Systemic Drug-related Homicides in the Netherlands: A Routine Activities Approach

Master thesis

Written by: Alex Bakker
Student number: s1265458
Date: 11-05-2017

Supervisor: dr. M.C.A. Liem
Second reader: dr. G.M. van Buuren

Leiden University
Faculty of Governance and Global Affairs
Crisis and Security Management

Abstract

While crime rates across the industrialized world have fallen, European countries have not been able to diminish the size of the drug trade. Besides several social, health and ecological problems, the drug trade also produces significant amounts of violence. Systemic homicides account for 18,2% of total completed homicides in the Netherlands between 2009 and 2016. This study has two goals: It examines patterns of systemic drug-related homicides in the Netherlands during this period, and it tests whether the nature and frequency of this type of violence can be explained using the Routine Activities Theory. Using a quantitative design, this study finds that there has been a decrease in both the homicide rate and the systemic homicide rate in the Netherlands during the studied time period, but that this decline in systemic homicides cannot be attributed to measures of deterrence, the incapacitation of potential offenders or the number of police officers with operational duties in the Netherlands.

Keywords: Systemic violence, The Netherlands, Routine Activities Theory, Deterrence, Incapacitation and Guardianship

Table of Contents

Tables and charts

Tables

Charts

1. Introduction

The trade in illegal drug produces many negative social consequences. Individual drugs users can experience severe negative consequences on their personal health and their work situation. Drug habits may also lead to the breakdown of social and family connections. Frequent users may exhibit a change in behavior, and some will become involved in violence or crime (UNDCP 1998). On a societal scale, the trade in illegal drugs produces negative externalities for the environment. The production of drugs is related to large-scale environmental damage as the cultivation of drugs leads to illegal logging, the use and dumping of environmentally dangerous chemicals and the use of aggressive herbicides by law enforcement agencies attempting to eradicate drug cultivation (UNDCP 1998).

Another important problem is the connection between drugs and crime. A convincing argument can be made that the illegality of drugs itself is a major cause of violence in the drug market. Due to prohibition, the market is frequently dominated by organized crime. Indeed, it is widely accepted that violence is an important means by which organized criminals protect themselves (Wright 2006). This can have nasty implications. Since prohibition reduces the access dealers have to the law, disputes cannot be solved legally. Therefore, violence can be considered as a necessary aspect for the function of any drug market (Goldstein 1985). This connection between drug illegality and violence is often also assumed - and used as an argument - by those who argue for the legalization of drugs (Cussen & Block, 2000). The production, trafficking and sale of drugs is a massive enterprise. The United Nations International Drug Control Program (UNDCP) estimated that the revenue produced in the global illicit drug market was in 1995 comparable in size to the global revenues on oil and gas, revenues on tourism and those on food and beverages (UNDCP 1995, cited in UNDCP 1998). The European Monitoring Center for Drugs and Drug Addiction (EMCDDA) estimated that the value of the retail drug market in the European Union was somewhere between 21 billion and 31 billion euros in 2013, an enormous business (EMCDDA 2016). Considering these stakes, it should not be surprising that drug dealers are willing to take extreme measures to protect their business.

In fact, in some countries, the violence caused by drug dealers can be readily observed. Mexico, for example, has become infamous for its unending drug wars, where 60.000 drug-related homicides have taken place since 2006, when president Felipe Calderón started a militarized campaign against drug cartels (Calderón 2015).

Fortunately, most countries do not experience such a staggering amount of violence as Mexico does.

Drug-related homicides in the Netherlands do account for a substantial percentage of homicides. In the time period covered in this study, 196 cases of systemic drug-related homicides were identified, or 18,2% of total homicides. This Master thesis studies the nature of system violence. This concept was introduced by Goldstein (1985), and serves to distinguish violence caused by the drug *trade* from other cause of drug related violence (Jacques & Allen 2015).

drug-related violence in the context of the Netherlands using a quantitative design, and tests whether the findings can be explained using the Routine Activities Theory (RAT). Specifically, it studies systemic homicides, as completed homicides are far easier to define (by the victim's death) than incidents of violence, and because it is far more difficult to collect data on incidents of violence, as these are often not reported or discovered, especially when dealing with violence in the context of the criminal milieu. A definition of this type of violence will be presented in paragraph 1.5.

This study will use data gathered in the European Homicide Monitor (EHM), a dataset that contains details about all completed homicides in the Netherlands between 2009 and 2016. The timeframe over which data will be gathered are the years 2009-2016. This timeframe has been chosen primarily for methodological reasons, and will be further explained in the methodology section. This thesis are contributes to the literature by gathering data on the nature and frequency of homicides related to the drug trade in the context of the Netherlands during the aforementioned timeframe, by testing to what extent the Routine Activities Theory can be used to explain the nature and frequency of systemic violence in the Netherlands, and by offering conclusions on the basis of the findings.

Chapter 2 will present a review of the literature on drug market violence, and present various causal linkages that may explain drug market violence. It argues that the Routine Activities Theory (Cohen & Felson 1979) approach offers a plausible causal model of systemic violence, and presents hypothesis based on this theory. Chapter 3 lays out the methodology that is used to test these hypotheses. Chapter 4 explores the frequency and nature of drug-related homicides in the Netherlands by presenting various statistics about these incidents, the perpetrators and the victims, and then presents the results of statistical tests based on the aforementioned hypotheses. Chapter 5 and 6 present the conclusions and discusses the scientific and policy implications of these results, and discusses possible avenues of future research.

1.1. Homicide in the Netherlands

At the most basic level, a homicide involves the death of an individual through the actions of one or more other individuals (Corzine 2011). However, to describe it in just a factual manner does not do justice to the gravity of the crime. Homicides have a great impact on perceptions of security in a society (Granath et al 2011). Homicide affects not only a victim and his or her family, but it also disturbs communities. Therefore, researchers are bound to investigate the causes of homicides in an effort to understand and help prevent their occurrence. Unsurprisingly, homicide is among the crimes for which perpetrators receive the harshest punishment – Western society's abhorrence of murder is illustrated by the fact that one can receive a life sentence. In order to prove a homicide has taken place, the prosecutor needs to show that the perpetrator intended to maliciously kill the victim (Siegel 2011).

There are different types of homicide. In the Netherlands, one can be convicted of murder (art. 289 and 291 in the Dutch Criminal Law code), manslaughter (art. 287, 288 and 290), wrongful death (art. 307 and 309) or assault leading to death (art. 300). The difference between these types lies in intent and premeditation (Granath et al 2011). A judge can hand out a sentence of up to 15 years in prison for manslaughter or 30 years in prison (increased from 20 years in 2004) or a life sentence for homicide (Wingerden & Nieuwbeersta 2010). In the Netherlands, perpetrators who receive a life sentence have no options for parole, although the State Secretary of Justice has recently proposed the option of reviewing parole options after 25 years (Dijkhoff 2016). On average, persons convicted of murder or manslaughter received a sentence of 7,6 years between 1993 and 2004 (Wingerden & Nieuwbeerta 2010).

1.2. Trends in homicide

Research into historical crime statistics has allowed researchers to piece together an image of homicide patterns in past decades and centuries. It appears that over the long term, homicide rates across the industrialized world have experienced a steady – but not uninterrupted - secular decline since the Middle Ages, reaching a historical low in the early 1950's (Eisner 2008). The next decades, however, saw this trend temporarily reversed, as many developed countries saw homicide rates increase again, reaching a peak in the 1980's and declining again in the following two decades (Eisner 2008; Aebi & Linde 2014). Eisner found that the rise in homicides was initially caused mainly by young men who were strangers to each other,

killing each other in public places. He links this pan-western trend to cultural changes in the Western world (Eisner 2008).

The Netherlands has deviated from this trend only slightly. Like other industrialized nations, the Netherlands saw an increase in its homicide rate during the last half of the twentieth century. However, unlike other industrialized countries, the rise in homicides continued until the end of the twentieth century, reaching a peak in 1991 (Leistra & Nieuwbeerta 2003). In 2001, the homicide rate reached a level of 1,65 fatalities per 100.000 capita, or 264 total fatalities (Statistics Netherlands 2016). This spike in homicides in the Netherlands was concentrated in the three main metropolitan areas of Amsterdam, The Hague and Rotterdam (Nieuwbeerta & Leistra 2007).

Nieuwbeerta and Leistra (2007) argue that developments in the criminal milieu caused by the drug trade constitute one of multiple possible explanations for the peak in homicides in the 1990's. Indeed, the illegal drug trade still accounts for a significant percentage of homicides in the Netherlands. Between 2003 and 2006, 19% of homicides in the Netherlands were classified as homicides in the criminal milieu[1] (Granath et al 2011). As the results will show, the criminal milieu accounts for 18,2% of all homicides during the period between 2009 and 2016.

Aebi and Linde (2010) find that while violent offences across Europe have increased in the 1990's and the 2000's, the amount of fatalities during these offences (i.e. the homicide rate) has fallen. Important explanations for the low amount of fatalities in Europe are the relatively low rates of firearms possession in Europe (Killias et al. 2001) and the high quality of health services (Aebi & Linde 2010). Aebi and Linde identify multiple explanations for recent trends of violent offences. They find that youths who have access to the internet now spend far more of their time indoor, where they are less likely to participate in crime. A disproportionately poor group of youths, many of whom are minorities, spend more of their time on the streets and are disproportionately exposed to the risk of engaging in delinquency, and more likely to join gangs, which induce violent behavior (Aebi & Linde 2010). At the same time, the amount of youths belonging to ethnic minorities has increased significantly over the past decades due to immigration (Weerman & Decker 2005, cited in Aebi & Linde 2010). Indeed, European street gangs are "primarily composed of ethnic or national minorities, reflecting the immigration and refugee patterns of those countries" (Klein et al.

[1] Although readers must be cautioned that this data contains a large number of crimes with missing data

2006, p. 421). Aebi and Linde (2010) identify a rise in binge-drinking across Europe as an explanatory factor for the rise in violent offenses.

Like in other European countries, the Netherlands has seen the increasing trend in homicides since the 1960's reversed again during the first two decades of the 21st century (Nieuwbeerta & Deerenberg 2002, cited in Liem et al. 2012). The Dutch homicide rate has now reached a low level of 0,71 fatalities per 100.000 capita in 2015, or 110 total fatalities (Statistics Netherlands 2016). Liem et al. (2012) find that the clearance rate of violent crimes and the unemployment rate offer a possible explanation for this recent fall in homicides.

1.3. Trends in drug use

A review of the literature suggests that drug use in the Netherlands has been on the rise during the past decades. According to research by Killias and Aebi (2000), rising drug use has not been confined to the Netherlands, and is instead part of a larger European trend. They found that registered drug offenses across Europe between 1990 and 1996 rose by 69% and drug trade offenses rose by 32%. They argue that these developments are related to an increased availability of drugs. This increased availability was in turn caused by the opening up of European borders after 1989, which helped facilitate drug flows from the Middle East. They speculate that this increase in the drug supply also explains an observed drop in prices of heroin and cocaine. Later research by the authors found that the increase in drug offences across Europe continued after 1996 (Aebi 2004; Aebi & Linde 2010).

Research by Bless (2001) shows that the amount of drug offences registered in Western European cities between 1990 and 1998 remained stable. These findings appear to contradict Aebi & Linde (2004), but could possibly be explained by a shifting of drug-related crime to rural areas (Ester & Driessen 2009). Bless (2001) also observed a change in the types of drugs seized in the Netherlands: While heroin and cocaine seizures in Amsterdam remained constant, seizures of cannabis and amphetamines dropped. The total amount of drugs seized remained stable. Information about the quality and price of drugs is, unfortunately, scarcely available (Ester & Driessen 2009, p.12).

Data published in the National Drug Monitor (Van Laar et al. 2015) shows that since the late 1990's, drug use has not exactly decreased in the Netherlands. While the self-reported use of drugs remained stable in the early 2000's, the use of both soft drugs and hard drugs seems to have increased again during the most recent decade, as can be seen in table 1.

Table 1: Self-reported drug use in the Netherlands

Drug	1997	2001	2005	2009	2014
Marihuana: recent use (last year)	5,50%	5,50%	5,40%	7%	8%
Marihuana: regular use (last month)	3%	3,40%	3,30%	4,20%	4,60%
Cocaine: recent use (last year)	0,70%	0,70%	0,60%	1,20%	1,60%
Cocaine: regular use (last month)	0,30%	0,10%	0,30%	0,50%	0,60%
Ecstasy: recent use (last year)	0,80%	1,10%	1,20%	1,40%	2,50%
Ecstasy: regular use (last month)	0,50%	0,50%	0,30%	0,40%	0,70%
Amphetamines: recent use (last year)	0,40%	0,40%	0,30%	0,40%	1,30%
Amphetamines: regular use (last month)	0,10%	0,00%	0,20%	0,20%	0,50%

Note: Data adapted from Van Laar et al. (2015)

1.4. Categories of drug-related violence

There are multiple ways through which drug use can be linked to incidents of violence. This study will be framed using the "Drugs-violence nexus", formulated by Goldstein (1985), a widely cited framework describing drug-related violence. A Goldstein's framework presents three typologies of drug-related violence. This study will focus specifically on the third category: systemic violence.

1. **Psychopharmacological violence**

Psychopharmacological violence results from the short-term or long-term ingestion of drugs. Drugs often have mood-altering effects and may affect a person's behavior long after the person has stopped using drugs, if the person has consumed significant amounts of drugs over a longer period of time (Goldstein 1985).

2. **Economic-compulsive violence**

Some drug users resort to economically oriented crime in order to finance their drug habits (Goldstein 1985). For example, they may rob stores or drug dealers, or commit burglary. Several contextual factors can incite violence during these crimes. For example, the victim's reaction, the offender's nervousness or the availability of weapons for either party can contribute to a violent outcome (Goldstein 1985).

3. **Systemic violence**

Systemic violence refers to the traditionally aggressive patterns of interaction within the system of drug distribution and use (Goldstein 1985). The fact that drugs are illegal in most

countries eliminates legal avenues of dispute settlement for drug dealers. While dispute settlement can be violent in the drug market, this is not a common occurrence (Curtis & Wendel 2007; Reuter 2009). Incidents in this category range from disputes over territory between rival drug dealers, assaults and homicides committed within dealing hierarchies as a means of enforcing normative codes, robberies of drug dealers and the usually violent retaliation by the dealer or his/her bosses to the elimination of informers and punishment for different kinds of disputes (Goldstein 1985).

One should consider when using Goldstein's framework is that a certain amount of ambiguity cannot be avoided when categorizing drug-related homicides. An incident might fit more than one the aforementioned three categories simultaneously (Goldstein 1985). For example, drug dealers may also use drugs themselves, or, when regular consumers can get their hands on a large enough amount of cash, they may become a seller for a day (Maccoun et al. 2003, p.73). In case a person who acts both as user and seller gets involved in an incident, it is difficult to distinguish between types of violence (Maccoun et al. 2003).

1.5. Examples of drug-related violence in the Netherlands

In recent years, violence in the drug trade has received more attention both in the news and on the local and national political agenda, which illustrates the need for more research on this topic. Turf wars between motorclubs, organizations often suspected of facilitating organized crime and having a significant stake in the drug market, have claimed many casualties. To name just two examples in the media: Two members of Satudarah were arrested in 2013 for the murder of a bouncer who had been charged with extortion in the past ("Leden Satudarah vast voor moord op Haagse portier" 2013), and in 2015, No Surrender's Amsterdam president Brian Dalfour and one of his henchmen were murdered in his cottage (Frankenhuis & Van der Graaf 2015). In addition to criminal prosecution of members, the public prosecution service (OM) has made multiple attempts to use civil litigation in order to get these motorclubs banned, so far unsuccessfully (Van Kampen 2016). Likewise, municipalities are executing new civil policies in order to fight motorclubs (Huisman 2010).

