Cannabis control

consequences for consumption and cultivation

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Chapter 1: Introduction

For many years the Netherlands has been the eye-catcher when it concerned cannabis policy. While prohibitionists have used it as a bad example and legalisers as a good example (de Kort & Cramer, 1999), both did this for the same reason: the condoning of the sale of cannabis at consumer level. However, this policy that has eventually taken shape in so-called coffee shops, has changed considerably over the years. Since the mid-1990s, stricter legislation has been introduced, for instance the raising of the age limit for coffee shops from 16 to 18 years. From a criminological perspective, these changes offer challenging opportunities to contribute to the on-going international scientific debate and political discourse on the effects of drug policy. As will be argued later in more detail, many studies have shown that national prevalence rates of cannabis use are only weakly linked to national cannabis laws, if at all. However, drug laws (i.e. law of the books) can be rather loosely coupled to the way in which, and the extent to which, drug laws are enforced (i.e. law in action) (see for example Rüter, 1986). Therefore, it is important to not only look at formal (*de jure*) changes in Dutch cannabis policy, but also at changes at the practical level (*de facto*). In other words: have changes in the formal Dutch cannabis legislation been translated into changes in regulation, and to which extent and how are these changes implemented in practice?

In this study, several aspects of changes in Dutch cannabis policy will be assessed, evaluated and discussed, predominantly with regards to their effects both on the supply side and the demand side of the cannabis market. The central question therefore is:

"What consequences have formal changes in the Dutch cannabis policy since the middle of the 1990s had for the legal regulation of the cannabis market in practice, and how and to what extent do these developments relate to (developments at) the supply side of the cannabis market, the sale of cannabis at consumer level, and the consumption of cannabis and other drugs?"

1 1 ecent de e op ent in canna i po ic

In 1995 Korf wrote: "Today, more than thirty years after the adoption of the Single Convention, emphasis in most countries is on criminalisation of drug use." When re-examining this conclusion today, the opposite seems to be true. Although globally there is no uniform direction in the development of cannabis policies, a general observation may be made that over the last decade (2001-2011), European cannabis policies have focussed their law enforcement efforts on trafficking, thus the supply side rather than the demand of the drug (EMCDDA, 2011). Regarding penalties for personal possession of cannabis, as an overall European trend it can be said that between 2001 and 2006 penalties were reduced, but afterwards increased (EMCDDA, 2011). Yet no European country has introduced criminal penalties or increased prison sentences in the past 10 years for personal possession. In this respect, there are signs of convergence in Europe towards lower penalties for personal possession of cannabis (EMCDDA, 2011). In the past two decades, Europe has seen the growth and consolidation of harm-reduction policies, and its integration with a range of other healthcare and social services (EMCDDA, 2011; Hedrich, Pirona & Wiessing, 2008).

The position of the Netherlands has been altered. Traditionally, the Netherlands could be characterised by a consultation culture, in which consensus is required for policy decisions. The need to reach consensus leads to a certain degree of depolarisation, and has resulted in three-dimensional drug policy: an active care and prevention policy to counter drug demand, combatting organised crime to fight supply, and protecting and maintaining public order (de Kort & Cramer, 1999). More recently,

Dutch drug policy has changed its emphasis from public health issues to nuisance. In addition, the Netherlands have developed a stricter regime when it comes to cannabis. Around the same time, the general public discourse changed; while before cannabis was seen as a relatively harmless drug, increasingly the emphasis was put on the negative effects: schizophrenia resurfaced in the discourse, THC percentages seemed to be rising, and an increasing number of studies indicated that cannabis use causes brain damage. The stricter regime that followed focussed on cannabis cultivation and wholesale trade but also included stricter rules for coffee shops. These changes have partially come about due to the Netherlands choosing to harmonise with European guidelines (Blom, 2006). Dutch politics set sail for more rules, and stricter implementation of existing laws and regulations.

A centralising trend can be seen in Dutch cannabis policy. Increasingly, rules regarding coffee shops and the use of cannabis are created at a national level, while before some important decisions regarding coffee shops were at the discretion of municipalities. For instance, since 1978, while the decision to allow a coffee shop or not remained with the municipalities, the regulations to which these coffee shops should adhere were determined nationally. The current stricter regulation and implementation – on both local and national level – is leading to a diminished availability of coffee shops: a smaller number of coffee shops, that are also no longer accessible for youth aged 16-17 years (while before this was youth younger than 16). The Dutch coffee shop policy appeared to be tolerant, while there always were strict criteria which the coffee shops should adhere to. From 2002 onwards, policymakers in the Netherlands have taken an increasingly robust stance against domestic cannabis production and the rules applied to coffee shop sales. In 2011, a minimum distance of coffee shops to secondary schools was introduced. According to this criterion, coffee shops within 250 metres of secondary schools should be closed down, and no new coffee shops are allowed within this distance. While sales on retail level are tolerated through coffee shops, large scale sales and – more relevant to this study – the cultivation of cannabis are not.

1 o ard a centur o utch dru contro

Traditionally, Dutch drug policy is a combination of judicial control and socio-medical control, especially since 1976. The basis for the Dutch legislation concerning drugs has been laid by means of the “Opiumwet” (Opium Act) in 1919, in which it was made illegal to prepare, process, transport, sell, supply and possess in order to deliver opium, opium derivatives and cocaine within the Dutch kingdom within Europe. As a result of the Geneva Opium Treaty of 1925, a revised Opium Act was passed in 1928 to include Indian hemp, the resin taken from Indian hemp and the “usual preparations where this resin is at the basis of”. At the time there had been no problems with the use of hemp products in the Netherlands (Blom, 2008). In 1953 the Opium Act was changed to further include the *use* of cannabis (Blom, 2008). The central objective of the Dutch drug policy as formulated in 1974 was to limit the risks of drug use for the individual, for his or her immediate environment, and for society as a whole (de Kort, 1995). In 1976, the law was revised to make a distinction between drugs with “unacceptable risks” (placed on List I) and “hemp products” (placed on List II). Today, these two categories are known as “hard drugs” (e.g.heroin, cocaine, ecstasy) and “soft drugs” (i.e. marijuana and hashish). In addition, a distinction was made between the sale of drugs and the use of drugs; while possession still remained illegal, the use of a drug was stricken from the law. However, since possession – and not use – was often the crime for which users were accused, not much changed in practice. The maximum punishment for drug use and possession of up to 30 grams of cannabis was low-

ered, while that for possession of hard drugs and drug trade increased. This change in policy had as a goal to avoid forcing young people who experiment with cannabis to be stigmatised, criminalised and marginalised, responses which – indirectly – could increase the risk that they would start using more dangerous drugs, and subsequently be drawn into a criminal subculture (de Kort & Cramer, 1999). In this manner drug users would be able to be functional, 'normal' citizens, who participate in society, regardless of their drug use.

In the Guidelines for Prosecution published in 1978 by the Public Prosecution Office (Openbaar Ministerie) a special position was created for cannabis dealers in youth centres, who were allowed by the staff of the youth centre to sell cannabis there (Blom, 2008). In these guidelines it was stated that the dealers would not be prosecuted unless the 'triple-party deliberation' (consisting of the mayor, head of police and Public Prosecution Office) decide to prosecute. These guidelines were followed by the formulation of criteria to regulate the sale appropriately (AHOJ criteria) in 1979 (Korf, 1995), that were adapted and made more concrete over the years.

An important, unintended development that accompanied the change in cannabis policy was the rise of coffee shops and the subsequent strong growth of their numbers. Some municipalities already allowed house dealers in subsidised youth centres, which resulted in the revision of 1976 and the Guidelines of 1978. In 1980 a further formalisation of the detection and prosecution policy by the publishing of new national guidelines followed: if retail sales would take place discretely, the establishment of commercial coffee shops would be allowed (Van Laar & Van Ooyen-Houben, 2009).

In 1985, a distinction was made between primary and secondary drug problems (Interdepartmental Steering Group on Alcohol and Drug Policy, 1985). Primary problems refer to the direct negative consequences of the use of drugs, which consist mainly of physical problems. Secondary problems are those problems caused by implementation of the policy pursued, on both an individual (e.g. social isolation and prostitution) and social level (e.g. acquisitive crime, nuisance and large criminal organisations). A memorandum on drug policy appeared in 1995, in which the toleration of coffee shops and drug use was discussed in a positive light[1]. However, three problems had been identified: a relatively small group of hard drug users was the source of substantial nuisance; criminal organisations were involved in the production, supply and sales of drugs; and internationally the Netherlands were subject to criticism. A more repressive policy was proposed. In 1996 the AHOJ criteria were made more strict and a criterion was added, resulting in the AHOJ-G criteria. The minimum legal age for coffee shops was nationally determined to be 18 years, while before, at a local level, this often was 16 years (for example in Amsterdam). The changes in the criteria for coffee shops made the regulations more uniform across municipalities. In addition to being able to allow coffee shops, local councils of municipalities could determine not to allow coffee shops within their boundaries; as a consequence municipalities could close down coffee shops, even when they adhered to the national AHOJ-G criteria. This induced a substantial reduction in the number of coffee shops. Also, the per-transaction weight limit was lowered from 30 gram to 5 gram, with the primary aim to reduce drug tourism. The maximum weight of stock condoned in coffee shops was established. According to Blom (2006) this clarified the role of coffee shops, but at the same time the maximum stock allowed (500 gram) was not sufficient to supply a moderate coffee shop, which facilitated the closing down of coffee shops by the police or municipality. At the same time, municipalities started giving licenses to

[1] T.k. 24077-2/3. Tweede Kamer der Staten-Generaal, vergaderjaar 1994-1995 publicatienummer 24077 nrs. 2-3 (1995). Drug policy in the Netherlands. Continuity and change.

coffee shops, which gave the coffee shops more security. The memorandum on drug policy gave rise to a major public debate (Boekhout van Solinge, 1999), which focused more and more on the problematic sides of the coffee shop policy.

In 2004 the ministers of Public Health, Justice and Internal Affairs presented the "Cannabisbrief" (Cannabis Letter[2]) in which the developments that were already in progress became more pronounced (Blom, 2006). Again, the drug policy of toleration with regards to the coffee shops was discussed positively, but this time concerns about the health risks of cannabis use, the high THC-percentages[3] and the (increasing) involvement of organised crime in cannabis cultivation were expressed[4]. In 2007 even more emphasis was put on combatting organised crime, followed by the start-up of a taskforce to combat organised cannabis cultivation. In September 2009, a new ministerial Drugs Letter was published. Motive for this Letter was the imminent evaluation of the Dutch drug policy in the previous fifteen years and an advice on the future of drug policy that had been requested[5]. Both documents were taken into consideration. Before publication of the Drugs Letter, two issues were considered to be of importance: public health and public order. Now, a third issue was put forward: the social impact of alcohol and drug use (i.e. damage to health, to personal development and drug use as part of a wider range of problematic behaviour). Also, alcohol became to play a more prominent role in Dutch drug policy than before. The 2009 Letter announced a new drug policy memorandum, which would appear December 2011[6]. In July 2011 a bill was submitted to make the support and facilitation of large-scale cannabis cultivation punishable (which at the writing of this study has not yet passed).

1 eparation o ar et po ic

The Netherlands has a tradition of emphasizing health in its drug policy when it comes to the users (Korf, Bulington & Riper, 1999; Leuw & Marshall, 1994). A central idea behind allowing coffee shops was that the lawful availability of cannabis to consumers would reduce the likelihood that cannabis users would be drawn into illicit markets where other, riskier illicit drugs are sold; this is referred to as the "separation of markets". This separation of markets was assumed to lead to a decrease in the risk of marginalisation and criminalisation of users. By allowing the sale of cannabis in coffee shops, the Dutch government also intended to reduce the risk that cannabis users are confronted with hard drugs. In regard to coffee shops this approach appears to be effective: hard drugs are very rarely found in coffee shops (Broekhuizen, Raven & Driessen, 2006; Reinarman, 2009). However, with cannabis retail suppliers other than coffee shops – the unlicensed market – the risk of being exposed to hard drugs could be higher. Retail cannabis sales still take place in non-legal settings outside the system of licensed shops, for example among users under 18 years of age, who are not allowed to enter coffee shops. The potential risk is that not allowing minors in coffee shops will undermine the separation of markets philosophy.

[2] In the Netherlands, policy intentions are formulated by Ministers through letters that are sent to Parliament.
[3] The peak in THC-percentages was temporary and has decreased since (Van der Gouwe & Niesink, 2012).
[4] T.k.24077-125.Tweede Kamer der Staten-Generaal vergaderjaar 2003-2004 publicatienummer 24077 nr.125 (2004).
[5] Hoofdlijnenbrief drugsbeleid d.d. 11 September 2009. VGP/ADT 2955486.
[6] T.k. 24077-265. Tweede Kamer der Staten-Generaal vergaderjaar 2011-2012 publicatienummer 24077 nr. 265 (2011).

1 Canna i u e in the ether and

1.4.1 General population

According to the latest general population survey held in 2009 (Van Rooij, Schoenmakers & Van de Mheen, 2011), 25.7% of the Dutch population aged 15-64 has used cannabis at least once in their life. The last month prevalence of use is 4.2%. From 1997 until 2001 the percentage of the population aged 15 to 64 years that had used cannabis at least once in their life remained stable. Between 2001 and 2005 this percentage rose, although the percentage last year and last month users remained stable. In 2009 the prevalence of use was higher on all measures (life time, last year and last month), however, this increase most likely is an artefact of a change in the method of data collection. Of the last month users, around one third uses cannabis (almost) daily, little over one per cent of the general population aged 15-64 years (Van Rooij et al., 2011). Among the age group 15-24 years, in 2009 the last year and last month prevalence rates for cannabis use were twice as high as in the group aged 25-44 years. Prevalence of use is twice as high among men as among women. The use of cannabis is more prevalent in urban areas, with twice as many users in very urban areas compared with average to non-urban areas (Van Rooij et al., 2011).

The mean age of first cannabis use in the general population aged 15-64 years was 19.6 years in 2011 (Van Laar et al., 2012). The mean age of cannabis users was 30.5 years according to the 2005 general population survey (Rodenburg et al., 2007). This mean age of users has been increasing over the years.

1.4.2 Youth

The most recent national Dutch survey among students (aged 12-18 years) of secondary schools took place in 2011 (Verdurmen et al., 2012). This survey showed that 17.4% had used cannabis at least once in their life, and 7.7% in the month prior to the survey. From the late 1980s onward life time and last year prevalence of cannabis use have increased steeply, between 1996 and 1999 there was a declining trend, and since 1999 cannabis prevalence rates have remained rather stable until the most recent survey in 2011 (Monshouwer, Van Laar & Vollebergh, 2011). Cannabis use among students increases steeply with age. In the 2011 study, the differences in cannabis use between different levels of education are small, and none of them are statistically significant. When looking at ethnicity, Moroccan students use significantly less cannabis than other students.

When considering other youth populations, one can generally state that when the degree of marginalisation increases (from truants and school dropouts, through incarcerated youth, to homeless youth) the prevalence of cannabis use rises (Van Laar & Van Ooyen-Houben, 2009).

In 2008 and 2009 substance use was studied among visitors of national and regionally organised parties, and among clubbers and disco-goers throughout the Netherlands (aged 13-51). A majority in both groups had used cannabis at least once in their life; 69.9% of party-goers and 62.0% of clubbers had done so. Last year cannabis use among party-goers was 45.6%, while amongst clubbers this was 39.0%. Last month use was 30.3% among party-goers, and 23.7% among clubbers (Van der Poel et al., 2010).

1 Internationa per pecti e

International comparisons show that prevalence rates of cannabis use in the Netherlands are average to low for the adult population compared to other European countries (Van Laar & Van Ooyen-Houben, 2009). On the other hand, prevalence rates among adolescents are higher than the European average, (Monshouwer et al., 2011). The frequency of cannabis use does not seem to be higher in the Netherlands, and the amounts used seem to be the same as in San Francisco – the only available international comparison considering amounts (Reinarman, Cohen & Kaal, 2004).

The extent to which (changes in) drug policy influences cannabis use is a much-debated question. In many studies, no direct association has been found between changes made to cannabis policies and the measures for cannabis use (Cohen & Kaal, 2001; Decorte, Muys & Slock, 2003; Kilmer, 2002; Korf, 2002; MacCoun & Reuter, 1997; MacCoun & Reuter, 2001; Reinarman & Cohen, 2007; Reuband, 1995). A causal relation between (changes in) cannabis policies and cannabis use so far has proved to be hard to establish. As will be discussed in later chapters as well, evidence so far points in different directions. When we view cannabis as a substance that individuals use as a means of relaxation and recreation, and can get addicted to, a parallel can be drawn with alcohol and tobacco, as well as gambling. It might be helpful to look at these other fields of study, which will be done in several of the chapters to follow.

So far, many of the studies on the effects of cannabis policy have looked at how these policies are formulated on paper, not how they are put into practice. As Lipsky (1980) has shown, there can be substantial discrepancies between how a policy theoretically should be implemented and how it is implemented in everyday practice. In this study, not the paper policy but the 'law in action' will be studied. This will be done with regard to different aspects of the cannabis market, but always looking at policy in practice.

1 Canna i po ic and cri ino o

Because the sale of cannabis is tolerated through coffee shops, it may seem as if cannabis has been fully legalised in the Netherlands; however, this is not the case. The study of illegal behaviour typically falls within the realm of criminology. Historically the use, selling and growing of cannabis is a typical example of behaviour that has not always been illegal; the legal status changed over time. Why and how these changes took place are of interest to the criminological field. The changes in legislation have been discussed above, as were in part the reasons for (de)criminalisation.

Dynamics in growing, buying and using cannabis are the main theme of this study, and in particular the question to what extent legislation and policy influence these behaviours will be analysed. For this analysis, "law in action" is an important concept. As Rovers (2007) puts it, when evaluating the influence of interventions, the social reality of the implementation is often insufficiently addressed. Therefore, it is important to look at the manner in which cannabis laws and regulations are implemented in the Netherlands, and what influence they have on actual behaviour of cannabis users.

In this study, the work of Garland (2001) plays an important role in interpreting the changes in legislation, and the implementation of new and existing rules. Generally speaking, Garland discusses a shift towards more (formal and informal) control, caused by the fall of the ideal of rehabilitation. There has been a development towards more repression and punishment. Within this new 'culture of

control' the boundaries between public and private are blurring, because governments tend to engage in 'preventive partnerships'. Within these preventive partnerships, companies and neighbourhoods are increasingly encouraged to police themselves, thus leading to a decrease in risk and resources. His theory will be further discussed in Chapters 2 and 6.

Several other criminological theories are of interest. Firstly, Routine Activity Theory (Cohen & Vila, 1996) may explain the choice of buying in a coffee shop or elsewhere. According to this theory, individuals encounter opportunities for crime in their daily life and this leads to criminal behaviour. Secondly, one might consider Rational Choice Theory (Cornish & Clarke, 1986); this theory states that criminals weight pros and cons of criminal behaviour and make rational decisions on where and when to commit crimes. This would mean that for cannabis users to resort to non-tolerated cannabis sales points, coffee shops would need to be limited in their availability. Both Routine Activity theory and Rational Choice theory will be discussed in chapter 4.

1 i re earch the e and out ine

In the Netherlands, the sale of cannabis to consumers is tolerated through so-called coffee shops. The form this takes has changed considerably over the years. Since the mid-1990s, stricter legislation and guidelines have been introduced. More recently, combating the cannabis cultivation has been intensified as well. These developments in Dutch cannabis policy raise questions that are at the core of criminology. The aim of this study, by answering these questions, is to contribute to the international debate on the effects of drug policy as well as to contribute to further developing criminological theories. In the chapters 2 to 6, the central question set out at the first page of this chapter, will be translated into more specific and detailed research questions, that can be summarised under the following themes.

1.7.1 Availability and local politics

Not all municipalities in the Netherlands have coffee shops. In fact, around 80 per cent of Dutch municipalities do not have any. While the guidelines to which coffee shops should adhere are determined nationally, the decision to allow coffee shops rests with the local council. Therefore, the issues that will be at the core of *Chapter 2*, is how the interlocal variations in the availability of cannabis through coffee shops have arisen in the Netherlands, how large such variations are and how they can be explained. The influence of the political constellation of local councils on the presence of coffee shops in municipalities will be explored. Other factors, such as population size, will be taken into account.

1.7.2 Availability, cannabis use and cannabis purchasing behaviour

The availability of coffee shops is, at least partially, a consequence of the legislation and its implementation. While in Chapter 2, this availability can be understood as an 'outcome measure', in other chapters it is used as a predictor of consumer behaviour.

When municipalities do have coffee shops, the next question is in which way this influences cannabis use and cannabis purchasing behaviour. Some would argue that supply stimulates demand, and thus that coffee shops will lead to an increase in cannabis use (MacCoun & Reuter, 2001). Whether the *presence* of coffee shops influences cannabis buying behaviour will be looked at in *Chapter 3*. The extent to which the presence of coffee shops is related to where cannabis consumers in the Nether-

lands buy their cannabis will be explored. In addition, it will be investigated whether cannabis users buy from illegal sellers when coffee shops are not present near to their place of residence.

The issue of availability of coffee shops will be further investigated in *Chapter 4*. Studies in a variety of disciplines show that not just the presence of certain facilities plays a role in for instance the use of drugs, gambling behaviour or criminal behaviour. Availability moderates the role a facility plays in people's behaviour. Availability takes different forms, including whether something is present or not, and another important aspect of it is *proximity*: the distance between an anchor point, for instance respondents' homes, and the facility in question. Chapter 4 will also discuss the proximity to coffee shops, and the influence this has on different aspects of cannabis use.

1.7.3 Separation of markets

A stated before, a central idea behind allowing coffee shops was that the lawful availability of cannabis to consumers would reduce the risk that cannabis users are confronted with hard drugs. In *Chapter 3* the illegal cannabis market will be further explored with regard to the mixed sale of soft and hard drugs. In addition, *Chapter 4* will discuss the influence of the proximity to coffee shops on the use of hard drugs, and on the separation of markets.

1.7.4 Coffee shops and minors

Even when coffee shops are present, they are not available to everyone: minors are not allowed. In *Chapter 3*, the influence of age on the way in which cannabis is acquired will be analysed, including specifically among under-age cannabis users. In 1996 the minimum legal age for coffee shops was officially raised from 16 to 18 years. This provides us with a unique opportunity to study the influence of coffee shop availability on cannabis use. Therefore, in *Chapter 5* the role of raising the minimum age will be explored by looking at prevalence rates and buying behaviour of Amsterdam school youth, before and after the change in policy. The trends in prevalence rates for 16 and 17 year olds will be analysed, and the extent to which these can be attributed to raising the minimum age for coffee shops, and/or to other factors.

