685*	,648*
	Sig. (1-tailed)	,014	,035	,014	,021
South	Correlation Coefficient	,333	,683*	,457	,673*
	Sig. (1-tailed)	,210	,031	,092	,017
East	Correlation Coefficient	,714*	,714*	,782**	,673*
	Sig. (1-tailed)	,023	,023	,004	,017
North	Correlation Coefficient	,429	,671*	,661*	,588*
	Sig. (1-tailed)	,145	,034	,019	,037
Southeast	Correlation Coefficient	,108	,119	-,139	,624*
	Sig. (1-tailed)	,400	,389	,350	,027

Table 25. Results of the Spearman's rho test for theft out/from motor vehicles and law enforcement (N=10 for drug trafficking and drugs and alcohol nuisance and N=8 for juvenile suspects and hard core youth).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Pick pocketing in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 26. 36 percent of the possible correlations are significant at least at the 0.05 level and confirming the hypothesis. Drugs and alcohol nuisance (West, South, and Southeast) and drug trafficking (Downtown, West, and East) are significant in three city districts. Juvenile suspects (Downtown and West) and hard core youth (West and South) are significant in two city districts. All four variables are significant in West if the city districts are taken into account. Two variables are significant in Downtown (juvenile suspects and drug trafficking) and South (hard core youth and drugs and alcohol nuisance). One variable is significant in East (drug trafficking) and Southeast (drugs and alcohol nuisance). The development of the level of pick pocketing during the period 2003-2012 can't be explained by law enforcement variables in New-West and North.

	Statistics	Juvenile suspects	Hard core youth	Drug trafficking	Drugs and alcohol nuisance
Downtown	Correlation Coefficient	,690*	,095	,636*	,261
	Sig. (1-tailed)	,029	,411	,024	,234
West	Correlation Coefficient	,738*	,778*	,553*	,612*
	Sig. (1-tailed)	,018	,011	,049	,030
New-West	Correlation Coefficient	-,357	-,333	-,467	,442
	Sig. (1-tailed)	,193	,210	,087	,100
South	Correlation Coefficient	,571	,756*	,256	,745**
	Sig. (1-tailed)	,069	,015	,238	,007
East	Correlation Coefficient	,429	,429	,552*	,370
	Sig. (1-tailed)	,145	,145	,049	,147
North	Correlation Coefficient	-,762*	-,659*	-,503	,261
	Sig. (1-tailed)	,014	,038	.069	,234
Southeast	Correlation Coefficient	-,180	,262	,164	,685*
	Sig. (1-tailed)	,335	,265	,326	,014

Table 26. Results of the Spearman's rho test for pick pocketing and law enforcement (N=10 for drug trafficking and drugs and alcohol nuisance and N=8 for juvenile suspects and hard core youth).

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

Burglary in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 27. 21 percent of the possible correlations are significant at least at the 0.05 level and confirming the hypothesis. Drug trafficking (Downtown and East) and drugs and alcohol nuisance (Downtown and Southeast) are significant in two city districts. Juvenile suspects and hard core youth are (both in East) significant in one city district. Three variables are significant in East (juvenile suspects, hard core youth, and drug trafficking) if the city districts are taken into account. Two variables are significant in Downtown (drug trafficking and drugs

and alcohol nuisance) and one variable is significant in Southeast (drugs and alcohol nuisance). The development of the level of burglary during the period 2003-2012 can't be explained by law enforcement variables in West, New-West, South, and North.

	Statistics	Juvenile suspects	Hard core youth	Drug trafficking	Drugs and alcohol nuisance
Downtown	Correlation Coefficient	,524	,095	,830**	,600*
	Sig. (1-tailed)	,091	,411	,001	,033
West	Correlation Coefficient	,214	-,012	,249	-,030
	Sig. (1-tailed)	,305	,489	,244	,467
New-West	Correlation Coefficient	,405	,381	-,345	-,164
	Sig. (1-tailed)	,160	,176	,164	,326
South	Correlation Coefficient	,548	,342	,037	,297
	Sig. (1-tailed)	,080	,204	,460	,202
East	Correlation Coefficient	,738*	,738*	,648*	,515
	Sig. (1-tailed)	,018	,018	,021	,064
North	Correlation Coefficient	-,929**	-,317	-,552	-,176
	Sig. (1-tailed)	,000	,183	,049	,314
Southeast	Correlation Coefficient	,515	-,095	,055	,879**
	Sig. (1-tailed)	,096	,411	,441	,000

Table 27. Results of the Spearman's rho test for burglary and law enforcement (N=10 for drug trafficking and drugs and alcohol nuisance and N=8 for juvenile suspects and hard core youth).
**. Correlation is significant at the 0.01 level (1-tailed).
*. Correlation is significant at the 0.05 level (1-tailed).

Street robbery in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 28. 21 percent of the possible correlations are significant at least at the 0.05 level and confirming the hypothesis. Drugs and alcohol nuisance is significant in two city districts (East and Southeast). Hard core youth (West) and drug trafficking (West) are significant in one city district. Two variables are significant in West (hard core youth and drug trafficking) if the city districts are taken into account. One variable is significant in East and Southeast (in both city districts drugs and alcohol nuisance). The development of the level street robbery during the period 2003-2012 can't be explained by law enforcement variables in South, East, and North.

	Statistics	Juvenile suspects	Hard core youth	Drug trafficking	Drugs and alcohol nuisance
Downtown	Correlation Coefficient	,810*	,310	,976**	,612
	Sig. (1-tailed)	,007	,228	,000	,030
West	Correlation Coefficient	,762*	,563	,610*	,316
	Sig. (1-tailed)	,014	,073	,031	,187
New-West	Correlation Coefficient	,500	,571	-,818**	,661*
	Sig. (1-tailed)	,104	,069	,002	,019
South	Correlation Coefficient	,071	-,073	,098	,370
	Sig. (1-tailed)	,433	,432	,394	,147
East	Correlation Coefficient	,310	,310	,152	-,012
	Sig. (1-tailed)	,228	,228	,338	,487
North	Correlation Coefficient	,024	,551	,212	-,236
	Sig. (1-tailed)	,478	,079	,278	,255
Southeast	Correlation Coefficient	,252	,476	,527	,855**
	Sig. (1-tailed)	,274	,116	,059	,001

Table 28. Results of the Spearman's rho test for street robbery and law enforcement (N=10 for drug trafficking and drugs and alcohol nuisance and N=8 for juvenile suspects and hard core youth).
**. Correlation is significant at the 0.01 level (1-tailed).
*. Correlation is significant at the 0.05 level (1-tailed).

Robbery in the city districts of Amsterdam

The results of the Spearman's rho test are presented in table 29. 14 percent of the possible correlations are significant at least at the 0.05 level and confirming the hypothesis. Drugs and alcohol nuisance is significant in two city districts (East and Southeast). Hard core youth (West) and drug trafficking (West) are significant in one city district. The development of the level of robbery during the period

2003-2012 can't be explained by law enforcement variables in Downtown, New-West, South, and North.

	Statistics	Juvenile suspects	Hard core youth	Drug trafficking	Drugs and alcohol nuisance
Downtown	Correlation Coefficient	-,167	-,048	,055	,127
	Sig. (1-tailed)	,347	,455	,441	,363
West	Correlation Coefficient	,587	,813*	,582*	,182
	Sig. (1-tailed)	,063	,007	,039	,307
New-West	Correlation Coefficient	,405	,405	-,164	,224
	Sig. (1-tailed)	,160	,160	,326	,267
South	Correlation Coefficient	,476	,268	,213	,079
	Sig. (1-tailed)	,116	,260	,277	,414
East	Correlation Coefficient	,594	,594	,465	,722**
	Sig. (1-tailed)	,060	,060	,088	,009
North	Correlation Coefficient	,084	-,042	-,055	,384
	Sig. (1-tailed)	,421	,460	,440	,137
Southeast	Correlation Coefficient	-,012	,252	,304	,717**
	Sig. (1-tailed)	,489	,274	,197	,223

Table 29. Results of the Spearman's rho test for robbery and law enforcement (N=10 for drug trafficking and drugs and alcohol nuisance and N=8 for juvenile suspects and hard core youth).
**. Correlation is significant at the 0.01 level (1-tailed).
*. Correlation is significant at the 0.05 level (1-tailed).

8.2 Specific areas: hot spot policing in neighbourhood combinations

This section is about the effect that hot spot policing had on crime in Amsterdam. It was already explained in chapter six that several neighbourhood combinations in Amsterdam were selected as hot spots in Amsterdam during the period 2003-2012. A total of 22 neighbourhood combinations were selected at some point in time during this 10 year period for hot spot policing. 4 of those neighbourhood combinations were selected for hot spot policing during the entire period 2003-2012 because of their high crime rates, others only for a couple of years. In Downtown the neighbourhood combinations Burgwallen-Oude Zijde and Burgwallen-Nieuwe Zijde, and in Southeast the neighbourhood combinations Bijlmer centrum and Builmer Oost were hot spots during the entire period 2003-2012.

Table 30 gives an impression of the median crime decline in the 4 hot spot areas and the 56 non- hot spot areas in Amsterdam during the period 2003-2012. The remaining 18 areas were left out so a more valid comparison between the two types of areas is possible. The results show that the median crime decline was larger in hot spot areas for every type of crime compared to non- hot spot areas. Theft of motor vehicles declined with, respectively, 69.9 and 46.0 percent, theft out/from motor vehicles with 74.9 and 45.4 percent, pick pocketing with 41.5 and 30.4 percent, burglary with 50.8 and 25.7 percent, street robbery with 63.7 and 47.7 percent, and robbery with 72.9 and 47.7 percent during the period 2003-2012. Table 30 also illustrates the presumptive policing difference when other factors aren't taken into account that could explain this difference. The policing effect is the highest in this case for street robbery with 43.7 percent, followed by theft out/from motor vehicles with 29.5 percent, robbery with 25.2 percent, burglary with 25.1 percent, theft of motor vehicles with 23.9 percent, and pick pocketing with 11.1 percent.