Of course, motorclubs are not the only organizations involved in drug market violence and intimidation. Another example of systemic violence that has received significant media attention recently are the so-called "maroc" or "mocro-war", a series of assassinations between crime families of mainly Moroccan descent. A dispute over a large cocaine shipment

in 2012 led to a dispute splitting a large drug cartel, resulting in multiple fatalities in the Netherlands and Belgium (Thijssen 2014).

Details released about a large police investigation into a Utrecht-based assassination squad reveal a highly professionalized modus operandi. Perpetrators would buy stolen sports cars for every assassination, and had trained teams of "spotters" that would track targets and "hitters" that would commit assassinations. These teams had prepared "kits" that included firearms, grenades and body-armor at their disposal in various depots, ready for action. They used spying equipment like cameras, GPS trackers and encrypted phones in preparation of their attacks. The criminal case into this group is still ongoing at the moment of writing (Meeus 2016).

1.6. Research question

To what extent can the nature and frequency of systemic drug-related homicides in the Netherlands between 2009 and 2016 be explained by Routine Activities Theory?

1.7. Sub-questions

- What previous research is available on systemic drug-related homicides?
- Why is Routine Activities Theory a good candidate to explain the nature and frequency of systemic drug-related homicides?
- What can be said about the nature and frequency of drug-related homicides in the Netherlands?
- To what extent can Routine Activities Theory be used to explain the findings?

1.8. Societal relevance

A belief that the use of psychoactive substances reduces the well-being of both individuals and communities has led governments across the world to instate drug prohibitions (Jacques et al. 2016). However, there is still no end in sight for the "war on drugs". As society faces the reality that it is very difficult to eradicate the drug market, policymakers might want to experiment with policies aimed at reducing the harm caused by the drug trade, rather than eradicating the drug market al.together. In this light, it would be very helpful for the public to gain a better understanding of the violence that occurs in the drug trade. As was stated in paragraph 1.2., systemic homicides constitute a significant portion of all homicides in the

Netherlands. It is in the interest of society at large to better study this phenomenon, as new isnights could be used to inform policymakers who seek to reduce the occurrence of systemic violence.

1.9. Scientific relevance

Research on systemic violence in Europe, and in particular in the Netherlands, is scarce at best, as most data that is available has been collected in the United States (Ester & Driessen 2009; Sarrica 2008; Moeller & Hesse 2013). Even in the United States, the diversity of this research is limited, as most studies were concerned with the spike in homicides following the introduction of crack cocaine in the 1980s (for example Lattimore et al. 1997 and Goldstein et al. 1992, etc.). Many studies focus on the interaction between police intervention and systemic violence (Moeller & Hesse 2013; Resignato 2000; Werb et al. 2011, etc.). Others present explanations on conduct norms (Johnson et al. 200) , the proliferation of guns (Blumstein & Cork), the structure of drug markets (SOURCE) or XX (SOURCE) as a cause of systemic violence. However, no studies were found testing whether the assumptions of any of the general criminological theories apply to this specific type of crime. This study also adds to the literature by testing to what extent the Routine Activities Theory can be used to explain patterns of systemic violence in the Netherlands.

The difficulty of gathering data on organized crime in general and the lack of a unified dataset has been a significant limitation on research on systemic violence. With the inception of the European Homicide Monitor (EHM), there is now a dataset available with which we can compare crime trends across European countries. This study will also contribute to future research by adding data on homicides in 2016 to this dataset, which contributes to future research on homicides in the Netherlands.

.

2. Background

In order to provide a proper context for my research project, this chapter presents a review of the available literature concerning systemic violence. As mentioned in the introduction, Goldstein's (1985) drugs-violence nexus provides a good definition for the exact type of homicides that are to be studied. This chapter discusses the criminological theories that may be used to explain patterns in systemic violence and reviews the findings of empirical studies into systemic violence. For the purpose of this thesis, a theory is needed that provides a plausible connection between the causes of crime and systemic violence and contains concepts that can be operationalized into statistical indicators on a national level. Furthermore, statistical information on these indicators must be publicly available in the Netherlands for the studied time period of 2009-2016. This chapter will argue why, among all theories on systemic violence, the Routine Activities Theory offers the best testable hypotheses.

Paragraphs 2.1. through 2.3. cover the theoretical background of this study. They review general criminological theories, and discuss how these theories might apply to systemic violence. Paragraph 2.4. reviews the empirical research available on systemic violence. Most sources were found using the Leiden University Catalogue, Google Scholar, PiCarta and Web of Science. Combinations of the following search key words were used: "drug-related", "drug market", "systemic violence", "homicide", "violen*", "organized crime" and "the Netherlands", as well as the Dutch translation of these terms. Additional sources were found using the snowball method.

2.1. Strain theory

Strain theory is one of several social structure theories. Social structure theories, originating in sociological theory, suggest the probability that a person commits crime can be explained by their place in society´s socioeconomic structure (Siegel 2011). Strain theory holds that crime is a produced by the conflict that exists between the goals people have and the means they have to achieve them. When this happens, they endure strain. Strain theory is distinguished from other social structure theories in that it focuses explicitly on the presence of negative relationships with others (Siegel 2011). Crime is not a result of desire, but of pressure (Agnew 1992).

2.1.1. Theory of anomie

Merton (1932) explains crime on a macro level in terms of class differences. While everyone has goals in life, having the means to achieve these goals is unequally distributed. These goals are based on societal expectations (for example: the American dream). People who are poor relative to their countrymen will experience relative deprivation, and often cannot get all they want in life, while they observe others who can. When people cannot achieve these goals through conventional means, they experience negative emotions like anger, resentment and humiliation. The constant build-up of these emotions produce a buildup of anger and hostility, and eventually, to violence and crime. He uses the concept of anomie. In an anomic society, rules of behavior and solidarity have broken down (Siegel 2011). The primary causes of crime are thus inequality and social immobility, which lead to a breakdown of solidarity between classes.

2.1.2. General Strain Theory

Agnew's (1992) General Strain Theory (GST) focuses instead on the individual causes of strain in order to help us understand crime on a micro level. A common criticism of Merton's strain theory was that it was too deterministic; it focused on social class as the most important cause of crime, and had difficulty explaining why a lower-class individual might engage in delinquency while another does not, and it also had difficulty explaining cases where higher-class people commit crime (Siegel 2011). Agnew's GST relies instead on individual strain, allowing GST to explain delinquency by higher class offenders (Siegel 2011).

Agnew identifies three types of strain: strain as the actual of anticipated failure to achieve positively valued goals, strain as the actual of anticipated removal of positively valued stimuli and strain as the actual or anticipated presentation of negatively valued stimuli. Individual stimuli are added to the model, and represent elements that might influence the individual. Positive stimuli include support structures people might have, such as a supportive family, a stable job or a tight-knit community. Negative stimuli might include neglect, child abuse, crime victimization, physical punishment, discriminatory treatment or any other negative experience in general (Siegel 2011; Simons et al. 2003). Another important source of negative stimuli is a first-hand experience of violent crime (Agnew 2002).

Not all people who endure strain engage in crime. This is explained in two ways. The first is that people have different strategies of dealing with strain. Merton mentioned five possible strategies, but other authors classify these strategies somewhat differently. In

Merton's case, the strategy that leads most to crime is called "innovation", which occurs when a person accepts societal goals but is unable to attain them. He responds through innovative solutions, including crime (Siegel 2011).

The second explanation states that some people are better able to deal with strain than others. This ability may be related to both individual traits and life experiences (Siegel 2011). Individuals who are impulsive, lack attachment to others or have criminal friends who reinforce their anger usually have less capability for self-control (Jones & Lynam 2009). These two explanations may both apply at the same time.

2.1.3. Studying systemic violence through a strain theory approach

Unfortunately, strain theory may not be the best theory to explain systemic violence in the Netherlands. A first problem is that systemic violence is a very specific kind of violence, and strain theory only explains what might drive a person to commit crime, not why that person might commit any individual crime (Siegel 2011). Instead, most studies focus on general crime rates or the occurrence of incidents of general violence. For example, Hannon & Defronzo (1998) study how poverty is linked to crime rates in metropolitan areas. Schaible & Altheimer (2016) study how societal expectations and inequality affect homicide rates. Maume & Lee (2003) study how social, political, familial, religious and educational institutions can be tied to crime rates. While the theory offers a solid explanation for the dynamic nature of crime rates, no element in the theory can explain why the homicide rate and the systemic homicide rate show different trends. This lack of specificity makes the theory unsuitable for this study.

2.2. Social disorganization theory

Social disorganization theory is another social structure theory which also links crime to poverty. Social disorganization, however, focuses specifically on the breakdown of the social fabric in disadvantaged neighborhoods as an explanation for crime rates (Siegel 2011). Many of the concepts in social disorganization theory were formulated by Shaw and McKay (1931). They argued that breakdown manifests itself as a failure to provide essential social services such as education, health care and proper housing. Residents in these areas want to leave the area as soon as possible, and become uninterested in community matters. When a collective interest in community matters dissolves, the normal sources of social control (ranging from families and neighbors to schools, social workers and law enforcement) become weak and

disorganized. According to their theory, environmental factors are the cause of crime, not the circumstances of individual offenders (Siegel 2011).

2.2.1. Gang formation

When social institutions break down, gangs and other groups that show little regard for social norms have room to form and grow (Siegel 2011). While gangs may be organized by race, their purpose is for members to deal with poverty, racism and conflict. They develop their own subculture, social norms and become involved in crime and political violence (Hagedorn 2008).

2.2.2. Deteriorating neighborhoods

Shaw & McKay observed that certain neighborhoods in Chicago were particularly poor and ridden by crime. They called these areas "transitional neighborhoods", and argued these low-rent areas attracted large numbers of immigrant minorities, and had a very high population turnover (Shaw & McKay 1972). These neighborhoods lacked the structures of informal social control that the inhabitants' neighborhoods of origin had. These transitional areas lacked a cohesive culture and community, leaving children without a strong set of values (Shaw & McKay 1972). Later scholars, grouped in what is called the Social Ecology School, have focused more on the direct connection between poverty and criminality, while putting less emphasis on the breakdown of social norms (Siegel 2011). Some link criminality to the physical deterioration of neighborhoods and finds that neighborhoods with high percentages of abandoned buildings attract crime (Spelman 1993). Poverty has a tendency to concentrate into the most disorganized neighborhoods, which in turn become isolated from the rest of society (Lee et al. 2003).

2.2.3. Studying systemic violence through a social disorganization approach

This theory is mentioned here because there has been some research into the connection between social disorganization and drug violence. Most of this research uses a qualitative design, and focuses on subcultural norms (Martínez et al. (2008). Most of these studies focus on the American crack market in metropolitan areas during the 1970's and 1980's (Johnson, Gollub, and Dunlap 2000; Warner and Coomer 2003). However, there are also examples of quantitative research linking drug-related violence to social disorganization. For example,

Martínez et al. (2008) find that drug activity correlates highly with violent crime, and is concentrated in neighborhoods with low rates of immigration.

While social disorganization theory focuses mainly on research on the neighborhood level, some researchers have attempted to test the theory on a national level by looking at the disorganization of families, primarily by statistically linking the divorce rate to national crime rates (Lee et al. 2003; Maume & Lee 2003; Rosenfeld et al. 2001; Stretesky et al. 2004, cited in Liem et al. 2012). Another possible approach to test social disorganization theory on the national level would focus on inequality-related variables like the Gini-coefficient, which would be similar to an approach based on Merton's strain theory (like the above mentioned Studies by Hannon & Defronzo and by Schaible & Altheimer).

The strength of this theory is, however, that it can be used to explain differences in crime rates between neighborhoods. When abstracting social disorganization theory to the national level, many concepts and variables may lose part of their value. This is because specifically the concentration of poverty and disorganization in specific areas is said to aggravate crime. When inequality in a neighborhood grows exponentially, this tells us more than a marginal increase nationwide. Since it is methodologically unfeasible to compare a crime like systemic homicide, which happens only very rarely in the Netherlands, on a neighborhood level in this study, this theory would not be a good fit for this study.

2.3. Routine Activities Theory

Routine Activities Theory (RAT) is a crime opportunity theory, closely related to rational choice. In contrast to sociological theories, opportunity theories explain predatory crime by looking at crime from the viewpoint of the offender (Felson & Clarke 1998). It posits that the occurrence crime is closely related to available opportunities. The formative work of this theory, written by Cohen and Felson (1979), was an effort to answer the question why urban violent crime rates has risen during the 1960's, while indicators of well-being, assumed by sociological theories to be causally related to crime, had improved (Siegel 2011). This theory, instead, argues that crime is based on a rational decision by offenders when three elements converge: Motivated offenders, suitable targets and the absence of capable guardians (Cohen & Felson 1979). It applies to violent crime as well as property crimes, and can be assessed both on micro and macro levels. Furthermore, it can be used to explain the *composition* of crime rates (Cohen & Felson 1979).

Some locations can become crime hot spots, when motivated people congregate there. For example, bad neighborhoods may be filled with unemployed people or drug users (Sieel 2011). Thus, certain people are far more at risk of being victimized by criminals than others. Individuals who routinely perform activities in areas which are considered "safe", such as at home or near family, should be victimized less than people who spend more time in dangerous areas (Cohen & Felson 1979).

Four main elements influence a target's risk of being attacked: Value, Inertia, Visibility and Accessibility (Felson & Clarke 1998). These elements are all considered from the offender's viewpoint. Value represents the value to the offender. Inertia means the weight of an item, which complicates theft. An offender needs to be able to spot the opportunity in order to take it, hence visibility. Finally, accessibility means the target needs to be easy to reach for the offender (Felson & Clarke 1998).

When valuable targets are removed, Felson and Clarke (1998) see reason to believe that crime rates will drop without observing a displacement effect elsewhere. Vice versa, Cohen and Felson argue that the absence of capable guardians may lead to large increases in crime rates (Cohen & Felson 1979). Any prevention policy based on RAT would focus on making targets less accessible or placing more capable guardians.

The strength of this theory is that it can explain trends in crime rates for specific crimes. This theory's value in explaining systemic violence can be tested by identifying policies that could be used to decrease a specific crime based on the theory's assumptions, and then measuring whether these assumptions match observed realities. Four concepts were identified that according to RAT influence the likelihood of systemic violence occurring: deterrence, incapacitation, guardianship and routine activities

2.3.1. Deterrence

Since RAT argues that any crime needs a motivated offender, a logical argument follows that if motivated offenders can be removed or discouraged, crime rates should drop. While Felson and Cohen (1998) argue that motivated offenders should be assumed to be omnipresent, others argue that the population of motivated offenders can be reduced by interventions of the justice system, such as through incapacitation or deterrence (Liem et al. 2012).

If the decision to commit crime is indeed a rational decision, government policy can be used to affect the offender's calculus. If crime can be made less profitable, possible offenders will be less tempted to take action. If the consequences of being caught are severe,

and if the chances of getting caught are high, this might make a criminal reconsider his options (Nagin & Pogarsky 2001). If law enforcement could reach a 100% apprehension rate, nobody would be willing to commit a crime (Wright, 2010).

Punishments need not necessarily be prison sentences in order to deter crime. Financial penalties or asset seizures could also be used, as well as unconventional punishments (Siegel 2011). For example, Grasmick & Bursik show that those who would feel ashamed if criminal behavior became known publicly are less likely to commit crime. This implies that social stigma could be used as deterrence against crime.

Evidence for the propositions of deterrence seems to be lacking. Many studies on the effects of deterrence have concluded that there is no evidence to support the belief that incremental changes of punishments have measurable deterrent effects (Stevens et al. 2005; Tonry 2004).