1.7.5 Dismantling cannabis cultivation sites

In *Chapter 6*, the focus will shift from the demand side of the cannabis market to the supply side. Dutch cannabis policy is not exclusively aimed at coffee shops and the retail market. Another facet of the policy, and another branch of cannabis policy that has been in transition, is the dismantling of cannabis cultivation sites. Since the aim is to understand the influence of policy in practice on cannabis use and the cannabis market, the first question in this chapter is how the dismantling of cannabis cultivation sites has been put into practice. Next, the repercussions of these policies in practice and the developments and trends in these dismantling activities will be identified. Also, the results in terms of numbers of cultivation sites dismantled and marijuana plants seized will be analysed. In addition, the impact of the dismantling operations on the structure of the cannabis market or on the price or quality of marijuana will be explored. To conclude, the dismantling policy will be viewed in a critical light, to identify possible downsides to this relatively new approach to cannabis cultivation.

Finally, in *Chapter 7* the following chapters will come together in the conclusions and discussion. *Chapter 8* will provide a summary of the study, and *Chapter 9* will contain the Dutch summary.

Chapter : oca po itic and retai canna i ar et : he ca e o the utch co ee hop

M. Wouters, A. Benschop & D.J. Korf
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Abstract

Background: Cannabis coffee shops are concentrated in specific areas in the Netherlands; close to 80% of Dutch municipalities have no coffee shops. We investigated why such wide local differences exist. Methods: Regression analyses were carried out on data regarding the number of coffee shops per municipality, local council seat distribution and area demographic characteristics. A contrast analysis of municipalities with no/few vs. many coffee shops was also performed.

Results: Whether a town has one or more coffee shops can be predicted in part by its population size, but more strongly by political composition of the local council. The larger the percentage of progressive councillors, the greater the probability that coffee shops are allowed. The number of coffee shops in a town depends primarily on the demand for cannabis (reflected in factors like local population size); it generally has little to do with national-level party political preferences about drug policy.

Conclusion: Both the demand for coffee shops and local political preference influence coffee shop policy in the Netherlands.

1 Introduction

National policies on cannabis differ considerably across Western countries (MacCoun & Reuter, 2002) as does the extent of cannabis use (EMCDDA, 2008; Hibell et al., 2009). Yet a long series of cross-national comparative studies have found no clear connection between national-level cannabis policies and prevalence of cannabis use (Cohen & Kaal, 2001; Decorte, Muys, & Slock, 2003; Kilmer, 2002; Korf, 2002; MacCoun & Reuter, 2001; Reinarman & Cohen, 2007; Reuband, 1995). Reuband (1995) concluded that trends in cannabis use evolve independently of drug policy, and countries with 'liberal' cannabis policies do not have higher or lower prevalence rates than countries with more repressive policies. Kilmer (2002) has noted that despite de jure differences between European countries there is little difference in the de facto chances of getting arrested—which are very small indeed for cannabis users. Heated debates still persist about criminalisation vs. decriminalisation of cannabis. Such discussions are usually more normatively imbued than empirically grounded (Vuillaume, 2008).

The Netherlands, with its 'coffee shops' where people can buy and smoke marijuana and hashish without penalty, is undoubtedly the most prominent example of cannabis decriminalisation in the Western world. However, this does not mean that the situation in the Netherlands is unique. In a survey of 'experienced' cannabis users in Amsterdam and San Francisco, Reinarman, Cohen, and Kaal (2004) highlighted many similarities in the use of cannabis. Unsurprisingly differences existed in the ways users obtained cannabis—predominantly in coffee shops in Amsterdam and mainly from dealers, friends and friends of dealers in San Francisco (Cohen & Kaal, 2001). Even so, not all Amsterdam cannabis users obtained their cannabis in coffee shops, a finding confirmed by general population surveys (e.g. Abraham, Kaal, & Cohen, 2002). One reason for this is that coffee shops are restricted to those aged 18 years and older. Younger users get cannabis mostly from other sources. This was the case in Amsterdam (Nabben, Benschop, & Korf, 2008) and in other parts of the country too (Monshouwer et al., 2008; Wouters & Korf, 2009). Another reason is that the role of coffee shops in the cannabis market varies greatly throughout the Netherlands. A large majority of municipalities have no coffee shops (Bieleman et al., 2008). Although some of the local users simply buy cannabis in coffee shops elsewhere, they are more likely than residents of places with coffee shops to buy it from sources such as illicit home-based dealers, delivery services or street dealers (Korf et al., 2005).

The aim of this study was to focus on a question that has received little attention until now: How did

the interlocal variations in the availability of cannabis through coffee shops arise in the Netherlands, how large are such variations and how can they be explained? We investigate these topics from two different perspectives. The first involves the role of local politics, in that national government gives local councils the freedom to permit coffee shops to operate under certain conditions, whilst also allowing them to ban coffee shops altogether if they so wish. The second perspective is economic: the smaller the demand, the less likely a town will have a coffee shop.

Use of cannabis is not prohibited in all countries, but selling cannabis is officially banned everywhere (EMCDDA, 2008). However, in the Netherlands, sale of marijuana and hashish to consumers is tolerated in what have become known as 'coffee shops', a public house which, in addition to selling cannabis, usually allows it to be smoked on the premises. Although the Netherlands is the only Western country with a system of legal toleration of cannabis, there are other countries where cannabis is sold relatively openly in somewhat comparable ways, such as 'hash clubs' in Denmark (Asmussen & Moesby-Johansen, 2004; Storgaard, 2005) and formerly 'hemp shops' in Switzerland (Fahrenkrug, 2004).

Since the 1960s, the Dutch cannabis retail market has traversed different stages. In the 1980s coffee shops took over the market (De Kort, 1995; Korf, 2002). The legal basis for coffee shops had been laid down by the Dutch government when it decriminalised cannabis in 1976, amending the national Opium Act to distinguish between cannabis (soft drugs) and 'drugs with unacceptable risks' (hard drugs). Criteria for coffee shops were developed in the years following decriminalisation: no advertising, no hard drugs, no nuisance and no minors.

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Although coffee shops are now required to meet nationally defined criteria, local government play a key role. When the national policy on cannabis was modified in 1996, local governments gained the right to decide whether or not to authorise coffee shops within their jurisdictions[7]. Many decided to close down all coffee shops or limit their number. By 1999, the number of coffee shops had almost halved to 846. The downward trend continued, and the most recent national figures, for late 2007, reported 702 coffee shops (Bieleman et al., 2008).

Not only can Dutch local councils decide whether or not to permit coffee shops; they can also determine how many they will allow, within the restrictions laid down by national legislation and regulations. Although local councillors largely represent the same political parties that play prominent roles at national level, that does not always mean that local branches adhere to the national party line. Given the latitude that the national government has afforded to local politics, other considerations may conceivably contribute to local coffee shop policy. One obvious economic factor is local demand for cannabis. If the population is so small that there is not a sufficient market for a coffee shop then there is little point discussing its authorisation, even if the majority of councillors are from parties that favour allowing coffee shops. In larger towns and cities, where there is sufficient demand, it often seems logical to make use of the coffee shop option, in view of the advantages it offers for enhancing public safety and limiting nuisance. The scale of the underground cannabis market might even compel local government to authorise coffee shops regardless of the political allegiance. General population surveys show not only that the absolute number of cannabis users in a town grows in parallel with its population, but also that the relative proportions of cannabis users are higher in urban than in rural areas. According to the latest national house-hold survey on substance use in the

[7] Stc 1996-187.Staatscourant 27 september 1996 nr.187 (1996). Richtlijnen opsporings- en strafvorderingsbeleid strafbare feiten Opiumwet.

Dutch population aged 15–64, prevalence of use of cannabis in the last month was 7.5% in areas with the highest population densities, against 1.5% in the lowest-density areas (Rodenburg et al., 2007).
During the period of rapid expansion of coffee shops, the economist Jansen (1991) investigated why in Amsterdam these were concentrated in the city centre. His study was informed by Hotelling's classic theory of location, which gave a theoretical basis to the process of agglomeration of economic activities: '... as more and more sellers of the same commodity arise, the tendency is not to become distributed in the socially optimum manner but to cluster unduly' (Hotelling, 1929, p. 53). Jansen noted that coffee shops, which were initially found in back streets in the inner city, gradually relocated to busier streets and often to more expensive locations (Jansen, 1991). The notion of market-driven geographic concentration of coffee shops might still be a factor today, possibly even at a nationwide level, leading to clustering in certain cities or towns.

o er and po ic

The Swedish criminologists Lenke and Olsson (1996) uncovered a paradoxical link between national drug policies in Western European countries and the balance of political influence there. Contrary to all expectations, countries with relatively influential left-of-centre parties pursued more restrictive policies on drugs than countries where right-of-centre parties had more support—'the stronger the influence of conservative parties, the less repressive the drug policy' (Lenke & Olsson, 1996, p. 115). They traced this to a desire by conservative parties, whilst in opposition, to posture themselves as strong on law and order by putting the drug question at the top of their political agendas and arguing for a more strenuous penal approach to drugs policy. Although progressive parties continued to give priority to social policy and treatment, they were wary of openly opposing the conservative demands for more repression, fearing a loss of electoral support. The concrete outcome was an intensified health policy combined with greater repression.
This warrants the question as to whether these findings from 1970 to 1990, are still valid today. Lenke and Olsson (1996) indicated that their conclusion might not hold true in future, should the conservatives begin addressing the working and lower middle classes. One might imagine progressive parties putting a greater emphasis on law and order in their rivalry with conservatives, and conservative parties introducing more repressive measures when they got into government. For some time now, a 'culture of control' has prevailed in the Western world, whereby politicians across the board lean more strongly towards repression (Garland, 2001). More specifically, the discourse on cannabis focuses more sharply on the problem aspects of use (Vuillaume, 2008).
What also remains to be seen is whether earlier findings with respect to national drug politics can be transposed to the local level, in particular when it comes to local coffee shop policy in the Netherlands.

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National government in the Netherlands consists of coalitions of at least two parties, and often more. The same is true of virtually all local governments.
Diverse views prevail at national level about drug policy in general and about coffee shops in particular. There are three confessional, or religiously based, parties, which espouse conservative views on many issues. The Christian Democrats, representing the largest party in the Dutch parliament, would prefer few or no coffee shops, whilst the two much smaller protestant parties are outspoken oppo-

nents of coffee shops. In contrast, four political parties might be labelled as progressive in view of their support for continuing the policy of toleration; if anything, they would favour additional government regulation of cannabis in measures such as tolerating cannabis cultivation under strict supervision, or even full legalisation of cannabis. A third viewpoint is seen in the right-wing liberal VVD. This party has no explicit standpoint on coffee shops, but since it adheres to free market principles, it is more inclined than the confessional parties to authorise coffee shops if there is the demand.

Against this background, and assuming for a moment that preferences of local-level parties will be consistent with their national party programmes, one would expect – contrary to Lenke and Olsson's thesis – that few coffee shops, or none at all, would exist in towns where religiously oriented parties are relatively strong. At the same time one would expect that towns with larger shares of progressive councillors would allow coffee shops. One might further expect that the strength of right-wing liberal council representation would have no influence on the presence of coffee shops. We confined our analysis to those three political traditions. Several new parties that recently entered the national parliament, such as Geert Wilders' Party for Freedom (PVV) and the Party for the Animals, had little or no representation in councils at the time of our study. Many local interest parties are also represented in councils; these appear to be divided rather evenly between proponents and opponents of coffee shops but their lack of uniformity prevented their inclusion in the study.

We also investigated the coffee shop phenomenon from an economic angle. As noted above, the existence of coffee shops depends partly on the demand for cannabis. Overall, we would expect the presence of a coffee shop to be positively associated with a town's population, and the number of coffee shops with the degree of urbanisation. We postulate that a critical threshold exists above which local councils, relatively independently of their political colour, allow at least one coffee shop. In addition, in line with Hotelling's (1929) theory of location and the confirmation it received in terms of Amsterdam coffee shops in Jansen's (1991) study, it seems conceivable that a concentration of coffee shops would exist in certain municipalities or regions.

ata and ethod

Every 2 years, the numbers of coffee shops in each municipality is published. In our analyses, we used the most recent figures (late 2007), which showed a total of 702 coffee shops (Bieleman et al., 2008). The most recent data on the distribution of council seats by party were based on the 2006 local elections (Kiesraad, 2006). We converted the local distributions of council seats into three variables: the percentages of progressive, confessional and right-wing liberal seats. We used percentages because council sizes vary depending on the local population.

Since the prevalence of cannabis use per municipality is unknown, the size of the local population, assuming that it correlates with the number of users, was used as a proximal measure for cannabis demand. In addition, we opted for two other variables as indicators for demand. The first was the percentage of local residents aged 15–44, the age category in which recent and current cannabis use predominantly occurs (Rodenburg et al., 2007). Second, we used the average address density per km^2 as our measure of urbanisation; this is thought to be a more relevant and precise measure than population density or other measures of urbanisation (Den Dulk, van de Stadt, & Vliegen, 1992). All data were obtained from Statistics Netherlands (CBS, the National Statistics Office) and applied to 1 January 2007.

At that time the Netherlands had 443 municipalities and a total of 16.4 million people. Table 1 shows the means and ranges of the variables we used. The number of coffee shops per municipality ranged

from 0 to 229, with an average of 1.58.

Continuous variables were analysed using t-tests when comparing two groups. Categorical variables were analysed with Pearson's chi^2 tests. To ascertain which variables were associated with the presence (yes/no) of one or more coffee shops in a municipality, we performed multivariate logistic regression analyses, using stepwise backward elimination based on likelihood ratios. Variables were entered in blocks. The first block contained population characteristics (size, average address density and percentage aged 15–44); the second block contained the distributions of council seats (percentages of progressives, confessionals and right-wing liberals). To determine which variables showed associations with the number of coffee shops in the municipality, we carried out stepwise multivariate linear regressions with variables entered in blocks.

Table 1. Characteristics of Dutch municipalities (n = 443)

	Mean (SD)	**Range**
Number of coffee shops	1.58 (11.6)	0–229
Population	36,925.5 (58,482.9)	946–742,884
Address density	928.9 (701.8)	109–6030
% aged 15–44	37.8 (3.4)	26.8–54.4
% confessional council seats	28.7 (14.1)	0–88.2
% progressive council seats	31.0 (15.6)	0–77.8
% right-wing liberal council seats	14.4 (7.4)	0–36.4

The first block contained the population characteristics, in the second block we entered the percentages of progressive and confessional council seats, and in the third block the percentage of right-wing liberal seats. In the analyses where the outcome variable was the number of currently existing coffee shops, Amsterdam was omitted as an extreme outlier. Amsterdam is home to as many as one third of all coffee shops in the Netherlands, but only to 5% of the country's population (Bieleman et al., 2008).

All analyses were conducted with SPSS 15.0. Comparisons were tested for statistical significance at the 95% confidence level. For the logistic regression analysis the average address density was divided by 100 to facilitate interpretation of the outcome.

e u t

2.6.1 Local population, number of coffee shops, coffee shop density

On the basis of 2007 population levels, no municipality with less than 15,000 inhabitants had a coffee shop. Only about one in 10 with a 15,000–20,000 population had one or more coffee shops. More than half of the municipalities with 40,000–50,000 people and all those with 100,000 or more residents had at least one coffee shop. The critical threshold thus apparently lies at a population of 100,000. The average coffee shop density (number per 100,000 residents) is 1.14. Coffee shop density also increased with population size (Amsterdam has 30.8 coffee shops per 100,000 residents). Fig. 1 gives a graphic representation of the relationship between local population, coffee shop presence and coffee shop density (with Amsterdam omitted). The percentage of municipalities with coffee

shops increased more or less linearly with population size. Coffee shop density also increased with population size, but not linearly. This means there is no simple rule of thumb to predict the number of coffee shops in a municipality based on a specified number of coffee shops per 100,000 people.

Fig. 1. Local population, coffee shop (CS) presence and coffee shop density (Amsterdam excepted)

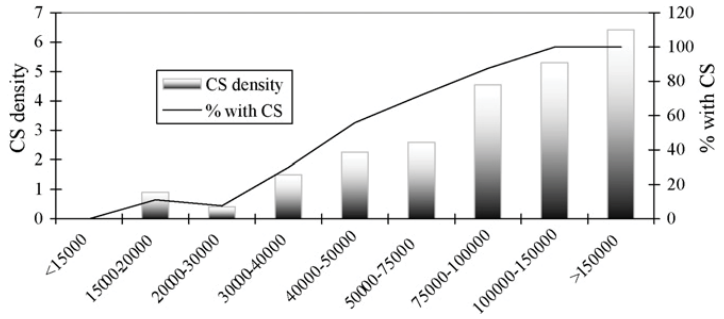
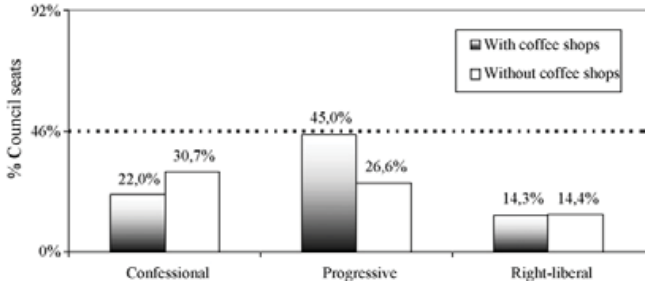


Fig. 2. Distribution of municipality council seats in municipalities with and without coffee shops



2.6.2 Political composition and presence of coffee shops

Fig. 2 shows the distribution of seats in the municipality councils, comparing municipalities with and without coffee shops. The confessional parties had almost a third of the seats in municipalities without coffee shops, compared to less than a quarter in those with coffee shops. The progressive parties had over 45% of the seats in municipalities with coffee shops, compared to little over a quarter in those without coffee shops. The right-wing liberal seats showed almost no difference. Contrary to the findings of Lenke and Olsson (1996), but in line with the national party programmes, there is a negative correlation between the percentage of confessional seats and presence of coffee shops ($r = -.260$; $p < .001$), a positive correlation between progressive seats and presence of coffee shops ($r = .504$; $p < .001$), whilst the percentage of right-wing liberal seats made no difference ($r = -.005$; n.s.).

2.6.3 Demand side and presence of coffee shops

The demographic variables we used as indicators for the demand side also showed a relationship with the presence of coffee shops (Table 2). Municipalities with coffee shops had, on average, 4.1 times as many inhabitants and 2.3 times as many addresses per km^2 than those without. We also found a small but significant difference in the percentage of the population aged 15–44 years.

2.6.4 Predicting coffee shop presence

Table 3 shows the results of the stepwise multivariate logistic regression analyses examining associations with coffee shop presence. The percentage of progressive seats had the largest influence on

coffee shop presence; an increase of 1% in progressive seats leads to an increase in the chance of having a coffee shop by 8.4%. The number of inhabitants also had a positive influence: with every 1000 extra inhabitants, the chance increased by 7.7%. In addition, the address density played a role: with every 100 extra addresses per km^2 , the chance of having a coffee shop increased by 7.1%. Our model predicts a relatively high percentage of variance.

Results of the stepwise multivariate linear regression predicting the number of coffee shops in a municipality are presented in Table 4. The model has a high predictive value (R^2 = .818). The number of inhabitants had the strongest influence. Each increase of 12,048 inhabitants adds one extra coffee shop, when keeping the address density constant. The address density itself also had some influence, but in a negative direction. A decrease of 2174 addresses per km^2 runs parallel with one coffee shop extra, when the number of inhabitants is kept constant.

Table 2. Characteristics of municipalities with and without coffee shops (n = 443)

	With coffee shop Mean (sd)	**Without coffee shop Mean (sd)**	**t**	**p**
Population	86920.9 (102741.7)	21199.9 (12805.4)	6.570	.000
Average Address density	1661.8 (855.7)	698.4 (443.0)	11.131	.000
% aged 15-44	40.4 (3.96)	37.0 (2.7)	8.119	.000

Table 3. Stepwise multivariate logistic regression (Amsterdam excluded) predicting the presence of coffee shops in municipalities

n=442	**B(SE)**	**p**	**Exp(B)**	**95% CI**	
				Lower	**Upper**
Constant	-7.314 (0.748)	.000	0.001		
% progressive seats	0.081 (0.014)	.000	1.084	1.054	1.115
Population/1000	0.074 (0.013)	.000	1.077	1.050	1.104
Address density/100	0.069 (0.037)	.065	1.071	0.996	1.153

Note. R^2 = .450 (Cox and Snell), .675 (Nagelkerke).

2.6.5 Unusual towns

Although most smaller towns have no coffee shops (see Fig. 1), there are exceptions. In most local councils of the 10 smallest municipalities with one or more coffee shops, progressives hold more seats than confessionals, thus conforming to the generic pattern that the probability of coffee shop presence increases with the share of progressive seats. Although these municipalities vary in terms of address density, the density is above average on the whole, and in some cases substantially so. In terms of the percentage of younger population (age 15–44), they do not significantly differ from towns without coffee shops (not in table). Some serve as regional nightlife centres or are important tourist spots, and thus have relatively high numbers of pubs and dance clubs, and (as now emerges) one or more coffee shops. The North Sea resort of Zandvoort, with thousands of daily visitors in summer months, is a prime example. So is Harlingen, a former fishing village in the North with both a regional nightlife scene and a ferry harbour for holidaymakers on their way to islands off the coast (which have no coffee shops). A further reason why exceptionally small towns may have coffee shops is that neighbouring municipalities may have reached agreements whereby one of them au-

thorises coffee shops, which can serve the region (Bieleman et al., 2008). Often the latter town already is a regional nightlife centre.

There are also larger municipalities without coffee shops. Interestingly, the 10 largest of these had greater numbers of progressive than confessional seats in their local councils, thus not fitting the pattern whereby coffee shop probability increases with progressive representation. These municipalities varied in address density, but two of them (Berkelland and Lingewaard) had markedly low address densities, plus relatively larger confessional council representations (though progressive representations were still slightly greater). In terms of younger population (age 15–44), they did not significantly differ from comparable towns with coffee shops (not in table). In contrast to the smaller towns with coffee shops, these larger ones had no particular touristic or nightlife function. In 6 of the 10, the most obvious reason for the absence of coffee shops was that they were located near a larger city with coffee shops. Three others had no coffee shops because they were party to agreements with neighbouring municipalities. In the final town, the local council had decided to allow a coffee shop, but no suitable location had yet been designated.

Table 4. Stepwise multivariate linear regression (Amsterdam excluded) predicting the number of coffee shops in municipalities (n = 442)

n=442	Beta (SE)	Stand Beta	p
Constant	-1.461 (0.149)		.000
Number of inhabitants / 1000	0.083 (0.003)	0.954	.000
Address density/100	-0.046 (0.018)	-0.072	.013

R = .904; R^2 = .818.