	Theft of Motor Vehicles	**Theft out/from Motor Vehicles**	**Pick Pocketing**	**Burglary**	**Street robbery**	**Robbery**
Hot spot areas	-69.9	-74.9	-41.5	-50.8	-63.7	-72.9
Non- hot spot areas	-46.0	-45.4	-30.4	-25.7	-20.0	-47.7
Presumptive policing difference	-23.9	-29.5	-11.1	-25.1	-43.7	-25.2

Table 30. Median crime decline in 2012 compared to 2003 for six crimes without taking into account other factors, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

Of course, it isn't possible to ascribe the entire difference in crime rates between hot spot areas and non-hot spot areas to the policing difference. Other factors could also have played a role which isn't accounted for by this research design. With regard to the large differences in the number of areas it can be seen that certain non-hot spot areas also had a large decline in crime rates compared to the hot spot areas. For instance, theft out/from motor vehicles declined with 85.0 percent in hot spot area Burgwallen-Oude Zijde and with 85.5 percent in non- hot spot area Chassébuurt. So that means that a large decline in crime rates is also possible in areas without hot spot policing. A difference, however, between hot spot areas and non-hot spot areas (beside its higher median crime decline) is the consistency of the crime decline across the neighbourhood combinations. If the standard deviations are taken into account for the crime decline in every area, it is notable to see that the standard deviation is much lower in hot spot areas compared to non- hot spot areas. The standard deviation for hot spot areas and non-hot spot areas is for theft of motor vehicles, respectively, 10.0 and 30.0, for theft out/from motor vehicles 8.7 and 25.5, for pick pocketing 10.5 and 65.3, for burglary 9.9 and 30.9, for street robbery 10.5 and 55.9, and for robbery the standard deviation is 20.9 and 127.0. The difference of the crime decline between hot spot areas is therefore much smaller compared to non-hot spot areas.

Table 31 presents the median crime decline for hot spot areas and non-hot spot areas in absolute number per 10,000 population. The results are even more impressive compared to the results presented in table 30. The median crime decline per 10,000 population for theft out/from motor vehicles during the period 2003-2012 is a decline of 512 crimes per 10,000 population in hot spot areas compared to a decline of 107 crimes per 10,000 population in non-hot spot areas. The median crime decline for theft of motor vehicles is, respectively, 31 crimes per 10,000 population and 14 crimes per 10,000 population. The median crime decline for pick pocketing is, respectively, 713 crimes per 10,000 population and 14 crimes per 10,000 population. The median crime decline for burglary is, respectively, 329 crimes per 10,000 population and 36 per 10,000 population. The median crime decline for street robbery is, respectively, 274 crimes per 10,000 population and 4 crimes per 10,000 population and the median crime decline for robbery is, respectively, 10 crimes per 10,000 population and 2 crimes per 10,000 population. Although it is important to place these declines in perspective, because the rates in hot spot areas are high to begin with, the results are impressive in those areas.

Type of crime	Type of area	2003	2012	2003-2012 difference
Theft out/from motor vehicles	Hot spot areas	649	137	-512
	Non- hot spot areas	217	110	-107
Theft of motor vehicles	Hot spot areas	46	15	-31
	Non- hot spot areas	36	22	-14
Pick pocketing	Hot spot areas	1716	1003	-713
	Non- hot spot areas	33	19	-14
Burglary	Hot spot areas	560	231	-329
	Non- hot spot areas	150	114	-36
Street robbery	Hot spot areas	432	158	-274
	Non- hot spot areas	17	13	-4
Robbery	Hot spot areas	16	6	-10
	Non- hot spot areas	4	2	-2

Table 31. Median crime decline in absolute numbers per 10,000 population, hot spot areas and non-hot spot areas, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

Another factor that could have influenced the results is that hot spot policing wasn't only carried out in certain neighbourhood combinations, but other type of areas were selected for hot spot policing too. These areas weren't part of this analysis. Hot spot policing was also implemented in areas with urban innovations, shopping areas and business park areas with high crime rates, and risk locations and lines in public transport. It is likely that a large decline in non- hot spot areas (according to this analysis) is due to the fact that hot spot policing was applied in those areas too, but on different elements, for

example, in public transport. This would place doubts on the validity of the analysis used during this research. However, one conclusion can be drawn with absolute certainty, which is that crime in all four hot spot areas during the period 2003-2012 declined to a large degree.

8.3 Explaining crime by the effect of law enforcement

The inferences that can be drawn from the results in the previous sections will be discussed in this section. Hypothesis three is partially confirmed based on the results. 33 percent of possible correlations between law enforcement variables and crimes were positive and significant. This is similar compared to 37 percent of the socio-economic variables and larger compared to 21 percent of the demographic variables that were positive and significant. 4 percent of the possible correlations between law enforcement variables and crimes were negative and significant. This is a small percentage compared to that of demographic variables with 21 percent and similar to that of socio-economic conditions with 2 percent. These results mean that hypothesis four is rejected. It isn't more likely that the crime decline can be explained by a decline of the high risk population and better socio-economic conditions. A difference between the variables within these domains is that variables of law enforcement had a much large decline during the period 2003-2012 compared to those of the demographic composition and socio-economic conditions. This would make it possibly more likely to address the decline of crime in the city districts of Amsterdam to the large decline of juvenile suspects, hard core youth, drug trafficking, and drugs and alcohol nuisance. Table 22 on page 67 illustrated that there are three aberrant results related to law enforcement variables. The proportion of hard core youth increased with 27.2 percent in Downtown and with 3.3 percent in North, and drug trafficking in North increased with 106.2 percent. This will be discussed in more depth in the upcoming paragraphs.

	Variable	Percentage	Domain
Strong predictors	1.Unemployment rate	57%	Socio-economic conditions
40-59%	2.Drugs and alcohol nuisance	48%	Law enforcement
	3.Surinamese	45%	Demographic composition
	4.One parent families	40%	Socio-economic conditions
Modest predictors	5.Drug trafficking	36%	Law enforcement
20-39%	6.Social benefit recipients	36%	Socio-economic conditions
	7.Very low income households	29%	Socio-economic conditions
	8.Turkish	29%	Demographic composition
	9.Moroccans	26%	Demographic composition
	10.Juvenile suspects	24%	Law enforcement
	11.Hard core youth	24%	Law enforcement
	12.Antilleans	24%	Demographic composition
	13.Unemployment benefit recipients	21%	Socio-economic conditions
Weak predictors	14.Share of ethnic minorities	19%	Demographic composition
0-19%	15.Population	2%	Demographic composition
	16.Age 15-29	0%	Demographic composition

Table 32. Percentage significant and positive correlations per variable, city districts, Amsterdam, 2003-2012.

Table 32 is an extended version of table 21 on page 65 and shows the percentage of significant and positive correlations per variable. The variables related to juvenile suspects proved to be modest predictors with 24 percent significant correlations for as well juvenile suspects as hard core youth. Drug trafficking is also a modest predictor in this table but on the top with 36 percent significant correlations. Drugs and alcohol nuisance seems to be a strong predictor of crime rates during the period 2003-2012 with 48 percent significant correlations. This chapter will continue with some examples that were also presented in chapter seven. These examples are based on the three types of crimes that declined substantially in every city districts and the three types of crimes that didn't declined substantially in every city district. The examples will illustrate, as in chapter seven, that crime rates can vary to a large extend independent of law enforcement variables.

Three types of crimes that declined substantially in every city district

The first example is theft of motor vehicles that declined in every city district with a similar trend. Theft of motor vehicles declined with 28.6 percent (lowest decline of all the city districts) in South and none of the correlations are significant between law enforcement variables and this type of crime. Theft of motor vehicles declined with 55.4 percent in East and all variables correlate significantly, so that would be a logical explanation for its larger decline in theft of motor vehicles compared to South. However, theft of motor vehicles declined with 52.7 percent in North and one law enforcement variable is significant (drugs and alcohol nuisance). The correlation coefficient for drugs and alcohol nuisance in North (,685) is even weaker compared to that of East (,695). But the decline of this type of crime in North is similar to that of East.

The second example is theft out/from motor vehicles which declined (with a different trend) in all city districts. Theft out/from motor vehicles declined with 45.6 percent in East and with 61.7 percent in West. All correlations were significant in West and East. The decline is even higher in Southeast with 66.1 percent, but just one correlation is significant (drugs and alcohol nuisance). The strength of this correlation is even slightly higher in East (,673) compared to Southeast (,624). The much larger decline of theft out/from motor vehicles in Southeast seems to be remarkable given the results of the statistical test.

The third example is robbery which declined in every city district. Robbery declined with 63.6 percent in West and two correlations were significant. Robbery declined with 70.0 percent in North and not one correlation was significant. When comparing the percentage change, the conditions are even slightly worse in North for three of the four variables (with the exception of drug and alcohol nuisance). A lager decline of robbery seems to be possible irrespective of the results of the statistical test.

Three types of crimes that did not declined substantially in every city district

The first example is pick pocketing which declined with a much smaller percentage in Downtown with 5.3 percent and North with 3.3 percent compared to other city districts. This could be explained by the increase of hard core youth in Downtown with 27.2 percent and with 3.3 percent in North. These correlations were, however, not significant and a logical explanation, based on law enforcement, is missing. Pick pocketing declined with 31.1 percent in West and all four correlations were significant. However, pick pocketing also declined with 43.3 percent in New-West while none of the correlations were significant. This happened irrespective of the large increase of drug trafficking with 106.2 percent in New West.

The second example is burglary which declined with just 5.3 percent in New-West and even increased in North with 1.6 percent. The reason for this smaller decline of burglary in New-West could be the large increase of drug trafficking and a reason for the increase in North could be an increase of hard core youth in North. However, none of the correlations were significant in New-West and North. Burglary declined with 33.2 percent in West and with 41.4 percent in South and none of the correlations was significant in those city districts too.