2.3.2. Incapacitation

Incapacitation theory links crime rates to the number of criminals that are sent to prison. The theory assumes that those who have offended before could be considered motivated offenders in the future, and incapacitating them would decrease crime rates (Siegel 2011). This theory is used by proponents to argue for "three strikes and you're out" policies in the United States, where in some states, any offender who is convicted of three felonies automatically receives a life sentence (Calvan 2004, cited in Siegel 2011). There is some evidence of correlation between incarceration rates and crime rates (Spelman 2008; Levitt 1998; Marvell & Moody 1997; Levitt 2004).

It must be noted that there are also some who argue against the logic of incapacitation. Leaving aside the moral hazard of exposing more people to prison and making rehabilitation more difficult, there are also critics who argue that incapacitation simply does not reduce crime. It can, for example, be argued that due to the economics of crime; any incapacitated criminal could be replaced by someone else; offsetting any benefits (Siegel 2011). This criticism might very well apply to drug-related crime, as incapacitation reduces the supply of drugs, but not the demand. Incapacitation would then lead to a temporary increase in prices and opportunities, attracting new players to the market.

2.3.3. Guardianship

RAT offers several pathways through which opportunities for crime can be decreased. Increased guardianship over targets increases the perceived risk of crimes. For example, this could be done by placing security guards or cameras, or by increasing natural surveillance by making public spaces better lit or more defensible (Felson & Cohen 1998). Studies by Marvell & Moody (1996) and Levitt (1997) report negative relationships between the number of police officers in cities and crime rates.

2.3.4. Interaction between actors in the drug market

According to RAT, changes in the way in which participants in the drug market operate affect their chance of being victimized. Killias & Aebi (2000) used RAT to argue that an observed increase in drug market violence the 1990's could be related to the opening of borders in 1989. As new trafficking routes opened up, prices dropped and supply and demand grew. The increased size of the market drew in more dealers and increased competition. In the increasingly cramped market, dealers had more contact with each other, and more opportunities for conflict arose (Killias & Aebi 2000).

The recent development of crypto currencies and dark net drug markets might instead decrease violence in the drug market. Through these new technologies, can be bought anonymously over the internet, and buyers and sellers need never know each other's name (Barratt et al. 2016). As dealers also remain anonymous, it will be more difficult for drug dealers to find out who their competition is, and as dealers and customers need not meet up, the territorial aspect of the drug trade will become less pronounced, making turf wars become less frequent. Likewise, due to decreased contact, rip deals will become far more difficult to commit (Barratt et al. 2016). Unfortunately, it proved unfeasible to operationalize this concept due to the lack of valid data on this subject in the Netherlands. Therefore, this concept will not be tested.

2.4. Causes of systemic violence

2.4.1. Illegality

Most authors agree that the illegality of drugs is the most important cause of the violence in the drug market (Jacques & Allen 2015). Indeed, as Goldstein (1985, p. 497) argued: "violence is intrinsic to involvement with any illicit substance". As such, violence is an unfortunate side effect of the political choice in most countries to ban psychoactive substances (Jacques & Allen 2015). There is a logical connection between the illegality of drugs and violence: In case of disputes, dealers cannot turn to the legal system like other businesspeople might. Agreements are often made orally, are more ambiguous, and rely far more on trust. Territories cannot be allocated by market-based systems like auction, because there is no one to enforce ownership impartially (Reuter 2009). Furthermore, criminals filing a police report may risk their own crimes being uncovered, or being labeled as a "snitch" (Jacques & Allen 2015). This does not necessarily imply, however, that all illegal drug markets are violent or that all disputes are solved violently. Authors who interviewed high-level drug dealers found that most of them dislike the use of violence, and in developed countries, studies have shown a relative absence of violence and turf wars in higher-level drug dealing networks (Desroches 2007). Duyne (1996) and Zaitch (2000) present similar conclusions in the Netherlands specifically. Indeed, many high-level dealers view violence mostly as the consequence of market dysfunction and disorganization (Pearson & Hobbs 2011). There is even some evidence that it is not necessary to use violence in order to be a successful drug dealer (Morselli 2001). Still, given that violence may sometimes be a necessary tool; high-level dealers may find it beneficial to maintain a reputation as someone to be reckoned with (Dorn et al. 1998).

2.4.2. Profitability

RAT suggests that the willingness of potential offenders to engage in crime is strongly linked to its perceived profitability (Felson & Clarke 1998). As the profits made on the drug market can be very high, the incentives for organized crime syndicates to use violence against each other to gain the upper hand are substantial. **Stevens (2006)** argues that systemic violence could be reduced by cutting the profitability of crime. By disrupting the business routines of crime syndicates, the calculus of potential offenders could be influenced. If the drug trade were to be less profitable, potential offenders would be less likely to risk the use of force to strengthen their position, or to choose a life of crime over other career choices. Evidence for

this line of reasoning can be found in the downfall of the Cosa Nostra crime syndicate in New York. The federal Racketeer-Influenced and Criminal Organizations Act (RICO), ratified in 1970, provided law enforcement with new tools with which to deprive criminals of their financial assets, undermining the Cosa Nosta's business model. This effort, combined with other local regulatory initiatives aiming to make it more difficult for criminals to get business licenses, contributed to the downfall of the syndicate (**Stevens 2006**).

2.4.3. Law enforcement

Studies show that law enforcement activity can have detrimental effects on systemic violence rates. In a study comparing drug consumption, drug-related arrests and violence in major cities in the U.S., Resignato (2000) concluded that a general crackdown in a neighborhood actually led to increasing systemic violence through the waterbed effect. It turned out that whenever the police cracked down on a neighborhood, its drug dealers did not feel discouraged. Instead, they fled to neighboring areas and started competing with the established dealers there. This increase in competition led directly to turf wars. These conclusions are corroborated by others (Werb et al. 2011; Rasmussen & Benson 1993; Moeller & Hesse 2013). The still ongoing drug war in Mexico has shown that a nation-wide crackdown on drug cartels does not decrease violence or drug trading either. After being elected in 2006, President Felipe Calderón started a militarized crackdown on drug cartels around the country. The government's strategy consisted of deploying a massive military operation and executing relentless raids in order to capture the heads of the drug cartels in order to decapitate cartel leadership. Despite their best efforts, however, violence increased by 300% (Calderón et al. 2015).

It has also been observed that these findings hold in the opposite direction; when the authorities work in tacit agreement with criminals, favoring one criminal organization over others in return for bribes, drug markets become more peaceful due to a decrease in competition (Snyder & Duran-Martinez 2009). Snyder & Duran-Martinez offer the example of Mexico before the recent drug war started: The police often acted in concert with cartels, receiving bribes in exchange for keeping rival drug cartels off the market (Snyder & Duran-Martinez 2009).

That is of course not to say that any enforcement of the law causes violence. It just implies that policies based on the idea of deterrence do not decrease systemic violence.

Instead, law enforcement can prevent this kind of violence by instituting smarter policy. Taylor et al., for example argue that law enforcement can have a positive influence on systemic violence when aggressive drug dealers are incarcerated selectively (Taylor et al., cited in Maccoun et al. 2003; Desroches 2007). Vollaard et al. (2009) found that the drop in crime in the Netherlands after 2002 could indeed be partially attributed to targeted actions by the police and to harsher sentencing on repeat offenders. However, Vollaard et al. do not specify if their findings also apply specifically to drug-related homicide.

2.4.4. Norms in the drug market

Some qualitative studies offer narratives about the evolution of behavioral norms inside the drug market as explanations for trends in systemic violence. **Blumstein & Cork (1996**), for example, propose that the increasing willingness by dealers to carry firearms explains trends in systemic violence in the United States during the 1980's. Johnson et al. (2000) introduce "conduct norms" and differentiate between generational phases of drug users and dealers in order to explain both why certain drugs were popular among these generations and why different patterns of violence are observed.

2.4.5. Interaction

Reuter and MacCoun (1992) offer a classification of four types of drug markets as an explanation for patterns of violence. At one extreme are local markets, in which buyers and sellers who know each other. In these markets, territorial competition and violence are very rare. At the other extreme are public markets in which both customers and dealers do not live in the area and most likely do not know each other. Consequently, competition and violence are far higher (Reuter & Maccoun 1992).

2.5. Characteristics of the Dutch drug market

Dutch drug policy differs from those in neighboring countries on a number of issues. Dutch policy is characterized by more attention to the health issues of drug use: There is more emphasis on prevention and treatment policies. Correspondingly, there is less emphasis on strict enforcement and punishment of drug offenders (Ester & Driessen 2009, p.2). One of the most important elements of this policy is the legality of the sale of soft drugs in coffee shops. According to Jacques et al. (2016), the presence of coffee shops is significant for the occurrence of drug-related violence: Coffee shops are less likely to be victimized than street dealers and to retaliate, and more likely to turn to law enforcement when victimized.

Research in which high-level drug offenders in the Netherlands were interviewed shows that the structure and modus operandi of drug trafficking in the Netherlands is closely related to the way drugs are imported (Gruter & Mheen 2005). Most large scale shipments arrive by sea, mostly through the Rotterdam harbor. Small shipments also arrive by road or through Schiphol airport. The large scale trade seems to be the domain of people who are also involved in other types of crime (Gruter & Mheen 2005). Large scale drug trafficking operations are complex operations; respondents in the study fulfill positions ranging from relationship brokers to financiers and from storage managers to enforcers (Gruter & Mheen 2005).

Large cocaine shipments are rarely meant for the Dutch domestic market. Instead, shipments are often repackaged and combined with other hard drugs (like ecstasy and amphetamines) or soft drugs (hasj or “nederwiet”) and shipped to other European markets (Gruter & Mheen 2005, p.2). The trade in heroin appears to take place in a separate supply chain, and is rarely sold by people who also sell cocaine (Gruter & Mheen 2005). There is little to no evidence that it is common for Dutch police officers or public officials to be corrupted by organized crime (Desroches 2007). Most drug traders in the domestic drug market work within small syndicates and rely on trusted associates, usually from ethnic or kinship networks (Desroches 2007). Gruter & Mheen identify two factors explaining why their respondents became involved in the drug market: the most important reason seems to be that they themselves became regular users of hard drugs. 75% of respondents involved in low-level drug dealing was using drugs at the time of the interview, while the rest had used in the past. This understandably left most of them in a precarious financial position. Intermediaries between street-level dealers and traffickers, on the other hand, were only rarely motivated by drug addiction. These individuals usually got involved through a combination of family

connections, on their own initiative (usually at a young age) and through their profession (usually transportation workers, taxi drivers or bar- or nightclub employees) (Gruter & Mheen p.3).

Unfortunately, few statistics are available about the occurrence of systemic homicides in the Netherlands. Multiple datasets have been created covering homicides in past decades in the Netherlands, such as the Historical File Victims Murder and Homicide, covering homicides between 1991 and 2002 and the Murder and Manslaughter Monitor, covering homicides between 1992 and 2009 (Leistra & Nieuwbeerta 2003; Liem et al. 2012). Unfortunately, neither offer statistics specifically about the occurrence of systemic homicides. The statistic most relatable to the systemic homicides is the occurrence of assassinations in the criminal milieu. According to statistics gathered by the Central Investigation Information Division (DCRI), an average of 29 assassinations took place in the Dutch criminal milieu each year between 1992 and 1998. Assassinations are defined here as the targeted killing of a person in order to consolidate one's own position, where both perpetrator and target are part of the criminal milieu (Kleemans et al. 1998).

2.6. Hypotheses

This chapter has argued that the Routine Activities Theory offers concepts and hypotheses that can be used to explain patterns and trends in systemic violence, and presented a review of empirical studies into the causes of systemic violence. In order to test the assumptions of RAT, the empirical part of this study presupposes that these assumptions are true. The main expectation is thus that RAT provides a good explanation for the observed patterns in systemic violence in the Netherlands. Summed up below are the hypotheses derived from RAT:

H1: An increase in deterrence of systemic homicides is causally related to a decrease in systemic homicides

H2: An increase in deterrence of drug-related crime is causally related to a decrease in systemic homicides

H3: An increase in the amount of incapacitated drug offenders is causally related to a decrease in systemic homicides

H4: An increase in guardianship is causally related to a decrease in systemic homicides

3. Methodology

Chapter 2 reviewed general theories of crime and presented data gathered by other researchers concerning the occurrence of violent crime and systemic violence. This chapter describes how concepts were operationalized, how data was collected, and what methods were used to analyze the data.

3.1. Research techniques

The fact that systemic violence takes place in a criminal milieu makes research inherently difficult. Much crucial information about the drug trade in general, such as the exact size of the market, the amount of money involved and the means criminal organizations have at their disposal is very difficult to gather and verify. Statistics of systemic violence are also difficult to gather and compare, since researchers often have to rely on the quality, specificity and completeness of law enforcement documentation.

Many governments and agencies have slightly different criteria for the way in which homicides are recorded in statistics. In the Netherlands, law enforcement authorities (the police, public prosecutor and courts) do not collect national homicide statistics (Smit & Nieuwbeerta 2007, p.5). In order to rectify this, the Research and Documentation Center (WODC), which is associated with the Dutch Ministry of Safety and Justice, and the Netherlands Institute for the Study of Crime and Law Enforcement (NSCR) began collecting information about homicides in the Netherlands, the results of which were published in several reports since 2001 (Smit & Nieuwbeerta 2007). Leistra and Nieuwbeerta have since created a dataset, the Dutch Homicide Monitor (DHM), covering all homicides in the Netherlands between 1992 and 2001, about which they published a book in 2003. This dataset has since been expanded to cover all homicides until 2009 (Liem et al. 2012).

In order to further enable researchers to analyze homicide patterns through statistical means, it was imperative to create a harmonized method of data collection that allows researchers to compare trends across national borders. The European Homicide Monitor (EHM), covering the time period since 2009, is a dataset that aims to empower researchers to compare trends in multiple European countries by creating a dataset across boundaries using a single coding manual (Granath et al. 2011). While countries gather national crime statistics and cause-of-death statistics, comparison can be difficult due to different methodologies for the gathering of said national statistics (Smit et al. 2011). More detailed information about the

characteristics of these homicides is even more difficult to compare due to "legal and definitional differences" (Granath et al. 2011, p. 10).

The EHM is an attempt to solve these problems. Relevant to this research, it is the most recent comprehensive dataset about homicides in the Netherlands and it contains data points about the motive of homicide offenders, enabling the identification of drug-related homicide cases. The empirical part of my research will entail the collection empirical data about all completed homicides in the Netherlands in the year 2016 using the EHM coding manual, in order to be able to present the most recent data and to contribute to the dataset.

During this study, data was gathered on all completed homicides committed in the Netherlands during 2016 that have been reported to or otherwise investigated by the state. This data was added to the already existing EHM dataset, covering 2009-2015. This resulted in a dataset that included a total of 196 homicide incidents over 8 years. It was unfortunately not possible to combine data from the EHM with older datasets such as the DHM, since these datasets use different variables.

The data used to construct the 2016 dataset was collected from openly available sources, and collection in a SPSS dataset. The data was coded using the EHM coding scheme published in Granath et al. (2011). The data was gathered from online newspapers and other journalistic reporting on instances of homicide. Sources include the Dutch national press agency (ANP), the Elsevier Annual Report on homicide, reputable national newspapers such as Parool, NRC Handelsblad, Algemeen Dagblad, Volkskrant and Telegraaf, as well as regional news outlets. These are all secondary sources. Unfortunately, due to the incompleteness of journalistic reporting, the long list of indicators used in the EHM and of the fact that many police investigations and criminal cases are still ongoing, significant amounts of data points are missing or points subject to change. Only since only a relatively short amount of time has passed since the studied incidents have taken place, perpetrators may not have been found or arrested yet, prosecution may not have been started or may still be in progress, and verdicts may still be appealed and overturned. The results chapter will reflect on this. This also means that future actualization of the data may impact the results and conclusions of this study.