2.6.6 Towns with high coffee shop densities

As reported above, coffee shop density (the number of coffee shops per 100,000 residents) increased with local population. The increase was non-linear. Amsterdam was the most extreme exception, having the highest density by far. When we consider Amsterdam and the 10 other Dutch municipalities with the highest coffee shop densities, in 9 of the 11, progressive parties held outright majorities in the local councils. In eight, the proportion of younger population was higher, and sometimes much higher, than the nationwide average of 37.8%. Most such towns and cities had universities or colleges. All also served as regional nightlife centres, tourist attractions or both. More specifically, Amsterdam drew many young tourists, whilst two of the other towns were near international borders: Winschoten attracted relatively higher numbers of cannabis smokers from Germany, whilst Maastricht drew them from Germany, Belgium and France.

Conc u ion and di cu ion

The percentage of progressive seats in the local council emerged as the most important predictor of whether a town had coffee shops or not. However, population size and urbanisation were almost equally strong predictors. The percentage of 15- to 44-year-olds did not have any influence.

As to the number of coffee shops in a municipality, population size was the strongest predictor, followed by degree of urbanisation. Urbanisation, however, was negatively associated with the number of coffee shops. Though this might seem illogical, it indicates that in municipalities of similar population, those with the most widely dispersed dwellings have more coffee shops than more compactly built communities. The most plausible explanation is that cannabis consumers prefer shorter distanc-

es to their coffee shops (Wouters & Korf, 2009). Although lower address densities in municipalities of equal population size might also mean that more people live at a single address, as in student digs, this seems unlikely here; that would imply a greater proportion of young people, but we controlled for the percentage aged 15–44, and that variable had no significant influence overall.

We therefore conclude that the political composition of the local council generally does make a difference in a municipal decision for or against authorising coffee shops, but not in the number of coffee shops. The latter appears to depend primarily on the scale of local cannabis demand.

Although local population size was found to be the chief factor in terms of demand, a contrast analysis of municipalities that stood out because of the unexpected absence or presence of coffee shops, or because of a high coffee shop density, identified additional factors (e.g. tourism, nightlife and regional arrangements). In future research, it would be interesting to study these additional factors and their influence on coffee shop policy and (implementation of) drug policy in general.

Our analysis included all Dutch municipalities, thus ruling out selectivity. A word of caution may be needed about our choice of the years from which we drew the analysed data. We used local election results from the spring of 2006 and a coffee shop tally from late 2007. In the period of less than 2 years, the influence of current local politics on the presence and number of coffee shops may not have had time to materialise. It might therefore be advisable to replicate our study using a wider time frame. Also some coffee shops are small and draw limited clienteles, whereas others are much larger and have far more customers. Our study did not analyse such differences, but they may well have influenced our results. It is quite conceivable, for example, that municipalities near international borders have relatively large coffee shops; that may also explain why only a few such border towns emerged as having high numbers of coffee shops or high coffee shop densities relative to the local population.

Whilst Lenke and Olsson (1996) concluded that the presence or absence of conservative parties in the government was most influential when drug policy is considered, we found that the percentage of progressive seats was most important. As our Swedish colleagues suggested at the time, their finding would not necessarily hold if drug policy were to be made at the local level, or if right-of-centre parties were to turn to new groups of voters. As this article has shown, local policy-making indeed explains some of the differences between Lenke and Olsson's findings and our own. As to their second contingency, there has recently been a rise of new-right parties in the Netherlands, as in other countries. Such political parties combine economically left-leaning standpoints with right-wing outlooks in cultural terms. Many working-class people now vote for right-wing parties, whilst people from higher classes vote for parties on the left (Achterberg, 2005). Wacquant (2004) has pointed to another shift: a rise of paternalist conservatism, expressed through coercive measures that, in the years preceding the current economic crisis, were increasingly developed and imposed on socially excluded citizens (such as the poor, the homeless, the petty criminals). At the same time, more and more parties in the United States and Western Europe adopted stances whereby government, business and the well-functioning citizenry were accorded great freedom. In both the new-right and the paternalist conservative movements, drug use and drugs markets are viewed by definition from a law-and-order perspective, rather than in public health terms. Regarding the Netherlands, this allows no room for coffee shops; the debate centres on the nuisance caused by coffee shops, the dilemma of the cannabis supply chain, and the dangers to youth posed by exposure to drug use. As a consequence of this debate, Dutch drug policy has undergone a turnabout from a public health to a law-and-order approach. Even though the progressive parties' preferences lie with a liberal drug policy, they do not have sufficient political leverage in parliament to impose their wishes.

More recently, Dutch policy on coffee shops has come under additional pressure in debates involving border towns. Some towns experience nuisance from busy coffee shops frequented mainly by German, Belgian or French customers, who take their cannabis back across the border (Fijnaut & De Ruyver, 2008). The Dutch central government, citing drugs prevention, has also banned coffee shops from opening in the vicinity of schools and ordered the closure of those already there. In contrast, mayors of many towns with coffee shops have proposed to formally regulate the whole cannabis supply chain. This is counter to national government policy, which opposes any regulation of cannabis cultivation for supplying coffee shops. The outcome is a secret of the future. Possibly the local councils will succeed in maintaining their relative autonomy; possibly national-level politics will increasingly intervene in local policy, adopting regulations to curtail the local room for manoeuvre now available. That progressive political parties will try to bolster their law-and-order profiles, even if only to steal the thunder from paternalist conservatism.

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Ac ts

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Chapter : cce to icen ed Canna i upp and the eparation o ar et po ic in the ether and

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Abstract

In the Netherlands, small amounts of cannabis can be lawfully sold to consumers in so-called coffee shops. Many communities in the country do not have coffee shops, and users under 18 years of age are not allowed to enter coffee shops. A field sample of 773 current cannabis users were interviewed in seven Dutch cities, two without any coffee shop, five varying in coffee shop density. The vast majority (n = 665; 86.0%) buy their own cannabis, and more than 70% of the cannabis is bought in licensed coffee shops. In logistic regression analyses, three variables were significantly and independently associated with buying from unlicensed suppliers: coffee shop density, age, and sex. With higher coffee shop density it was less likely to buy outside of coffee shops. Under-age buyers were more than twice as likely to buy their cannabis from unlicensed dealers. Males were more likely to buy their cannabis from unlicensed sellers than females. A substantial proportion of unlicensed suppliers sell other drugs as well, thereby increasing the risk of being offered hard drugs when buying soft drugs. This risk is greater for minors than for adults, since a higher proportion of minors use unlicensed selling points.

1 Introduction

Cannabis is the most widely used illegal drug in the world (UNODC, 2007). A variety of national drug laws can be found throughout Europe; in some countries the use of cannabis is not prohibited while in others it is, but everywhere the sale of hashish and marijuana is illegal (EMCDDA, 2007). This does not mean that direct retail sales to consumers are equally actively controlled everywhere. The Netherlands is the only country where retail sales of small amounts of cannabis for personal consumption by adults is legal. The sites where these sales take place are known as 'coffee shops': cafe-like places where the sale of cannabis to consumers is allowed under certain conditions and where cannabis often can be consumed. Some coffee shops are mere sell-through locations that do not offer the possibility of consuming on-site. The latest data show that there are a little over 700 coffee shops in the Netherlands (Bieleman & Naayer, 2006). Based on the self-report figures from the latest national general population survey among 15-64 year olds, the number of individuals who have used cannabis in the month prior to the survey is an estimated 363,000 (95% CI 311,000-424,000) in a total population of 16.3 million (Rodenburg et al., 2007). This means that there is roughly one coffee shop per 500 current users. Since most users do not visit coffee shops daily, it is likely that on average there are enough coffee shops to accommodate the demand. However, several studies have shown that a substantial part of the users do not buy cannabis in coffee shops (Abraham, Kaal, & Cohen, 2002; Cohen & Kaal, 2001; Korf, Nabben, & Benschop, 2003; Monshouwer et al., 2004). How can this be explained?

Coffee shops are not evenly spread throughout the Netherlands. Around one third of all coffee shops are located in Amsterdam, while only five percent of the national population resides there. In most Dutch municipalities there are no coffee shops at all. In this article we will explore to what extent the availability of coffee shops has an influence on the way cannabis users procure cannabis. Coffee shops are not accessible to everyone; the minimum age is 18 years. Therefore, it is to be expected that cannabis users who are under 18 years of age, more often than adults buy cannabis through other channels.

The Netherlands has a tradition of emphasizing health in its drug policy when it comes to the users (Korf, Riper & Bullington, 1999; Leuw & Haen Marshal, 1994). The basic idea behind allowing coffee shops is that the risk of cannabis users being exposed to hard drugs, which are commonly viewed as

more hazardous to health, is reduced; this is referred to as the “separation of markets.” In regard to coffee shops this approach appears to be effective: hard drugs are very rarely found in coffee shops (Broekhuizen et al., 2006; Reinarman, 2009). However, with unlicensed cannabis suppliers the risk of being exposed to hard drugs could be higher. More specifically, the potential risk is that not allowing minors in coffee shops will undermine the separation of markets philosophy.

The aim of this article is to shed some light on the non-licensed cannabis market in the Netherlands. We address four questions: (1) To what extent is the availability of coffee shops related to where cannabis consumers in the Netherlands buy their cannabis? (2) To what extent does age influence the way in which cannabis is acquired? More specifically: how do under-age cannabis users in the Netherlands acquire their cannabis? (3) What are the other sources, apart from coffee shops, where cannabis users purchase their hashish or marijuana? And more specifically: do under-age cannabis users differ from adults in this respect? (4) How great is the risk that buyers are offered hard drugs by unlicensed cannabis suppliers?

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Since the 1960s, the cannabis market in the Netherlands has been going through different stages, starting with the sale of cannabis through an underground market. During the 1970s this shifted to home dealers, while in the 1980s coffee shops took over the market, and several guidelines were introduced to direct the sale appropriately. A new phase was entered in the mid-1990s when the number of coffee shops decreased (Korf, 2002). The legal groundwork for coffee shops was established with the decriminalization of cannabis in 1976, when the national drug law (‘Opiumwet’) was adapted and a distinction was made between cannabis (soft drugs) and ‘drugs with unacceptable risks’ (hard drugs). The maximum penalties for cannabis offences were reduced and those for hard drug offences were increased. Legal leeway was created to allow the sale of small amounts of cannabis to consumers, despite the fact that selling cannabis remained officially prohibited, on the crucial condition that the sale of cannabis would be strictly separated from the sale of hard drugs (de Kort, 1995). The legislators had not envisioned coffee shops, but so-called ‘house dealers’ in subsidized— therefore inspected or managed by the state—youth centres that were frequented by a young crowd. A series of judicial decisions effectively made coffee shops part of this legislation. For the sales points that were officially tolerated, criteria were developed during the years following decriminalization of cannabis. These criteria were: no advertisement, no hard drugs, no nuisance and no minors. Judges thought it inconsistent and unfair to not tolerate coffee shops that met the same criteria (de Kort, 1995). During the 1980s the number of coffee shops increased dramatically and reached its climax in the mid-1990s, with a total number of approximately 1,500 coffee shops in the Netherlands as a whole (Bieleman & Goeree, 2001). While closing coffee shops was relatively easy on grounds of finding hard drugs on the premises, it proved much more difficult to close them because of nuisance. In 1996 the cannabis policy was modified to address this issue[8]; local governments were given the liberty to decide whether or not they allowed coffee shops within their domain. When the decision by the town council to not allow coffee shops is laid down in an official document, this provides the judicial basis upon which existing or recently opened coffee shops can be closed, even if none of the national criteria have been violated.

From 1996 onwards, many municipalities decided to close down existing coffee shops or to reduce

[8] Stc 1996-187.Staatscourant 27 september 1996 nr.187 (1996). Richtlijnen opsporings- en strafvorderingsbeleid strafbare feiten Opiumwet.

the number of coffee shops that were allowed. The number of coffee shops drastically declined to 846 in 1999, followed by a steady downward trend; according to the most recent national figures, there were 729 coffee shops in 2005 (Bieleman & Naayer, 2006). Coffee shops are not evenly spread throughout the country, but often are concentrated in certain areas: today almost 80% of cities and towns do not have a coffee shop (Bieleman & Naayer, 2006). Generally speaking these are the smaller municipalities: only 5% of municipalities with less than 30,000 inhabitants have one or more coffee shops. Of municipalities with 30,000–40,000 inhabitants, one in three have coffee shops. Of municipalities with 40,000–50,000 inhabitants, a little over half have them. All municipalities with 100,000 or more inhabitants have at least one coffee shop.

The prevalence of cannabis use is higher in urban than in rural areas. According to the latest national household survey on substance use among the population 15-64 years old, the prevalence of cannabis use is 7.5% in areas with the highest population density, and 1.5% in areas with the lowest population density (Rodenburg et al., 2007). Surveys among the general population, high school students, and studies specifically aimed at cannabis users all show that not all cannabis users buy cannabis in coffee shops. According to the 2001 national alcohol and drugs survey among the general population, almost half of last-year users over 18 years old obtained their cannabis exclusively or supplementally from coffee shops, and around one- third through friends, relatives or acquaintances. Other places of acquisition were at the homes of dealers (home dealers), in cafes and clubs, in the streets, and from delivery services. Users very rarely grew their own marijuana. Cannabis users under 18 acquired their cannabis more often through friends and relatives, while a third acquired it from coffee shops (Abraham et al., 2002). In a national survey among high school students (12-18 years), almost half (49%) of last-month cannabis users reported that they never buy their own cannabis. Most of them said they exclusively or supplementally obtained their cannabis from friends, while 35% reported acquiring some or all of their cannabis from coffee shops (Monshouwer et al., 2004). A study by Cohen & Kaal (2001) among adult experienced cannabis users from Amsterdam found that as much as one-third of the respondents predominantly obtained their cannabis through channels other than coffee shops. The most common alternative supply source was through friends who had contacts with dealers. The Dutch unlicensed market resembles that of Belgium. Although around a quarter of a sample of Flemish cannabis users in Belgium bought cannabis at coffee shops in the Netherlands, most purchased it through friends who know dealers and one in five procured it directly from dealers. Other sources of cannabis were growing their own, and buying from marijuana growers or street dealers; these sources were rarely reported (Decorte, Muys, & Slock, 2003).

In conclusion, one of the objectives of the architects of the 1976 drug law revisions was the “separation of markets”, such that the lawful availability of cannabis to consumers would reduce the likelihood that cannabis users would be drawn into illicit markets where other, riskier illicit drugs are sold. However, cannabis sales still take place in non-legal settings outside the system of licensed shops, for example among users under 18 years of age who are not allowed to enter coffee shops.

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The decriminalization of cannabis in the Netherlands has been subject to much debate. MacCoun and Reuter (1997, 2001) conclude that commercial access – through coffee shops – has been associated with growth in cannabis use. Other scholars have questioned this association and argue that trends in cannabis use seem to develop rather independently of cannabis policy (e.g. Reuband, 1995; Korf, 2002; Reinarman & Cohen, 2007). Up until now the relationship between the differential

availability and prevalence of cannabis use within the Netherlands has not been studied. As noted above, the number of coffee shops varies greatly throughout the Netherlands. Consequently, not all cannabis users have a coffee shop within their geographical reach. It has been known for decades that the distance to be travelled to a source of goods, like a store, influences the likelihood a person will visit this store (Clark, 1968). Therefore, we hypothesize that the lower the coffee shop density, the more likely it is that cannabis users will buy their cannabis from suppliers other than coffee shops.

Also, minors are not legally allowed to enter a coffee shop. Originally, 16 years was the minimum age to be allowed in coffee shops, the same as for buying beer, wine and other kinds of 'soft' alcohol in the Netherlands. In 1996, after long discussions, the minimum age for coffee shop visitors was raised from 16 to 18 years, the age that someone in the Netherlands is legally considered an adult. It became forbidden for persons under 18 years to buy cannabis; if police find minors in a coffee shop, it will be closed. The aim of raising the minimum age was to diminish the number of minors that use cannabis. Several international studies have shown that early onset of cannabis use increases the risk of cannabis related problems and the use of hard drugs (Lynskey, Vink & Boomsma, 2006; Baumeister & Tossman, 2005; Lynskey et al., 2003). By increasing the age restriction, the Dutch government aimed to reduce the risk of minors beginning to use cannabis at a young age.

Both general population surveys and school surveys show that there are under-age cannabis users in the Netherlands (Monshouwer et al, 2004; Rodenburg et al., 2007). Moreover, under-age cannabis users, more often than adult users, report that they buy their hashish or marijuana through other channels than coffee shops (Abraham et al., 2002; Monshouwer et al, 2004; Korf et al., 2003; Nabben, Benschop, & Korf, 2007). However, both types of survey also show that there are minors who do find ways to buy from coffee shops. The fact that minors, who are too young to lawfully buy cannabis in coffee shops, use cannabis is not surprising. First, minors in countries without coffee shops also use cannabis, which is shown (among other studies) in European School Survey Project on Alcohol and other Drugs, in which 15-year old students in numerous European countries were surveyed (Hibell et al, 2004). Second, there is abundant evidence that in the case of alcohol, a legal drinking age does not prevent youth under this minimum age from consuming alcohol. Drawing a parallel with alcohol can be helpful in gaining insight into the possible consequences of a minimum purchasing age for cannabis. In many countries it is forbidden for young people under the age of 16, 18 or 21 to buy alcohol. In a review article considering the literature from 1960 to 2000, Wagenaar & Toomey (2002) discuss 241 studies on the effects of minimum drinking age laws. A significant inverse relationship was found between the minimum drinking age and alcohol consumption. However, as the authors note: "most youth continue to have access to alcohol, most drink at least occasionally and a substantial fraction regularly become intoxicated" (Wagenaar & Toomey, 2002). Other studies have also shown that alcohol can be purchased by those too young to legally do so (e.g., Willner & Hart, 2001). Wolfson & Hourigan (1997) discuss the consequences of raising the age limit for alcohol use. The figures for arrest rates among 18-21 year olds show an increase after the age limit was raised to 21 years in almost all of the USA. Overall, the conclusion seems to be justified that, in spite of minimum drinking ages, young people are able to acquire alcohol. They find ways to buy alcohol at stores despite the laws, and they obtain it directly or indirectly through adults.

Since 1996, cannabis use in the Netherlands among under-age youth has slightly but significantly diminished (Monshouwer et al., 2004). However, this cannot simply be interpreted as a result of raising the minimum age. For example, in the case of Amsterdam, the growing proportion and number of ethnic minority youth, who report significantly lower cannabis use than ethnic Dutch youth,

has been found to be an important factor in the decrease of cannabis use (Korf et al., 2003). Contrary to what one would expect based on studies on alcohol, the age of first cannabis use did not rise in the Netherlands after the minimum age was increased. Indeed, Monshouwer et al. (2005) found that the age of first cannabis use even declined. They compared the age of initiation among students aged 11-17 years in five surveys between 1988 and 2003. In later years relatively more cannabis users started using at a younger age compared to previous years.

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In order to address the four research questions we posed in the introduction, we conducted a field survey. Each research question had specific consequences for the design of the study. The study could not be conducted in coffee shops because in this manner (a) we could not study cannabis users in municipalities without coffee shops; and (b) the users in the municipalities with coffee shops who do not buy their cannabis in a coffee shop would not be included.

With regard to the first question (To what extent is the availability of coffee shops related to where cannabis consumers in the Netherlands buy their cannabis?), it was necessary to create a sample that varied in terms of the number of coffee shops to which respondents had access in their own town or city. For this reason we included cannabis users from both municipalities with and from those without coffee shops. In addition, in the municipalities with coffee shops we included both municipalities with relatively many and those with relatively few coffee shops.

As discussed in the introduction, coffee shops are not evenly spread throughout the country. Amsterdam has by far the highest number of coffee shops, 246 coffee shops for 743,000 inhabitants, or a density of 3.31 coffee shops per 10,000 inhabitants. The coffee shop density for the total of 105 municipalities with coffee shops is much lower: 0.55 (Bieleman & Naayer, 2006). Amsterdam is atypical in other aspects as well, since it is also a city with many tourists, a substantial proportion of whom consider going to coffee shops as an integral part of visiting the city. In several municipalities near the borders with Germany or Belgium, coffee shops have a significant number of customers from neighbouring countries (Decorte et al., 2003; Korf et al., 2001; De Ruyver & Surmont, 2007). For these reasons, both Amsterdam and municipalities near the border were omitted. In addition, small municipalities of less than 40,000 inhabitants were excluded because these very rarely have coffee shops and consequently we would not have been able to compare them with communities that do have coffee shops. The selection of municipalities was based on two criteria: (1) variation in coffee shop density (including zero coffee shops), but similarity in population size; and (2) geographical spread. Table 1 shows that the seven communities where the field survey was conducted vary from 49,000 to 210,000 inhabitants, and are geographically spread throughout the country. Since we wanted to study the influence of availability of coffee shops, two municipalities without coffee shops were included. The other five municipalities cover a wide range in coffee shop density, with those with the lowest density on top and those with the highest density at the bottom of the third column.

Table 1. Selected communities for field research

	No inhabitants	Coffee shop density[a]
Kampen	49.000	0
Lelystad	69.000	0
Almere	165.000	0.61
Alkmaar	210.000	7.14
Eindhoven	93.000	5.38
Heerenveen	42.000	11.90
Leeuwarden	91.000	15.38

To be able to answer the second and third research questions (about the influence of age on cannabis buying behaviour) we deliberately included cannabis users under the age of 18 in our survey (an additional reason we could not perform our study in coffee shops). Judging from the general population and school surveys we mentioned earlier, it remains unclear whether respondents bought cannabis in coffee shops themselves or whether their cannabis was brought there by persons other than themselves. To get a more precise picture of the relationship between availability of coffee shops and the purchasing behaviour of under-age cannabis consumers, we had to make a clear distinction between buying cannabis in coffee shops in person or getting it from coffee shops through others.

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3.5.1 Administration of the survey

Spread throughout the seven municipalities, a sample of 803 respondents were interviewed about their cannabis use and cannabis purchasing behaviour during a face- to-face survey. The interviews were held in the evening, in the street entertainment and shopping areas. We used an intercept survey strategy where people were randomly approached. Nevertheless the survey was restricted to inhabitants of the municipalities where it was conducted, and respondents had to have used cannabis in the past month. During the field work, approximately 6,000 persons were asked to participate. Around one in ten refused because of lack of time or not wanting to participate in any survey. About a quarter did not live in the municipality under study. Of the remaining circa 4,000 persons, around eighty percent could not be included because they had not used cannabis in the month prior to the survey. People very rarely refused to participate at this stage, and those who did most often said it was because of a time shortage (approximately 2%). The questionnaire was administered by field workers in the streets and took about 10 minutes to complete. Upon completion, the respondents received coloured lighted pins as a token of appreciation for their participation. Because the lights were visibly pinned on the clothes of respondents, they also served as a simple technique to avoid repeated interviewing.