The third example is street robbery which increased with 2.2 percent in East and with 35.4 percent in North. None of the correlations between street robbery and law enforcement variables are significant in East, North, and South. In South, however, street robbery declined with 31.4 percent. West did have two significant correlations (juvenile suspects and drug trafficking), but its decline in street robbery is with 30.8 percent similar to that of South.

Large variations in crime rates and large changes in law enforcement variables

The examples above illustrate that crime rates can vary to a large extend when law enforcement variables are taken into account. This is the same conclusion that was drawn in chapter seven when the effect of demographic and socio-economic variables on crime rates was taken into account. The following conclusion can be drawn from these results. If the lowest rates for these crimes during this 10 year period are as low as the rates can go, than it can be assumed that a large part of crime in the city can vary (see figures 28-33 in appendix F), without logical explanations for it. The strength of the correlations and significant correlations don't always explain a smaller, equal, or larger decline of the crime rates of the city districts in Amsterdam. The results for law enforcement variables are, however, different in another way. Firstly, tables 5, 13, and 22 illustrated that law enforcement variables declined to a (much) larger degree, compared to the demographic composition and socio-economic variables. With this in mind it would be logical to assume that law enforcement probably had a larger impact on crime than would be expected based on the theory presented in chapter two. Secondly, 37 percent of the socio-economic variables, 33 percent of the law enforcement variables, and 21 percent of the demographic variables were positive and significant. As stated before, hypothesis four is therefore rejected. Demographic composition variables have not proven to be better predictors for crime rates in the city districts of Amsterdam during the period 2003-2012 than law enforcement variables. Socio-economic variables seem to be slightly better predictors for crime rates than law enforcement variables.

8.4 In addition: the effect of the SOV/ISD measure on crime in Amsterdam

48 percent of the correlations of drugs and alcohol nuisance and 36 percent of the correlations of drug trafficking were significant. The SOV/ISD measure could be an explanation for this decline and possibly the crime decline in the city districts of Amsterdam. Research in the Netherlands showed that crime is reduced because of the incapacitation effect of the SOV/ISD measure (Goderie et al., 2008; Koeter & Bakker, 2007; Tollenaar & Van der Laan, 2012; Vollaard, 2010). Tollenaar and Van der Laan (2012) found an incapacitation effect of the ISD measure of approximately 5.7 to 9.2 criminal cases that were prevented per repeated offender every year as a result of this approach. Koeter and Bakker (2007) found for the SOV measure a crime reduction chance of 50 percent, and Vollaard (2010) found a crime reduction, for both the SOV and ISD measure, of 30 percent in burglaries in cars and houses because of the incapacitation effect. Approximately two third of the decline in crime of those offences in the period 2001-2007 is because of the incapacitation effect according to Vollaard (2010).

The effect of these measures on recidivism is according to Koeter and Bakker (2007), in terms of crime prevention chances, 23 percent for the SOV measure. In terms of recidivism the research of Tollenaar and Van der Laan (2012) found that the ex-ISD detainees have between 12 to 16 percent smaller chance of recidivism. International research about offender treatment and rehabilitation showed that several measures according to the literature are effective, and that between 10 to 20 percent less re-offending is being found in the treatment groups compared to control groups. However, there are also larger and smaller effect sizes found in the literature (Lösel, 2012). The results of the research of Vollaard (2010), discussed in the previous paragraph, are especially interesting, because the correlations between drugs and alcohol nuisance and theft out/from motor vehicles were significant in every city district of Amsterdam. The same results were, however, not found for the correlations between burglary and drugs and alcohol nuisance.

The effect of juvenile suspects and hard core youth on the crime decline is modest. A real decline of these groups of suspects started since 2007, while crime declined much earlier in Amsterdam. Robbery

could have been the only crime that could possibly be affected by a declining number of juvenile suspects because of its decline since 2007 in most city districts. This is however not confirmed by the bivariate analyses presented in this chapter. Research about the causes of robbery in Amsterdam, however, did find evidence that the number of juvenile suspects for this type of crime declined during the period 2007-2011(Mesu, Van Nobelen, Bulten, & Ten Broek, 2012).

8.5 Conclusion

The following research question *what is the effect of law enforcement on the decline of violent and property crimes in the city districts of Amsterdam from 2003 to 2012?* was addressed in this chapter. The variables drugs and alcohol nuisance (48 percent) and drug trafficking (36 percent) had the most positive and significant correlations. Juvenile suspects (24 percent) and hard core youth (24 percent) had less positive and significant correlations. Hypothesis three is therefore partially confirmed. Law enforcement seems to be a good explanation for the crime decline given the large decline of all four variables in most of the city districts of Amsterdam during the period 2003-2012. However, the results also indicated that the variation in crime rates is high and seems to be capable of varying independent of the results of the statistical test. The best explanation for the crime decline would be the approaches aimed at (addicted) repeated offenders if the groups are taken into account. Reasons for this are the timing of the decline in crime rates in Amsterdam (2001), the start the SOV/ISD approaches (2001), the large decline in the number of (addicted) repeated offenders in Amsterdam, and the large decline in drug trafficking and drugs and alcohol nuisance in the city districts. The focus on juvenile suspects was probably not the main reason for the crime decline, mainly because of the timing of the decline (2007) and the fewer significant correlations between crime rates and the number of juvenile suspects and hard core youth in the city districts of Amsterdam. Hot spot policing is another possibility for the decline in crime rates in Amsterdam. The median crime decline in hot spot areas was between 11.1 and 43.7 percent larger compared to the non-hot spot areas. The results, however, should be interpreted with caution because the crime decline wasn't something that was specific for hot spot areas. Some neighbourhood combinations without hot spot policing showed declines in crime rates that were equal to that of neighbourhoods combinations with hot spot policing.

9. Conclusion, discussion, contribution, and limitations of this research

This chapter is about the conclusion, discussion, contributions, and limitations of this research. The central question of this research will be elaborated in section 9.1 based on the results that were presented in the previous chapters. In section 9.2 the results of this research will be discussed in the context of the literature that was presented in chapter two. The contribution of this research to this field of research will also be discussed. The final section, 9.3, will be about the limitations of this research. Main part of the limitations is about the validity and reliability of the variables. The many causes of crime that were not part of this research will be discussed too.

9.1 Conclusion

The central question that was addressed during this research is *which elements of the structure of the city and law enforcement explain the decline in violent and property crimes in the city districts of Amsterdam from 2003 to 2012?* Based on the percentage of positive and significant correlations between crime rates and variables, the strongest predictors of crime in the city districts of Amsterdam during the period 2003-2012 seem to be the level of unemployment with 57 percent, drugs and alcohol nuisance with 48 percent, Surinamese with 45 percent, and one parent families with 40 percent. Modest predictors of crime seem to be drug trafficking with 36 percent, social benefit recipients with 36 percent, very low income households with 29 percent, Turkish with 29 percent, Moroccans with 26 percent, juvenile suspects with 24 percent, hard core youth with 24 percent, Antilleans with 24 percent, and unemployment benefit recipients with 21 percent. Weak predictors of crime seem to be the share of ethnic minorities with 19 percent, population with 2 percent, and age 15-29 with 0 percent.

These results imply that hypotheses one, two, and three are partially confirmed. The results for the three predictor domains showed that the largest percentage of positive and significant correlations between the dependent and independent variables were related to the socio-economic conditions with 37 percent, followed by law enforcement with 33 percent, and the demographic composition with 21 percent. A large part (21 percent) of the correlations between the variables comprising the demographic composition and crime rates were in the opposite direction than would be expected from the literature. Hypothesis four is therefore rejected. The socio-economic variables were slightly better predictors for crime, but demographic variables were the weakest predictors of crime in the city districts of Amsterdam from 2003-2012. The effect of law enforcement was most likely larger than would be expected from the theory. This was also illustrated by the much large changes of law enforcement variables compared to the socio-economic and demographic variables. The results also showed that the decline of property crimes can be better explained in terms of these variables compared to violent crimes. 46 percent of the correlations were positive and significant for theft out/from motor vehicles, followed by theft of motor vehicles with 34 percent, pick pocketing with 33 percent, street robbery with 28 percent, burglary with 23 percent, and robbery with 8 percent.

The results of the statistical tests already illustrated that the effect of law enforcement on crime rates in the city districts of Amsterdam was probably higher than would be expected in the context of the literature. The effect that hot spot policing had on crime rates was also studied and the results contributed to the image of the effect that law enforcement could have had on crime. The median crime decline for six crimes in hot spot areas was between 11.1 and 43.7 percent higher than the median crime decline in non-hot spot areas. The median crime decline per 10,000 population for six crimes was even more impressive with a median crime decline between 713 crimes per 10,000 population and 10 crimes per 10,000 population in hot spot areas and a median crime decline between

107 crimes per 10,000 population and 2 crimes per 10,000 population in non-hot spot areas. The results should, however, be interpreted with caution because crime rates in certain neighbourhood combinations without hot spot policing also declined with similar percentages compared to neighbourhood combinations with hot spot policing. Hot spot policing was also carried out in other areas with, for example, urban innovations and public transport, which were not part of the analysis. So that means that the precise effect of hot spot policing on crime in Amsterdam remains unknown, but research evidence from other studies about the effect of hot spot policing on crime showed that this type of strategy can make a difference.

The inferences drawn from the results of the statistical tests and crime rates indicated that crime rates are highly variable. Different trends in crime among city districts can't always be explained by significant and strong correlations. Multiple examples illustrated that in many cases it wasn't possible to explain crime rates by significant correlations, because crime in city districts with many significant correlations showed a lower decline of certain types of crimes compared to city districts without any significant correlations. This was even the case when the demographic and socio-economic conditions were better in those city districts with many correlations. The lack of any clear explanations for crime rates showed that crimes rates can vary to a large extend in a 10 year period.

9.2 Discussion and contribution of this research

''It is more important to know that robbery rates can go down 84% than it is to know that police strategies are apparently responsible for about 40% of that decline. The volatility and variability of crime rates is a major signal to policy analysts, independent of a complete account of contributions to a decline (Zimring, 2012, p. 173).''