3.2. Operationalization of the dependent variable

The EHM, unfortunately, does not categorize homicide incidents specifically enough to exactly capture the population of crimes that are the subject of this study. The indicator that is used to distinguish systemic homicides is therefore only an approximation of the population. The cases in this study are identified by the categorization of homicides. All cases in the dataset with a motive ”related to the criminal milieu” were used in the analysis. Of course, not every homicide committed in the context of organized crime is *necessarily* related to the drug trade, as criminal organizations are also involved in other crimes and businesses. In the EHM, this categorization is not necessarily based on motive but on the context of the crime, as determined by the coders on the basis of the available documents, which in turn depend on the judgment of police investigators in the case of police or prosecutor documents, or on the interpretation of statements and press releases or personal investigation by journalists in the case of media sources.

This directly into the next limitation: The quality of input data. Due to the fact that a substantial amount of these crimes remain unsolved, the exact motives for many of these crimes remain unclear, and in many cases, the determination of the motive is the result of incomplete information gathered by the authorities. For example, when a drug dealer is killed, it is not always possible to prove whether that happened as a result of revenge or because his customer robbed him. The police will make a conclusion based on circumstances and by interviewing family, friends and associates of the victim. For this reason, the operationalization definition of a “systemic homicide” is an approximation of the type of homicides presented by Goldstein (1985). As a result, the sample includes all homicides that can be categorized as systemic violence, all homicides that are for other reasons categorized as homicides in the criminal milieu and some homicides that have been logged by the police as a homicide in the criminal milieu, but were in fact committed for economic-compulsive motives, or another reason entirely. Furthermore, it is reasonable to assume that some cases are missing because some victims have never been discovered.

3.3. Operationalization of independent variables

3.3.1. Deterrence of systemic violence

The concept of deterrence covers any policy that or sanction that increases either the height of the price an offender potentially has to pay for his crime, the chance that he will have to pay it, or the speed at which it is administered (Siegel 2011).

The EHM provides information about the number of systemic homicide cases that lead to a conviction, and about the severity of these punishments. Using this data, the clearance rate for homicides in any particular year can be derived. Since no data is available on the speed by which offenders are punished or on the severity of any other punishments perpetrators might receive, the clearance rate and the severity of punishment are the best available proxies for deterrence of systemic violence. The clearance rate is operationalized as "the percentage of reported systemic homicide cases in a given year that leads to a conviction". The severity of punishment is operationalized as "the average prison sentence length given for systemic homicides committed in a given year".

An additional issue presents itself when operationalizing the harshness of punishments: How does one operationalize a lifetime prison sentence when calculating averages? Due to the small sample size, it is undesirable to simply exclude these cases. On the other hand, the resulting number must reflect the fact that life sentences in the Netherlands are truly life sentences, and thus considerably more severe than the maximum of 30 years of prison for determinate sentences. I have therefore chosen to recode life sentences into 40 year sentences.

When testing the effects of deterrence on the systemic homicide rate, it is necessary to introduce a time lag into the model. Punishment for crimes does not occur instantly. Before a perpetrator is caught, prosecuted and sentenced, multiple years may follow. Therefore, potential offenders could not be deterred by punishments for homicides that happened in the same year they are contemplating their crime – the deterrent effect is simply not yet present. Ideally, the model would thus calculate the deterrent effects of punishments the moment they are administered, not at the moment the crime was committed. Unfortunately, the data available from the EHM is not specific enough to do this. Instead, an arbitrary delay in the effect of deterrence measures had to be chosen. Other studies (Miethe et al. 1991; Liem et al. 2012) have under such circumstances implemented a time lag of one year. In order to properly reflect on the effects of a time lag, the model's results are shown without a delay on deterrence effects, with a one year delay and with a two year delay.

3.3.2. Deterrence of drug-related crime

The second model is based on the assumption that if drug-related crime can be deterred, that deterrence should also have an effect on the systemic homicide rate. As both the victims and perpetrators of systemic violence are *by definition* engaged in the drug market, it is reasoned here that measures that discourage people from taking part in the drug market will limit the number of potential offenders and victims, and decrease number the opportunities during which they come into contact.

The options for operationalizing deterrence of regular drug-related crime were limited to the specificity of the information available through the governmental statistics office, Statistics Netherlands. It was not possible to operationalize the deterrent effect of asset seizures, as no accurate data concerning the amount of confiscated drugs are available. There is no national overview of drug seizures. While some law enforcement units do publish figures, others do not, and the quality of the numbers reported by some agencies varies. Therefore, it is impossible to derive an accurate picture (Jacobs et al. 2016). Statistics were available on the number of financial penalties given to individuals convicted of drug-related crimes, but no information was available on the severity of these penalties.

With this in mind, two proxies were chosen. The first proxy was the "percentage of drug offenses leading to a conviction in a given year", which was calculated by dividing the number of convictions for drug offenses by the number of registered drug offenses. This data is available from Statistics Netherlands (2016). The second chosen proxy for deterrence was the "percentage of financial penalties imposed on drug offenders", calculated by dividing the number of financial penalties for drug offenses by the number of registered drug offenses. Like in the previous model, these proxies were tested with delayed effects to control for the time that is needed to administer penalties.

3.3.3. Incapacitation

The operationalization of incapacitation effects is also contingent on information publicly available through Statistics Netherlands. Incapacitation could best be operationalized as the total number of drug offenders incapacitated at any one time, as this is the true population of incapacitated motivated offenders. However, this data is not available either. The best available proxy was the number of offenders convicted to prison sentences for drug offenses in any given year (Statistics Netherlands 2016). Again, no information was available about the severity of these sentences.

The incapacitation model also implements a delayed effect of incapacitation. As was mentioned before, it takes time before offenders are arrested and incapacitated, and more importantly, numbers of incapacitated offenders are registered by year. It is not mentioned whether an offender was arrested in January or in December. An offender incapacitated later in the year could conceivably have committed systemic violence earlier in the same year. In order to control for population growth, this number was recalculated into a rate, and operationalized as "the number of offenders per 100.000 capita imprisoned for drug-related offenses".

Therefore, it is again appropriate to test whether delayed effects improve the model's predictive value. As with the deterrence models, the results show the model's output without delayed effect and with either one or two year delays.

3.3.4. Guardianship

In the previous chapter, multiple methods of increasing guardianship were cited. Unfortunately, it is not methodologically feasible to relate most of these methods to national crime rates. No aggregated national statistics are available on private security guards or CCTV-cameras, and it is impossible to quantify street lighting or defensible space. However, it is possible to test whether the presence of police officers relates to crimes rates. Guardianship is thus operationalized as the amount of police officers nationwide with operational functions (as opposed to administrative duties) reported by the Dutch National Police, measured in Full Time Equivalents. Data on the active number of police officers is published in yearly reports on the National Police's website (Nationale Politie 2015, 2016). In order to account for population growth, this number was then recalculated into a rate, and is defined as "the number of operational police officers per 100.000 capita in FTE's".

3.4. Analysis

The purpose of this research is twofold: first, to map out the characteristics of incidents, offenders and victims of systemic homicides in the Netherlands between 2009 and 2016, and second, to test whether these findings can be explained using the Routine Activities Theory. After all data was coded using the EHM and analyzed using SPSS, a clearer about the characteristics of systemic homicide incidents emerged. Paragraphs 4.1. through 4.3 discuss these characteristics.

3.4.1. Statistical tests

In order to test if the proposed proxies indeed influenced the systemic homicide rate, each hypothesis was tested by entering all predictor values into linear regression analyses. This test was chosen because it is the appropriate statistical test for testing for causal relationships between ratio/interval-level dependent and independent variables. Paragraph 4.4 discusses the results of these tests.

3.4.2. Control variables

An extra control variable was added to all four models. Earlier studies have noted that crime rates may have a natural inclination to decline over time (Tonry 2010; Liem et al. 2012, Weerman et al. 2011). Adding the year to the model helps control for this possibility.

3.4.3. Testing assumptions

When using linear regression tests, it is imperative to test one's assumptions. Each of the four models was tested on outliers, collinearity of data, independent errors, random normal distribution of errors, homoscedasticity & linearity of data, and non-zero variances. None of the models failed any of the assumption tests.

Outliers

None of the models contained outliers (standardized residuals below -3.29 or above 3.29).

Collinearity of data

None of the models showed concerns over collinearity (VIF values above 4 or tolerance levels below 0.1)

Independent errors

Each model shows the residual terms are uncorrelated – no model shows a Durbin-Watson value above 3 or below 1.

Random normal distribution of errors

Histograms showed that values for none of the models were normally distributed, but the normal P-P plots showed that the data contained approximately normally distributed errors. Points were not completely on the line, but close. This can be probably be explained by the low sample size. As such, all models pass this assumption test.

Homoscedasticity and linearity

While scatterplots of standardized predicted values showed that all the models met the assumptions of homogeneity of variance and linearity, interpretation was somewhat problematic due to the low sample size.

Non-zero variances

All models met the assumption of non-zero variance.

3.4.4. Overview of hypotheses, proxies and sources.

Table 2: Hypotheses, proxies and data sources

Deterrence of drug violence		
H1: An increase of deterrence of systemic homicides is causally related to a decrease in systemic homicides		
Indicator	**Definition**	**Source**
Conviction rate for systemic homicides ($\boldsymbol{Y_{t-1}}$)	Percentage of systemic homicide cases leading to a prison sentence for systemic homicides	European Homicide Monitor
Harshness of sentencing ($\boldsymbol{Y_{t-1}}$)	Average length of prison sentences for systemic homicide offenders	European Homicide Monitor
Deterrence of drug-related crime		
H2: An increase of deterrence of drug-related crime is causally related to a decrease in systemic homicides		
Indicator	**Definition**	**Source**
Conviction rate for registered drug offenses ($\boldsymbol{Y_{t-1}}$)	Percentage of registered drug offenses leading to a conviction	Statistics Netherlands (2016)
Financial penalties imposed on drug offenders ($\boldsymbol{Y_{t-1}}$)	Percentage of drug offenses leading to financial penalties	Statistics Netherlands (2016)
Incapacitation of drug offenders		
H3: An increase in the amount of incapacitated drug offenders is causally related to a decrease in systemic homicides		
Indicator	**Definition**	**Source**
Number of incapacitated drug offenders ($\boldsymbol{Y_{t-1}}$)	Number of people who received a prison sentence for drug offenses per 100.000 capita	Statistics Netherlands (2016)
Guardianship		
H4: An increase in guardianship is causally related to a decrease in systemic homicides		
Indicator	**Definition**	**Source**
Police presence on the streets	Number of operational police officers in FTE's per 100.000 capita	National Police (2015, 2016)

4. Results

This chapter will discuss the gathered data in four categories. Paragraph 4.1. discusses the characteristics of the observed incidents of drug-related homicide, paragraph 4.2. presents the characteristics of the perpetrators in these incidents, and paragraph 4.3. discusses the characteristics of their victims. Finally, paragraph 4.4. presents measurements of the impact of the independent variables on the drug-related homicide rate. These measurements are used to answer the research question.

4.1. Incident characteristics

4.1.1. The number of homicides and systemic homicides

The EHM records 1076 homicides committed between 2009 and 2016 (table 3). Of these, a total of 196 homicides were categorized as homicides in the criminal milieu, a portion of 18.2% of total homicides. As can be seen in chart 1, the overall homicide rate has continued to decline during this period, dropping from 0,958 completed homicides per 100.000 capita in 2009 to 0,583 completed homicides per 100.000 capita in 2016. The number of homicides in the criminal milieu has, on the other hand, shown fluctuations, hitting a peak of 35 homicides or 25,7% of total homicides in 2013, and troughs of 16 homicides in 2010 and 17 homicides in 2016, a total of 9,9% and 17,2% of total homicides respectfully. While such fluctuations are to be expected based on the low number of total homicides in the criminal milieu, these numbers contrast against the secular decline in total homicides.

Table 3: Homicide rate and ratio of systemic homicides between 2009 and 2016

Year	**Population**[2]	**Number of homicide incidents**		**Homicide rate per 100.000 capita**		**Systemic homicides as % of total**
		All	Systemic	All	Systemic	
2009	16 485 787	158	24	0,958	0,146	15,2%
2010	16 574 989	162	16	0,977	0,097	9,9%
2011	16 655 799	143	25	0,859	0,150	17,5%
2012	16 730 348	135	20	0,807	0,120	14,8%
2013	16 779 575	136	35	0,811	0,209	25,7%
2014	16 829 289	133	32	0,790	0,190	24,1%
2015	16 900 726	110	27	0,651	0,160	24,6%
2016	16 979 120	99	17	0,583	0,100	17,2%
Total	-	1076	196	-	-	18,2%

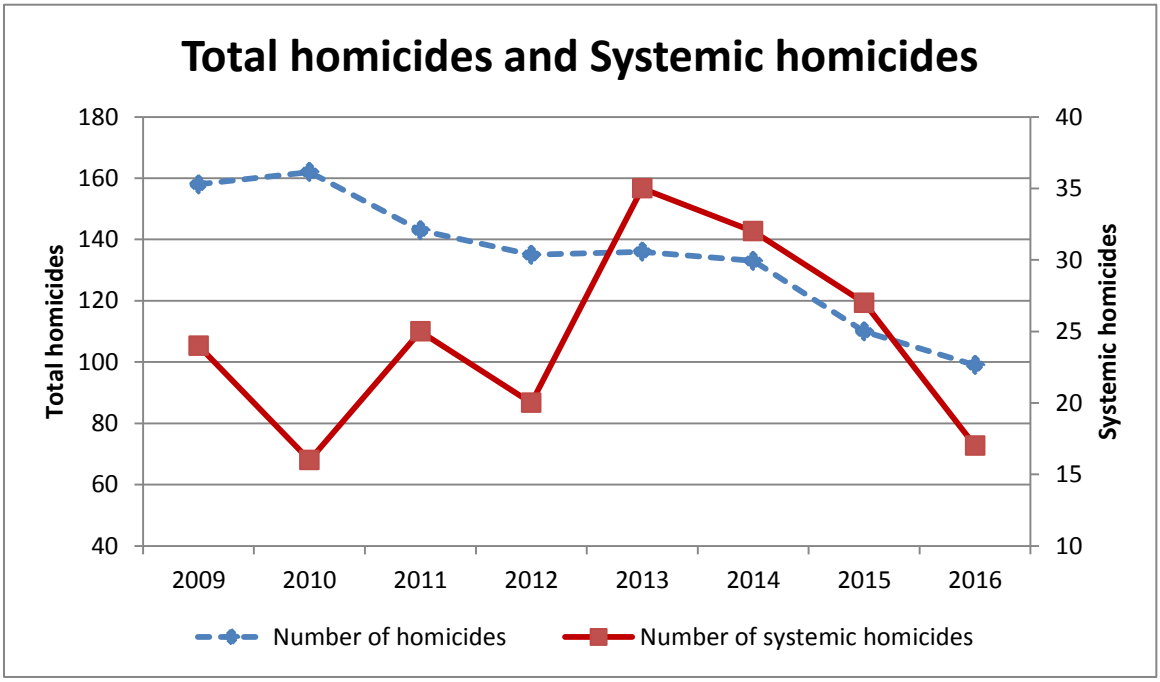


Chart 1: Frequency of homicides and systemic homicides between 2009 and 2016

4.1.2. Number of victims and perpetrators

As table 4 shows, a total of 208 persons were killed by systemic violence during the studied period. In most cases, a single individual was assassinated. In 6.1% of cases, two individuals were killed, but no incidents ended with more victims than two. The number of perpetrators is unclear, as there is simply not enough information available to determine the number of perpetrators for almost half of the homicide cases. For half of the cases in which a determination was possible, a single perpetrator was reported, and at least two perpetrators were reported for the other half of the incidents. This implies that many of these homicides were premeditated and well prepared, since the victims were often outnumbered by the perpetrators.