3.5.2 Procedures

The questionnaire started with some questions about buying cannabis, followed by items on receiving cannabis for free. After that we asked about the use of illicit sales points. They were then asked some questions on buying behaviour of under-age persons and in conclusion they were asked a few

demographic characteristics. The questionnaire consisted of questions that were posed to everyone and questions that were only asked if, for example, a person had bought cannabis outside of a coffee shop. After data entry, the questionnaires were checked for missing, inconsistent and unrealistically high or low answers. This resulted in our removing 30 questionnaires, thus leaving 773 questionnaires that were used in the analyses.

3.5.3 Measurement

Respondents were asked whether they sometimes buy cannabis (yes/no). Those who answered in the affirmative were asked how many of the last ten times they had bought their cannabis in a coffee shop (0-10 times). At a later point in the interview, they were also asked what percentage of their total purchase of cannabis they usually made in a coffee shop (0-100%). Respondents were asked if they additionally or exclusively bought their cannabis elsewhere, and if so, where specifically.

We asked several questions to establish basic demographic characteristics. Age was recorded as a continuous variable and for later analyses it was recoded into under 18 years old (1) vs. 18 and older (0). Sex was coded as (1) male or (2) female. With regards to occupation we only asked whether respondents were (1) employed, (2) students, (3) both or (4) neither. Ethnicity was measured using the standardized procedure in the Netherlands (i.e. birth country of the respondents as well as that of their parents). During statistical analyses the distinction was made between being of Western (0) or non-Western (1) ethnicity. This distinction was applied as an alternative to race, which is not allowed to be registered in the Netherlands; in practice most Westerners are White (cf., Benschop et al., 2006).

All respondents were asked whether they were familiar with cannabis selling points other than coffee shops in their municipality. For each type of selling point respondents were asked how many they knew of. In addition, they were asked to indicate how many of these selling points sold only cannabis or also other drugs. They were asked the numbers for each of the following categories: only cannabis, mostly cannabis but also other drugs, both cannabis and other drugs equally and mostly other drugs but also cannabis. In this article, we present the percentages for each type of dealer on an aggregated level (i.e., of all respondents together).

Besides variables at the individual level, we also used variables which measure characteristics of the municipalities. To capture the availability of coffee shops to respondents, two variables were used. The first is coffee shop density. This variable was constructed by calculating the number of coffee shops per 100,000 inhabitants. The second variable is the area a municipality covers, expressed in square kilometres (km^2). This was chosen as an indication of municipality spread. Since almost all coffee shops are concentrated in the centre of municipalities, this is a proxy for the distance inhabitants have to travel to reach a coffee shop. Because it is an expression of distance to the coffee shop, this variable was only entered in the regression analyses when municipalities with coffee shops were exclusively selected for the analyses.

The population density (number of inhabitants per square kilometre, km^2) was used because it was expected that in the more rural areas, other ways of procuring cannabis than buying it through the coffee shop were more prevalent.

3.5.4 Analysis

Categorical variables were analysed using Pearson Chi² and continuous variables were analysed using t-tests when comparing two groups. For comparisons between more than two groups on continuous variables, one way ANOVA with post-hoc Bonferroni tests were applied. All comparisons were tested for statistical significance at the 95% confidence level. Because we wanted to explore the influence of coffee shop density on buying behaviour, we chose to perform a logistic regression analysis. To determine which variables were independently associated with buying outside of coffee shops, univariate logistic regression analyses were conducted and odds ratios (OR) and 95% confidence intervals were calculated. Stepwise multivariate logistic regression analyses with forward elimination of variables were conducted to analyse the contribution of each of the factors to the likelihood of buying cannabis outside of the coffee shop. All analyses were conducted with SPSS 14.0.

3.5.5 Reliability

To establish the reliability of the questionnaire, the survey was conducted twice in one of the municipalities (Alkmaar, first in November and later in June). No differences were found between the two samples with regard to the demographics, nor between the locations where cannabis was bought. As will be shown later in this article, two different measures for the proportion of cannabis bought in coffee shops showed high consistency.

3.5.6 Respondents

Demographic characteristics are presented in Table 2. Most of the 773 respondents were male, and less than one quarter were female (23.2%). Ages ranged from 12 to 70 years (mean 22.7; SD 8.4). Close to one quarter were younger than 18 years of age (23.8%). Almost three quarters of the respondents were of Western ethnicity (84.2%). Most respondents were either employed (42.7%) or students (26.6%), others combined work and study (18.5%), and about one in eight neither worked nor attended school (12.2%).

Age, ethnicity and occupation differed across municipalities. Mean age of respondents was lowest in the two communities without coffee shops (Kampen and Lelystad). Respondents in one of the towns without coffee shops (Lelystad) as well as the city with the lowest coffee shop density (Almere) most often had a non-Dutch ethnicity. Respondents in the latter city were also relatively more often neither employed nor students.

The mean municipality spread is 103.7 km^2 (SD 6.1) and the average coffee shop density is 6.23 (SD 5.3) per 100,000 inhabitants for all municipalities, in only those with coffee shops the average density is 7.65. The mean population density of all municipalities is 1615.05 inhabitants per km^2.

Table 2. Sex, age, ethnicity, and occupation of respondents

	No inhabitants	Coffee shop density	n	Sex	Age	Ethnicity		Work and/or study
				female	mean	western	non-western	yes, one or both
Kampen	49.000	0	62	26.2%	20.4	90.3%	9.7%	86.9%
Lelystad	69.000	0	82	11.0%	19.9	67.1%	32.9%	88.9%
Almere	165.000	0.61	110	23.6%	23.0	70.9%	29.1%	84.5%
Alkmaar	210.000	7.14	98	24.6%	24.8	87.6%	12.4%	89.4%
Eindhoven	93.000	5.38	100	20.0%	22.3	98.0%	2.0%	92.0%
Heerenveen	42.000	11.90	98	25.5%	22.7	83.6%	15.4%	83.7%
Leeuwarden	91.000	15.38	114	28.1%	22.4	87.7%	11.3%	87.7%
Total			773	23.2%	22.7	84.2%	15.8%	87.8%
p				n.s.	****	****		n.s.

*n.s. = not significant * p<.05 ** p<.01 *** p<.005 **** p <.001* [a] per 100.000 inhabitants

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3.6.1 Cannabis buying behaviour and coffee shops

All respondents had used cannabis at least once in the past 30 days. About one in seven respondents never buy cannabis (n=108; 14.0%). The other respondents buy their cannabis exclusively in coffee shops (n=323; 41.8%), in both coffee shops and at unlicensed sales points (n=257; 33.2%), or at unlicensed sales points only (n=85, 11.0%).

Amongst the last ten times that respondents bought cannabis, purchases occurred in coffee shops an average of 7.2 times (SD 3.9). When the respondents who buy cannabis were asked later in the survey to estimate the percentage of cannabis they buy in the coffee shops, they reported the same figure. On average 72.0% (SD 36.2) of their cannabis was purchased in coffee shops. At an individual level, the answers to these two different questions show a high consistency ($r = .87$, $p<.001$).

3.6.2 Buying behaviour and coffee shop availability

Data from respondents who buy cannabis are presented in Table 3. Buyers in the two municipalities without coffee shops reported buying less of their cannabis in coffee shops than buyers in municipalities with coffee shops. As might be expected, then, availability of coffee shops seems to influence where cannabis users in the Netherlands buy their cannabis. This is in line with our hypothesis that the lower the coffee shop density, the more likely it is that cannabis users will buy their cannabis from other suppliers than coffee shops. This hypothesis will be explored further below.

Table 3. Buying cannabis

	respondents who don't buy cannabis (n=108)	respondents who buy in coffee shop only n=318	respondents who (also) buy elsewhere n=342	How many times of the last ten times in coffee shop	Percentage of total amount bought in coffee shop
	%	%	%	mean (buyers only)	mean (buyers only)
Kampen	13.6	18.6	67.8	4.4	48.7
Lelystad	13.4	4.9	81.7	2.3	27.0
Almere	12.7	36.4	50.9	7.1	71.9
Eindhoven	25.0	40.0	35.0	7.9	78.5
Alkmaar	13.1	51.9	35.0	8.2	80.4
Heerenveen	9.2	51.0	39.8	8.1	78.8
Leeuwarden	12.3	57.9	29.8	9.2	89.5
Total	14.0	41.4	44.6	7.3	72.0
p	*	****	****	****	****

** p<.05 ** p<.01 *** p<.005 **** p <.001*

3.6.3 Under-aged and buying cannabis in coffee shops

Table 4 gives an overview of demographic characteristics of three groups of respondents: non-buyers, buyers who only buy in coffee shops and respondents who also or exclusively buy outside of coffee shops. Non-buyers are more often female, under-aged, and students. Respondents who buy in coffee shops only are least often under-aged, and live in municipalities with the lowest municipality spread and the highest coffee shop density. The third group has the highest proportion of males, and lives in municipalities with the largest municipality spread and the lowest coffee shop density.
When focussing on under-age respondents, and thereby exploring how minors acquire their cannabis (our second research question), analysis shows that of the 184 under-age respondents in the sample, 43 indicated that they never buy cannabis themselves (23.4%); this is more than twice the rate of as the respondents who were 18 years and older (10.7%; χ^2=19.85, p<.001). The remaining minors buy an average of 56.6% of their cannabis in coffee shops and this is less than the adults who purchase cannabis in coffee shops (76.6%; t=-5.92, p<.001).

In conclusion, age is related to cannabis buying behaviour. Under-age respondents often do not buy their own cannabis. Compared to older buyers, under-age respondents buy at coffee shops less often, and buy a smaller proportion of their cannabis there, including both the last ten purchases (t=-5.96, p<.001) and in average percentage (t=-5.92, p<.001).
However, cannabis buying behaviour is also associated with sex, municipality spread, and coffee shop density. We address the specific role of age in cannabis buying behaviour in more detail below.

Table 4. Characteristics of three groups of cannabis users

	non-buyers % or mean (sd)	coffee shop only % or mean (sd)	(also) elsewhere % or mean (sd)	total % or mean (sd)	Difference
	n=108	n=318	n=342	n=773	p
Male (%) #	59.3	74.4	84.8	77.0	<.000
Under-aged <18 (%) #	40.7	12.6	28.0	23.4	p<.000
Occupation (%) #					p<.000
no work, no study	1.9	13.8	14.1	12.3	
study	43.5	22.6	24.3	26.3	
work	34.3	47.2	41.6	42.9	
work and study	20.4	16.4	19.9	18.5	
non-Western ethnicity (%) #	15.7	14.7	17.1	15.9	n.s.
Mean age in years (SD) ##	20.4 (6.8) [a]	24.4 (8.7) [a,b]	22.0 (8.2) [b]	22.8 (8.4)	p<.000.
Mean spread in km^2 (SD) ##	10.7 (6.0) [a,c]	8.3 (4.6) [a,b]	12.2 (6.8) [b,c]	10.4 (6.1)	p<.000
Mean coffee shop density per 100000 inhabitants (SD) ##	6.1 (5.0) [a,c]	7.8 (5.1) [a,b]	4.8 (5.3) [b,c]	6.3 (5.3)	p<.000
Mean population density in 1000 inhabitants per km2 [##]	1.8 (1.1) [c]	1.8 (1.1) [b]	1.4 (1.1) [b,c]	1.6 (1.1)	p<.000

[#] Chi^2

[##] One way ANOVA

[a] At least p<.05 level post-hoc Bonferroni, between non-buyers and coffee shop only buyers.

[b] At least p<.05, post-hoc Bonferroni, between coffee shop only buyers and (also) elsewhere buyers.

[c] At least p<.05, post-hoc Bonferroni, between non-buyers and (also) elsewhere buyers.

3.6.4 Predictors of buying cannabis at unlicensed sales points

To determine whether variables were independently associated with buying outside of coffee shops, we conducted univariate logistic regression analyses and calculated odds ratios (OR) at 95% confidence intervals. To analyse the contribution of each of the factors to the likelihood of buying cannabis outside of the coffee shops, we conducted stepwise multivariate logistic regression analyses with forward elimination of variables. The variables were entered in blocks. In the first block, variables on municipality level were entered: coffee shop density and municipality spread. In the second block, variables on individual level were entered; these were also possible confounder variables: being under aged, sex, ethnicity and occupation. In the third and final block, all interactions between the variables from the first and second block were entered.

All logistic analyses were repeated for four different subgroups of buyers: (i) the total sample; (ii) respondents who live in a municipality with coffee shops; (iii) respondents who are 18 years old and over; and (iv) respondents who are 18 years old and over and live in a municipality with coffee shops. For each of these groups, the variables entered differed slightly. First, municipality spread was only used when municipalities with coffee shops were in the analyses. Second, age was entered as a dichotomous variable (minor / adult) when all buyers were selected for analyses, and as a continuous variable when only adults were used.

Results from the univariate analyses comparing the coffee shop buyers with the respondents who additionally or exclusively buy cannabis elsewhere, are shown in Table 5. Cannabis buyers under the age of 18 and males as well as respondents in a municipality with a larger spread were more likely to buy cannabis outside of coffee shops. In contrast, respondents in a municipality with a high coffee shop density were less likely to buy elsewhere. In addition, respondents from municipalities with a higher population density were less likely to buy outside of coffee shops. Both ethnicity and occupation made no difference.

Table 5. Univariate associations between buying outside of coffee shops, municipality characteristics and demographic characteristics. (buyers only)

	only CS buyer ***n (%)***	**(also) elsewhere buyer** ***n (%)***	**OR (95% CI)**	**p**
Coffee shop density			0.901 (.874-.928)	.000
Mean (SD)	7.8 (5.1)	4.8 (5.3)		
Age			2.401 (1.620-3.558)	.000
under 18	45 (14)	96 (28)		
18 and over	278 (86)	246 (72)	ref	
Sex			1.975 (1.343-2.905)	.000
Male	238 (74)	291 (85)		
Female	84 (26)	51 (15)	ref	
Municipality spread			1.045 (1.004-1.088)	.033
Mean, 10 km^2 (SD)	7.9 (4.2)	8.7 (4.3)		
Population density			0.704 (0.615-0.807)	.000
Mean (SD)	1.8 (1.1)	1.4 (1.1)		
Ethnicity			1.186 (.780-1.804)	.425
Western	271 (85)	281 (83)	ref	
non-Western	47 (15)	58 (17)		
Occupation				.558
Neither	44 (14)	48 (14)	ref	
Study	76 (24)	82 (24)	.850 (.493-1.465)	.559
Work	150 (46)	142 (42)	.851 (.529-1.369)	.506
Work and study	53 (16)	68 (20)	.738 (.482-1.130)	.162

The univariate association of spread with buying outside of coffee shops was only analysed for municipalities with coffee shops.

Table 6 shows the results of the four multivariate logistic regression analyses examining associations with buying outside of coffee shops. For all 665 respondents who buy cannabis (from municipalities both with and without coffee shops), four covariates were independently associated with buying outside of coffee shops: coffee shop density, population density, age, and sex. The higher the coffee shop density and the higher the population density of a respondent's municipality, the less likely she or he is to buy cannabis at unlicensed sales points. Coffee shop density also interacts with ethnicity: for non-Western buyers, a higher coffee shop density weakens the increased chance for buying cannabis elsewhere. Both being a minor and being male roughly doubles the chance of buying outside the licensed shop system.

When only the 515 adult buyers (again, both from municipalities with and without coffee shops) are considered, and age is included in the analysis as a continuous variable, coffee shop density and sex

are the only two variables independently associated with buying outside of coffee shops. Again, an increase in coffee shop density decreases the chance of buying at illicit sales points.
For the 533 cannabis buyers living in municipalities with a coffee shop, three covariates were independently and significantly associated with buying outside of coffee shops: coffee shop density, age, and sex. A higher coffee shop density decreases the chance of buying cannabis elsewhere. Conversely, under-age cannabis users and males have a higher chance of doing so.

For the 434 cannabis buying respondents who are adult and live in municipalities with a coffee shop, only coffee shop density is independently associated with buying cannabis outside of coffee shops. In addition, two interactions were found between coffee shop density and ethnicity and between municipality spread and sex. For non-Western respondents, the effect of coffee shop density in reducing use of illicit sales points is less than for Western respondents. And for males, a larger municipality spread increases the chance of buying outside of coffee shops more than for females.
The logistic regression analyses indicate that local availability of coffee shops is a strong predictor of whether cannabis is bought in coffee shops or from other, unlicensed, suppliers. Buying cannabis from illicit sellers was more likely in communities without coffee shops, and in cities and towns with coffee shops it was more likely when there were less coffee shops per capita. Age was another important variable, but only in terms of the distinction between under-aged buyers and those above 18 years. Under-age respondents were much more likely to buy cannabis from sellers other than coffee shops. Since age did not interact with coffee shop density, the availability of coffee shops does not seem to have an impact on the buying behaviour of minors. This is probably because under-age users are not allowed in coffee shops. Male buyers were much more likely than females to acquire cannabis from non- lawful sellers. Municipality spread and ethnicity were not important variables in predicting cannabis buying behaviour. Ethnicity only slightly moderated the role of coffee shop density, and occupation had no effect in any of the regression models.

Table 6. Multivariate logistic regression (cannabis buyers only)

	OR (95% CI)	p
All cannabis buyers (n=665)		
Coffee shop density	0.903 (0.874-0.933)	.000
Population density	0.702 (0.606-0.812)	.000
Under-aged (0=18+ ; 1= younger than 18 yrs)	2.190 (1.427-3.363)	.000
Sex (0=female; 1 = male)	2.167 (1.427-3.292)	.000
Coffee shop density by ethnicity	0.934 (0.875-0.998)	.043
Cannabis buyers 18+ (n=515)		
Coffee shop density	0.908 (0.875-0.942)	.000
Population density	1.107 (0.759-1.615)	.598
Sex (0=female; 1 = male)	5.541 (2.241-13.703	.000
Population density by sex	0.600 (0.394-0.914)	.017
Coffee shop density by ethnicity	0.906 (0.835-0.983)	.017
Cannabis buyers from municipalities with coffee shop (n=533)		
Coffee shop density	0.947 (0.913-0.981)	.003
Under-aged (0=18+ ; 1= younger than 18 yrs)	2.296 (1.451-3.632)	.000
Sex (0=female; 1 = male)	1.760 (1.134-2.731)	.012
Municipality spread	1.040 (0.998-1.084)	.062
Cannabis buyers 18+ from municipalities with coffee shops (n=434)		
Coffee shop density	0.960 (0.923-1.000)	.048
Coffee shop density by ethnicity (0= Western; 1 = non-Western)	0.914 (0.844-0.990)	.028
Municipality spread by sex	1.049 (1.008-1.092)	.018

3.6.5 Unlicensed sales points

Where do respondents who buy cannabis from illicit sales points (either exclusively or in addition to coffee shops) actually buy their cannabis? The types of unlicensed sales points listed in the questionnaire were based on previous studies, which we discussed earlier in the introduction (Abraham et al., 2002; Cohen & Kaal, 2001; Decorte et al., 2003). We distinguished five types: mobile phone dealer (also known as delivery service), home dealer, home grower, street dealer and under-the-counter dealer. The respondents were asked to sum up the different sources where they bought. They could also respond 'other', following which they were asked to specify their answer. They were given the list of all the different types of sales points; respondents could indicate whether they used

each type and could report more than one type of unlicensed cannabis seller.
Of the different types of unlicensed selling points for cannabis, the mobile phone dealer was reported most often (17.3% of respondents that buy cannabis), followed by home dealers (14.0%) and home growers (10.5%). Both street dealers and under-the-counter dealers are used less often, by 5.3% and 3.6% respectively.

Table 7. Buying cannabis from other sources than coffee shops (elsewhere buyers only)

	n	Mobile phone dealer	home dealer	home grower	street dealer	under-the-counter dealer
Kampen	40	32.5%	57.5%	25.0%	12.5%	27.5%
Lelystad	67	85.1%	32.8%	9.0%	22.4%	7.5%
Almere	56	60.7%	26.8%	12.5%	19.6%	-
Alkmaar	72	33.3%	25.0%	27.8%	2.8%	2.8%
Eindhoven	34	5.9%	38.2%	47.1%	8.8%	14.7%
Heerenveen	39	5.1%	23.1%	20.5%	10.3%	-
Leeuwarden	34	5.9%	23.5%	41.2%	2.9%	14.7%
Total	666	39.2%	31.6%	23.7%	12.0%	8.2%
p		****	**	****	***	****

n.s. = non significant * p<.05 ** p<.01 *** p<.005 **** p <.001

As is shown in Table 7, the proportion of cannabis buying respondents reporting a specific source varied across the country. Since buying cannabis from sources other than coffee shops was most prevalent in municipalities without a coffee shop, it is no surprise that several types of these unlicensed suppliers were mentioned most often by respondents who live in these areas. Home dealers were reported most often in both municipalities without coffee shops. Mobile phone dealers were mentioned most often in one of these municipalities (Lelystad), and also relatively often in the other one (Kampen), as well as in the city with the lowest coffee shop density (Almere). Street dealers were reported most often in Lelystad, and under-the-counter dealers in Kampen. Only home growing dealers do not seem to be related to coffee shop availability.

3.6.6 Under age cannabis buyers and unlicensed cannabis suppliers

Of respondents younger than 18 years of age, over two-thirds who buy cannabis do so at unlicensed sales points (68.6%). More than two in five (also) buy it from mobile dealers (43.8%), one in three from house dealers (32.2%), almost one in five from the home grower (18.8%) and fewer from street dealers (14.6%). Few minors purchase cannabis from an under-the-counter dealer (7.3%). Generally speaking, under-age buyers do not differ much from the adult buyers in this respect, however, they do buy more often at mobile phone dealers (χ^2=20.50, p<.001).

3.6.7 Mixed markets

Separation of markets was the main objective in decriminalization of cannabis in the Netherlands. By allowing the sale of cannabis in coffee shops, the Dutch government intended to reduce the risk that cannabis users will be confronted with hard drugs. How great is the risk that buyers will be offered hard drugs from unlicensed cannabis suppliers? All respondents were asked whether they were fa-

miliar with cannabis selling points other than coffee shops in their municipality. For each type of selling point respondents were asked how many they knew of. In addition, they were asked to indicate how many of these selling points sold only cannabis or how many also sold other drugs. They were asked the numbers for each of the following categories: only cannabis, mostly cannabis but also other drugs, both cannabis and other drugs equally and mostly other drugs but also cannabis. We present the aggregated percentages for each type of dealer (i.e. of all respondents together).
Table 8 indicates that, according to the respondents, the majority of non-lawful selling points mostly or only sell cannabis. However, a substantial proportion of both under-the-counter dealers and street dealers sell other drugs in addition to cannabis (15.5% and 19.1% respectively). Thus, mobile phone dealers and home dealers often don't mainly sell other drugs; still, a substantial proportion of these selling points sell both cannabis and other drugs (35.0% and 31.1%, respectively).