This discussion starts off with a quote from Zimring his book, *The City That Became Safe*, about the crime decline in NY. This quote pinpoints exactly to the major contribution of this research that is about the crime decline in the city districts of Amsterdam. This research showed that crime rates can vary to a large extend independent of developments within the demographic composition, socio-economic conditions, and law enforcement that have taken place in the city. Differences between NY's crime rates from 1990-2009 and that of Amsterdam between 2003-2012 are the larger decline of crime rates in NY (around 80 percent for most offences) and the uniformity of the crime decline in NY's four major boroughs (Brooklyn, Bronx, Manhattan, and Queens). With this research about the crime decline in Amsterdam it isn't possible to clarify the exact effect of developments within the demographic composition, socio-economic conditions, and law enforcement on crime rates. However, law enforcement variables illustrated to have changed more during the period under study compared to demographic and socio-economic variables. Point of discussion is what these results mean in relation to the central thought that many scholars have in the field of policing.

The introduction of this report started with a quote from Robert Reiner, one of the leading scholars in the field of policing. Policing and the police are, according to Reiner, just a temporal treatment for a symptom, crime, that many societies 'bothers'. The wider social, cultural, political, and economic structures of a society are more crucial elements when talking about crime and an orderly society can't be created with only the police and policing. More fundamental modifications are necessary for addressing this symptom within societies (Reiner, 2000, 2010). This thought makes that many scholars regard the central function of the police as *order maintenance*, different to that of politicians, the public, and even police officers, who see the police as *crime fighters* (Bittner, 2005; Jones et al., 2012; Manning, 2005; Reiner, 2010; Westley, 2005). Two fundamental different thoughts. The results of this research do not indicate that the sociological, psychological, or cultural theories within criminology

that are discussed by, for example, Rock (2012), Hollin (2012), and Hayward and Young (2012) should be rejected. To the contrary, these theories are more likely to be the root causes of crime. Many of these theories are predicting the distribution of crime by demographic and criminological findings and not so much the volume of crime (Zimring, 2012). The fixed volume of crime that is hardwired in societies is probably explained by these sociological, psychological, and cultural criminological theories of crime. Given the fact that criminal law enforcement is actually something that is rarely exercised by police officers during the job, the main function of the police and policing as order maintenance is most likely the case (Banton; 2005, Bayley, 2005; Bittner, 2005; Ericson, 2005; Manning, 2005; Westley, 2005).

Reiner makes a valid point when he assumes that crime rates are most likely affected by factors that lie outside the control of the police and policing. For example, the enlargement of the EU with Central and Eastern European countries could have increased the rates of certain types of crimes in Amsterdam. This makes that the variability and volatility of crime rates is an important signal for policy makers. The ability to adapt to factors underlying the variability of crime rates (in this case suspects from other countries with their specific characteristics) is crucial. Exact explanations for crime rates in the city districts of Amsterdam are missing and a large part of this has to do with the involvement of different parts of society and policies within the provision of public safety. The Dutch approach is different in this regard compared to the context of the US, because many other parties outside the government are involved in 'fighting' crime (Schuilenburg, 2013). However, even without a clear explanation for the crime decline it is likely to assume that something can be done about approximately half or even more than half of the crime volume in the city when these rates are capable of change within a (short) period of 10 years.

Given the volatility and variability of crime rates in Amsterdam and NY, that seems to be capable of change independent of the structure of the city, it is debatable which factors have a greater impact on trends of crime rates. The assumption that policing and the police are just a temporal treatment for crime is most likely a correct conclusion (Reiner, 2010). However, if half or even more than half of the volume of certain crimes in the city districts of Amsterdam is capable of change in a short period of time, than factors that can be considered as having a temporal treatment for crime in the city should be regarded with equal importance as factors that would be considered as having a long term treatment on crime rates. Zimring (2012, p.196) puts this into words with ''temporary impacts generate permanent positive effects.'' The crime decline in NY during the period 1990-2009 as well as the crime decline in Amsterdam during the period 2003-2012 validate that a more critical view and position should be taken on popular explanations for crime in urban areas (Schuilenburg, 2013). The traditional theories of crime are still important for understanding crime. But it is also important to take into account the variable part of crime. Criminology and urban sociology should focus on ''a rebalancing to accommodate the variable as well as the fixed (Zimring, 2012, p.216)'' volume of crime.

9.3 Limitations

The strength of this research design is the large amount of concepts that were used and that are relevant for this phenomenon under study (Babbie, 2012). This research also has several limitations that will be discussed in this section. Most of this has to do with the validity and the reliability of the variables used for this research. Whereas validity refers to a the quality of measures that what we measure, is actually what we want to measure, reliability refers to the consistency and repeatability of measurements (Brinkman, 2006). Certain variables used in this research are lower on reliability but higher on validity, whereas other variables are higher on reliability but lower on validity.

Reported crimes to the police and variables in the domain of law enforcement are high on validity. These are all measures that Bayley (1994) calls hard measures (objective changes) of police performances and these type of variables are high on validity. Crime rates (including drug trafficking and drugs and alcohol nuisance) are all direct measures and indicate what the police has achieved (police outcomes). The number of juvenile suspects is an indirect measure that indicates what the police have done (police outputs). Variables related to the demographic composition and socio-economic conditions are lower on validity. These variables are measured on a macro-level. Specific information about individuals is missing. The risk is therefore that conclusions are drawn about individuals while groups are observed. This is the ecological fallacy (Babbie, 2012). This problem is reduced by making use of measures that have, based on empirical research, proven to be valid measures when making inferences about the causes of crime in the city (of the Netherlands). Data about the unemployment rate should be interpreted with caution because it is highly dependable on the type of data source you use for it. This research makes, therefore, also use of the proportion of unemployment benefits received by the labour force.

The reliability of reported crimes and variables related to law enforcement are, however, lower, compared to variables related to the demographic composition and socio-economic conditions. Reported crimes are subjected to aspects as, for example, the willingness of the public to report crimes to the police, if police officers themselves are willing to document the reported crimes, or if police officers are doing more or less effort to document crimes. Research about the crime decline in the Netherlands illustrated that several (non-police) sources about crime give the same image, namely that crime has declined in the Netherlands (Vollaard et al., 2009). This means that the use of reported crimes is probably higher on reliability than would be expected. Measures related to the demographic composition and socio-economic conditions are higher on reliability because these aren't influenced by other factors. These are measurements of counting, for example, the number of people. The unemployment rate is the only measure that could be lower on reliability, because of the discouraged worker effect (Benati, 2001). Changing definitions would be the possible danger for reliability, but this is accounted for by taking into account multiple sources.

Another limitation of this type of research is not being able to draw causal inferences. This is because of the many different factors that could be involved in explaining trends in crime rates. This research didn't cover all factors involved. Firstly, the more deeply rooted causes of crime are explained via diverse criminological theories (Hayward & Young, 2012; Hollin, 2012; Rock, 2012; Rubington & Weinberg, 2011). Secondly, preventative measures undertaken by the general public and cultural changes that have to do with a different attitude towards crime, aren't taken into account. For example, technical provisions as alarm systems, additional lock systems, and outdoor lighting undertaken by the general public. This means that crime can be explained by many factors and it is only feasible to select certain aspects of them.

These limitations don't imply that this research doesn't contribute in a valid and reliable manner to this field of research. That is why it is useful to speak not of limitations alone, but also about improvements that can be made with future research. Future research could focus therefore on these missing elements. The single most important factor is, however, still the variability of crimes rates in large urban areas such as NY and Amsterdam without any large structural changes within the city's demographic, social, and economic structure. The fixed and variable volume of crime should be regarded by empirical research as at least being of equal importance when changes in crime rates are studied.

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Appendix A Data collection and sources

Table 33 shows all the sources that were used for data collection. All the sources for data about the demographic composition and socio-economic conditions in the city districts of Amsterdam from 2003-2012 were retrieved from the website www.os.amsterdam.nl of O+S Amsterdam. This organization collects and publishes a wide variety of statistical information about Amsterdam every year, including the variables that are studied during this research. Table 33 shows the title of the publications used and the years of publication. The law enforcement variables about juvenile suspects and hard core youth were retrieved from the report of Smeets et al. (2013). Reported crimes and the reported amount of drugs and alcohol nuisance to the police were retrieved from a data file that O+S Amsterdam uses for making their own analysis about the safety in Amsterdam and that was made available for conducting this research.

Data sources and year of publication demographic composition and socio-economic conditions		
Jaarboek Amsterdam in cijfers	**Jaarboek Stadsdelen in cijfers**	**Kerncijfers Amsterdam**
2003	2003	2003
2004	2004	2004
2005	2005	2005
2006	2006	2006
2007	2007	2007
2008	2008	2008
2009	2009	2009
2010	2010	2010
2011	2011	2011
2012	2012	2012
2013	2013	2013

Table 33. Data sources and year of publication from O+S Amsterdam, demographic composition and socio-economic conditions.

Table 34 gives an overview of all the variables used in this study and under which domain they belong, how they are measured and used for analysis, and the which period the data resembles. As stated in chapter three, large part of the demographic composition and the socio-economic variables are about the period 2004-2013. This data represents the period 1 January 2004 to 1 January 2013, which makes a better comparison possible between crimes rates.