Table 4: Incidents by number of victims

Number of victims	Frequency	Valid % of total
Single victim	184	93,9%
Two victims	12	6,1%
Total	196	100%

Table 5: Incidents by number of perpetrators

Number of perpetrators	Frequency	Valid % of total
Single perpetrator	49	48,5%
Two perpetrators	33	32,7%
More than two perpetrators	19	18,8%
Subtotal	101	100%
Unknown	95	-
Total	196	100%

4.1.3. Location of incidents by urbanity

Homicides inside the G3 accounted for a large percentage (55.6%) of all systemic homicides during the studied time period. The sample size is too small to draw conclusions on a year-by-year basis, but it is clear that a disproportionate amount of crimes take place in these three cities as only 1.802.197 persons – 10,6% of the Dutch populations – lived in these cities as of 2016 (Statistics Netherlands 2017).

Table 6: Location of incidents by urbanity (excluding cases with unknown locations)

Year	Incidents inside G3	Incidents outside G3	% of cases in G3
2009	15	9	62,5%
2010	8	8	50%
2011	14	11	56%
2012	10	10	50%
2013	21	14	60%
2014	16	16	50%
2015	16	3	84%
2016	4	12	25%
Total	104	83	55,6%

Note: G3 refers to the 3 largest municipalities in The Netherlands: Amsterdam, The Hague and Rotterdam. 9 cases were excluded because the crime scene was unknown.

4.1.4. Location of crime scene

The data in table 6 reveals that around half (50.8%) of systemic homicides were committed on the street or some other public place. If one adds incidents in which the victim was killed while inside a vehicle to that number, one will conclude that at least two thirds of homicides took place in public spaces. One could speculate that these locations were chosen because they are easily observable by perpetrators when planning their attack, and because these locations are less defensible from the victim's point of view. Another 24% of incidents took place in the private home of the victim, the perpetrator or someone else.

Table 7: Location of incidents by crime scene type

Crime scene	Frequency	Valid % of total
Private home	44	24,0%
Inside vehicle	29	14,8%
Shop, restaurant, or other place of entertainment	11	5,6%
Street, road, public transportation or other public place	93	50,8%
Other	6	3,3%
Subtotal	183	100%
Unknown	13	-
Total	196	100%

4.1.5. Time of day

Most systemic homicides were committed during the evening, closely followed by incidents at night (table 7). By far the least homicides were committed during the morning. Clearly, the perpetrators prefer to act under the cover of darkness, as this way their chances of being caught are lower.

Table 8: Incidents by time of day categories

Time of day	Frequency	Valid % of total
Night (0:00 - 6:00)	44	31,2%
Morning (6:00 – 12:00)	11	7,8%
Afternoon (12:00 – 18:00)	32	22,7%
Evening (18:00 – 0:00)	54	38,3%
Subtotal	141	100%
Unknown	55	-
Total	196	100%

4.1.6. Method of violence

Another indication of the premeditated nature of systemic homicides is revealed in table 8. By far most of the systemic homicides during the studied period were committed using firearms, and a further 9.7% were committed using knives or other sharp objects. Particularly the number of firearms used is, needless to say, is far higher than the percentage of firearms used in the total population of homicide incidents (which is 29.4%). One can, again, infer from this fact that either these homicides were carefully planned or that people engaged in the drug trade expect violence and carry illegal firearms for safety. Furthermore, one can conclude that since firearms were the weapon of choice, organized criminals have had little trouble acquiring firearms.

Table 9: Incidents by type of weapon or violence used

Type of weapon / violence	Frequency	Valid % of total
Firearm	155	79,1%
Knife or other sharp object/weapon	19	9,7%
Physical violence	6	3,3%
Other	1	0,6%
Subtotal	181	100%
Unknown	15	-
Total	196	100%

Note: Many categories will probably be removed or combined due to prevalence of firearm homicides

4.1.7. Prosecution and sanctioning of perpetrators

Homicides in the criminal milieu have proven very difficult for authorities to solve. Of the studied cases, 31,6% have led to a prosecution, and in only 27,6% of cases, one or more perpetrators have been sentenced for homicide – in contrast to prosecution in 60,78% and convictions with prison sentences and/or psychiatrical care in 55,76% of total homicide cases. Do note that all of the above statistics are still subject to change as some investigations and prosecutions are still ongoing, the police have yet to arrest the suspects, or data may still be missing from the dataset.

Table 10: Number of perpetrators of systemic homicides prosecuted and convicted for homicide or manslaughter

Year	Number of homicide cases	Number of cases leading to prosecution	% of total cases	Number of cases leading to sentence for homicide	% of total cases
2009	24	9	37,5%	6	25,0%
2010	16	4	25,0%	4	25,0%
2011	25	12	48,0%	11	44,0%
2012	20	10	50,0%	10	50,0%
2013	35	15	42,9%	13	34,1%
2014	32	6	18,8%	6	18,8%
2015	27	3	11,1%	3	11,1%
2016	17	3	17,6%	1	5,9%
Total	196	62	31,6%	54	27,6%

Note: "prosecution" only includes incidents where the perpetrator was prosecuted for murder/homicide

4.1.8. Severity of sentencing of perpetrators

Taking all the previous data together, a clear picture begins to emerge. Systemic homicides are often carried out with ruthless violence in public areas, and are likely to be premeditated attacks. It is not surprising then, that the average length of sentences received for principal perpetrators in these incidents is high: 13.1 years in prison on average, as shown in table 10. The average sentences for homicides carried out during 2014 and 2015 were marginally less severe than those for homicides in previous years, any inferences from this fact would be tenuous, as only 9 principal perpetrators were sentenced during 2014 and 2015.

Table 11: Average prison sentence length of convicted principal perpetrators by year in which homicide was committed

Year	**N of principal perpetrators that received determinate sentences**[3]	**Average length of determinate sentences in years**
2009	6	12,7
2010	4	13,0
2011	11	14,0
2012	9	15,2
2013	13	12,5
2014	6	10,5
2015	3	9,7
2016	1	20,0
Total	58	13,1

[3] Sentence length of one case in 2012 was unknown and thus excluded

4.2. Perpetrator characteristics

4.2.1. Gender of perpetrators

Men have been identified as the principal offender in 96.2% of systemic homicide cases. I conclude that they are thus overrepresented in these cases, even when keeping in mind that men are the principal offender in 90,5% of total homicides (table 11).

Table 12: Distribution of perpetrators of systemic homicides by gender

Gender of perpetrators	Frequency	Valid % of total
Male	205	96,2%
Female	8	3,8%
Subtotal	213	100%
Unknown	88	
Total	301	100%

4.2.2. Age category of perpetrators

The results in table 12 show that a large number (56.8%) of systemic homicides were carried out by people aged 25-39 at the time of the incident (table 12). Three homicides were carried out by minors, and 2 homicides by people above retirement age, the oldest of which was 70 years old. The average age of perpetrators was 36.9 years.

Table 13: Distribution of perpetrators at the time of the crime by age category

Age category	Frequency	Valid % of total
0-17	3	1,6%
18-24	38	20,8%
25-39	104	56,8%
40-64	36	19,7%
65+	2	1,1%
Subtotal	183	100%
Unknown	118	
Total	301	100%

4.2.3. Country of birth of perpetrators

Unfortunately, the dataset does not reveal much about the nationality of perpetrators due to the large amount of unknown data points. This represents the fact that in many cases, the nationality of perpetrators was not mentioned in the studied documents, especially when the perpetrators were Dutch. Presumably, the proportion of Dutch offenders would be larger than shown in table 13.

Table 14: Distribution of perpetrators by country of birth

Nationality	**Frequency**	**Valid % of total**
The Netherlands	2	6,1%
Other European	17	53,1%
Turkey	5	15,6%
Africa	3	9,4%
Suriname and Dutch Antilles	1	3,1%
Other	4	12,5%
Subtotal	32	100%
Unknown	269	
Total	301	100%

4.3. Victim characteristics

4.3.1. Gender of victims

Among the victims of systemic homicides, as with the perpetrators, men are greatly overrepresented. It is safe to say that the criminal underworld is mostly a men's world. Interestingly, the percentage of female victims and perpetrators is similar, just under 5%.

Table 15: Distribution of victims of systemic homicides by gender

Gender of victims	Frequency	Valid % of total
Male	199	95,7%
Female	9	4,3%
Total	208	100%

4.3.2. Age category of victims

The age category of victims (table 15) also shows many similarities to those of perpetrators. The age category 25-39 covers almost half of the victims. The amount of victims aged 18-24 is lower than among perpetrators however (12.6% compared to 20.8%), while the amount of victims aged 40-64 is higher (35.9% compared to 19.7%). The average age of the victims was 36.5 years.

Table 16: Distribution of victims at the time of the crime by age category

Age category	Frequency	Valid % of total
0-17	2	1,0%
18-24	26	12,6%
25-39	102	49,5%
40-64	74	35,9%
65+	2	1,0%
Subtotal	208	100%
Unknown	2	
Total	208	100%

4.3.3. Country of birth of victims

Fortunately, more information is available about the country of birth of victims (table 16) than about those of perpetrators. Here we see that around a quarter of identified victims were born Dutch. Minorities, especially Turks (20,6%), Moroccans (20%), Dutch Antilleans (6%) and Surinamese (6%) were overrepresented in these statistics: first generation immigrants from Turkey accounted for 1,1% of the Dutch population on January 1st 2016, while Moroccans, Dutch Antilleans and Surinamese accounted for 1%, 0,88% and 1,04% of the Dutch

population respectively (Statistics Netherlands 2016). These observations mirror the findings of Aebi & Linde (2010) and Klein et al. (2006).

Table 17: Distribution of victims by country of birth

Nationality	**Frequency**	**Valid % of total**
The Netherlands	41	24,8%
Other European	23	13,9%
Turkey	34	20,6%
Africa	38	18,2%
Suriname and Dutch Antilles	20	12,0%
Other	9	5,5%
Subtotal	165	100%
Unknown	43	
Total	208	100%

4.4. Explanatory value of Routine Activities Theory

4.4.1. Model 1: The effect of the deterrence of systemic homicides

The expectations for model 1 are that increases in conviction rates and severity of punishments have an inverse relationship with the systemic homicide rate. As shown in chart 4, systemic homicide convictions reached a small peak in the years 2011-2012, and dropped significantly in more recent years. This is misleading though: investigations and/or court proceedings may still be ongoing for these later years. Even when we correct for this by excluding the last two years and/or introducing a time lag of two years, no significant statistical relationship could be found in the regression test. Prison sentence length may on face value seem to show a possible inverse relationship with the systemic homicide rate, but such an interpretation would not take account of the delayed effect of deterrence measures.

The regression analysis did not find a statistically significant relationship between the independent variables and the systemic homicide. While the model has a very high goodness of fit, the control variable (year) was the only statistically significant predictor of the systemic homicide rate. Adjusting the used time lag on deterrent effects to either 0 year or 2 years did not improve the predictive value of the model: Without a time lag, the clearance rate had a sig-value of 0,835 and the severity of sentences had a sig-value of 0,325, and with a 2 year time lag, the clearance rate had a sig-value of 0,939 and the severity of sentences had a sig-value of 0,602. On the basis of this data, hypothesis 1 must be rejected.

Table 19: Results of regression analysis on the relationship between "Deterrence of drug violence" and Systemic homicide rate (per 100.000 capita)

	B	**SE**	**Sig**
Model 1: Deterrence of systemic homicides			
Conviction rate for systemic homicides ($\boldsymbol{Y_{t-1}}$)	0,008	0,006	0,290
Harshness of sentencing ($\boldsymbol{Y_{t-1}}$)	-0,006	0,016	0,739
Adjusted $\boldsymbol{R^2}$	0,949		

Chart 2: Systemic homicide rate (per 100.000 capita) and conviction rate (percentage of homicide cases closed with a conviction for homicide or manslaughter)

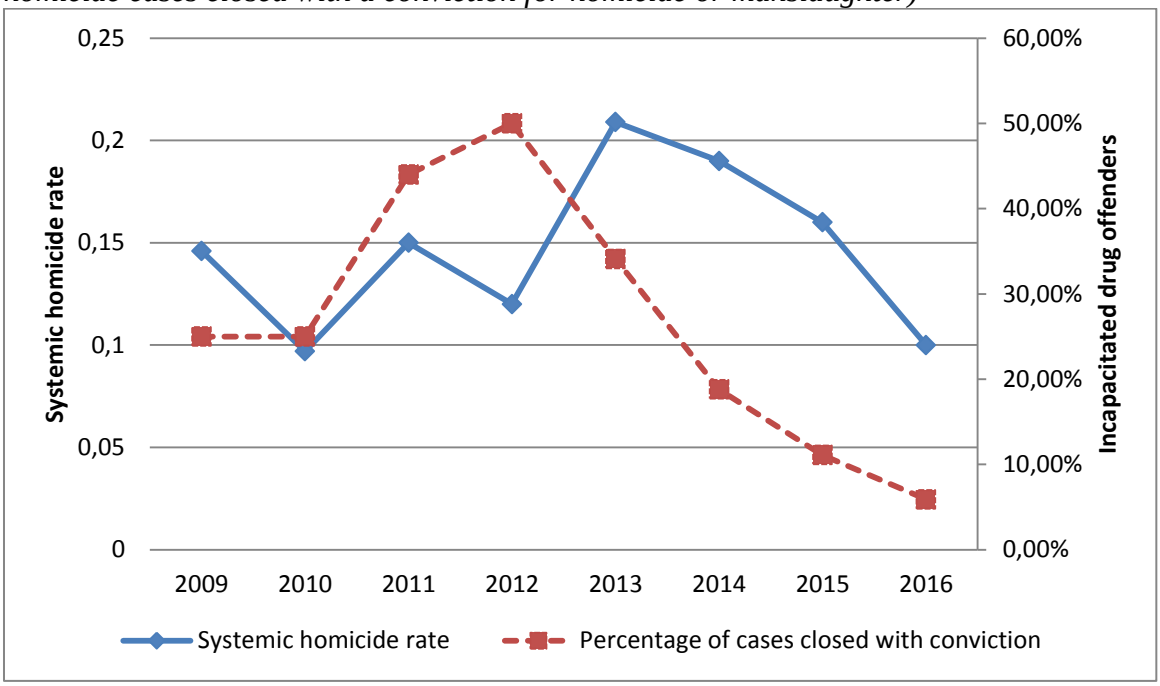
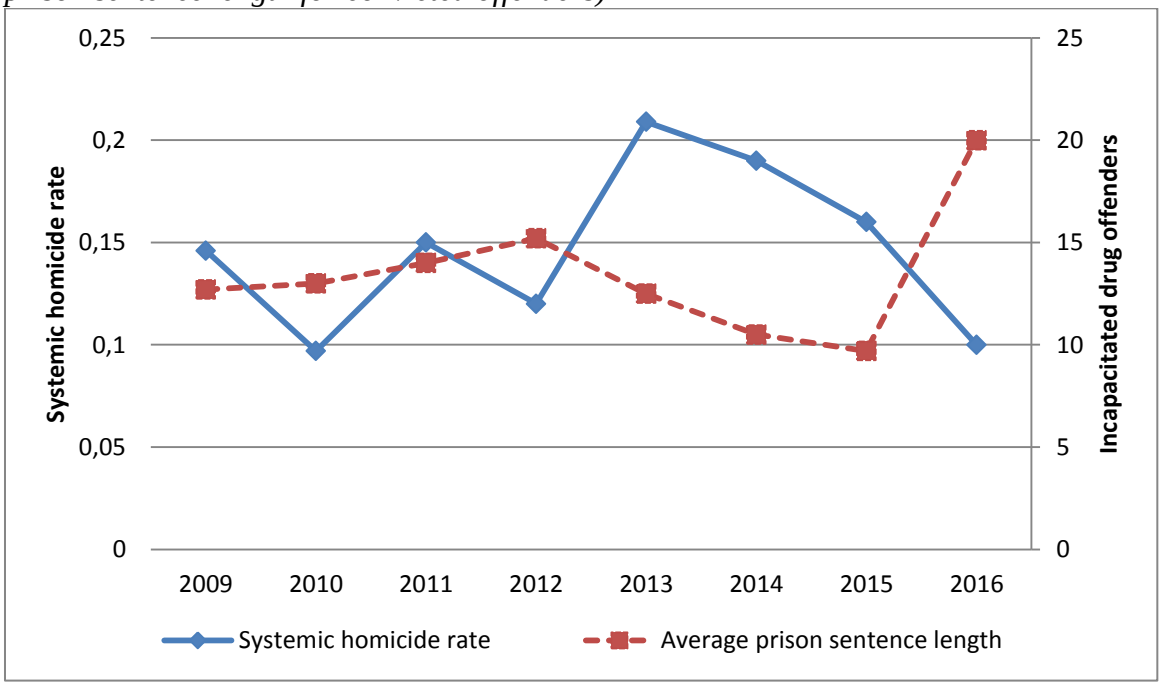


Chart 3: Systemic homicide rate (per 100.000 capita) and harshness of sanctioning (average prison sentence length for convicted offenders)



Note: The huge spike in 2016 consists of a single case that led to a far-above-average length sentence. This outlier is, however, not included in the regression test due to the time lag of 1 year.