Table 8. Other drugs sold at unlicensed cannabis selling points?

	all respondents				respondents who (also) buy outside of coffee shops			
	oc	**mc**	**e**	**mo**	**oc**	**mc**	**e**	**mo**
Mobile phone dealer	65.0	16.0	11.1	7.5	66.4	18.3	8.7	5.9
House dealer	69.9	11.5	8.9	9.8	73.1	11.4	7.0	8.5
Under-the-counter dealer	72.0	3.0	8.9	15.5	79.7	2.3	4.4	13.6
Streetdealer	50.0	10.5	20.4	19.1	53.0	9.0	19.9	18.1

OC = only cannabis; MC = mostly cannabis; E = cannabis and other drugs equally; MO = mostly other drugs

i cu ion

The aim of this study was to shed some light on the non-lawful cannabis market in the Netherlands. We conducted a field survey in seven communities that varied in coffee shop density, including two towns without any coffee shop. Close to 800 current cannabis users were interviewed, of which 86.0% (n = 665) buy their own cannabis.
The first question we wished to answer was: to what extent is the availability of coffee shops related to where consumers in the Netherlands buy their cannabis? Close to half of the respondents who reported buying cannabis said they did so exclusively in coffee shops (48.6%), while an additional one in three purchased cannabis in coffee shops as well as from other sellers (38.6%). One in eight (12.8%) reported that they purchased their cannabis only from non-licensed sellers. In total, more than 70% of the cannabis our respondents purchased was bought in coffee shops. Buyers in the two municipalities without coffee shops reported buying significantly less of their cannabis in coffee shops than buyers in municipalities with coffee shops.
Second, we analysed the extent to which age influences the way in cannabis is acquired, in particular how under-age cannabis users in the Netherlands acquire their cannabis. We expected age to have a substantial impact in cannabis purchasing patterns because coffee shop regulations require that purchasers be at least 18 years of age. As expected, minors were more often non-buyers and were more likely to buy cannabis outside coffee shops, compared to adults. When minors do buy in coffee shops, they buy less of their cannabis there. In several logistic regression analyses, we compared respondents who exclusively buy their cannabis in coffee shops with respondents who additionally or exclusively buy cannabis elsewhere. Three variables were significantly and independently associated with buying from other suppliers: coffee shop density, age, and sex. We found that the higher

the coffee shop density, the lower the likelihood that respondents bought cannabis outside the coffee shop system at illicit selling points with under-age buyers more than twice as likely to buy their cannabis outside of coffee shops.

The third question we addressed was: what are the other sources, apart from coffee shops, where cannabis users purchase their hashish or marijuana? And more specifically, do under-age cannabis users differ from adults in this respect? Respondents reported five types of illicit cannabis suppliers: mobile phone dealers (delivery services), home dealers (selling cannabis from their own homes), under-the- counter dealers (selling cannabis in cafes, discotheques, etc.) and street dealers. The most commonly used type of unlicensed cannabis seller was the mobile phone dealer, followed closely by the home dealer. The home grower was also used relatively often, while street dealers and under-the-counter dealers were used sporadically. In addition to their more frequent use of illicit sales points, under-age respondents were more likely to report buying their cannabis from mobile phone dealers.

Our fourth question was: how great is the risk that buyers will be offered hard drugs from the unlicensed cannabis suppliers? Respondents reported that a majority of such unlicensed selling points predominantly sell cannabis. However, a substantial number of these dealers also sell other drugs as well, thereby increasing the risk of being offered hard drugs when buying soft drugs.

For this study, we interviewed a field sample of current cannabis users who had used marijuana or hashish at least once in the past 30 days. Our main goal was to discover the variety of ways used to buy cannabis. Although the sample was not a random representative, all types of people above age 12 were included as they passed by our interviewers, and the survey was conducted at neutral locations with regard to the types of cannabis users who might be present. However, we do not contend that our percentages of coffee shop buyers, illicit buyers, and non-buyers are statistically representative of the entire population of cannabis users in the Netherlands. Since the proportion of current users of cannabis is low in the general population, a very large and prohibitively expensive sample would be needed to make generalizable claims about the buying behaviour of all cannabis users in the country. In the most recent general population study on substance use in the Netherlands, 3.3% had used cannabis in the last month, or 149 of a total of 4,516 respondents (Rodenburg et al., 2007). To judge from this proportion, gathering as many respondents as we included in our sample would have required contacting about 25,000 respondents. Since this is a very costly and time intensive task, we opted for a more pragmatic solution and used an intercept survey strategy by interviewing a convenience sample. The female:male ratio in our study is 1:3.3, which is close to the ratio for current cannabis users in the general population (1:3.5). Older cannabis users are probably underrepresented in our study; the mean age of the respondents in our study is 22.7 years, versus 30.5 years for the last year users in the general population of 2005 (Rodenburg et al., 2007) and 27.8 years for last month users in the general population of 2001 (Abraham et al., 2002). Consequently, the proportion of cannabis bought in coffee shops by the general population of cannabis users is probably higher than we found in our sample. However, for respondents who were 18 years of age or older, age had no effect on cannabis buying behaviour, so the over-representation of younger users in our study is not likely to have had a significant impact on our findings regarding the predictors of buying cannabis from illicit sources. Nevertheless, our sampling method might have affected our data. For example, we cannot completely exclude the possibility that the cannabis purchasing behaviour of the young respondents in our survey is similar to the cannabis purchasing behaviour of young respondents in the general population of cannabis users. Unfortunately such normative data are not available, although the 2001 household survey and the 2004 school survey also indicate that

a substantial number of minors buy outside of coffee shops (Abraham et al., 2002; Monshouwer et al., 2004).

Despite the fact that cannabis users in the Netherlands buy most of their marijuana or hashish from coffee shops, there remains an illicit, unregulated market outside the coffee shop system. The availability of coffee shops has diminished in the past decade. Generally speaking, it would be expected that people prefer buying from legal channels when these are present. Why do people in the Netherlands buy cannabis from unlicensed selling points? The evidence from our survey suggests that the availability of coffee shops influences whether people buy from unlicensed selling points: with fewer coffee shops, the likelihood that cannabis users will resort to illicit selling points increases.

We must note, however, that even in municipalities with a very high coffee shop density, not all respondents bought all their cannabis from a licensed coffee shop. In addition to the geographical concentration of coffee shops, other factors may play a role in cannabis users' buying decisions. Although we did not study these factors in detail, from qualitative information collected in ethnographic field studies in five of the municipalities discussed in our paper (Korf et al., 2005), we can identify some of these factors. The opening hours of coffee shops are one of these. Many municipalities that allow coffee shops restrict their business hours. Availability can consist of several aspects, such as the physical availability (to what extent is a coffee shop physically present, accessible and nearby), availability in time (to what extent does someone have the opportunity to visit a coffee shop considering daily activities and business hours) and social availability (to what extent is someone stimulated or restrained from buying at a coffee shop).

Municipality spread was used as a proxy for spatial distance to coffee shops. This variable was not independently associated with cannabis buying behaviour. Indeed, the variable has some flaws. First, it was measured at an aggregate level. Consequently, it did not allow for individual variation between respondents within the same city or town. Also, it only applied for respondents from municipalities with coffee shops, and therefore could not be included in the regression analysis for all buyers, or all adult buyers. The fact that cannabis users who live in municipalities without coffee shops more often buy cannabis from illicit dealers strongly indicates that spatial distance to coffee shops does play a significant role in cannabis buying behaviour. However, the spread might have been better measured at an individual level, and this is an omission on our part. In future studies the distance between where respondents live and the nearest coffee shop should be included, either as traveling distance or geographical distance. This might lead to more valid conclusions on its influence on cannabis buying behaviour.

Although this study focuses on the Netherlands, the findings could also have implications for other countries. On the one hand, lifting drug prohibition leads to a reduction in the underground market (e.g. the non-tolerated market mentioned in this article). On the other hand, the underground market will not disappear completely, at least not when drugs are not fully legalized. Even in the futuristic situation of full legalization, it is most likely that this would not occur without a minimum legal age. Our study shows that finding an optimal minimum age is not an easy task. By raising the minimum age for access to coffee shops from 16 to 18 years in 1996, the Dutch government intended to reduce cannabis use among minors. In consequent years, national school surveys did show a slight decline in cannabis use prevalence among youth in the Netherlands, although this was not necessarily a result of the change in coffee shop policy (Monshouwer et al., 2004). As noted earlier, surveys among high school students in Amsterdam indicate that the decrease in cannabis use is largely a function of the strong and swift increase in the number of youth from ethnic minorities, many of whom have a Muslim background (mainly from Morocco and Turkey) and their cannabis use is much

lower than among ethnic Dutch youth. For example, in the 2001 school survey in Amsterdam, 17% of Turkish and 16% of Moroccan students aged 16-17 had used cannabis in the past 30 days, versus 32% of the Dutch respondents in that age category (Korf, Nabben, & Benschop, 2002).

Recently, the Dutch government revealed plans to ban coffee shops from areas within walking distance of schools and colleges. But the findings from this study suggest that such a ban would entail the risk of paradoxical unintended consequences, for policies that reduce the number of lawful coffee shops may well lead to an increase in unlicensed, illicit selling points in the cannabis market. By acquiring cannabis through other channels, cannabis users are more likely to be confronted with more dangerous drugs. Thus, reducing regulated availability may have the unintended consequence of jeopardizing the benefits of market separation achieved by the original reform of drug policy.

Ac ts

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Chapter : Canna i u e and pro i it to co ee hop in the eth er and

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Abstract

The aim of this paper is to assess the influence of coffee shop availability on the prevalence and intensity of cannabis use, as well as the effectiveness of the 'separation of markets' policy. A convenience sample of nightlife visitors and a sub-selection of previous year cannabis users were used for analyses on cannabis and hard drugs use. Logistic regression analyses showed that coffee shop proximity does not seem to be linked to prevalence of cannabis use or intensity of use. In addition, proximity to coffee shops does not seem to be linked directly to hard drugs use.

1 Introduction

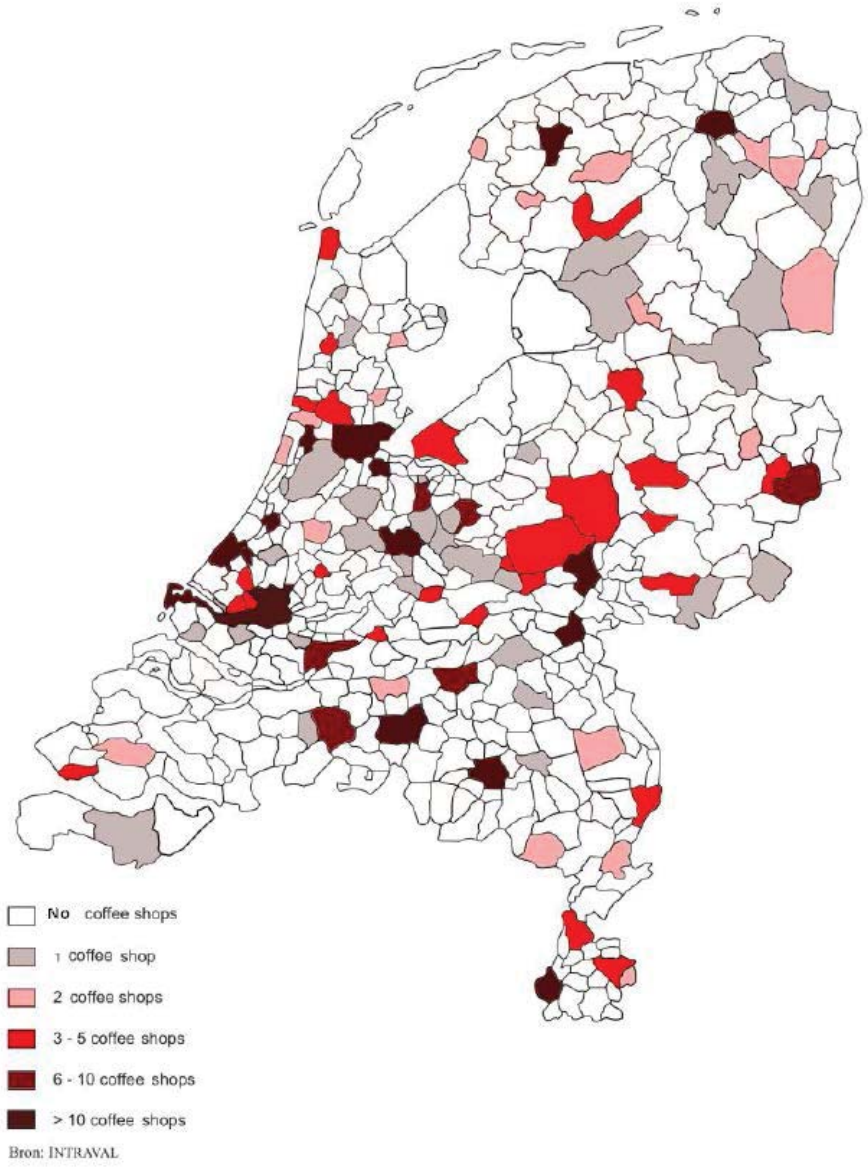
Across Europe, the illicit retail market in cannabis is similar, with various levels of distribution ranging from social suppliers to profit-making sellers (Sifaneck et al., 2007; Stevenson, 2008; Werse, 2008). The Netherlands is an exception, however, because retail sales of cannabis for personal consumption by adults are condoned in 'coffee shops', which are allowed to sell cannabis under certain conditions. From previous studies, it remains undetermined whether or not the exceptional situation in the Netherlands influences the prevalence of cannabis use. Whereas some authors have suggested that the presence of coffee shops causes an increase in the prevalence of use (MacCoun & Reuter, 1997; MacCoun & Reuter, 2001), others have argued that, across Western countries, trends in cannabis prevalence seem to develop independently of drugs policy (Korf, 2002; Reinarman & Cohen, 2007; Reuband, 1995). These studies have several limitations. First, some studies base their conclusions on prevalence among minors, who are not allowed in coffee shops. Second, they are mostly based on *aggregate* data (with the exception of those using arrest rates). On an *individual* level, however, other factors might play a role and aggregate data will not identify the underlying mechanisms. Third, several of the studies are based on formal policies, but different conclusions may be reached when considering policy in practice.

In the Netherlands, the sale of cannabis in coffee shops is tolerated only when certain (nationally determined) criteria are met: no advertising, no sale of hard drugs, no nuisance, a minimum of 18 years of age to enter a coffee shop and buy cannabis there, and no sale or stock of large quantities (>5 grams per person per transaction, >500 grams in stock). Another part of the coffee shop policy is determined at a local level, where municipalities have the authority to determine if and where coffee shops can be established. As a result, coffee shops are not evenly spread throughout the Netherlands, as can be seen in Figure 1 (Bieleman & Nijkamp, 2010). Almost 80 percent of Dutch municipalities have no coffee shops and, of all coffee shops (n = 666), one-third are located in Amsterdam (Bieleman & Nijkamp, 2010).

A recent evaluation of Dutch drugs policy concluded that decreases in the prevalence of cannabis use within the Netherlands developed in parallel with a reduction in the number of coffee shops, and that these developments might (also) be influenced by other factors, such as the decrease in tobacco smoking (Van Laar & Van Ooyen-Houben, 2009). Given the presence of coffee shops, one might expect cannabis users in the Netherlands to buy there rather than on the illicit market. However, the limitations in the availability of coffee shops (for example, minimum age, uneven geographical spread) might induce users to (also) buy cannabis through illegal channels. Several studies show that a substantial proportion indeed do (Abraham et al., 2002; Cohen & Kaal, 2001; Korf et al., 2003; Monshouwer et al., 2004; Wouters & Korf, 2009). Availability entails several aspects: the physical availability (to what extent is a coffee shop present and accessible, including distance), availability in time (to what extent does someone have the opportunity to visit a coffee shop, considering daily activities and

opening hours) and social availability (to what extent is someone motivated or inhibited to buy at a coffee shop). In an earlier study, we looked at cannabis availability through (legal) coffee shops and other (illegal) suppliers. A survey among current cannabis users was conducted in seven Dutch cities (Wouters & Korf, 2009). Unsurprisingly, in municipalities without coffee shops, significantly less cannabis was purchased through coffee shops. Significant predictors of buying cannabis illegally were coffee shop *density* (a measure for availability: the number of coffee shops per 100,000 inhabitants), age (minors) and sex (male) (Wouters & Korf, 2009).

Figure 1. Geographical spread of coffee shops in the Netherlands in 2009



In criminology, two theories dominate the study of availability and proximity: Routine Activity Theory and Rational Choice Theory. The first is based on the notion of individuals encountering opportunities for crime during their daily life and taking these opportunities, resulting in criminal behaviour (Cohen and Vila, 1996). The second states that criminals actively search for targets and base their movements on this search (Cornish and Clarke, 1986), thus the aim of criminal behaviour precedes the travel. Empirical studies have shown that travel distance to crime locations varies according to type of crime (Morselli & Royer, 2008; Snook, 2004), but also within crime types (Morselli & Royer, 2008; Snook, 2004). Generally, there are greater gains for greater distances travelled (Bernasco & Block, 2011). However, there also is distance decay, which means that offenders commit fewer crimes as the distance from home increases (Van Daele & Beken, 2011). Differences have also been found according to the type of offender: younger offenders travel shorter distances, and more experienced offenders travel longer distances (Snook, 2004). Travelling to crime seems to be influenced by three factors: (1) expected profits, (2) expected risk, and (3) the ease with which the target can be reached (Van Daele & Beken, 2011). This third point includes both attractors and barriers that make the target more or less accessible.

The relationship between availability and consumption has also been studied in the field of addiction. In summary, both density and proximity seem to increase substance use and gambling (Chuang, 2005; Henriksen et al., 2004; Pokorny et al., 2003; West et al., 2010), although there also have been contradictory findings (Popova et al., 2009; West et al., 2010). In addition, social factors (sex, age, ethnicity and socioeconomic status, for example) often are more important (Abbott & Volberg, 2000; Gerstein et al., 1999; Room et al., 1999; Sévigny et al., 2008).

The rationale behind the Dutch coffee shop policy is to reduce the risk of cannabis users being exposed to hard drugs, which are viewed as more hazardous to health; this is referred to as the 'separation of markets'. This approach appears to be effective as hard drugs are very rarely found in coffee shops (Broekhuizen et al., 2006; Reinarman & Cohen, 2007). With illegal cannabis retailers – the illicit market – the risk of being exposed to hard drugs could be higher. More specifically, not allowing minors in coffee shops might undermine the separation of markets philosophy.

In the current study, our aim is to assess the relationship between proximity to coffee shops (a measure of availability: travel distance to coffee shop) and cannabis use. Cannabis use will be analysed in relation to three different aspects: prevalence of use, frequency of use and amounts used. As stated above, it has been suggested that easier access to cannabis might stimulate use. Therefore, our first hypothesis is that higher coffee shop proximity is associated with a higher prevalence of cannabis use, more frequent use and larger amounts used. Regarding the 'separation of markets' policy, we hypothesize that buyers in the illicit market are more likely to use hard drugs than those who buy in coffee shops.

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4.2.1 Sample

A general population survey would yield too few numbers of cannabis and hard drugs users to study the relationship between proximity to coffee shops and prevalence of cannabis and hard drugs

use[9]. In addition, existing general population surveys in the Netherlands do not contain information on frequency of use or the amounts used. To avoid the problem of inadequate sample size, we conducted a study into the use of drugs among people between 15 and 35 years of age who visit nightlife venues (Van der Poel et al., 2010). Respondents were purposely recruited at nightlife locations (primarily clubs), geographically spread out across the Netherlands. Recruitment took place between spring 2008 and autumn 2009. A total of 26 clubs and discos were selected, based on the type of music, number of visitors and geographical spread.
Trained interviewers administered questionnaires. The interviewers approached those who appeared to fit the age range, asked if they were willing to participate in a survey and assured them of anonymity. Those who agreed received a flier with a URL for a website where they could fill out the questionnaire online, or a paper questionnaire, which could be returned by mail. This resulted in 2027 respondents. All statistical analyses were performed using PASW 17.0.

4.2.2 Measures

We recoded continuous or ordinal variables (frequency of cannabis use, amounts of cannabis used, age of first cannabis use, coffee shop proximity and urbanicity) as dichotomous variables. Recoding these variables into two categories was motivated by the lack of linearity of the variables in their original form with the logit of previous year cannabis use, frequency of cannabis use, amounts of cannabis use and previous year hard drugs use. For frequency of cannabis use, amounts of cannabis used, coffee shop proximity and urbanicity, almost half or more of the respondents were actually in the lowest category and therefore this was chosen as a cut-off point. For age of first cannabis use, we chose 13 years of age based on studies that showed that starting cannabis use earlier is linked to several forms of deviant behaviour (Henriksen et al., 2004; Leatherdale and Strath, 2007; Lovato, 2007).

Proximity to coffee shops: Distance by transport (bike, on foot, etc.) between respondent's residence and the nearest coffee shop (0 = <5 km, 1 = ≥5 km). *Cannabis buying behaviour*: Places of cannabis purchases (0 = coffee shop only, 1 = non-buyers, 2 = (also) elsewhere).
Cannabis use: Previous year cannabis use (0 = no previous year use, 1 = previous year use). Frequency of cannabis use (0 = seldom/almost never, 1 = more frequent). Amounts used per occasion (0 = ≤1 cannabis cigarette, 1 = >1 cannabis cigarette). Early starter: first cannabis use before the age of 13 (0 = first cannabis use ≥13 years, 1 = first cannabis use <13 years).
Hard drugs use: Previous year use of any hard drug (ecstasy, powder cocaine, amphetamines, heroin, crack, GHB, LSD, ketamine) (0 = no previous year use, 1 = previous year use).
Demographics: Sex (0 = female, 1 = male), age (years), being a minor (0 = 18 years and older, 1 = under 18 years), ethnicity (0 = non-western, 1 = western)[10], living situation (0 = other than with par-

[9] A problem is that they yield only small numbers of respondents who have used cannabis, and an even smaller number that have used hard drugs. For example, in the most recent Dutch general population survey on substance use, only 7.0 percent of 5769 respondents aged 15–64 were previous year cannabis users, and only 2.2 percent were previous year hard drugs users (Van Rooij et al., 2011).