Predictor domain	**Variable name**	**Variable description**	**Period**
Property crimes	Theft of motor vehicles	Theft of motor vehicles per 10,000 population	2003-2012
	Theft out/from motor vehicles	Theft out/from motor vehicles per 10,000 population	2003-2012
	Pick pocketing	Pick pocketing per 10,000 population	2003-2012
	Burglary	Burglary per 10,000 population	2003-2012
Violent crimes	Street robbery	Street robbery per 10,000 population	2003-2012
	Robbery	Robbery per 10,000 population	2003-2012
Demographic composition	Population	Index rate (2003=1000) for population	2004-2013
	Share of ethnic minorities	% Ethnic minorities (divided by total population)	2004-2013
	Surinamese	% Surinamese (divided by total population)	2004-2013
	Antilleans	% Antilleans (divided by total population)	2004-2013
	Moroccans	% Moroccans (divided by total population)	2004-2013
	Turkish	% Turkish (divided by total population)	2004-2013
	Age 15-29	% Age 15-29 (divided by total population)	2004-2013
Socio-economic conditions	Unemployment rate	% Unemployment rate (divided by labour force)	2004-2012
	Unemployment benefit recipients	% Unemployment benefits (divided by labour force)	2004-2013
	One parent families	% One parent families (divided by populated addresses)	2004-2013
	Very low income households	% very low income households (divided by households)	2003-2012
	Social benefit recipients	% Social benefit recipients (divided by labour force)	2004-2013
Law enforcement	Juvenile suspects	Juvenile suspects per 10,000 population	2004-2011
	Hard core youth	Hard core youth per 10,000 population	2004-2011
	Drug trafficking	Drug trafficking per 10,000 population	2003-2012
	Drugs and alcohol nuisance	Drugs and alcohol nuisance per 10,000 population	2003-2012

Table 34. Variables used for this study and measurements

Appendix B Tables belonging to figures in chapter 4

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Property crimes										
Theft out/from motor vehicles	42.4	34.1	31.3	23.5	22.7	26.7	25.7	26.4	23.3	21.7
Theft of motor vehicles	250.1	193.7	208.1	210.1	166.9	162.8	140.6	142.1	1343	117.0
Pick pocketing	123.7	108.3	95.4	87.8	91.1	79.0	75.1	76.3	77.5	103.4
Burglary	179.2	138.5	126.9	135.1	134.0	133.1	134.6	131.5	119.3	124.9
Theft of moppets/bicycles	104.2	102.3	118.0	103.8	101.1	112.6	102.8	113.1	127.3	124.3
Theft of other vehicles	19.1	16.2	15.4	20.9	20.4	19.5	21.3	23.2	24.7	20.4
Vandalism	99.6	102.2	110.2	114.1	113.0	110.9	80.7	74.1	68.0	64.4
Violent crimes										
Street robbery	39.1	33.6	33.1	33.5	27.6	27.7	25.1	23.3	23.4	24.4
Robbery	5.7	6.0	5.8	5.1	6.2	6.0	6.4	5.2	3.7	2.5
Sex crimes	5.4	4.6	5.2	4.3	4.3	4.4	4.1	3.3	3.9	3.6
Homicide	6.4	5.9	5.4	4.9	5.3	4.9	4.1	4.3	3.9	3.5
Violence	5.0	5.7	5.1	6.1	6.6	4.8	4.7	4.2	3.7	3.1
Abuse	42.1	40.6	43.9	46.1	50.8	47.2	46.9	43.3	43.2	40.7
Assault	33.1	35.5	34.8	36.0	35.8	34.2	36.1	33.6	33.6	30.6
Criminal offence										
Drug trafficking	37.4	33.6	32.5	33.2	30.3	27.1	23.4	18.2	18.4	16.4

Table 35. Crime rates per 10,000 population, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Property crimes										
Theft out/from motor vehicles	100.0	86.7	77.2	68.8	56.0	49.7	46.5	44.4	49.8	42.1
Theft of motor vehicles	100.0	83.9	69.0	52.3	50.3	51.7	43.6	50.3	53.3	32.4
Pick pocketing	100.0	86.6	76.9	72.2	76.7	65.5	61.5	62.4	64.9	94.7
Burglary	100.0	70.2	61.0	60.9	62.0	63.5	51.2	59.4	50.0	55.6
Violent crimes										
Street robbery	100.0	82.1	67.4	76.0	72.4	60.1	57.0	48.5	53.6	56.8
Robbery	100.0	115.1	76.0	93.9	146.6	101.6	124.5	119.3	83.3	55.4

Table 36. Index rates (2003=100) for six crimes, city district Downtown, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Property crimes										
Theft out/from motor vehicles	100.0	66.3	66.2	72.5	68.0	62.1	42.2	55.2	45.1	38.3
Theft of motor vehicles	100.0	63.3	55.2	44.9	44.3	56.7	48.4	46.7	46.0	44.1
Pick pocketing	100.0	84.9	82.2	68.1	73.0	65.9	50.8	54.4	55.8	68.9
Burglary	100.0	69.5	65.8	74.5	64.6	67.8	78.6	74.1	62.6	66.8
Violent crimes										
Street robbery	100.0	104.4	113.0	115.0	70.9	90.4	69.2	76.6	55.4	69.2
Robbery	100.0	139.8	135.4	113.5	157.4	150.6	113.9	105.8	60.7	36.4

Table 37. Index rates (2003=100) for six crimes, city district West, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Property crimes										
Theft out/from motor vehicles	100.0	76.3	85.8	96.3	70.0	61.7	53.4	58.9	52.6	46.2
Theft of motor vehicles	100.0	91.9	89.7	64.6	58.1	74.8	68.2	70.1	60.8	63.3
Pick pocketing	100.0	73.8	65.0	56.6	48.3	58.8	60.1	61.7	60.8	56.7
Burglary	100.0	76.7	87.5	90.0	92.3	84.5	94.8	89.6	77.3	94.7
Violent crimes										
Street robbery	100.0	72.4	70.3	80.4	55.6	55.7	51.0	56.3	42.8	55.1
Robbery	100.0	70.4	104.4	92.7	74.1	86.4	109.1	65.2	51.1	43.8

Table 38. Index rates (2003=100) for six crimes, city district New-West, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Property crimes										
Theft out/from motor vehicles	100.0	84.1	101.7	97.1	72.9	82.7	59.2	65.5	72.2	59.4
Theft of motor vehicles	100.0	86.6	92.8	59.6	54.8	68.8	78.2	79.4	70.3	71.4
Pick pocketing	100.0	94.1	76.8	89.6	87.4	62.5	61.9	64.6	68.3	73.3
Burglary	100.0	82.7	72.6	75.5	79.8	81.1	90.2	72.5	67.1	58.6
Violent crimes										
Street robbery	100.0	87.1	85.4	84.1	104.1	108.5	83.6	64.7	88.9	68.6
Robbery	100.0	126.6	115.2	85.9	146.4	123.3	150.4	75.0	96.2	62.8

Table 39. Index rates (2003=100) for six crimes, city district South, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Property crimes										
Theft out/from motor vehicles	100.0	94.6	113.0	113.7	84.4	84.5	76.4	67.2	64.2	54.4
Theft of motor vehicles	100.0	87.9	77.4	64.9	64.8	62.3	63.0	62.9	52.1	44.6
Pick pocketing	100.0	96.4	82.4	61.5	72.2	68.1	63.2	65.5	55.5	71.1
Burglary	100.0	76.4	68.7	71.4	78.0	71.8	69.9	68.3	70.6	65.0
Violent crimes										
Street robbery	100.0	102.7	92.7	107.1	83.3	116.0	100.0	82.1	92.4	102.2
Robbery	100.0	132.6	124.9	138.7	132.9	116.3	141.5	113.9	89.1	50.7

Table 40. Index rates (2003=100) for six crimes, city district East, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Property crimes										
Theft out/from motor vehicles	100.0	81.0	87.8	97.1	75.0	57.5	69.3	70.2	60.5	48.0
Theft of motor vehicles	100.0	76.3	54.6	42.4	54.8	55.5	52.6	57.3	50.7	47.3
Pick pocketing	100.0	110.8	73.3	70.3	67.8	78.9	108.4	88.7	92.2	97.1
Burglary	100.0	77.7	68.4	64.9	60.9	62.1	74.1	99.1	92.1	101.6
Violent crimes										
Street robbery	100.0	89.3	126.9	99.3	97.7	67.5	83.9	85.1	108.4	135.4
Robbery	100.0	94.9	74.3	55.9	119.7	80.0	120.5	115.3	56.1	30.0

Table 41. Index rates (2003=100) for six crimes, city district North, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Property crimes										
Theft out/from motor vehicles	100,0	48.0	41.4	33.0	36.2	47.0	53.1	35.7	23.4	33.9
Theft of motor vehicles	100,0	70.0	72.6	57.6	46.6	63.7	70.6	71.7	47.6	41.4
Pick pocketing	100,0	75.0	67.2	40.9	38.4	42.1	42.0	42.6	36.6	41.5
Burglary	100,0	99.4	73.9	84.9	91.6	97.0	72.0	57.7	58.2	53.8
Violent crimes										
Street robbery	100,0	85.9	100.3	86.1	50.3	56.4	55.5	58.5	46.0	41.8
Robbery	100,0	91.4	95.6	74.1	50.8	101.8	77.7	79.5	50.6	40.0

Table 42. Index rates (2003=100) for six crimes, city district Southeast, 2003-2012. Source: (processed data from) O+S Amsterdam.