4.4.3. Model 2: The effect of general deterrence of drug offenses

Hypothesis 2 expects that the deterrence of total drug offenses has a negative relationship with the systemic homicide rate. As table 20 shows, the total number of registered drug offenses in the Netherlands has shown a steady decline since 2007, declining by 19% over this period. Meanwhile, the rate at which perpetrators were convicted did not change significantly, fluctuating around 40-41% of convictions for total registered drug offenses, with an outlier in 2014. Meanwhile, financial penalties for drug offenses, which theoretically reduce the attractiveness of crime, have also decreased by 36% over the period 2007-2013 (chart 4).

Model two also shows only a significant correlation between financial penalties and the systemic homicide rate. However, once the year is added as a control variable, the significance level drops to 0,367. When the time lag is removed, the significance value of financial penalties is 0,362 and the significance value of drug convictions is 0,463. Hypothesis 2 must be rejected.

Table 20: Chance of being convicted for drug offenses (convictions as a percentage of total registered drug offenses, soft drugs and hard drugs combined)

Year	Registered drug offenses	Convictions for drug-related offenses	Percentage of convictions
2007	19560	7.918	40,5%
2008	18875	7.881	41,8%
2009	18580	7.480	40,3%
2010	17355	6.717	38,7%
2011	16705	6.719	40,2%
2012	16620	6.690	40,3%
2013	16425	6.940	42,3%
2014	15845	7.229	45,6%
2015	?	7.653	?
2016	?	?	?

Table 21: Chance of receiving a financial penalty for drug offenses (penalties as a percentage of total registered drug offenses, soft drugs and hard drugs combined)

Year	Registered drug offenses	Convictions for drug-related offenses	Percentage of penalties
2007	19560	1488	7,61%
2008	18875	1454	7,70%
2009	18580	1273	6,85%
2010	17355	1154	6,65%
2011	16705	986	5,90%
2012	16620	974	5,86%
2013	16425	824	5,02%
2014	15845	884	5,58%
2015	?	?	?
2016	?	?	?

Chart 4: Systemic homicide rate (per 100.000 capita) and financial penalties imposed by judges after convictions for drug-related offenses

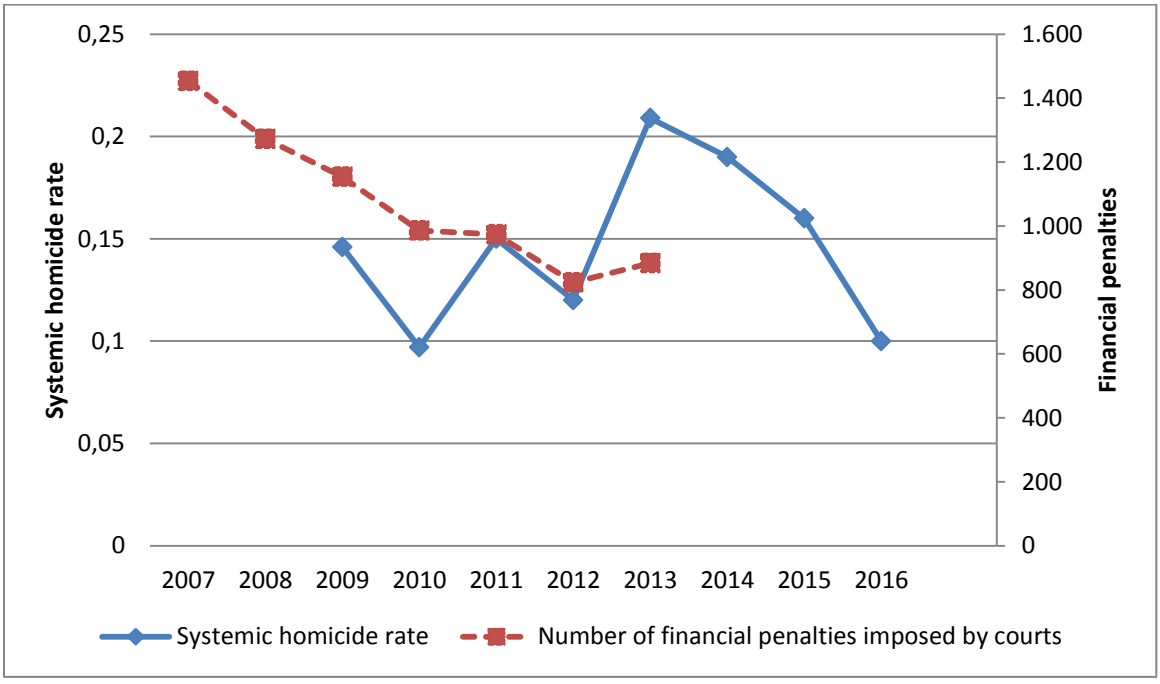


Table 22: Results of regression analysis on the relationship between "Deterrence of drug-related crime" and Systemic homicide rate (per 100.000 capita)

	B	SE	Sig.
Model 2: Deterrence of drug-related crime			
Conviction rate for registered drug offenses (Y_{t-1})	-0,008	0,008	0,417
Financial penalties imposed on drug offenders (Y_{t-1})	0,060	0,012	0,007
Adjusted R^2	0,876		

4.4.3. Model 3: The effect of the incapacitation of drug offenders

The third hypothesis posits that since incarcerated drug offenders cannot commit homicides, the amount of offenders incarcerated for drug offenses should relate negatively with the systemic homicide rate. Chart 7 shows a clear, steady decline in prison sentences for drug offenders, and reveals no obvious connection to the systemic homicide rate was found, regardless of time lags imposed in the data. As Table 23 shows, the relationship was statistically significant. However, once the year was added as a control variable, the significance level of incapacitation dropped to 0,635, indicating that incapacitation is not a good predictor for the systemic homicide rate. Hypothesis 4 must also be rejected.

Chart 5: Systemic homicide rate (per 100.000 capita) and number of offenders incarcerated for drug-related offenses

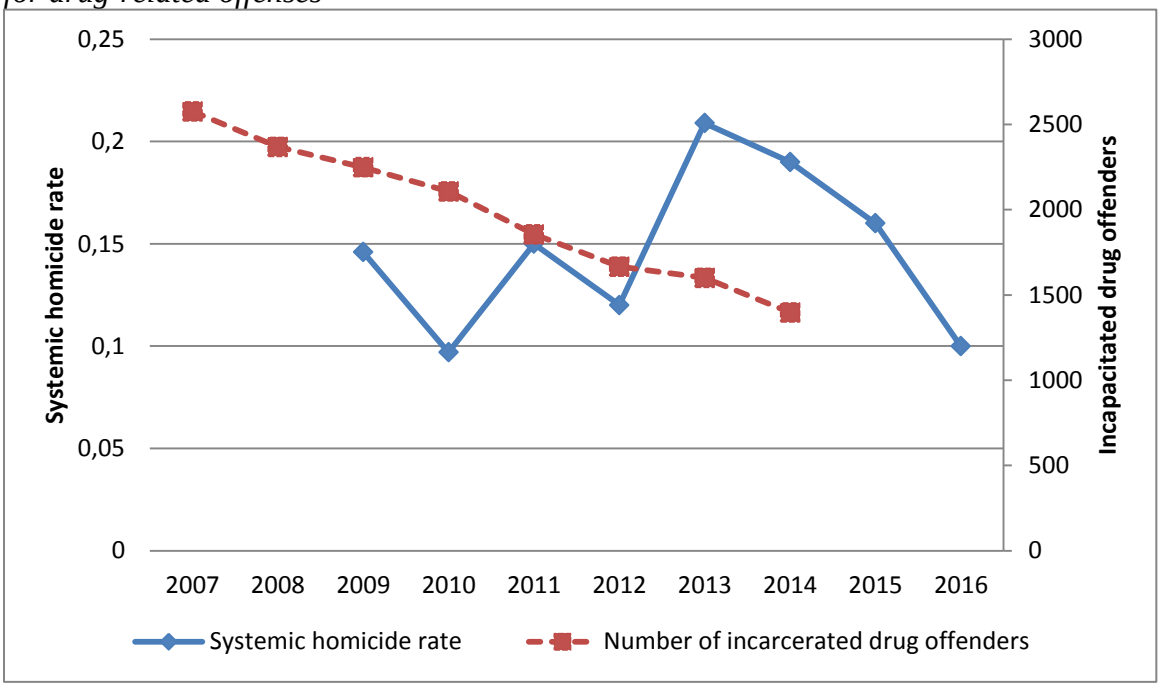


Table 23: Results of regression analysis on the relationship between "Incapacitation of drug offenders per 100.000 capita" and Systemic homicide rate (per 100.000 capita)

	B	SE	Sig.
Model 3: Incapacitation of drug offenders			
Number of incapacitated drug offenders (X_{t-1})	0,053	0,008	0,001
Adjusted R^2	0,880		

4.4.4. Model 4: The effects of guardianship on the systemic homicide rate

Hypothesis 4 suggests that extra police presence on the streets leads to increased guardianship, which reduces the systemic homicide rate. Chart 6 shows an unexpected trend: In years when the police grew (slightly) in operational capacity, systemic homicides rose. One should immediately caution that fluctuations in police force strength have been rather minimal. Either way, the model shows no relationship at all between the systemic homicide rate and the operational strength of the Dutch police force. Hypothesis 4 is also rejected.

Chart 6: Systemic homicide rate (per 100.000 capita) and number of operational police officer in FTE's

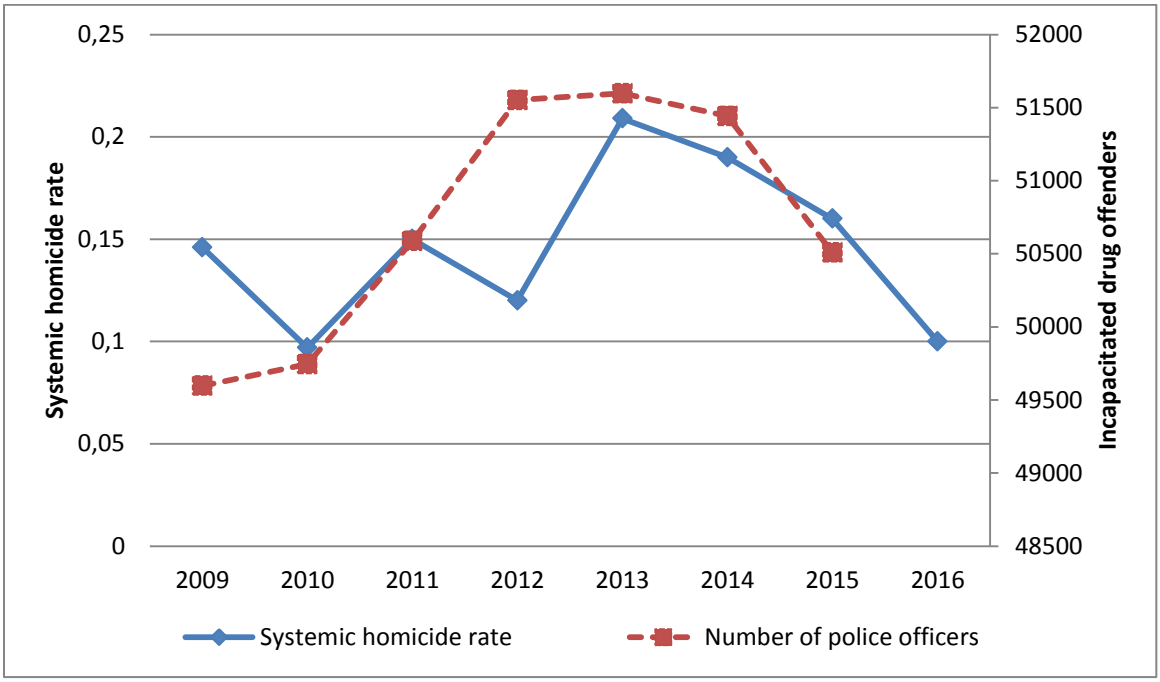


Table 24: Results of regression analysis on the relationship between "Number of operational police officers per 100.000 capita in FTE's" and Systemic homicide rate (per 100.000 capita)

	B	SE	Sig.
Model 4: Guardianship			
Number of operational police officers per 100.000 capita in FTE's	-0,003	0,013	0,814
Adjusted R^2	-0,185		

5. Conclusion

This thesis studied the nature and frequency of systemic drug-related homicides in the Netherlands in the period 2009-2016, and tested how well the findings could be explained using hypotheses based on the Routine Activities Theory. The results revealed several things about the nature of these homicides.

Both the overall homicides rate and the systemic homicide rate showed a secular decline in the studied time period. While the systemic homicide rate shows sudden fluctuations, this is not out of the ordinary considering the sample size. Most incidents involved a single victim, while slightly over half of the incidents had two or more perpetrators. These crimes occurred in the G3 cities (Amsterdam, Rotterdam and Utrecht) far more often than would be expected based on random chance. Roughly half of the incidents took place in public places, a quarter took place inside a private home, and a further 15% took place inside a vehicle. Most incidents took place during either the night or the evening, presumably under the cover of darkness. On average, 27.6% of homicide cases ended with the principal perpetrator being sentenced for homicide or manslaughter. They received average jail sentences of 13.1 years.

Both the perpetrators and victims were overwhelmingly male (96.2% of perpetrators, 95.7% of victims). The average age of perpetrators was 36.9 years, while victims were on average 36.5 years old at the time of the crime. Minorities, particularly people of Moroccan, Turkish, Dutch Antillean and Surinamese descent, were overrepresented in victim statistics. Unfortunately, no conclusions could be drawn about the descent of the perpetrators due to missing data.

In the end, all of the hypotheses of this study were rejected. Models 1 and 2, which studied the effects of deterrence measures, found no statistically significant relationships between deterrence and the systemic homicide rate once a control variable was added to the model. Models 3 and 4, which tested the effects of incapacitation and police presence on the systemic homicide rate, found no significant relationships at all. Therefore, all hypotheses were rejected. While this does not prove that the Routine Activities Theory does not apply to this specific type of crime (see paragraph 6.3. on shortcomings), it does indicate that the variables used in this study do not constitute a good model of systemic violence.