[10] Ethnicity was measured using the standardized procedure in the Netherlands (that is birth country of the respondents as well as that of their parents). The distinction between Western and non-Western ethnicity was applied as an alternative to race, which is not allowed to be registered in the Netherlands; in practice most Westerners are white (Benschop et al., 2006).

ents, 1 = with parents), attending school, college or university (0 = not student, 1 = student), unemployment (0 = work, 1 = no work) and educational level (0 = finished or following lower vocational or below, 1 = higher).
Frequent attendance at nightlife venues: Number of times going out 30 days prior to survey (0 = fewer than 4 times, 1 = 4 times or more).
Urbanicity: Number of inhabitants in respondent's place of residence (0 = than <25,000, 1 = >25,000).
Tobacco smoking behaviour: Daily tobacco smoking (0 = no daily tobacco smoking, 1 = daily tobacco smoking).

4.2.3 Analysis

To determine the relationship between coffee shop availability and prevalence, we performed a logistic regression analysis with previous year cannabis use as a dependent variable, using coffee shop proximity as an independent variable. In addition, logistic regression analyses with frequency of cannabis use and with amounts of cannabis used as outcome variables were performed; again, proximity to coffee shops was an independent variable and cannabis buying behaviour was also included. Finally, we performed a logistic regression analysis with previous year hard drugs use to determine the relationship between coffee shop proximity and the use of hard drugs. In all analyses, we used demographic characteristics as independent variables to account for confounder effects. Frequent attendance at nightlife venues served as a measure for lifestyle. Since in the Netherlands cannabis is mostly used with tobacco, we introduced daily tobacco smoking to account for the effects of being a regular tobacco user. Finally, we introduced urbanicity, because cannabis use tends to be higher in more urban areas (Chuang, 2005; Gerstein et al., 1999; Henriksen et al., 2004; Leatherdale & Strath, 2007; Pokorny et al., 2003; West et al., 2010). All analyses were performed for previous year cannabis users only.
We used multivariate logistic regression analyses to model associations with previous year cannabis use, frequency of cannabis use, amounts of cannabis used and previous year hard drugs use. Because hypotheses were being tested, all variables were introduced through forced entry. We entered different types of variables in blocks: demographics (sex, Western ethnicity, living with parents, being a student, no work, higher education and age), frequent nightlife attendance, substance use measures (daily tobacco use, early starter), coffee shop measures (coffee shop proximity, cannabis purchasing behaviour), urbanicity and interaction terms. A significance level of .05 was used for all the analyses and, hence, a two-tailed 95 percent confidence interval (95% CI) is provided for each odds ratio. Only statistically significant results have been reported.
Differences in dynamics for minors and adults are to be expected. Since minors are not allowed in coffee shops, it is likely that minors are less (or not at all) affected by coffee shop proximity. Therefore, the regression analysis for previous year cannabis use was performed for the total group, followed by adults and minors separately.
To ensure all influences were considered, we included in the analyses all interaction terms that were deemed likely to influence the relationships studied: interactions between demographic characteristics, proximity, buying behaviour and urbanicity.

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Approximately half of the sample was female, the mean age was 21.9 years, two-thirds of the respondents were students and one in five was unemployed (Table 1). Almost two-thirds lived with their parents or other caretakers (such as family or guardians), while the remaining one-third lived on their own or with others (such as a partner or friends). One in six was under the age of 18 and thus considered a minor in the Netherlands. Almost two-thirds of all respondents had used cannabis at least once in their lives, and 37.8 percent had used it in the year before the survey. Two-thirds of the previous year cannabis users reported a low frequency of use. The average age of initiation into cannabis use was 16.2 years. A quarter of the sample had used at least one hard drug at least once in their lives, and 16.7 percent had done so in the year before the survey.

Table 1. Sample characteristics (percent)

	Total (*n* = 2027)	**Adult (*n* = 1651)**	**Minor (*n* = 355)**
Substance use measures			
Daily tobacco use	29.7	29.7	29.0
Previous year cannabis use	37.8	37.2	41.1
Early starter[a] (<13 years)	12.1	10.4	18.8
Higher frequency[a]	28.4	28.9	24.8
Larger amounts[a] (>1 cannabis cigarette)	32.3	31.9	31.8
Previous year hard drugs use	16.7	18.7	8.8
Coffee shop measures			
Proximity (>5 km from residence)	58.7	60.3	52.5
Cannabis purchasing behaviour[a]			
Coffee shop only	27.4	31.7	9.0
Non-buyer	48.3	41.8	75.2
(also) buys elsewhere	24.3	26.5	15.9
Demographics			
Male	47.7	49.6	37.8
Western ethnicity	94.2	93.9	95.5
Living with parents	58.3	50.0	96.9
Student	64.0	57.5	94.6
Unemployment	21.8	20.7	27.5
Higher education (> VMBO)	54.8	56.2	48.3
Age: mean (SD)	21.9 (5.6)	23.1 (5.5)	16.4 (0.7)
Minor (<18 yrs)	17.7		
Frequent nightlife attendance	59.1	60.4	53.8
Urbanicity (>25,000 inhabitants)	57.4	60.4	43.4
[a]Previous year cannabis users only (*n* = 755).			

Almost half of previous year cannabis users did not buy cannabis themselves. A little over a quarter bought exclusively from coffee shops, and less than a quarter (also) bought elsewhere. Somewhat less than half, 41.3 percent, of previous year cannabis users lived less than 5 kilometres from a coffee shop; the rest lived further away. A little over half of the respondents lived in a town or city with more than 25,000 residents.

When proximity and the use of cannabis and hard drugs are studied by using bivariate analyses, there seemed to be a relationship (Table 2). Among previous year cannabis users, proximity is lower than among those who did not use cannabis in the 12 months prior to the survey (χ^2 = 16.372, p < .001).

Table 2. Use of cannabis and hard drugs by proximity to coffee shop and urbanicity

		Proximity: <5 km to coffee shop			**Urbanicity: >25,000 inhabitants**		
		%	**Chi2**	**p**	**%**	**Chi2**	**p**
Previous year cannabis use	No	55.0	16.372	**<.001**	53.2	25.245	**<0.001**
(n=2027)	Yes	64.4			64.7		
Frequency of use	Seldom/almost never	61.9	4.272	**.039**	62.6	2.695	.101
(n=757)	More frequent	70.0			69.1		
Amount used	≤1 cannabis cigarette	65.4	.000	1.000	65.9	.415	.520
(n=757)	>1 cannabis cigarette	65.4			63.5		
Previous year hard drugs use	No	57.1	8.066	**.005**	55.2	16.166	**<.001**
(n=2027)	Yes	65.5			67.1		

Among previous year cannabis users who had used more often than once a week, proximity to coffee shops was closer than among less frequent users (χ^2 = 4.272, p < .05). Proximity to coffee shops was similar for previous year users who use more than one cannabis cigarette per occasion and those who use lower amounts (χ^2 = 0.000, p = 1.000). Respondents who used hard drugs in the year prior to the survey generally lived closer to coffee shops (χ^2 = 8.066, p < .01). However, when controlling for other factors – for example sex, ethnicity and urbanicity – it remains to be seen whether this relationship between proximity and the use of cannabis and hard drugs still remains. This will be explored in multiple logistic regression analyses.

4.3.1 Predictors of previous year cannabis prevalence

In the logistic regression for all respondents and with previous year cannabis prevalence as the outcome variable (Table 3), neither proximity to coffee shops nor urbanicity were of influence. Tobacco smoking increases the chance of previous year cannabis use by 3.6 times, being a student by 1.4 times, and frequent nightlife attendance by 1.5 times. Being of non- western ethnicity increases the chances of previous year cannabis use by 4.2 times. Among adults, western ethnicity, living with parents and age decrease the chances of previous year cannabis use, while daily tobacco smoking and frequent nightlife attendance increase it. Daily tobacco smoking was the only remaining significant variable for the minors.

4.3.2 Predictors of frequency of cannabis use

In the logistic regression analysis using frequent cannabis use as the outcome variable (Table 4), only previous year cannabis users were included. Proximity is not a significant predictor of frequent cannabis use. Buying behaviour was the strongest predictor: coffee shop buyers have a 12.3 times higher chance of being a frequent cannabis user than those not buying for themselves at all, and a 3.2 times higher chance than those buying elsewhere. Other predictors are being a minor (3.0 times higher), daily tobacco use (2.1 times) and lower educational level (1.6 times).

4.3.3 Predictors of amounts of cannabis used

In the logistic regression analysis predicting larger amounts of cannabis used per occasion (Table 4), again only the previous year cannabis users were included. Again, proximity to coffee shops was not a significant predictor. Buying behaviour is significant, but coffee shop buyers differ only from non-buyers, not from those who buy elsewhere. Coffee shop buyers have a 9.0 times higher chance of using larger amounts. Other predictors are being male (2.8 times), being an early starter of cannabis (2.2 times), being a minor (2.0 times) and daily tobacco smoking (1.7 times).

4.3.4 Predictors of previous year hard drugs use

The logistic regression with previous year hard drugs use as the outcome variable for lifetime users of cannabis shows no influence of coffee shop proximity (Table 4). Being male increases the chance by 2.0 times, non-western ethnicity (2.0 times), frequent nightlife attendance (1.6 times) and being an early starter (3.7 times) also increase this chance. Living with parents decreases the chance of previous year hard drugs use by 2.4 times and a higher education by 1.8 times.

Table 3. Multivariate logistic regression analyses with last year cannabis use as dependent variable. for total group, adults and minors

	Last year cannabis use TOTAL[a]				ADULTS[b]				MINORS[c]			
	B	**OR**	**95% CI**	**p**	**B**	**OR**	**95% CI**	**p**	**B**	**OR**	**95% CI**	**p**
Background factors												
Male	0.181	1.199	.497-2.888	.686	.484	1.622	.614-4.287	.329	-.794	.452	.023-8.950	.602
Western ethnicity	-1.438	0.237	.082-.686	**.008**	-1.276	.279	.084-.926	**.037**	-1.098	.334	.018-6.184	.461
Living with parents	-0.179	0.836	.652-1.072	.158	-.544	.580	.432-.779	**<.001**	-.808	.446	.075-2.644	.374
Minor	1.157	3.182	.936-10.814	.064	-	-	-	-	-	-	-	-
Student	0.367	1.444	1.122-1.859	**.004**	.047	1.048	.795-1.382	.741	-.399	.671	.187-2.415	.542
Unemployment	0.240	1.272	.987-1.638	.063	.263	1.301	.976-1.734	.073	-.075	.928	.517-1.666	.802
Higher education	0.255	1.291	.520-3.204	.582	.657	1.930	.715-5.207	.194	-.145	.865	.021-35.454	.939
Age	-	-	-	-	-.088	.916	.887-.946	**<.001**	-.063	.939	.654-1.349	.735
Frequent night life attendance	0.425	1.530	1.232-1.901	**<.001**	.341	1.406	1.100-1.798	**.007**	.373	1.451	.866-2.431	.157
Substance use measures												
Daily tobacco use	1.276	3.584	2.846-4.512	**<.001**	1.246	3.447	2.684-4.503	**<.001**	1.636	5.134	2.852-9.243	**<.001**
Urbanicity	-0.562	0.570	.194-1.680	.308	-.318	.727	.220-2.403	.602	-2.445	.087	.002-3.847	.206
Coffee shop measures												
Proximity	-0.444	0.641	.241-1.706	.373	-.671	.511	.176-1.485	.217	1.433	4.190	.181-97.000	.371

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Table 3 - continued	**Last year cannabis use TOTAL[a]**				**ADULTS[b]**				**MINORS[c]**			
	B	**OR**	**95% CI**	**p**	**B**	**OR**	**95% CI**	**p**	**B**	**OR**	**95% CI**	**p**
Interaction terms												
Western * higher education	-0.056	0.945	.373-2.396	.905	-.515	.598	.217-1.650	.321	.670	1.955	.046-83.185	.726
Male * western	0.516	1.675	.679-4.134	.263	.327	1.387	.512-3.757	.520	1.433	4.191	.200-87.680	.356
Student * minor	-0.820	0.440	.126-1.537	.198	-	-	-	-	-	-	-	-
Western * coffee shop distance	0.376	1.456	.559-3.788	.441	.678	1.970	.701-5.534	.198	-1.882	.152	.007-3.552	.241
Western * urbanicity	0.677	1.968	.667-5.807	.220	.594	1.812	.544-6.033	.333	1.794	6.012	.142-254.648	.348
Urbanicity * coffee shop distance	0.433	1.541	.968-2.454	.068	.306	1.358	.800-2.305	.257	1.074	2.928	.961-8.915	.059

a Cox & Schnell R^2=.131, Nagelkerke R^2=.178, n=1788. [b] Cox & Schnell R^2=.148 Nagelkerke R^2=.201, n=1476. [c] Cox & Schnell R^2=.174; Nagelkerke R^2=.234, n=312.

Table 4. Multivariate logistic regression analysis with frequency of cannabis use, amounts of cannabis used and last year hard drug use as dependent variables cannabis users only

	Frequency of cannabis use[a]				Amounts of cannabis used[b]				Last year hard drug use[c]			
	B	**OR**	**95% CI**	**p**	**B**	**OR**	**95% CI**	**p**	**B**	**OR**	**95% CI**	**p**
Background factors												
Male	.679	1.973	.939-4.143	.073	1.034	2.814	1.342-5.898	**.006**	.692	1.998	1.103-3.619	**.022**
Western ethnicity	-.623	.536	.256-1.124	.099	-.428	.652	.320-1.327	.238	-.714	.490	.250-.958	**.037**
Living with parents	-.243	.784	.484-1.271	.323	-.042	.959	.605-1.518	.857	-.857	.425	.281-.642	**<.001**
Minor	1.100	3.004	1.559-5.789	**.001**	.703	2.021	1.104-3.700	**.023**	-.210	.811	.111-5.944	.837
Student	-.133	.876	.534-1.435	.598	-.017	.983	.617-1.567	.943	-.152	.859	.575-1.282	.456
Unemployment	-.039	.962	.595-1.555	.874	.067	1.069	.676-1.690	.776	-.363	.696	.458-1.056	.089
Higher education	-.493	.611	.386-.966	**.035**	-.229	.795	.519-1.219	.293	-.566	.568	.388-.830	**.004**
Frequent night life attendance	-.238	.789	.504-1.235	.299	-.013	.987	.645-1.511	.953	.479	1.615	1.100-2.371	**.014**
Substance use measures												
Daily tobacco use	.734	2.083	1.359-3.191	**.001**	.501	1.650	1.104-2.466	**.015**	.293	1.340	.941-1.908	**.**104
Early starter cannabis	.527	1.695	.929-3.090	.085	.769	2.158	1.217-3.826	**.008**	1.305	3.688	2.160-6.295	**<.001**
Urbanicity	-.055	.946	.571-1.568	.830	-.474	.622	.388-.999	.050	-.580	.560	.303-1.034	.064
Coffee shop measures												
Proximity	.332	1.394	.646-3.011	.398	.234	1.264	.591-2.704	.546	-.443	.642	.303-1.362	.248

Table 4 - continued	**Frequency of cannabis use**[a]				**Amounts of cannabis used**[b]				**Last year hard drug use**[c]			
	B	**OR**	**95% CI**	**p**	**B**	**OR**	**95% CI**	**p**	**B**	**OR**	**95% CI**	**p**
Buying behaviour				**<.001**				**.001**				
Coffee shop buyers		1.000				1.000						
Non-buyers	-2.511	.081	.025-.268	**<.001**	-2.198	.111	.034-.360	**<.001**				
(also) elsewhere	-1.155	.315	.100-.990	**.048**	-.618	.539	.176-1.648	.279				
Interaction terms												
Proximity * buying behaviour				.576				.816				
Non-buyers * proximity	-.339	.713	.235-2.162	.550	-.306	.737	.267-2.035	.556				
(also) elsewhere buyers * proximity	.258	1.294	.469-3.569	.618	-.523	.776	.289-2.081	.615				
Male * buying behaviour				.665				.720				
Non-buyers * male	-.472	.624	.206-1.892	.404	.314	1.369	.475-3.947	.561				
(also) elsewhere buyers * male	-.043	.958	.337-2.725	.936	-.106	.899	.321-2.520	.840				
Minor * student									-.443	.642	.083-4.986	.672
Proximity * urbanicity									.580	1.786	.772-4.133	.175
Proximity * male									.058	1.060	.506-2.221	.878

[a] *Cox & Schnell R^2: .272 Nagelkerke R^2: .392, n=681* [b] *Cox & Schnell R^2: .223 Nagelkerke R^2: .315, n=654* [c] *Cox & Schnell R^2: .142; Nagelkerke R^2: .194 n=686*

i cu ion

In this study, we explored the relationship between the proximity to coffee shops and cannabis use. We hypothesized that closer proximity to coffee shops would result in more cannabis consumption. This hypothesis was not confirmed, as we found no association between the distance from the coffee shop to place of residence and previous year cannabis use. In addition, coffee shop proximity did not predict more frequent cannabis use and larger amounts used. However, buying behaviour proved to be of influence: respondents who bought only in coffee shops were more regular users than non-buyers and (also) elsewhere buyers. In addition, they used more cannabis per occasion than non-buyers. When the logistic regression with previous year cannabis use as the outcome variable was performed for minors and adults separately, far fewer variables were of significance among minors, with previous year tobacco smoking as the only remaining variable. If, similar to what has been found in studies on crime (Broekhuizen et al., 2006; Reinarman & Cohen, 2007), younger cannabis users travel shorter distances, this difference could be explained by a lack of variation in the distances travelled by individual under-aged users, leading to less significant predictors in the analyses.

Our second hypothesis, that proximity to coffee shops is positively related to previous year use of hard drugs, was not confirmed either. First use of cannabis at an early age (before 13 years), however, was an important predictor of hard drugs use. For both frequency of cannabis use and amounts of cannabis used, being a minor increased the chances of belonging to the group of more intense users. It is a possibility that minors who are part of the population we studied use more intensely than other minors because we recruited them in nightlife venues, where other, less regularly using, minors might not go. Also, the use of cannabis by minors may be part of a deviant or delinquent lifestyle (Erickson et al., 2006; Monshouwer et al., 2005). Tobacco smoking, which was a strong and stable predictor of previous year cannabis use, of more regular use and of larger amounts used, may share this deviant lifestyle as a common factor.

Although this study is the first that focuses on the relationship between the availability of coffee shops and cannabis use with such large numbers of respondents, it has some limitations. We studied a non-normative sample and, although this resulted in a sample size that would otherwise have been very difficult to achieve, the results may not be generalizable to the general population. Compared with a general population survey, the prevalence of drugs use was much higher in our sample (Van Laar & Van Ooyen-Houben, 2009). Also, even though the survey was conducted mainly in non- urban areas, a large proportion of the sample lived within a 5 km range of a coffee shop, thus not providing a large range of travel distances. The average distance to the nearest coffee shop is a little lower: 4 km. However, this distance is based on the distance as the crow flies, whereas the travel distance on foot or by bicycle will always be larger. To persons living in other, larger countries, distances below 5 km may not seem significant, but in the Dutch situation it might be important to make further distinctions. The Netherlands is the second most densely populated country in Europe (after Malta[11]) and many inhabitants are accustomed to having facilities they use near to their

[11] See Eurostat population density table at http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tps00003&plugin=1 (accessed 1 May 2012).

homes. In addition, many young people in the Netherlands travel by bicycle rather than car, and therefore travel shorter distances in their daily routine than in most other countries.

Another limitation is that two of the outcome measures (more regular cannabis use and larger amounts used) do not represent very frequent use or very high amounts used. The variable for frequency of use distinguishes the more regular users from those who seldom use cannabis, but because the cut-off point for amount used was low (one cannabis cigarette per occasion) this did not represent a very intensely using group. Regarding cannabis buying behaviour, we distinguished three groups: non-buyers, coffee shop only buyers and (also) elsewhere buyers. It should be noted that the last group still purchased most of their cannabis at coffee shops. Conclusions on the relationship between cannabis buying behaviour and intensity of use should therefore be treated with some caution and differentiation between coffee shop buyers and (also) elsewhere buyers may be limited. In this sense, the situation in the Netherlands does not necessarily differ from the situation in other countries. Coffee shops may be unique to the Netherlands but the situation of cannabis being resold to friends or distributed among minors is similar (Snook, 2004).

In an earlier study we found that lower coffee shop density (number of coffee shops per 100,000 inhabitants) was related to buying cannabis on the illegal market. In the current study, proximity to coffee shops did not influence cannabis use but buying cannabis in coffee shops was related to more regular cannabis use and larger amounts used. In both studies, the objective was to identify the role of coffee shops but, whereas in the first study the emphasis was on buying behaviour, in the current study cannabis use was added. Even though minors are not allowed in coffee shops, they can still obtain cannabis through adults. Consequently, even for minors, proximity to coffee shops could still be of influence. We based our data on distance between respondents' residence and the nearest coffee shop. However, following the logic of the Routine Activity Theory (Akers, 1984), there are other places people visit in their daily routines, such as work, school, shopping centres and other public places. Another criminological concept is 'awareness space', which refers to the places offenders know as they go about their daily life (Van der Poel et al., 2010). Within this space more crime is committed. Translating to cannabis, this would mean that users travel around places they are familiar with, taking coffee shops within this space into consideration only when looking for locations to buy and/or use cannabis. In the future, it would be challenging to consider daily routines, awareness space and nightlife activities and locations in analysing the relationship between proximity to coffee shops and cannabis consumption, including the times at which these activities are undertaken and the opening hours of coffee shops.

The 'separation of markets' policy does not seem to have much influence on the use of hard drugs. Having used cannabis at an early age was an important factor, confirming earlier findings (Van Laar & Van Ooyen-Houben, 2009) and thus indicating that this is a robust predictor of hard drugs use. It could be argued that coffee shops 'radiate' the concept of separation of markets to all cannabis users, meaning that this separation becomes the norm for all users, including those who buy (part of) their cannabis outside of coffee shops. Cannabis users might prefer sales points that sell only cannabis, even when these sales points are illegal.

In our present study, current cannabis use and the proximity to coffee shops were not correlated, but early use of cannabis might still be influenced by the proximity or availability of coffee shops. Findings from criminological studies show that criminal behaviour changes over time: there is a sharp

increase in crime in mid-adolescence followed by a decrease in early adulthood (Cohen & Felson, 1979); studies on tobacco use show different results for the influence of proximity on *initiation* (Felson, 2006) or *continuation* (Baumeister & Tossmann, 2005; Lynskey, 2003; Lynskey et al., 2006). Therefore, in future studies, the development of cannabis use and buying behaviour over time are of interest. Research with a longitudinal design, where different stages of using careers are studied, can perhaps shed some light on this specific issue.