Appendix C Tables belonging to figures in chapter 5

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	738434	742609	742692	742734	746935	755958	767364	780125	789596	798936
Downtown	79919	81202	81980	80819	81318	81305	82713	84030	84541	85618
West	130441	130883	130489	129729	129616	129910	131203	133230	135083	138568
New-West	128897	130196	130914	130731	131978	132974	135188	138087	139886	141825
South	129890	130737	130479	130417	130454	132153	133810	135861	137603	137901
East	99597	100922	102129	105498	107717	112455	116615	120234	122275	122847
North	87712	88119	87794	87623	86930	86681	86327	86675	87342	88434
Southeast	81978	80550	78907	77917	78922	80490	81508	82008	82866	83743

Table 43. Population, city districts, Amsterdam, 2003-2012. Source: O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	33.9	34.2	34.4	34.5	34.6	34.7	35.0	35.0	35.0	34.9
Downtown	14.0	14.1	14.2	14.1	14.5	14.0	14.4	14.5	14.4	14.5
West	35.9	35.5	34.9	34.5	33.7	33.3	33.0	32.3	31.8	31.6
New-West	43.3	45.0	46.2	47.2	47.8	48.4	49.1	49.8	50.2	50.5
South	16.4	16.4	16.2	16.3	16.5	17.1	17.1	17.3	17.4	16.9
East	36.5	36.3	35.7	34.9	34.5	34.4	34.4	34.0	33.7	33.4
North	32.5	33.7	34.6	35.4	35.9	36.0	36.4	37.0	37.4	37.6
Southeast	61.3	62.1	62.7	63.1	63.4	63.6	64.1	64.3	64.1	64.0

Table 44. Share of ethnic minorities, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	9.6	9.6	9.4	9.3	9.5	9.4	9.0	8.8	8.7	8.5
Downtown	3.8	3.7	3.5	3.5	3.5	3.2	3.3	3.3	3.2	3.2
West	6.7	6.5	6.2	6.0	5.7	5.5	5.4	5.2	5.1	5.1
New-West	8.1	8.2	8.0	7.9	7.8	7.6	7.4	7.3	7.2	7.0
South	4.2	4.1	4.0	4.0	3.9	3.9	3.8	3.9	3.8	3.6
East	9.7	9.4	9.2	8.9	8.6	8.4	8.3	8.2	8.0	7.8
North	8.9	8.9	9.0	8.9	8.8	8.6	8.4	8.4	8.2	8.1
Southeast	31.8	32.2	32.5	32.9	35.9	35.7	33.0	32.7	32.1	31.7

Table 45. Proportion of Surinamese, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Downtown	1.1	1.0	0.9	0.9	0.9	0.8	0.9	0.9	0.9	0.8
West	1.1	1.1	1,0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
New-West	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	1.0	1.0
South	0.9	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
East	1.1	1.1	1.0	1.1	1.1	1.1	1.2	1.1	1.1	1.2
North	1.3	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.3	1.4
Southeast	6.1	6.1	5.9	5.9	5.8	5.8	5.6	5.6	5.5	5.5

Table 46. Proportion of Antilleans, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	8.5	87	8.8	8.9	9.0	9.0	9.0	9.1	9.0	9.1
Downtown	1.8	1.7	1.8	1.7	1.9	1.7	1.8	1.7	1.7	1.7
West	12.1	121	11.8	11.7	11.5	11.3	11.2	10.9	10.6	10.5
New-West	16.8	17.5	18.1	18.7	19.1	19.3	19.7	20.0	20.3	20.4
South	3.6	3.5	3.4	3.3	3.3	3.4	3.4	3.4	3.3	3.1
East	11.2	11.3	11.2	10.9	10.7	10.7	10.6	10.5	10.4	10.3
North	7.8	8.2	8.5	9.0	9.3	9.3	9.4	9.5	9.6	9.8
Southeast	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0

Table 47. Proportion of Moroccans, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	5.1	5.1	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.3
Downtown	0.9	0.9	1.0	0.9	1.0	1.0	0.9	1.0	0.9	0.9
West	7.8	7.5	7.2	7.1	6.9	6.8	6.7	6.5	6.3	6.1
New-West	10.2	10.7	11.1	11.4	11.6	11.9	12.1	12.3	12.6	12.7
South	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5
East	6.2	6.1	6.0	5.7	5.5	5.4	5.3	5.1	5.0	4.9
North	4.9	5.0	5.3	5.5	5.8	5.9	6.1	6.3	6.3	6.4
Southeast	1.0	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Table 48. Proportion of Turkish, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	20.8	20.9	21.3	21.5	22.0	22.4	22.6	22.7	22.8	22.9
Downtown	20.9	21.3	21.6	21.8	22.5	23.2	23.4	24.2	24.1	24.2
West	24.5	24.7	24.9	25.0	25.5	25.6	25.4	25.4	25.2	25.1
New-West	19.4	19.8	20.5	20.9	21.8	22.2	22.6	22.6	22.6	23.0
South	20.1	19.9	20.1	20.4	20.7	21.2	21.9	22.0	22.3	22.4
East	20.1	20.1	20.5	21.0	21.3	21.8	22.1	22.5	22.5	22.1
North	17.7	18.0	18.5	18.8	18.9	19.3	19.2	19.0	19.3	19.3
Southeast	22.3	22.3	22.2	22.2	22.2	22.5	22.4	22.4	22.5	23.1

Table 49. Proportion age 15-29, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	8.2	9.6	9.5	8.6	7.3	6.7	7.0	7.5	6.3	4.9
Downtown	6.2	7.5	7.1	6.1	5.8	5.0	4.4	5.2	4.4	3.8
West	10.0	11.1	10.9	9.7	7.9	7.1	7.5	8.4	6.7	5.1
New-West	8.8	10.2	10.4	9.7	7.7	7.2	8.3	8.7	6.5	4.7
South	6.4	7.1	7.4	6.2	5.2	4.5	4.7	5.6	5.1	4.4
East	9.2	10.8	9.8	8.6	7.2	7.1	6.9	7.4	6.2	4.8
North	7.9	9.9	10.4	10.2	8.7	8.2	8.4	8.3	7.3	5.6
Southeast	8.7	10.5	10.6	10.5	10.0	8.9	9.7	9.4	8.6	6.5

Table 50. Unemployment rate, city districts, Amsterdam. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	3.2	3.4	3.1	2.4	1.8	1.7	2.8	2.5	2.3	3.0
Downtown	3.1	3.4	3.0	2.4	2.0	1.9	2.8	2.4	2.2	2.9
West	3.5	3.7	2.2	2.5	1.9	1.7	2.9	2.6	2.4	3.1
New-West	2.8	3.2	2.8	2.1	1.6	1.5	2.4	2.1	2.0	2.6
South	3.1	3.2	2.9	2.3	1.7	1.6	2.6	2.4	2.2	2.7
East	3.3	3.6	3.1	2.5	1.9	1.6	2.6	2.4	2.3	3.0
North	2.9	3.2	2.9	2.4	1.9	1.6	2.6	2.4	2.3	3.2
Southeast	3.4	3.9	3.5	2.9	2.2	2.2	3.5	3.2	3.1	4.0

Table 51. Proportion unemployment benefit recipients, city districts, Amsterdam. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	17.8	18.6	18.4	18.1	18.1	16.9	16.9	17.1	17.1	17.1
Downtown	13.5	14.0	13.5	12.9	12.0	10.7	11.1	11.3	11.0	10.9
West	20.2	20.9	20.7	20.7	20.6	18.5	18.6	18.8	18.4	19.6
New-West	18.5	19.9	19.7	18.9	18.8	18.0	17.9	17.9	18.2	18.5
South	12.8	13.4	13.0	12.6	13.7	12.5	12.7	13.1	12.9	11.8
East	19.7	20.5	20.4	20.4	20.1	18.9	18.9	18.8	18.2	18.0
North	19.6	20.8	20.9	20.4	20.3	19.4	19.3	19.8	20.6	20.9
Southeast	22.7	23.7	23.4	23.6	23.8	23.1	22.6	23.1	23.6	23.7

Table 52. Proportion of very low income households, city districts, Amsterdam. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	7.3	7.1	6.8	6.6	6.1	5.5	5.7	5.7	5.7	6.1
Downtown	6.1	5.9	5.7	5.5	4.1	3.8	3.8	3.8	3.6	4.0
West	8.7	8.3	7.8	7.4	6.9	6.3	6.4	6.3	6.3	7.3
New-West	6.9	6.8	6.6	6.3	5.9	5.4	5.5	5.5	5.6	6.0
South	5.1	4.9	4.6	4.4	4.9	4.4	4.7	4.7	4.6	4.1
East	7.8	7.6	7.2	6.7	6.3	5.5	5.5	5.4	5.3	5.6
North	7.2	7.3	7.3	7.0	6.6	6.0	6.3	6.6	6.7	7.5
Southeast	9.6	9.4	9.5	9.5	8.7	7.9	8.3	8.9	9.0	9.6

Table 53. Proportion of social benefit recipients, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam	9.1	9.0	9.0	8.9	8.8	8.7	8.7	8.7	8.7	8.7
Downtown	6.2	6.0	5.9	5.8	5.7	5.5	5.5	5.6	5.5	5.4
West	8.1	8.0	7.9	7.7	7.6	7.6	7.4	7.4	7.3	7.3
New-West	9.6	9.6	9.6	9.5	9.4	9.3	9.2	9.3	9.2	9.3
South	6.9	6.8	6.7	6.7	6.7	6.6	6.7	6.7	6.6	6.6
East	8.6	8.5	8.5	8.3	8.2	8.4	8.5	8.5	8.7	8.7
North	11.2	11.3	11.3	11.1	11.1	10.9	10.9	10.9	11.0	11.0
Southeast	17.0	17.0	17.1	17.3	17.1	16.8	16.6	16.5	16.4	16.1

Table 54. Proportion of one parent families, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

Appendix D Tables belonging to figures in chapter 6

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Amsterdam-Amstelland	109453	101701	92977	98949	96659	106084	107160	105496	97231
Haaglanden	66671	68226	55988	57261	57775	62528	62325	70473	70426
Rotterdam-Rijnmond	93070	82971	64028	74140	71926	76834	84513	84097	90928
Utrecht	97291	83261	77975	82671	82816	80988	90206	94862	94737

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam-Amstelland	91900	79852	78831	77489	74224	74700	73625	75990	78065	79275
Haaglanden	69354	63103	51077	45536	48287	57150	56525	56260	56425	53070
Rotterdam-Rijnmond	86056	77729	66953	61994	57415	68340	66250	61945	63795	61375
Utrecht	83336	74620	68940	68657	63582	63805	59925	57890	54830	52885

Table 55. Reported property crimes in four police regions, Netherlands, 1994-2012. Source: Centraal Bureau voor de Statistiek (2009b, 2013a).