6. Discussion

6.1. Findings and theoretical implications

Unfortunately, based on these findings, it is difficult to authoritatively improve on current theory. The most important reason for this is that no clear trend in the occurrence of systemic homicides in the Netherlands due to the extremely limited sample size. If speculations on theoretical implications were to be made on the basis of these findings, they would be the following:

This study found no impact of deterrence or incapacitation measures on the systemic homicide rate. This corroborates findings by others who found that incremental changes in punishments or clearance rates do not show an immediate effect on crime rates (Stevens et al. 2005; Tonry 2004). Neither deterrence measures designed to decrease systemic violence directly or those designed to discourage people from entering the drug trade seem to affect the systemic homicide rate.

The findings also did not corroborate the hypothesis that the number of incarcerated drug dealers had an effect on the systemic homicide rate. While authors like Spelman (2008) and Levitt (2004) did find slight effects of incapacitation on crime rates, the decrease in drug incarcerations in the Netherlands in the studied period did not result in a measured increase in systemic homicides.

There was also no indication that the number of operational police officers had any impact on the systemic homicide rate. This conflicts with findings by Moody (1996) and Levitt (1997) who reported negative relationships between the number of police officers in cities and crime rates. Therefore, it seems that the impact of guardianship does not apply equally to all types of crime. Since the drug trade usually takes place out of public view, increased guardianship may simply have a displacement effect on systemic violence.

To conclude, it seems that the models used in this study are not suitable to explain the nature and frequency of systemic violence in the Netherlands based on the limited data available. This does not *necessarily* mean that RAT cannot explain patterns in systemic violence. The most important thesis of the theory states that the routine activities of potential victims influence their chance of being victimized (Cohen & Felson 1979). This thesis could not be tested in a methodologically sound way with the data available..

6.2. Policy implications

The main policy implication of this study is that if policymakers want to reduce systemic violence, harsh policies are not recommended. Deterrence measures on drug offenses or committed systemic homicides had no detected effect on the systemic homicide rate. Furthermore, the decrease in prison sentences given to drug offenders had no aggravating effect on systemic homicides. So, when considering harsh punishments, policymakers should only consider different policy objectives. If policymakers do want to decrease systemic violence, they should look at other measures suggested by the literature: Undermining the financial viability of crime syndicates (Stevens 2006) and selective arrests of particularly violent drug dealers are promising policy options (Snyder & Duran-Martinez 2009).

6.3. Shortcomings

On the basis of the methodology and methods chosen for this research project, one could expect valid results. There were however, key limitations to the internal validity of the study, related to the size of the data set, the quality of data and the proxies that were chosen as independent variables.

First of all, the quality of the data was limited methodologically because of the intrinsic difficulty of studying homicides. The illicit nature of crime in general and homicide in particular ensure that researchers often have to rely on incomplete data or secondary sources. Classification of crimes into categories (including systemic violence) is difficult because criminal activities are often interwoven, many offenders are never caught, and when they are, they might not feel inclined to explain their actions. Any classification that is made will thus be based on at least a few assumptions. The data in the EHM is derived from media sources, police files and court filings. These documents are in turn based on police investigations and statements by offenders, witnesses and/or family members. The police are not omniscient, and others may misrepresent or misremember facts. Furthermore, a large amount of variables in the EHM go underreported, particularly when offenders are concerned, as not all information researchers might be interested in are collected in the studied documents. These realities ensure that substantial amounts of data points in the data set will be missing or wrong, and these missing values are unlikely to be randomly distributed. Finally, data in the EHM is subject to change pending new developments in investigations,

court cases or court appeals. This means that the input data for particularly the most recent years in subject to considerable change in the future.

This study was also limited in the way the independent variables were operationalized. The concepts derived from the Routine Activities Theory had to be operationalized in a less than ideal way due to the limited amount of categories of openly available national statistics, as described in the paragraph on independent variables. The concepts of deterrence and incapacitation were operationalized using the limited data available from the website of Statistics Netherlands. Additionally, I would have preferred to test an extra hypothesis related to crypto markets, but unfortunately this was not possible since no reliable data was available.

The external validity of this research is also moderate. No sampling was used (as all homicide cases were included), so the representativeness of the selected cases is not in question. In fact, comparison of trends was one of the main goals of the EHM (Granath et al. 2011). This is to say that the findings about the nature and trends of systemic homicides in the Netherlands can very well be compared to those in other European countries using the EHM. On the other hand, the answer to the RQ will be less externally valid. Crime is a social phenomenon, and many factors contributing to it are yet poorly understood. Trends between countries and in countries over time vary widely, as was for example shown by Eisner (2008) and Granath et al. (2011). Therefore, it is unlikely that the results of this study can be generalized to other countries.

6.4. Suggestions for future research

Future research on systemic violence could focus on either improving the quality of input data, on testing different theories, or on comparing findings across different countries.

The quality of input data is limited by the size of the available data set and the amount of concepts that can be operationalized with the available national statistics. If the EHM dataset continues to be expanded in future years, it will be possible to present more significant statistical results. Using new data to find better proxies to test concepts such as deterrence and incapacitation will also go a long way towards refining criminological theory and toward reviewing the efficacy of justice policy. One promising concept that could not be tested was the impact of the introduction of crypto markets on drug market violence.

Furthermore, statistics about the characteristics of incidents, perpetrators and victims could be compared across countries collecting data for the EHM. Comparing results among countries would go a long way towards forming a better understanding of who exactly

engages in systemic violence and why, and could be used to create more specific typologies of offenders. A broader sample size of countries could also help test hypotheses about the interaction between economic factors, social factors, law enforcement activity or judicial policy and systemic violence rates.

The only statistical source available on how Dutch consumers acquire their drugs (the Global Drug Survey) is collected using a website through which respondents can sign themselves up. This method leads to statistically biased results. Future research into Dutch drug consumer behavior could focus on gathering reliable data. Another hypothesis that could not be tested due to limited information was the effect that guardianship had on systemic violence. Since a large percentage of systemic homicides took place in public areas, I hypothesized that an increase in police presence or surveillance cameras in the streets would help deter crime. However, no public statistics were available that could be used to test this hypothesis.

Finally, comparison across European borders could provide a more comprehensive view of systemic violence. The EHM was designed to facilitate cross-border comparison of data, and systemic violence is certainly a field of research that could benefit from this. The drug trade is, after all, a global business, and findings in one country might very well apply in others. Therefore, comparison of findings is a crucial step towards formulating new models of systemic violence. A logical first step would be to compare this study's findings on the effects of economic opportunity, deterrence and incapacitation on systemic homicides in the Netherlands to findings in other countries.

7. References

Aebi, M.F. (2004). Crime trends in Western Europe from 1995 to 2000. *European journal on criminal policy and research*, 10 (2-3), 163-186.

Aebi, M.F. & Linde, A. (2010). Is There a Crime Drop in Western Europe? *European Journal on Criminal Policy and Research*, 16, 251-277.

Aebi, M.F. & Linde, A. (2014). The persistence of lifestyles: Rates and correlates of homicide in Western Europe from 1960 to 2010. *European Journal of Criminology*, 11 (5), 552-577.

Agnew, R. (1992). Foundation for a General Strain Theory of Crime and Delinquency. *Criminology*, 30, 47–87.

Agnew, R. (2002). Experienced, Vicarious, and Anticipated Strain: An Exploratory Study on Physical Victimization and Delinquency, *Justice Quarterly*, 19, 603–633.

Agnew, R. (1999). A general strain theory of community differences in crime rates. *Journal of Research in Crime and Delinquency*, 36, 123– 155.

Bandura, A. (1963). *Social learning and personality development*. New York: Holt, Rinehart, and Winston.

Bandura, A. (1977). *Social Learning Theory*. Oxford, England: Prentice-Hall.

Barratt, M.J., Ferris, J.A. & Winstock, A.R. (2016). Safer Scoring? Cryptomarkets, Social supply and drug market violence. *International Journal of Drug Policy*, 35, 24-31.

Bless, R. (2001). *3rd Multi-city study, Drug use trends in 42 European cities in the 1990s*. Strassbourg: Pompidou Group.

Blumstein, A. and Cork, D. (1996). Linking gun availability to youth gun violence. *Law and Contemporary Problems*, 59, 5–24.

Bryman, A. (2012). Social Research Methods (4th ed). Oxford: Oxford University Press.

Byrne, J. & Sampson, R. (Eds.). (1985). *The Social Ecology of Crime*. New York: Springer Verlag.

Calderón, G., Robles, G., Diaz-Cayeros, A. & Magaloni, B. (2015). The Beheading of Criminal Organizations and the Dynamics of Violence in Mexico. *Journal of Conflict Resolution*, 59 (8), 1455-1485.

Corzine, J. (2011). Theories of Homicide. *Homicide studies*, 15 (4), 315-318.

Curtis, R. & Wendel, T. (2007). "You're Always Training the Dog: Strategic Interventions to Reconfigure Drug Markets. *Journal of Drug Issue*, 867-891.

Cussen, M., & Block, W. (2000). Legalize drugs now! An analysis of the benefits of legalized drugs. *American Journal of Economics and Sociology*, 59, 525-536.

Desroches, F. (2007). Research on Upper Level Drug Trafficking: A Review. *Journal of Drug Issues*, 828-844.

Dijkhoff, K.H.D.M. (2016). Stand van zaken uitwerking wijzigingen tenuitvoerlegging van de levenslange gevangenisstraf [Letter of government]. Retrieved from: https://www.rijksoverheid.nl/documenten/kamerstukken/2016/06/02/kamerbrief-over-wijzigingen-in-de-tenuitvoerlegging-van-de-levenslange-gevangenisstrafDorn, N., Lutz, O., & White, S. (*1998).* Drugs importation and the bifurcation of risk. *The British Journal of Criminology, 38, 537-560.*

Duyne, P. C. (1996). The phantom and threat of organized crime. Crime, Law, and Social Change, 24, 341-377.

Eisner, M. (2008). Modernity Strikes Back? A Historical Perspective on the Latest Increase in Interpersonal Violence (1960-1990). *International Journal of Conflict and Violence*, 2 (2), 288-316.

Elgar, F.J. & Aitken, N. (2011). Income inequality, trust and homicide in 33 countries. *European Journal of Public Health*, 21 (2), 241-246.

EMCDDA (2007). *Drugs in beeld. Drugs en criminaliteit – Een complexe relatie*. Luxembourg: Office for Official Publications of the European Communities.

EMCDDA (2016). European Drug Report: Trends and developments. Retrieved from: http://www.emcdda.europa.eu/publications/edr/trends-developments/2016

Ester, T.J. & Driessen, F.M.H.M. (2009). Drugsgerelateerde criminaliteit in Nederland in vergelijking met enkele West-Europese landen en de VS. Retrieved from: https://www.wodc.nl/onderzoeksdatabase/drugsgerelateerde-criminaliteit.aspx

Fagan, J. (1990). Intoxication and aggression. In M. Tonry and J.Q. Wilson (eds.), *Drugs and crime, vol. 13 of Crime and justice: A review of research*, 241–320. Chicago: University of Chicago Press.

Fajnzylber, P., Lederman, D. & Loayza, N. (2002). What causes violent crime? *European Economic Review*, 46, 1323-1357.

Felson, M., & Clarke, R.V. (1998). Opportunity Makes the Thief: Practical theory for crime prevention. *Police Research Series*, Paper 98. London: Home Office.

Frankenhuis, G. & Van der Graaf , J. (2015, October 17). Leider motorclub No Surrender vermoord. *De Telegraaf*. Retrieved from: http://www.telegraaf.nl/binnenland/24629522/__Leider_No_Surrender_dood__.html

Granath, S., Hagstedt, J., Kivivuori, J., Lehti, M., Ganpat, S., Liem, M.C.A. and Nieuwbeerta, P. (2012). Homicide in Finland, the Netherlands and Sweden: A First Study on the European Homicide Monitor Data. Retrieved from: http://media.leidenuniv.nl/legacy/research-report-finland-sweden-homicide-2011.pdf

Goldstein, P.J. (1985). The Drugs/Violence Nexus: A Tripartite Conceptual Framework. *Journal of Drug Issues* 39, 143-174.

Goldstein, P.J., Brownstein, H.H. & Ryan, P.J. (1992). Drug-Related Homicide in New York: 1984 and 1988. *Crime & Delinquency*, 38 (4), 459-476.

Granath, S., Hagstedt, J., Kivivuori, J., Lehti, M., Ganpat, S., Liem, M., & Nieuwbeerta, P. (2011).*Homicide in Finland, the Netherlands, and Sweden.*

Grann, M. & Fazel, S. (2004). Substance Misuse and Violent Crime: Swedish Population Study. *British Medical Journal* 328, 1233–1234.

Grasmick, H. & Bursik, R. (1990). Conscience, Significant Others, and Rational Choices: Extending the Deterrence Model. *Law and Society Review,* 24, 837–861.

Gruter, P. & Mheen, D. (2005). *Cocaïnehandel in Nederland – Impressies van deelnemers aan drugsdistributienetwerken*. Rotterdam: WODC.

Hagedorn, J.M. (2008). *A World of Gangs: Armed Young Men and Gangsta Culture.* Minneapolis: University of Minnesota Press.

Huisman, W. (2010). Gemeenten en de strijd tegen de georganiseerde misdaad. *Tijdschrift voor veiligheid,* 9 (3), 45-59.

Jacques, S., Rosenfeld, R., Wright, R. and Gemert, F. (2016). Effects of Prohibition and Decriminalization on Drug Market Conflict - Comparing Street Dealers, Coffeeshops, and Cafés in Amsterdam. *Criminology and Public Policy* 15 (3), 843-875.

Jacques, S. & Allen, A. (2015). Drug Market Violence: Virtual Anarchy, Police Pressure, Predation, and Retaliation. *Criminal Justice Review,* 40 (1), 87-99.

Johnson, B., Golub, A., and Dunlap, E. (2000). The rise and decline of hard drugs, drug markets, and violence in inner-city New York. In A. Blumstein and J. Wall- man (eds.), *The crime drop in America* (164–206). New York: Cambridge University Press

Jones, S. & Lynam, D.R. (2009). In the Eye of the Impulsive Beholder: The Interaction Between Impulsivity and Perceived Informal Social Control on Offending. *Criminal Justice and Behavior*, 36, 307–321.

Killias, M. & Aebi, M.F. (2000). Crime Trends in Europe from 1990 to 1996: How Europe Illustrates the limits of the American Experience. European journal on criminal policy and research, 8 (1), 43-63.

Killias, M., van Kesteren, J., & Rindlisbacher, M. (2001). Guns, violent crime and suicide in 21 countries. *Canadian Journal of Criminology*, 43 (4), 429–448

Klein, M. W., Weerman, F. M., & Thornberry, T. P. (2006). Street gang violence in Europe. *European Journal of Criminology*, 3(4), 413–437.

Land, K.C., McCall, P.L. & Cohen, L. (1990). Structural covariates of homicide rates: Are there any invariances across time and space? *American Journal of Sociology*, 95, 922-963.

Lattimore, P.K., Trudeau, J., Riley, K.J., Leiter, J. & Edwards, S. (1997). Homicide in eight U.S. cities: Trends, context, and policy implications (Research Report, NCJ 167262). Washington, DC: U.S. Department of Justice, National Institute of Justice.

Leden Satudarah vast voor moord op Haagse portier (2013, February 22). *Algemeen Dagblad.* Retrieved from http://www.ad.nl/den-haag/leden-satudarah-vast-voor-moord-op-haagse- portier~a3188afc/.

Lee, M.R. (2000). Concentrated Poverty, Race, and Homicide. *Sociological Quarterly,* 41, 189–206.

Lee, M.R., Maume, M.I. & Ousey, G.C. (2003). Social Isolation and Lethal Violence Across the Metro/Nonmetro Divide: The Effects of Socioeconomic Disadvantage and Poverty Concentration on Homicide. *Rural Sociology*, 68 (1), 107-131.

Leistra, G. & Nieuwbeerta, P. (2003). *Moord en doodslag in Nederland*. Amsterdam: Prometheus.