It has been suggested that a greater availability of cannabis might stimulate demand (Blonigen, 2010). In line with Routine Activity Theory, one would expect that living near a coffee shop increases the chance of cannabis use, more regular cannabis use and larger amounts of cannabis used. Rational Choice Theory leads to the assumption that coffee shops would have greater appeal to more frequent cannabis users. From the results of this study it remains unresolved whether the presence of coffee shops stimulates more intense cannabis use (Routine Activity), or whether more frequent users more often buy at coffee shops (Rational Choice). Proximity did not play a significant role in our analyses. However, buying in coffee shops did show a connection to more regular use and larger amounts used. One explanation is that cannabis users who use frequently prefer a continuous source of cannabis, which coffee shops provide. Thus, coffee shops may not cause but rather facilitate frequent use. In addition, when using cannabis regularly, it seems less likely that cannabis is always procured from friends. Consequently, frequent cannabis users can buy from either the coffee shop or the illegal market. It is likely they prefer the coffee shop to illegal retailers, since the coffee shop provides a reliable and legal source of cannabis. Conversely, less frequent users of cannabis tend to be occasional cannabis smokers, who never buy cannabis. Additional analyses with respondents who lived with parents only, and thus had little say about the proximity of their homes to coffee shops, showed that those who bought in coffee shops again were the most frequent and intense users of cannabis[12]. Therefore, coffee shops might stimulate both frequency of use and amounts used per occasion, but longitudinal studies are required to determine whether this is a causal relationship.

[12] It could be argued that cannabis buying behaviour will be influenced strongly by coffee shop proximity. However, multicollinearity between these two variables was minimal.

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Abstract

Aims This study examines the effect of raising the minimum age for 'coffee shops' in the Netherlands in 1996 from 16 to 18 years on the prevalence rates among 16 and 17 year old students in Amsterdam, and buying behaviour among current cannabis users of all ages. *Methods* A school survey, held several times between 1993 and 2007, with a total of 908 respondents 16-17 years, and 792 current cannabis users was used. *Findings* After 1997, a downward trend can be seen in cannabis use prevalence rates. When looking at prevalence rates per subgroup (sex, ethnicity, educational level), different developments in prevalence rates could be seen. Data analyses including multivariate logistic regression analyses showed that changes in population were more important in explaining this downward trend than the change in policy. Buying behaviour shifted from coffee shops to other sources. *Conclusions* A downward trend in prevalence rates for cannabis use among students can be seen after raising the minimum age for coffee shops. Changes in ethnic composition of the population are more strongly associated with declining prevalence rates than raising the minimum age.

1 Introduction

Internationally, markets for psychoactive substances exist both as legal and illegal. Legal markets have their own possibilities for regulation, of which price, minimum age, and laws on advertisement are just a few examples. The Netherlands has a unique situation; although cannabis is illegal, there is a retail market where several forms of regulation are imposed, among which a minimum age. The cafe-like places where the sale of cannabis to consumers is allowed under certain conditions are known as 'coffee shops'. During the 1980s coffee shops took over the Dutch cannabis market, and several national criteria were introduced to direct the sale appropriately. These criteria were: no advertisement, no hard drugs, no nuisance and no youth under minimum age. Originally, 16 years was the minimum age to be allowed in coffee shops. In 1996, after on-going discussions about the increasing percentage of under-aged cannabis users, the minimum age for coffee shop visitors was raised from 16 to 18 years. It became forbidden to persons under 18 years to buy cannabis; if the police find minors in a coffee shop, it will be closed (Van Laar & Van Ooyen-Houben, 2009). The aim was to diminish the number of minors that use cannabis. And by increasing the age of initiation, the Dutch government also aimed at reducing the risk of youth starting to use cannabis at a young age.

In many countries it is forbidden for young people under the age of 16, 18 or 21 to buy alcohol. In a review article considering the literature from 1960 to 2000, Wagenaar & Toomey (2002) discuss 241 studies on the effects of minimum drinking age laws. A significant inverse relationship was found between the minimum drinking age and alcohol consumption. Wolfson & Hourigan (1997) discuss the consequences of raising the age limit for alcohol use. The figures for arrest rates for alcohol possession among 18-21 year olds show an increase after the age limit was raised to 21 years in almost all of the USA. Overall, one can conclude that raising the minimum legal drinking age does reduce alcohol consumption among youth. However, young people are still able to acquire alcohol (Willner & Hart, 2001). These findings for alcohol might be generalizable to cannabis, which would imply that raising the minimum legal age would lead to lower prevalence rates among youth and – for those youth that do use cannabis – to a shift in buying behaviour among youth.

To investigate whether this is true, we will address the following questions: 1) Are trends in prevalence rates of cannabis use for 16 and 17 year olds related to raising the minimum age, and do other factors play a role? 2) Did the location of cannabis purchase change after raising the minimum age for coffee shops? These questions will be addressed using data from Amsterdam 'Antenna'; an annual monitor which keeps track of trends and patterns in substance use amongst adolescents and young adults in Amsterdam since 1993. Part of this monitor is an annual survey with an alternating group of young people each year. Only data from the school surveys are used. The current study is in part a reproduction of an earlier study by Korf et al. (2001), in which the effects of raising the minimum age were studied using data from the same survey. They concluded that after controlling for several confounder variables (e.g. sex and ethnicity), the use of cannabis among minors had stabilised after an initial increase between 1992 and 1999. The minors less often bought from coffee shops. However, at the time of this earlier study the long-term effects of the change in policy were not yet clear since only limited time had passed.

The choice of using data from Amsterdam is in part a pragmatic one; there are no national data sets available of 16 and 17 year olds that have such an extensive time-series and that have used the same sampling method over the years. Also, some Dutch municipalities already applied an age limit of 18 before 1996 while Amsterdam did not, which complicates interpreting national data. Amsterdam gradually implemented the minimum age of 16 during the course of 1996. Although there are no official sources, it can be assumed the minimum age was fully implemented during 1997. Using data from Amsterdam only admittedly leads to a limited generalizability of our study; however, in our opinion it is the best available option.
First, prevalence rates among 16 and 17 year old students will be studied. Since the age was raised from 16 to 18, this group is expected to show the most marked changes. Because demographic characteristics might have influenced the prevalence rates, we will then study the prevalence rates for different subgroups. Finally, purchasing behaviour will be studied.

5.2 Method

5.2.1 Sample

Data for this research are from the school survey of the Antenna study. This survey, using the standardized ESPAD questionnaire as a general framework, was held in 1993, 1995, 1997, 1999, 2002 and 2007. A multi-stage sampling design was used to provide a representative cross-section of secondary school youth of Amsterdam. The secondary school enrolment ratio is about 90% in the Netherlands[13]. First, a random sample of schools was drawn, stratified by educational level and geographical spread. The number of schools per year varied from 11 to 14 schools. Within schools, classes were selected from available educational levels and grades. The number of classes selected depended on the total number of students for that geographical area, educational level and grade in the population. Within the selected classes all students were asked to fill out a questionnaire. A weighting procedure was applied by comparing the sample distributions and known population distributions of educational

[13] http://www.unicef.org/infobycountry/netherlands_statistics.html#77 visited 16 February 2012.

level, sex and grade of the corresponding year, thus sample characteristics reflect the total school population.
When looking at prevalence of cannabis use, we use a selection of 16 and 17 year olds from all years (n=908). For our analyses of buying behaviour we use aggregate data from all students that have used cannabis in the past month (n=792), since the data on buying behaviour are no longer available for the sub selection of 16 and 17 year olds before 1997. The proportion of 16 and 17 year olds among current users was more or less stable over the years.

5.2.2 Data collection

The surveys were administered in class by university staff, in an exam-situation that guaranteed anonymity of the respondents, and reduced the risk of influence by other students through interaction. The surveys were distributed during subjects of the core curriculum (which all students of the school should attend), hereby avoiding selection of subgroups of students. The response rates are generally high, with around 90% of students participating.

5.2.3 Measures

Cannabis use items were recalculated to indicate last year and last month prevalence. Sex was asked. Ethnicity was measured using the standardized procedure in the Netherlands (i.e. birth country of the respondents as well as that of their parents). The distinction between western and non-western ethnicity was applied as an alternative to race, which is not allowed to be registered in the Netherlands; in practice most westerners are white (Benschop et al., 2006). Educational level was dichotomized into lower (vmbo, which is lower vocational) and higher (havo and vwo, which is higher vocational and pre-university) level of education. These two higher levels of education (havo and vwo) are often combined in schools, therefore it makes sense use them as one category.
Buying behaviour was measured in two ways. First, respondents who had used cannabis in the last month were asked whether they bought their own cannabis, got it for free or procured it in another way (for example both getting it for free and buying, growing their own). In 2007 this question was asked somewhat differently, with the option “I let others buy it for me” asked separately. Last month cannabis users were asked where they acquired their cannabis (from friends, in a coffee shop, in a café or disco, in the streets, at school, or ‘other’).

5.2.4 Analysis

Students from the same class were drawn as a cluster. A cluster sample will not affect point estimates, such as prevalence rates and hazard rates, but it does affect variance-related estimates, such as sample errors, 95% confidence intervals and p-values (Monshouwer et al., 2005). In addition weights had been applied. For these reasons, we used a conservative significance level ($p<.01$).
Because we wanted to explore the influence of the change in minimum age on prevalence of cannabis use, we chose to perform a logistic regression analysis. Last year and last month cannabis use were chosen as dependent variables, while the year of the survey was chosen as a measure of the change in minimum age. Stepwise multivariate logistic regression analyses with forward elimination

of variables were conducted. As confounder variables, sex, ethnicity and educational level were introduced. The interaction between ethnicity and educational level was included because the majority of non-western students follow lower level education. All analyses were conducted with SPSS 17.0.

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5.3.1 Sample characteristics

Of the total group of 16 and 17 year olds, half was female (see table 1). One third was following lower education at the time of the survey. Almost half was of non-western ethnicity. Their mean age was 16.6 (sd=0.3) years.

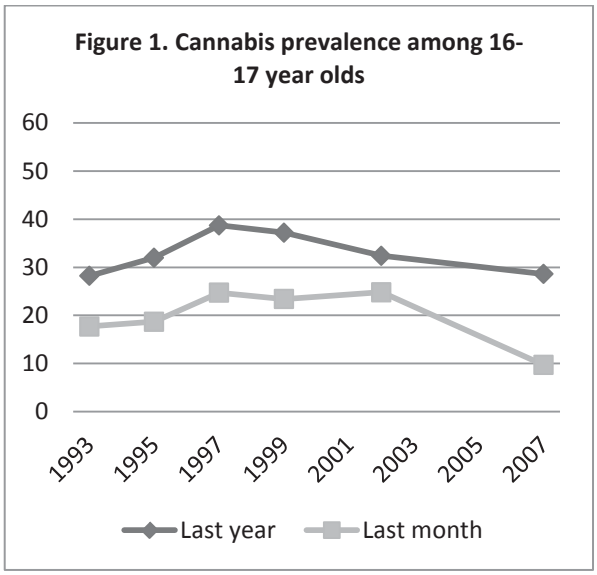
The gender distribution was stable over the years. The percentage of non-western students increased until 1999, after which it stabilized. The educational level among the 16 and 17 year old students increased over the years. Since it is known from a previous study that non-western students in Amsterdam use less cannabis than western students (Korf, Nabben & Benschop, 2003), and that students in higher educational levels use less cannabis (Nabben, Benschop & Korf, 2008), it can be expected that these changes in the population affect prevalence rates. If there are shifts in the size of a subgroup, this might influence the prevalence rates for the total group, while the prevalence rates for the subgroups remain the same.

Table 1. Demographic characteristics 16 and 17 year olds (weighed)(%)

	1993	1995	1997	1999	2002	2007	Total	p
Sex (n)	*127*	*123*	*187*	*139*	*213*	*113*	*902*	*n.s.*
Male	46.5	51.2	55.1	48.9	48.8	51.3	50.4	
Female	53.5	48.8	44.9	51.1	51.2	48.7	49.6	
Ethnicity (n)	*119*	*104*	*188*	*141*	*214*	*113*	*879*	.000
Western	66.4	63.5	54.3	39.7	45.3	47.8	51.6	
Non-western	33.6	36.5	45.7	60.3	54.7	52.2	48.4	
Education (n)	*127*	*122*	*190*	*141*	*215*	*113*	*908*	.000
Lower	58.3	46.7	33.2	35.5	28.4	23.0	36.5	
Higher	41.7	53.3	66.8	64.5	71.6	77.0	63.5	
Age (n)	*127*	*123*	*190*	*141*	*214*	*113*	*908*	
Mean (SD)	16.92 (n/a)	16.92 (n/a)	16.47 (.33)	16.51 (.30)	16.46 (.29)	16.47 (.30)	16.60 (.33)	.000
Total	*127*	*123*	*190*	*141*	*214*	*113*	*908*	

5.3.2 Prevalence rates

Of all 16 and 17 year olds, 33.4% used cannabis in the past year and 20.8% in the past month. Last year cannabis use prevalence shows a steady decline over the years (figure 1). Last month prevalence has peaked between 1997 and 2002, after which it shows a rapid decrease. If each year is compared to the previous year, only the decrease in 2007 for last month use is significant.



5.3.3 Changes in population characteristics

Ethnicity of the students changed from one third (33.6%) of students being of non-western ethnicity in 1993 to 52.2% in 2007. In addition, in 1993 almost two thirds followed a lower education (58.3%), in 2007 this had declined to 23%.

What impact will these changes in the sample (and population) have on the prevalence rates? Girls usually have lower prevalence rates than boys. However, the lower prevalence rates among girls will not have an influence on the changes over time, because the percentage of girls has remained stable over the years. What is interesting, is the narrowing gender gap (Van Laar et al., 2011), which can lead to higher total prevalence rates while the percentages of girls are stable.

The ethnic groups that have increased in size most in the past decade in Amsterdam can be expected to have lower drug use prevalence rates than western students, because they often are Muslim youth (Moroccan and Turkish) who structurally show lower prevalence rates for alcohol and drugs (Korf et al., 2003). Therefore, an increase in the percentage of Muslim youth can result in lower prevalence rates.

In general surveys of school youth, cannabis use prevalence does not differ according to educational level (Van Laar et al., 2011). However, in Amsterdam students following lower education often show lower prevalence rates (Nabben et al., 2008).

The next step is to examine the prevalence rates for the subgroups separately, to see how these developed over time.

5.3.4 Prevalence rates per subgroup

Sex

If boys and girls are compared, different patterns appear; girls show an increase in last year prevalence of cannabis use until 1997, after which it declines (figure 2). However, in 2007 last year cannabis use shows a steep increase again, while last month prevalence actually declines even further (fig-

ure 3). Among boys an increase until 2002 can be seen, after which a sharp decrease is apparent among both prevalence measures. When each year is compared to the previous, the only significant change is the sharp decrease among boys in last month use between 2002 and 2007.

Ethnicity

Western students show a peak in cannabis use in 1997, after which both prevalence measures decrease but last month use shows a sharper decline than last year use (figure 4 & 5). The difference in last year prevalence is significant between 1995 and 1997, while other years do not show significant changes.

Non-western students show an increase in last year and last month prevalence until 1999. After that, both last year and last month prevalence decrease, of which the decrease in last month prevalence is steep. Among non-western students, there was a significant increase between 1997 and 1999, followed by a significant decrease between 2002 and 2007.

Figure 2. Last year cannabis prevalence by sex

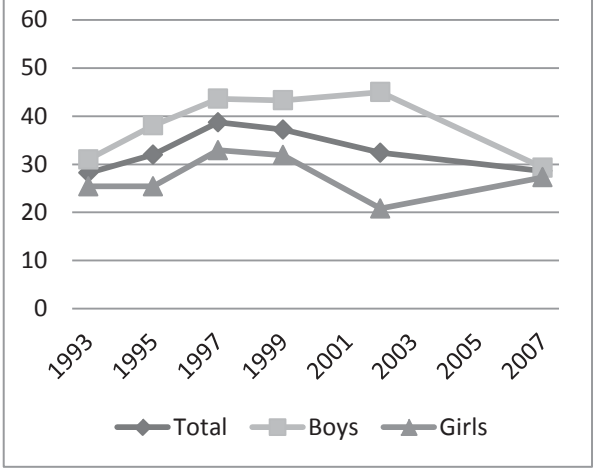


Figure 3. Last month cannabis prevalence by sex

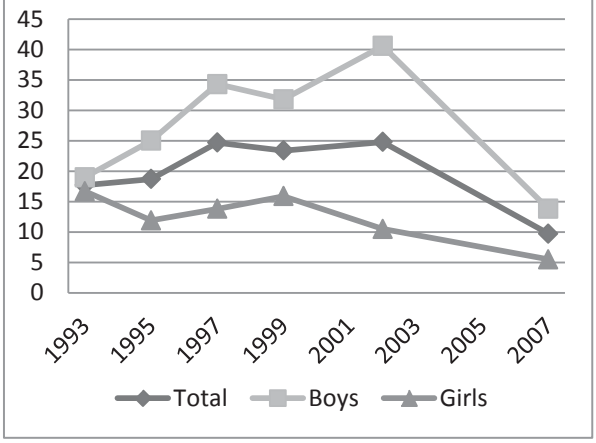


Figure 4. Last year cannabis prevalence by ethnicity

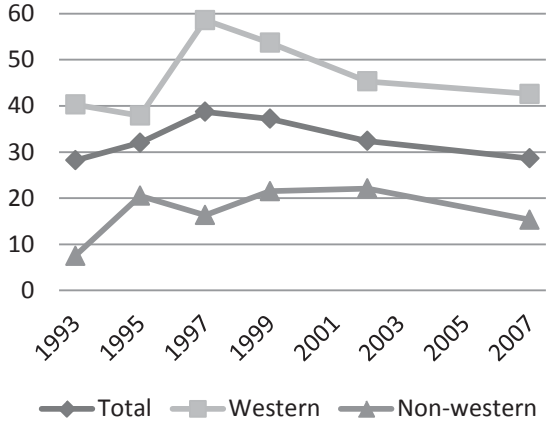
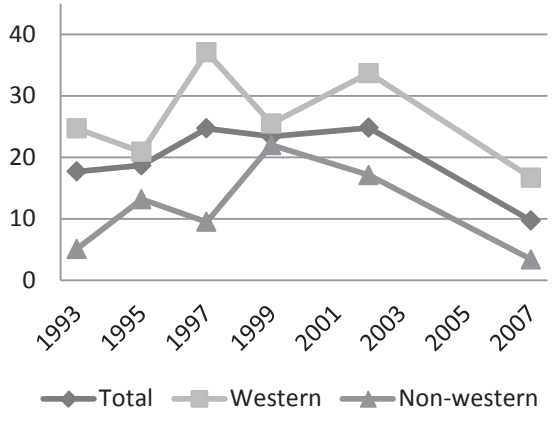


Figure 5. Last month cannabis prevalence by ethnicity



Educational level

Students following a lower education show a peak in the prevalence of both last year and last month use in 2002, followed by a sharp decline in 2007, which is significant (figure 6 & 7). Those following a higher education show a relatively steady decline since 1997, although in 2007 last year prevalence showed a slight significant increase. Other differences were not significant.

Figure 6. Last year cannabis prevalence by education

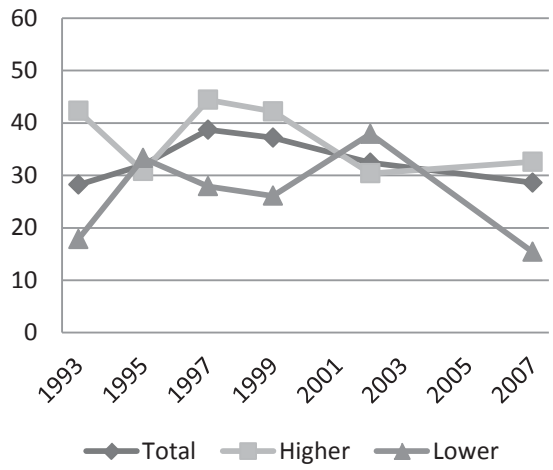
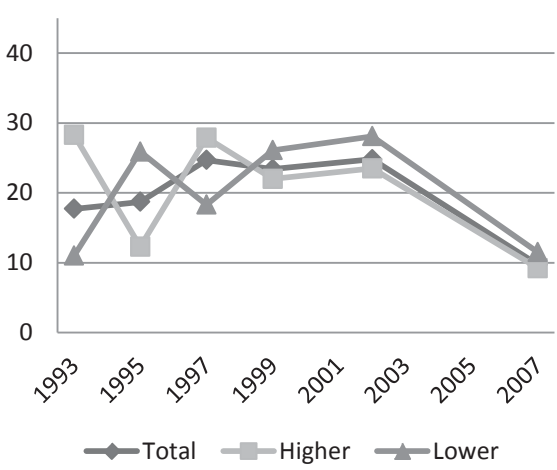


Figure 7. Last month cannabis prevalence by education



5.3.5 Conclusion

On face value, it seems that after 1997, last year and last month prevalence show a steady decline for the total group. When significance is taken into account, only the decline of last month use between 2007 and 1997 is significant. Furthermore, when the prevalence rates are studied for several subgroups separately, some of these show this decline after 1997, however, many subgroups show a peak at a later year, either instead of, or in addition to a peak in 1997.

One thing that becomes clear is that the different subgroups show different patterns. It seems that changes in the population influence prevalence rates of cannabis use. To determine the extent in which the raising of the minimum legal age for coffee shops has influenced cannabis use prevalence rates, a logistic regression was performed in which demographic characteristics are controlled for.

5.3.6 Logistic regression

The logistic regression analyses show that for last year and last month use, ethnicity is the strongest predictor (table 2). Being of western ethnicity increases the chance for last year cannabis use by 5.4 times, and for last month 4.2 times. Sex was the second most important predictor, being a boy increased chances for last year cannabis use by 2.0 times and for last month use by 3.2 times. For last month use we see that compared to 1997, 2007 levels of last month use are 3.1 times lower. For the

other years this does not seem to hold true. Educational level has no influence.
For last year cannabis use, raising the minimum age seems to not have had any effect after controlling for ethnicity and sex. For last month use, only the last year (2007) seems to show a decline after controlling for the changes in population characteristics.
From these analyses we can conclude that the changes in the ethnic composition of the student population in Amsterdam are most strongly associated with changes in prevalence rates, while the change in minimum legal age for coffee shops is less strongly associated than ethnicity and sex.