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Amsterdam-Amstelland	9088	9504	10202	9958	9768	12202	12831	13574	13190
Haaglanden	4071	3984	4198	4185	4578	5582	5920	7841	7697
Rotterdam-Rijnmond	6576	6749	6458	7806	8039	9152	9760	10877	11036
Utrecht	8681	6208	5032	5640	5798	6125	6250	6572	7303

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amsterdam-Amstelland	11534	11137	11156	11339	11486	9750	10515	10170	10360	9915
Haaglanden	8004	9134	8887	8311	8415	7320	7590	9030	8735	8400
Rotterdam-Rijnmond	12238	11979	12395	11669	11307	12125	12250	11010	11295	11035
Utrecht	7806	7979	7403	6805	6956	7720	7680	7035	6805	6425

Table 56. Reported violent crimes in four police regions, Netherlands, 1994-2012. Source: Centraal Bureau voor de Statistiek (2009b, 2013a).

	1994	1995	1996	1997	1998	1999	2000
Amsterdam-Amstelland	6.0	7.3	7.7	6.4	8.9	9.7	8.6
Haaglanden	13.3	12.7	11.3	9.4	10.3	9.3	8.0
Rotterdam-Rijnmond	8.8	13.4	9.8	13.2	12.9	11.2	8.0
Utrecht	11.8	10.2	9.6	8.5	7.9	7.3	6.9

	2001	2002	2003	2004	2005	2006	2007
Amsterdam-Amstelland	9.4	9.9	10.1	10.2	9.8	9.9	11.2
Haaglanden	7.7	9.2	9.2	10.4	12.9	13.9	12.2
Rotterdam-Rijnmond	8.4	8.7	10.1	11.9	12.1	10.3	9.3
Utrecht	7.3	7.4	9.3	9.8	9.3	9.1	9.4

Table 57. Percentage of cleared up property crimes, four police regions, Netherlands, 1994-2007. Source: Centraal Bureau voor de Statistiek (2009a).

	1994	1995	1996	1997	1998	1999	2000
Amsterdam-Amstelland	19.7	24.7	24.1	24.8	38.2	44.4	40.2
Haaglanden	47.4	46.4	41.0	46.3	51.7	46.1	41.8
Rotterdam-Rijnmond	26.1	38.6	29.2	35.6	34.1	31.5	28.3
Utrecht	34.2	40.0	42.7	39.9	38.5	40.7	42.6

	2001	2002	2003	2004	2005	2006	2007
Amsterdam-Amstelland	41.9	44.0	51.1	55.8	54.7	50.5	52.8
Haaglanden	36.9	43.8	48.4	53.4	60.8	63.7	64.0
Rotterdam-Rijnmond	30.3	45.7	53.1	61.4	61.8	59.4	60.8
Utrecht	44.5	47.3	52.2	55.3	58.0	60.0	57.9

Table 58. Percentage of cleared up violent crimes, four police regions, Netherlands, 1994-2007. Source: Centraal Bureau voor de Statistiek (2009a).

Type	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Property	25320	24020	25980	28030	29860	32280	33040	32400	32190	30490	29250	28330	28160	25630
Violent	13420	13080	14920	17060	18830	21850	24190	25010	26440	25040	21740	19550	19190	16190

Table 59. Number of juvenile suspects between the ages 12-25, Netherlands, 1999-2012. Source: Centraal Bureau voor de Statistiek (2013b).

	1996	1997	1998	1999	2000	2001	2002
12-17	916	916	1115	1190	1118	1157	808
18-24	1890	2037	2150	2072	2199	2137	2036
Total	2806	2953	3265	3262	3317	3294	2844

Table 60. Number of juvenile suspects, Amsterdam, 1996-2002. Source: Nauta and Rietveld (2004).

	2004	2005	2006	2007	2008	2009	2010	2011
12-17	1621	1636	1776	1794	1394	1269	1088	876
18-24	2343	2357	2820	2811	2714	2768	2577	2420
Total	3964	3993	4596	4605	4108	4037	3665	3296

Table 61. Number of juvenile suspects, Amsterdam, 2004-2011. Source: Smeets et al., (2013).

	2004	2005	2006	2007	2008	2009	2010	2011
Downtown	100	159	238	178	171	146	104	127
West	100	77	81	88	80	69	75	54
New-West	100	74	105	96	78	86	67	45
South	100	98	95	82	63	68	60	62
East	100	86	103	106	74	68	53	58
North	100	115	168	149	99	107	104	103
Southeast	100	87	118	86	102	104	111	77

Table 62. Index hard core youth (2004=100), city districts, Amsterdam, 2004-2011. Source: (processed data from) Smeets et al., (2013).

	2004	2005	2006	2007	2008	2009	2010	2011
Downtown	100	109	117	103	94	93	73	67
West	100	91	102	98	91	83	77	67
New-West	100	100	112	114	96	97	81	70
South	100	97	105	108	90	99	89	73
East	100	92	108	109	88	85	74	74
North	100	106	119	121	112	98	97	84
Southeast	100	104	124	115	107	104	94	82

Table 63. Index juvenile suspects (2004=100), city districts, Amsterdam, 2004-2011. Source: (processed data from) Smeets et al., (2013).

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Downtown	100	143	173	115	144	143	70	58	70	53
West	100	120	94	85	91	81	85	67	98	63
New-West	100	123	104	96	70	83	66	55	70	75
South	100	130	78	78	74	66	65	66	81	65
East	100	113	115	102	141	72	102	51	57	44
North	100	99	91	61	75	86	78	60	50	53
Southeast	100	91	77	65	51	54	35	30	23	22

Table 64. Index reported drugs and alcohol nuisance, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Downtown	100	81.7	74.3	80.0	70.7	51.1	42.6	23.4	23.1	24.4
West	100	72.5	79.3	72.9	72.9	88.2	66.2	58.7	57.3	53.1
New-West	100	134.5	174.9	170.7	237.6	348.7	246.2	213.2	247.6	206.2
South	100	104.3	111.2	106.2	94.6	90.1	103.5	81.3	107.0	89.5
East	100	105.8	91.3	80.0	70.9	55.5	57.9	50.5	57.3	47.1
North	100	93.5	103.4	110.5	108.8	75.7	60.1	53.7	57.6	63.8
Southeast	100	116.5	116.4	120.1	100.0	115.6	112.0	118.4	101.7	74.4

Table 65. Index drug trafficking, city districts, Amsterdam, 2003-2012. Source: (processed data from) O+S Amsterdam.

Appendix E Map of city districts and neighbourhood combinations in Amsterdam

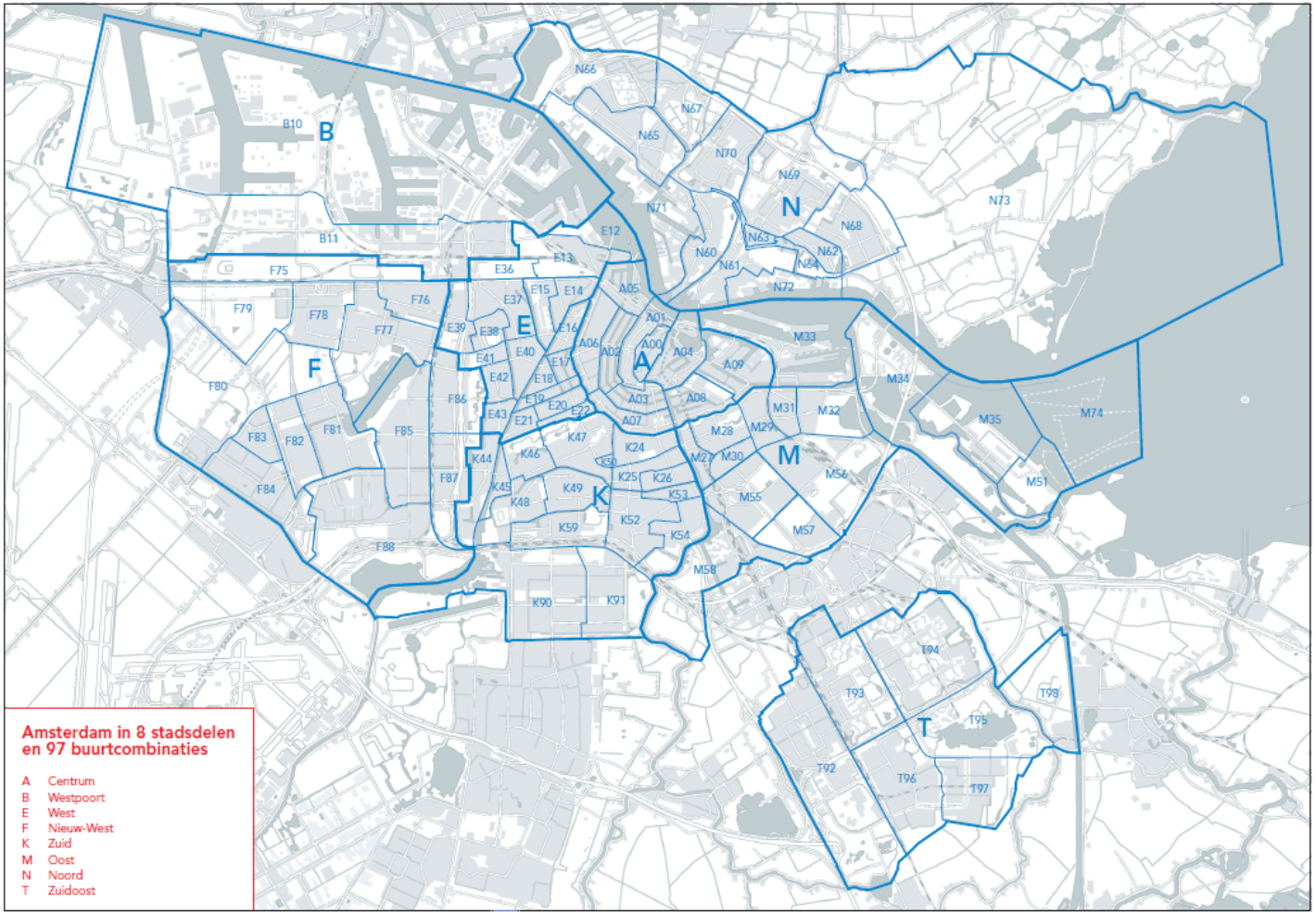

Figure 27. Map of city districts and neighborhood combinations in Amsterdam. Source: O+S Amsterdam (2012).