Levitt, S.D. (1998). Why Do Increased Arrest Rates Appear to Reduce Crime: Deterrence, Incapacitation, or Measurement Error? *Economic Inquiry*, 36, 353–372.

Levitt, S.D. (2004). Understanding why crime fell in the 1990s: Four factors that explain the decline and six that do not. *The Journal of Economic Perspectives*, 18, 163-190.

Maccoun, R., Kilmer, B. & Reuter, P. (2003). *Research on drug-crime linkages: The next generation (commissioned paper). In Toward a drugs and crime research agenda for the 21st century*. National Institute of Justice Special Report, 65-95.

Marvell, T. & Moody, C. (1997). The Impact of Prison Growth on Homicide. *Homicide Studies*, 1, 205–233.

Meeus, J. (3026, September 21). Waar gaat de zaak 26Koper ook weer over? *Nrc.nl*. Retrieved from: https://www.nrc.nl/nieuws/2016/09/21/waar-gaat-de-zaak-26koper-ook-weer-over-a1522651

Merton, R.K. (1932). Social Structure and Anomie. *American Sociological Review, 3 (5), 672–682.*

Messner, S.F. (1982). Poverty, Inequality, and the Urban Homicide Rate: Some Unexpected Findings. *Criminology*, 20 (1), 103-114.

Moeller, K. & Hesse, M. (2013). Drug market disruption and systemic violence: Cannabis markets in Copenhagen. *European Journal of Criminology* 10 (2), 206-221.

Morselli, C. (2001) Structuring Mr. Nice: Entrepreneurial opportunities and brokerage positioning in the cannabis trade. *Crime, Law, and Social Change, 35*, 203-244.

Nagin, D. & Pogarsky, G. (2001). Integrating Celerity, Impulsivity, and Extralegal Sanction Threats into a Model of General Deterrence: Theory and Evidence. *Criminology*, 39, 865–892.

Nationale Politie (2015). Jaarverslag Nederlandse Politie 2014. The Hague: Nationale Politie. Retrieved from: https://www.politie.nl/binaries/content/assets/politie/jaarverslag/2014/jaarverslag-2014.pdf

Nationale Politie (2016). Jaarverslag Politie 2015. The Hague: Nationale Politie. Retrieved from: https://www.rijksoverheid.nl/documenten/jaarverslagen/2016/05/18/nationale-politie-2015

Nieuwbeerta, P. & Leistra, G. (2007). *Dodelijk geweld. Moord en doodslag in Nederland. [Fatal violence. Murder and manslaughter in the Netherlands]*. Amsterdam: Uitgeverij Balans.

Osorio, J. (2015). The Contagion of Drug Violence: Spatio-temporal Dynamics of the Mexican War on Drugs. *Journal of Conflict Resolution*, 59 (8), 1403-32.

Ousey, G.C. (2000). Deindustrialization, female-headed families, and black and white juvenile homicide rates, 1970-1990. Sociological Inquiry, 70, 391-419.

Ousey, G.C. (1999). Homicide, Structural Factors, and the Racial Invariance Assumption. *Criminology* 37, 405–426.

Parker, K.F. & McCall, P.L. (1999). Structural Conditions and Racial Homicide Patterns:

A Look at the Multiple Disadvantages in Urban Areas. *Criminology,* 37, 447–477.

Pearson, G., & Hobbs, D. (2003) King pin? A case study of a middle market drug broker. *The Howard Journal*, 42, 335-347.

Rasmussen, D. W. & Benson, B. (1993) Spatial competition in illicit drug markets: the consequences of increased drug enforcement. *Review of Regional Studies*, 23, 219 236.

Resignato, A. (2000). Violent crime: a function of drug use or drug enforcement? *Applied Economics* 32, 681-688.

Rettig, R.A., and Yarmolinsky, A. (eds.)(1995). *Federal regulation of methadone treatment.* Committee on Federal Regulation of Methadone Treatment, Institute of Medicine, National Academy of Sciences. Washington, DC: National Academy Press.

Reuter, P. (2009). Systemic violence in drug markets. *Crime Law and Social Change* 52, 275 284.

Reuter, P., and MacCoun, R. (1992). Street drug markets in inner-city neighborhoods: Matching policy to reality. In J.B. Steinberg, D.W. Lyon, and M.E. Vaiana (eds.), *Urban America: Policy choices for Los Angeles and the Nation* (pp. 227–251). Santa Monica, CA: RAND.

Rhodes, W., Layne, M., Johnston, P., and Hozik, L. (2000). *What America's users spend on illegal drugs: 1988–1998*. Washington, DC: Office of National Drug Control Policy.

Ritter, K., Zitterl, W. & Stompe, T. (2013). Unemployment, suicide- and homicide-rates in the EU countries. *Neuropsychiatrie*, 27 (3), 111-118.

Rogne Gjeruldsen, S., Myrvang, B. and Opjordsmoen, S. (2004). Criminality in Drug Addicts: A Follo Up Study over 25 Years. *European Addiction Research* 10, 49 56.

Rosenfeld, R., Messner, S.F. & Baumer, E.P. (2001). Social capital and homicide. *Social Forces*, 80, 283-309

Sarrica, F. (2008). Drugs Prices and Systemic Violence: An Empirical Study . *European Journal of Criminal Policy,* 14, 391-415.

Shaw, C.R. & McKay, H.D. (1931). *Juvenile Delinquency and Urban Areas*. Chicago: University of Chicago Press.

Shaw, C.R. & McKay, H.D. (1972). *Juvenile Delinquency and Urban Areas*, rev. ed. Chicago: University of Chicago Press.

Shirk, D. & Wallman, J. (2015). *Journal of Conflict Resolution* 59 (8), 1348-1376.

Siegel, L.J. (2011). Victims and Victimization. In *Criminology,* 11th ed (71-98). Wadsworth:Q Cengage Learning.

Siegel, L.J. (2011). Social Structure Theories. In *Criminology,* 11th ed (185-228). Wadsworth: Cengage Learning.

Siegel, L.J. (2011). Interpersonal Violence. In *Criminology,* 11th ed (331-371). Wadsworth: Cengage Learning.

Simons, S., Chen, Y.F., & Stewart, E. (2003). Incidents of Discrimination and Risk for Delinquency: A Longitudinal Test of Strain Theory with an African American Sample. *Justice Quarterly* 20, 827-854.

Smit, P ., de Jong, R. & Bijleveld, C. (2011). "Homicide data in Europe: Definitions, sources and statistics." In: Handbook in European Homicide Research. Liem, M. & Pridemore, W. (eds.). New York: Springer.

Snyder, R. & Duran-Martinez, A. (2009). Does illegality breed violence? Drug trafficking and state-sponsored protection rackets. *Crime Law and Social Change*, 52, 253-273.

Spelman, W. (1993). Abandoned Buildings: Magnets for Crime? *Journal of Criminal Justice,* 21, 481–493.

Spelman, W. (2008). Specifying the Relationship Between Crime and Prisons. Journal of Quantitative. *Criminology*, 24, 149–178.

Statistics Netherlands (2016). Tabellen Criminaliteit en rechtshandhaving 2015: Hoofdstuk 6 [data set]. Retrieved on 12-4-2017 from: https://www.cbs.nl/-/media/_excel/2016/42/2016-criminaliteit-rechtshandhaving-2015-tabellen-h06-def.xlsx

Stevens, A., Trace, M., and Bewley-Taylor, D. (2005). Reducing drug-related crime: an overview of the global evidence. *The Beckley Foundation Drug Policy Programme.* Retrieved from: http://altgeorgia.ge/documents/publikaciebi%20ENG/BeckleyFoundation_Report_05.pdf.

Stretesky, P.B., Schuck, A.M. & Hogan, M.J. (2004). Space matters: An analysis of poverty, poverty clustering, and violent crime. *Justice Quarterly*, 21, 817-841.

Taylor, L., Caulkins, J., & Reuter, P. (2000). *Some simple economics of illegal drug markets and violence*. Unpublished manuscript, Carnegie Mellon University.

Thijsen, W. (2014, july 31st). 'Honderden' Marokkaans-Nederlandse jongeren betrokken bij liquidaties. De Volkskrant. Retrieved from: http://www.volkskrant.nl/vk/nl/2686/Binnenland/article/detail/3706336/2014/07/31/Honderden-Marokkaans-Nederlandse-jongeren-betrokken-bij-liquidaties.dhtml?_sp=b337a72a-d281-4491-98c2-06cb0dd1b2a9.1496529275695

Tittle, C. & Rowe, A. (1974). Certainty of Arrest and Crime Rates: A Further Test of the Deterrence Hypothesis. *Social Forces*, 52, 455-462

Tonry, M. (2004). *Punishment and politics: Evidence and emulation in the making of*

English crime control policy. Cullompton: Willan Publishing.

Topalli, V., Wright, R., & Fornango, R. (2002). Drug dealers, robbery and retaliation. *British Journal of Criminology*, 42, 337-351.

United Nations International Drug Control Program (1998) . Economic and Socia Consequences of Drug Abuse and Illicit Trafficking. Vienna: UNDCP. Retrieved from: https://www.unodc.org/pdf/technical_series_1998-01-01_1.pdf

Van Kampen, M. (2016, November 16). Motorclub verbieden: OM probeert het nóg een keer. *De Limburger*. Retrieved from: http://www.limburger.nl/cnt/dmf20161116_00028791/motorclub-verbieden-om-probeert- het-nog-een-keer.

Van Laar, M.W., Van Ooyen-Houben, M.M.J., Cruts, A.A.N., Meijer, R.F., Croes, E.A., Ketelaars, A.P.M. & Van der Pol, P.M. (2015). *Nationale Drug Monitor*. Den Haag: WODC.

Warner, B.D., & Coomer. B.W. (2003). Neighborhood drug arrest rates: Are they a meaningful indicator of drug activity? A research note. *Journal of Research in Crime and Delinquency*, 40, 123–138.

Warner, B.D. & Fowler, S.K. (2003). Strain and violence: Testing a general strain theory model of community violence. *Journal of Criminal Justice*, 31, 511-521.

Wendel, T., Dhondt, G., Curtis, R. & Hamilton, J. (2016). "More Drugs Less Crime": Why crime dropped in New York City, 1985-2007. *Dialect Antrhopol*, 40, 319-339.

Werb, D., Rowell, G., Guyatt, G., Kerr, T., Montaner, J. and Wood, A. (2011). Effect of drug law enforcement on drug market violence: A systematic review. *International Journal of Drug Policy*, 22, 87-94.

Wingerden, S. V. & Nieuwbeerta, P. (2010). Straftoemeting bij moordenaars. De invloed van dader-, slachtoffer- en delict kenmerken. *Straftoemetingsbulletin*, 33(1), 11-21.

Wright, A. (2006). Organised crime. Collumpton, England: Willan.

Zaitch, D. (2002) From Cali to Rotterdam: Perceptions of Columbian cocaine traffickers on the Dutch port. Crime, Law and Social Change, 38, 239-266.

1.0. Appendix

1.1. Syntax entries in SPSS

Selecting the principal victim in each homicide case and creating frequency table listing total number of homicide incidents each year

```
USE ALL.
COMPUTE filter_$=(PRINCIPAL = 2 AND YEARCOM >= 2009).
VARIABLE LABELS filter_$ 'PRINCIPAL = 2 AND YEARCOM >= 2009 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.

FREQUENCIES VARIABLES=YEARCOM
  /ORDER=ANALYSIS.
```

Selecting the principal victim in each systemic homicide case

```
USE ALL.
COMPUTE filter_$=(TYPEHOM = 5 AND PRINCIPAL = 2 AND YEARCOM >= 2009).
VARIABLE LABELS filter_$ 'TYPEHOM = 5 AND PRINCIPAL = 2 AND YEARCOM >= 2009
(FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
```

Frequency tables listing incidents by number of homicides each year, locality by urbanity, crimes scenes, time of day categories, methods of violence, number of victims and number of perpetrators,

```
FREQUENCIES VARIABLES=URBANRURAL NRVICT NRPERP TIME CRIMESCENE MODUS
YEARCOM
  /ORDER=ANALYSIS.
```

Crosstabs showing the urbanity of homicide incidents, number of cases leading to prosecution and number of cases leading to prison sentencing for each year

```
CROSSTABS
  /TABLES=YEARCOM BY URBANRURAL PROSECUTED SENTENCED SANCTIONED
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.
```

Recode life sentences to 40 year sentences and exclude missing values, then select all cases in which principal offender has received a prison sentence and create table showing mean prison sentences received for homicides committed in each year

```
RECODE LENGTHSENTENCE (9998=14600).
RECODE LENGTHSENTENCE (9999=0).
EXECUTE.

USE ALL.
COMPUTE filter_$=().
VARIABLE LABELS filter_$ 'TYPEHOM = 5 AND PRINCIPAL = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.

MEANS TABLES=LENGTHSENTENCE BY YEARCOM
  /CELLS=MEAN COUNT STDDEV.
```

Recode “age” into new variable showing age categories

```
RECODE AGE (0 thru 17=1) (18 thru 24=2) (25 thru 39=3) (40 thru 64=4) (65 thru 98=5) INTO
    agecategory.
VARIABLE LABELS  agecategory 'age category'.
EXECUTE.
```

Selecting all victims of systemic homicides

```
USE ALL.
COMPUTE filter_$=(TYPEHOM = 5 AND TYPE = 0 AND YEARCOM >= 2009).
VARIABLE LABELS filter_$ 'TYPEHOM = 5 AND TYPE = 0 AND YEARCOM >= 2009
(FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
```

Frequency tables listing victims by gender, birth country and age category

```
FREQUENCIES VARIABLES=agecategory BIRTHCOUNTRY GENDER
  /ORDER=ANALYSIS.
```

Selecting all perpetrators of systemic homicides

```
USE ALL.
COMPUTE filter_$=(TYPEHOM = 5 AND TYPE = 1 AND YEARCOM >= 2009).
VARIABLE LABELS filter_$ 'TYPEHOM = 5 AND TYPE = 1 AND YEARCOM >= 2009
(FILTER)'.
```

```
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.

## Frequency tables listing perpetrators by gender, birth country and age category

FREQUENCIES VARIABLES=agecategory BIRTHCOUNTRY GENDER
  /ORDER=ANALYSIS.
```

Second dataset (Dataset regressie systemic homicides.sav)

```
## Regression test on deterrence of systemic homicides including assumptions tests

REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT SysHom
  /METHOD=ENTER Year homconvict1lag meansentence1lag
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
  /SAVE ZRESID.

## Testing for non-zero variance
DESCRIPTIVES VARIABLES=Year SysHom meansentence1lag homconvict1lag
  /STATISTICS=MEAN STDDEV VARIANCE MIN MAX.

## Regression test on deterrence of drug offenses including assumptions tests

REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT SysHom
  /METHOD=ENTER Financialpenalties1lag drugconvict1lag year.
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
  /SAVE ZRESID.

## Testing for non-zero variance
DESCRIPTIVES VARIABLES=Year SysHom Financialpenalties1lag drugconvict1lag
  /STATISTICS=MEAN STDDEV VARIANCE MIN MAX.

## Regression test on incapacitation of drug offenders including assumptions tests
```

```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT SysHom
  /METHOD=ENTER Drugincap1lag year.
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
  /SAVE ZRESID.

## Testing for non-zero variance
DESCRIPTIVES VARIABLES=Year SysHom Drugincap1lag.
  /STATISTICS=MEAN STDDEV VARIANCE MIN MAX.

## Regression test on guardianship including assumptions tests

REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT SysHom
  /METHOD=ENTER policeguardianship year.
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
  /SAVE ZRESID.

## Testing for non-zero variance
DESCRIPTIVES VARIABLES=Year SysHom policeguardianship.

  /STATISTICS=MEAN STDDEV VARIANCE MIN MAX.
```