Appendix F Percentage of crime volume that is fixed and varies over 10 years

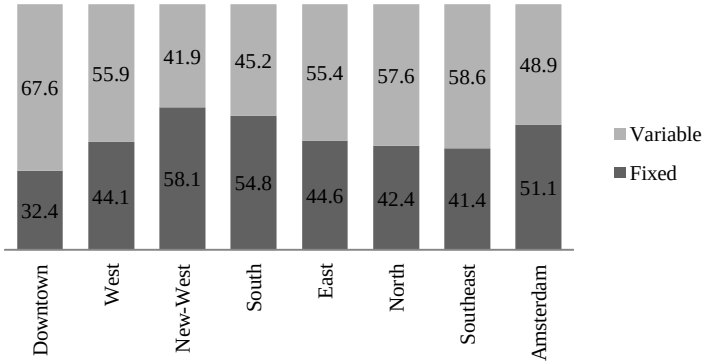

Figure 28. Percentage of volume of theft of motor vehicles that is fixed and varies in 10 years.

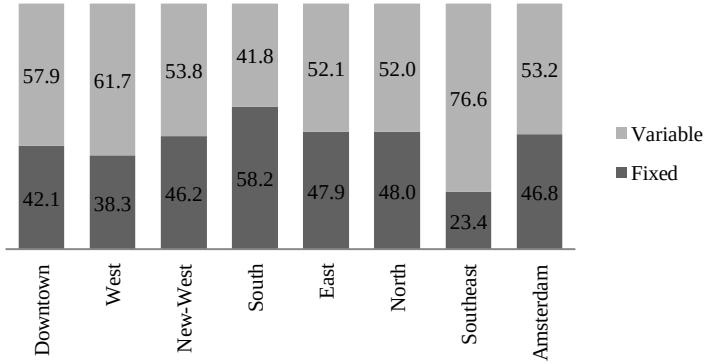

Figure 29. Percentage of volume of theft out/from motor vehicles that is fixed and varies in 10 years.

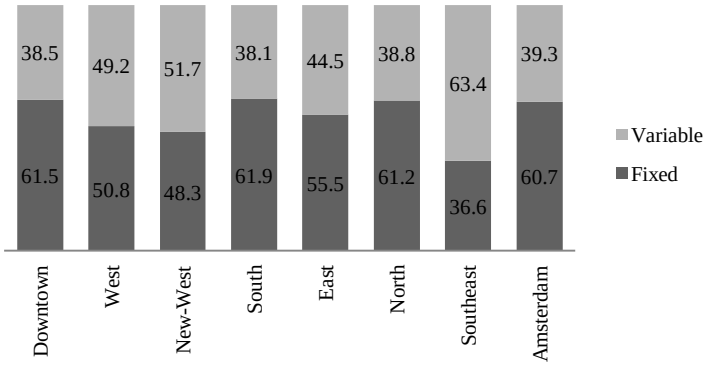

Figure 30. Percentage of volume of pick pocketing that is fixed and varies in 10 years.

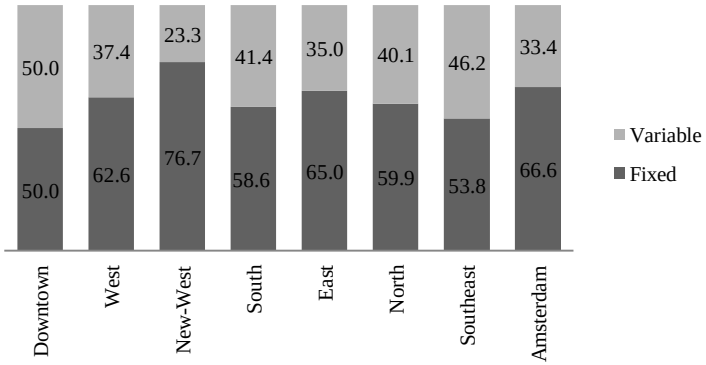

Figure 31. Percentage of volume of burglary that is fixed and varies in 10 years**.**

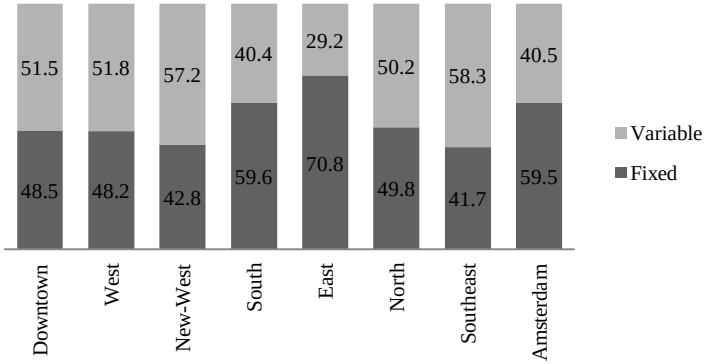

Figure 32. Percentage of volume of street robbery that is fixed and varies in 10 years.

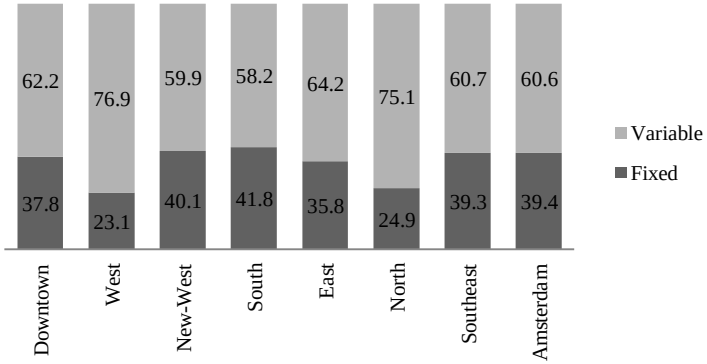

Figure 33. Percentage of volume of robbery that is fixed and varies in 10 years.

Glossary

Burglary
‘’Breaking into a house, barn, or company from which something has been stolen (Kalidien & De Heer-De lange, 2013, p. 692).’’

City districts
‘’This is an administrative unit within the municipality of Amsterdam and also a geographical division of the territory of the municipality of Amsterdam for statistical information. Amsterdam has seven administrative districts and district Westpoort. By May 1st, 2010 this classification was created by merging the 14 former city districts into the following seven city districts. Downtown, Westpoort, West (former city districts Westerpark, Oud-West, Bos and Lommer, and De Baarsjes), New-West (former city districts Geuzenveld-Slotermeer, Osdorp, and Slotervaart), South (former city districts Oud-Zuid and Zuideramstel), East (former city districts Zeeburg and Oost-Watergraafsmeer), North, and Southeast (O+S Amsterdam, 2013, p. 574).’’

Share of ethnic minorities
‘’Non-western immigrants originating from Africa, South and Central America, and Asia excluding Indonesia and Japan (O+S Amsterdam, 2013, p. 572).’’

Highly active repeated offender
‘’Person aged 18 years and older with 11 or more official police reports in the past five years, including at least one in the year of reference (Gemeente Amsterdam et al., 2012, p. 59).’’

One parent families
‘’Family which is formed by one parent with one or more children (O+S Amsterdam, 2013, p. 568).’’

Pick pocketing
‘’Theft of purse, wallet, phone, or anything else that someone carried with him (Kalidien & De Heer-De lange, 2013, p. 698).’’

Property crimes
‘’(Attempted) burglary, bicycle theft, car theft, theft out/from car, other motor vehicle theft, (attempted) pick pocketing, or other kind of theft (Kalidien & De Heer-De lange, 2013, p. 697).’’

Robbery
‘’The elimination of any good with the use of violence or threat of violence or blackmail, committed against persons in a shielded area or on a planned or organized transport of valuables, or attempts to do so (Mesu, Van Nobelen, Van der Mark, & Verschuuren, 2013, p. 12).’’

Social benefit recipients
‘’Benefits in the context of the work and social assistance law (WWB) (O+S Amsterdam, 2013, p. 578).’’

Street robbery
‘’The removal of any good with the use of violence or threat of violence or blackmail, committed against persons who are not in a shielded area, or attempts to do so (Mesu et al., 2013, p. 12).’’

Theft of motor vehicles
‘’Theft of a car that was registered under the name of the victim (and not on behalf of someone else inside or outside the household), which was (also) used for private purposes, and the user was at least 18 years old (Kalidien & De Heer-De lange, 2013, p. 689).’’

Theft out/from motor vehicles
‘’Theft of, for example, car radio, purse, mirror, hubcaps off or from the outside of the car that was registered under the name of the victim, which was (also) used for private purposes, and the user was at least 18 years old (Kalidien & De Heer-De lange, 2013, p. 690).’’

Unemployment benefit recipients
‘’Benefits in the context of the unemployment law (WW). Purpose of the law is to insure employees against the financial consequences of unemployment (O+S Amsterdam, 2013, p. 578).’’

Unemployment rate
‘’Unemployed job seekers (NWW). This contains all job seekers registered at the UWV Company between the ages of 15 to 64 year old who do not have a job. Is usually expressed as a percentage of the population aged 15 to 64 year old (O+S Amsterdam, 2011, p. 603).’’

Very low income households
‘’Households with incomes up to 110 percent of the current statutory social minimum that applies for their household type (single, one parent family, and multiple family with or without children) and age (housekeeper younger or older than 65 years). Many provisions in the context of poverty reduction funds apply for incomes up to 110 percent of statutory social minimum (O+S Amsterdam, 2013, p. 572).’’

Violent crimes
‘’Attacking or abusing by hitting or kicking, or a gun, a knife, a piece of wood, scissors or anything else to use against someone or by threatening someone (Kalidien & De Heer-De lange, 2013, p. 691).’’