Table 2. Multivariate logistic regression analyses cannabis use

	Last year cannabis use				**Last month cannabis use**			
	Cox & Schnell R^2: .106 Nagelkerke R^2:.147, n=935				Cox & Schnell R^2: .102 Nagelkerke R^2: .160, n=930			
	B	**OR**	**95% CI**	**p**	**B**	**OR**	**95% CI**	**p**
Sex								
Girl	-.704	.495	.362-.675	**<.001**	-1.165	.312	.214-.453	**<.001**
Ethnicity								
Non-western	-1.680	.186	.120-.288	**<.001**	-1.432	.239	.140-.409	**<.001**
Educational level								
Higher	-.415	.660	.403-1.083	.100	-.041	.960	.555-1.658	.882
Year				.076				**.002**
1993 vs 1997	-.517	.596	.346-1.027	.063	-.506	.603	.322-1.130	.115
1995 vs 1997	-.423	.655	.379-1.132	.130	-.527	.590	.311-1.119	.106
1999 vs 1997	.220	1.246	.760-2.042	.384	.180	1.197	.688-2.083	.524
2002 vs 1997	-.106	.899	.573-1.411	.643	.219	1.245	.759-2.044	.386
2007 vs 1997	-.428	.652	.378-1.125	.124	-1.130	.323	.154-.679	**.003**
Ethnicity * educational level	.675	1.964	.979-3.940	.057	.551	1.735	.774-3.893	.181

5.3.7 Buying behaviour

It is to be expected that cannabis users who are under the minimum age for coffee shops acquire their cannabis through other channels. Studies conducted after the 1996 policy change show that cannabis users under 18 years, more often than adults, acquire their supply through friends and relatives rather than from coffee shops (Abraham, Kaal & Cohen, 2002; Korf et al., 2005; Monshouwer et al., 2004). We will now explore whether buying behaviour changed in Amsterdam after the raising of the minimum age. As stated in the method section, we were not able to use a sub selection of 16 and 17 year olds for the data concerning buying behaviour, but we will look at the total group.

Contrary to what one would expect, the percentage of last month users that indicates they buy their own cannabis has increased slightly after 1997 (table 3). Because the percentage of cannabis users has declined, the total number of secondary school pupils actually buying cannabis is smaller. When looking at *where* respondents get their cannabis, there seems to be a steady decline when it concerns getting from coffee shops, although around half of the cannabis users still usually acquire their cannabis there after the policy change (table 4).

Table 3. How do you usually get your hash or weed? – last month users (%)

	1993	1995	1997	1999	2002	2007
n	*127*	*106*	*190*	*118*	*195*	*56*
I buy it myself	18	20	14	26	24	24
Others buy for me						37
I get it for free	32	43	36	36	38	32
Other	50	38	50	32	31	
I grow it myself				6	7	8

Table 4. Where do you usually get your hash or weed? – last month users (%)

	1993	1995	1997	1999	2002	2007
n	*127*	*106*	*190*	*118*	*195*	*56*
Friends/acquaintances	25	27	24	32	28	35
Coffee shop	67	57	65	51	54	45
In the street	0	2	0	5	2	0
At school	3	4	4	3	<0.5	4
Café/discotheque	5	7	0	2	1	0
Other	0	3	2	6	8	16

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After 1997, a downward trend can be seen in cannabis use prevalence rates among 16 and 17 year olds in Amsterdam. The changes in population characteristics are more strongly associated with this decrease than the change in policy. Buying behaviour changed as well, but in an opposite direction than what one would expect. The proportion of user buying their cannabis (instead of getting it for free) increased. There was however a shift from buying in coffee shops to buying at 'other' sources, including illegal dealers. The absolute number of buyers decreased, since the total group of users has grown smaller. This perhaps resulted in a different type of user – those school youths that kept using after raising of the minimum legal age might have more tendencies towards risk-taking behaviour, among which buying at illegal dealers.

Despite a lack of statistical association between policy and prevalence, there was a steady decrease. When we look at the very diverse trends among the different subgroups, it is less likely the change in policy was the *main* cause. However, this downward trend is different from that in Europe in general, where an upward trend can be seen from 1995 to 2002, after which cannabis use prevalence rates stabilised (Hibell et al., 2012). Since the downward trend in the Netherlands is different from trends in other countries, it could be the result of raising the minimum legal age. This argues for a causal relationship between cannabis policy and cannabis use.

In this article, we used data from Amsterdam. The developments among school youth in this relatively large city are somewhat different from other cities in the Netherlands. Firstly, because the population characteristics are different. The percentage of ethnic youth increased much more compared to smaller cities. Also, population in urban areas is known to use cannabis more often (Van Laar et al., 2011). Thirdly, Amsterdam has a very high number of coffee shops which might influence the effect of raising the age limit.

From this and other studies we know that individuals that start using cannabis often do not buy can-

nabis themselves. Young cannabis users often get cannabis from friends (Abraham et al., 2002; Korf et al., 2003; Ogilvie, Gruer & Haw, 2005). From this, raising the age limit having little effect on prevalence rates is logical. Surprisingly, the percentage of cannabis users that bought their own cannabis did not decrease. However, they did buy from coffee shops less often than before. Apparently the policy change did not influence the extent to which minors buy cannabis, but it is likely it changed the sources from which they buy it.
From this study one cannot tell whether raising the age limit has had effect on the frequency with which minors use cannabis, or on the amounts that they use. Not having a legal source of cannabis might limit the cannabis intake.

Ideally, other types of data should be used to assess the influence of the change in minimum age for coffee shops; however, these were not available. The current data have shortcomings, among which the limited possibility to test the causality of the associations due to the methods used. Data from this study were collected in Amsterdam only, which is not representative of the rest of the Netherlands. Students that were absent because of illness, truancy or other reasons, did not complete a questionnaire. However, this risk is the same for all years, and therefore would not influence the developments over time. In 1993 and 1995 the measure for ethnicity differed from other years, students were asked for their subjective ethnicity. However, there are no reasons to assume the percentage of non-western students would have been different had it been determined as in later years. In addition, the sharp increase of non-western students between 1990-1995 was seen in the entire Netherlands (Beker & Maas, 1998).
It remains somewhat unclear what respondents mean when they say they acquire cannabis at coffee shops. In earlier years, they might have meant that they let others buy cannabis for them at coffee shops. However, in 2007 this option was asked separately in that question, still resulting in a third of cannabis buyers that get from coffee shops. During police checks, underage youth is hardly ever found in coffee shops, and during surveys in coffee shops only very seldom respondents are underage.
The current study may underestimate the “true” effect of the policy change, since there may have been simultaneous changes that could affect cannabis consumption in the opposite direction, such as increased prosperity, more leisure time, or an increased perceived availability of cannabis among youth in the Netherlands.
As a general prevention measure raising the minimum legal age might have worked to a certain extent. However, when concerning targeted prevention, the measure may have contradictory effects. There is a substantial group of 16 and 17 year olds that still use cannabis, and that buy their own cannabis. They partially buy cannabis through illegal channels, thus experiencing marginalization.

In the future, it would be good to have more studies on the causal relation between the cannabis policy and cannabis use. In addition, studies into the consequences of changes in population characteristics and prevalence rates would be helpful in understanding changes in prevalence rates over time.

Ac ts

The authors would like to express their appreciation for the many years of data collection by the Jellinek Prevention team, and Jaap Jamin in particular. Also, we would like to thank Craig Reinarman and Patricia Erickson for their help and advice in the process of writing this article.

Chapter : Contro in canna i cu ti ation in the ether and

M. Wouters
In: *Cannabis in Europe: Dynamics in perception, policy and markets*
Ed. D.J. Korf
2008, pp. 51-68

Abstract

In recent years the Dutch government has chosen a more active policy when it comes to combating marijuana cultivation. The dismantling of cultivation sites plays an important part in this policy. In this chapter we first describe how dismantling of cultivation sites is organised in the Netherlands. Then we present and discuss estimates of confiscations. Next, we examine whether developments can be perceived with regard to the cultivation sites of cannabis, the types of growers and the cannabis market. In the implementation of the Dutch national government to control marijuana cultivation, several processes of change are identified which relate to the actual practice of site dismantling and to the broader public safety policies pursued. These include:

1) commercialisation,
2) confiscation of criminal proceeds,
3) bureaucratisation and a preponderance of short-term operations, and
4) the use of anonymous tips.

It is concluded that each of these processes carries potential risks.

1 Introduction

Formerly a significant importer of hashish, the Netherlands has steadily developed into a major marijuana-producing country (Decorte & Boekhout van Solinge, 2006; Jansen, 2002). Although this phenomenon of 'import substitution' is not typically Dutch, it is very likely that a clampdown some years ago on large-scale hashish smuggling has boosted the cultivation of marijuana for the domestic market. Since then, two significant developments have occurred. First, the cannabis market underwent major organisational and structural changes. In the past, a limited number of smuggling rings imported a large share of the hashish, which then found its way from large 'offices' via 'intermediary offices' to the consumer market (Korf & Verbraeck, 1993). This commercial structure has since been overturned, not least as a consequence of infighting, including liquidations, amongst the big players on the hashish market (Leistra, 2004). Partly in conjunction with the growing expertise in the cultivation of marijuana, whose quality became increasingly competitive with that of hashish, new players entered the Dutch cannabis market. That resulted in radical changes in cannabis distribution patterns, in terms of both the people involved and the organisational structures. In a second, more or less parallel development, the focus of law enforcement shifted from large-scale cross-border hashish smuggling, which was mainly the remit of customs officials, to the control of clandestine marijuana cultivation on Dutch territory, in which the regional police forces play a crucial role.

'Netherweed' is largely grown indoors. During the past decade, the Dutch government has significantly toughened its policies to control marijuana cultivation[14]. What repercussions

[14] T.k.24077-125.Tweede Kamer der Staten-Generaal vergaderjaar 2003-2004 publicatienummer 24077 nr.125 (2004); T.k. 24077-184. Tweede Kamer der Staten-Generaal vergaderjaar 2005-2006 publicatienummer 24077 nr. 184 (2006).

have these policies had in practice? What developments and trends can be identified? What results have been achieved in terms of numbers of cultivation sites dismantled and marijuana plants seized? Have the dismantling operations had an impact on the structure of the cannabis market or on the price or quality of marijuana? Is the Dutch strategy open to any criticisms?

From October 2006 to January 2007, we investigated the closure and dismantling of Dutch marijuana cultivation sites. Our study was directly motivated by uncertainty about the quality of current data on the number of cultivation sites being raided and the number of marijuana plants and seedlings or clones being seized. Several of the questions posed above can now be addressed using findings from that study (Wouters, Korf & Kroeske, 2007)[15]. We will also draw on additional and more recent sources to shed light on issues that were insufficiently explored there.

The original study was carried out in three stages.
1. In the exploratory stage, we conducted face-to-face interviews with 7 experts and telephone interviews with one key informant in each of the 25 Dutch police regions. The main focus was on the similarities and differences between the regions in terms of policy, definitions, actors involved, and central record keeping.
2. On the basis of these mapped data, we selected 6 regions for the in-depth stage of the study. Selection was based on regional variations in the intensity of dismantling efforts, the record-keeping systems employed, the engagement or non-engagement of dismantling contractors, and the intended nationwide scope of the study. We carried out fieldwork in the six regions and interviewed individuals who were knowledgeable about various aspects of marijuana cultivation and the site dismantling operations; they included policy officials, dismantlers, data managers and market experts. Most interviews were done face to face.
3. In the broad-ranging stage, we conducted an oral survey. The questionnaire was administered mostly by telephone to police officials, local authority officials, and staff members of dismantling, waste processing and energy companies; in the 'cannabis coffee shop' sector, it was administered mostly face to face. Nearly 150 respondents were interviewed. The aim of the broader survey was to obtain more quantitative data about strategies, records kept, numbers of sites dismantled, and trends.

This chapter is about the dismantling of marijuana cultivation sites. But just what do such sites involve in the Netherlands? They are furnished to enable the cultivation of marijuana plants. The plants grow in pots or trays placed under grow lights. Plunger pumps, irrigation systems and other professional or semi-professional equipment are often present as well. Cultivation sites may be found in sheds, warehouses or other commercial buildings, as well as on other types of premises such as private dwellings. Outdoor cultivation also takes place,

[15] The study was commissioned by the Commissioning Research Division (EWB) of the Research and Documentation Centre (WODC) at the Netherlands Ministry of Justice. The content of this article does not necessarily represent the views of the WODC.

but on a lesser scale. Officially, a grow of five or six plants in a cupboard is against the law, but it is often not regarded by police as an actual cultivation site. In such cases, the plants are often seized but no charges are pressed.

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As the study showed, the intensity of the cultivation clampdown varies between police regions. Nevertheless, a clear nationwide trend is emerging of increasingly frequent and vigorous police cooperation with other institutions and with commercial firms. Increasing numbers of organisations are involved in dismantling operations, and cooperation between them is intensifying. The dismantlement policy is being formalised under the label 'comprehensive approach'. More and more regions are putting their cooperative arrangements onto paper, drawing up contracts to enable exchanges of information and to define responsibilities.

Dismantlement has become a structured, streamlined and even routinely conducted campaign; financial interests play an increasingly prominent role. Energy companies, sometimes in conjunction with private dismantling contractors, are the most important partners in the actual dismantling operations. They have a dual function. Because electricity for many marijuana cultivation sites is illegally tapped, it is safer to have professional electricians shut off the power. But the energy companies also have much to gain from closing down as many sites as possible, as the police report enables them to claim large sums in back payments for the stolen electricity. Dismantling firms are increasingly popular because they save the police a great deal of money and dirty work[16]. Housing associations are also involved in the dismantling activities, though they are not usually present when a site is raided.

With the exception of acutely dangerous situations that require immediate action, the phenomenon of 'harvest days' has spread over many parts of the country. Many police regions mount planned, all-day actions to bust several cultivation sites in sequence. On average, each region holds roughly one harvest day per month, raiding an average of five cultivation sites, but there are differences both between and within regions (Table 1). Only a few regions work exclusively with harvest days, and there are only a few regions that rarely or never hold them. Most regions employ combinations of harvest days and ad hoc raids. Of the regions that stage harvest days, some do so every week and others only a few times a year.

Another development is the confiscation of criminal proceeds under the so-called Pluk-Ze legislation. Reportedly, the policy on dismantling marijuana cultivation sites generates a sizeable proportion of the revenues obtained by government under this legislation (which also applies to hard drugs trade and other criminal activities). So-called 'grow shops', where equipment and supplies for cannabis cultivation can be purchased, also appear to be increasingly targeted by law enforcement authorities in their campaign against marijuana cultivation and the organisers behind it.

[16] Both relative small firms predominantly involved in dismantling marijuana cultivation sites, as well as larger companies for which dismantling is only one of their activities.

Table 1. Do regions dismantle several cultivation sites on pre-planned 'harvest days' or dismantle each site ad hoc?

	Number of regions
Single approach for entire region:	
Exclusively or primarily harvest days or primarily ad hoc	1
Primarily harvest days (and some ad hoc)	3
Primarily ad hoc (and some harvest days)	1
Ad hoc raids only	1
Approach varying by districts within region:	
Primarily harvest days or primarily ad hoc	12
Primarily harvest days or primarily ad hoc or ad hoc only	2
Primarily harvest days or ad hoc only	1
Primarily or exclusively ad hoc	4
Total regions	25

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Dutch police make no clear distinction between plants and seedlings, nor is there any commonly defined concept of 'cultivation site'. Although there is a generally accepted minimum of five plants to qualify as a cultivation site, this is not standard, and some locations are counted as cultivation sites even if they contain no plants or seedlings.[17] Thus, definitions differ widely and this has consequences for the registrations kept.

In practice, the terms 'small' and 'large' cultivation sites are frequently employed. Although the number of plants is the most important criterion to distinguish these, there is again no clear dividing line: technical equipment present at a site is also taken into consideration. When the number of plants is considered, wide variations can again be seen between regions. All this notwithstanding, locations with over 500 plants are generally considered 'large' cultivation sites.

The more technically advanced and organised a cultivation site is, the more likely it is to be labelled as professional. Here again, there are no hard and fast criteria, and experiences with earlier raids seem to provide the basis. Given the lack of uniform definitions on what constitutes 'small' and 'large' cultivation sites, statistics about this item should be treated with caution.

[17] Such sites are equipped for cultivation, but plants have either not yet been planted or already been harvested.

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Determining the number of cultivation sites dismantled per year within a particular region often requires gleaning data from various sources and comparing different databases. No established, standardised register of dismantling operations exists in the Netherlands. Moreover, identified locations are not classified in all parts of the country as marijuana cultivation sites, nor always in the same fashion. Not a single police region consistently records marijuana propagation facilities (where clones or seedlings are produced) as a separate category; most regions record them – consistently or inconsistently – as cultivation sites. Drying facilities (where harvested plants are laid out to dry) appear rather less likely than propagation facilities to be recorded as cultivation sites. Only a few regions record drying facilities as a separate category. An additional anomaly is that locations which do not, or no longer, contain any marijuana plants at all may still be recorded as cultivation sites (as mentioned above), yet there is no consistent, universally applied rule governing this. Finally, the same dismantling operation may be recorded more than once, as when two separate individuals record the same operation under different document numbers. To ascertain the number of sites dismantled, it does not suffice to merely click a button in one of the management information systems (BPS, X-Pol, Genesys) of the Dutch police, as the result would often include a plethora of other cannabis offences. If one decides to use such a system, more refined selection followed by manual processing is necessary to get any reliable results at all. Consulting the records of dismantling contractors is the best alternative way to obtain reliable figures. Table 2 summarises the different data sources that were available in each region.

After making any necessary extrapolations and adjustments for over and underestimation, we succeeded in estimating the numbers of dismantled sites in most regions. Undoubtedly these figures contain some statistical noise, as we were sometimes forced to make assumptions (which we explicitly stated in our report, but which remain debatable) and we cannot guarantee that the adjustments we made were exhaustive. Logically, then, ‘estimates’ is the only right term to use here.

On the basis of our study, the conclusion seems justified that about 6,000 marijuana cultivation sites were dismantled both in 2005 and in 2006, which amounts to some 500 a month. These figures certainly contain a margin of error, but we are unable to explicate it any further on the basis of our study. Presumably, though, it would not exceed a few hundred sites more or less. We emphasise that these figures refer to dismantling activities only. We have no way of estimating the total number of marijuana cultivation sites in the Netherlands.

Table 2. Data sources for estimating the number of dismantled cultivation sites, by police region

	Rough estimation*	BPS, 'soft drugs' code	Internal records, BPS special form	Dismantling firms
Amsterdam Amstelland	X	X		X
Brabant Noord	X	X	X	X
Brabant Zuid Oost	X		X	X
Drenthe		X		
Flevoland		X		
Friesland			X	X
Gooi- en Vechtstreek		X	X	X
Gelderland Midden			X	
Gelderland Zuid		X		
Groningen	X		X	
Haaglanden			X	X
Hollands Midden		X		X
Kennemerland				X
Limburg Noord	X	X		
Limburg Zuid	X	X	X	X
Midden en West Brabant		X	X	X
Noord Holland Noord		X	X	X
Noord Oost Gelderland		X		X
Rotterdam Rijnmond	X	X	X	
Twente	X	X		
Utrecht	X	X		X
IJsselland		X	X	
Zaanstreek Waterland	X	X		X
Zeeland	X		X	
Zuid Holland Zuid		X		X
Total	**11**	**18**	**13**	**15**

* Estimates not based on a record system.

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There were some manifest differences between regions in terms of the numbers of dismantled sites recorded. In regions that also recorded 'small' cultivation sites, estimates averaged twice as high as those in regions that did not (Table 3). A complicating factor was that many such regions were pursuing relatively more active policies against marijuana cultivation. Even so, comparison of the data showed that the average number of plants, clones and seedlings was about 100 lower per cultivation site in the regions recording small cultivation sites than in other regions. Hence, those regions apparently either perform relatively more small dismantling operations, record their operations more liberally, or both.

Table 3. Numbers of sites dismantled and plants and seedlings destroyed in regions that did or did not record small sites

	Small sites recorded	Average 2005	Average 2006	Average per year
Dismantled sites	Yes	377	405	390
	No	202	156	179
Plants and seedlings destroyed	Yes	411	502	457
	No	511	615	563

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During the dismantling of a marijuana cultivation site, the plants are usually counted one by one, but calculations or estimates are often made when the numbers are very large. Although normally these are carefully considered and explained, the very quantities involved imply a risk of estimation errors. Seedlings (usually clones) may also be carefully counted, but are rather more likely to be estimated. The techniques by which they are produced make it generally easier to calculate the numbers than is the case for plants. Here too, though, the chance of erroneous estimates increases commensurately with the number of seedlings in a cultivation site or propagation facility.

Variations are seen between and within regions when it comes to determining the numbers of plants and seedlings. One difference involves whether or not small numbers of plants, for instance fewer than five, are counted at all. Especially relevant is that some regions always count these in making records while others do not. But given the relatively low numbers, the total numbers of recorded plants are not seriously affected. More important is that some regions always include small operations like these in their statistics on the number of dismantled sites, while others sometimes or never do. This may significantly affect the total numbers of recorded dismantling operations in particular regions.

In most police regions, the numbers of marijuana plants confiscated during dismantling operations are recorded in all districts, but there are also regions that do not do so consistently. This means the available records of confiscated plants do not represent full nationwide totals; this applies even more to seedlings. When numbers of plants are recorded, that is done in various databases. A relatively common data source is internal police records. Another is the record systems of the dismantling firms. Quite often, seedlings are recorded as if they were plants.

Some regions were unable to retrieve any figures at all on confiscated plants and seedlings from their record systems. Most regions could produce some figures, but frequently those referred to numbers of plants including seedlings[18]. These figures could no longer be broken down. For that reason, the estimates we give here comprise the numbers of confiscated plants and seedlings altogether. Because even rudimentary data were lacking in some police

[18] While the number of plants at a cultivation site can be rather small, seedlings are generally only found and confiscated by the police in very large numbers.

regions, our estimates are also not fully comprehensive for the Netherlands.
On the basis of our data, we estimate that roughly 2.7 million marijuana plants and seedlings were confiscated during cultivation site dismantling operations in 2005 and about 2.8 million in 2006. Although this suggests a slight increase over the two-year period, it does not yet qualify as a clear upward trend.

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The control of organised crime in and behind marijuana cultivation was an important argument for intensifying policy. What we see in practice, however, is that police action is often triggered by instances of public nuisance. This might explain why relatively few outdoor cultivation sites are seized, though it is also conceivable that few such sites actually exist in the Netherlands. Our study does not justify the conclusion that organised crime is now either more involved, or less involved, in marijuana cultivation than was previously the case. If anything, we observe a tendency for law enforcement authorities to increasingly target smaller growing operations as well as larger ones.
In our survey, we inquired whether respondents had noticed changes in three areas: the types of cultivation sites, the types of people owning and running them, and (no less important) the market. People were most likely to report shifts in the types of cultivation sites, and almost a quarter believed these were major changes. The most characteristic change seemed to involve relocation to different types of premises (fewer sites in private dwellings) or areas (more sites outside urban areas), as well as scale enlargement and technological advances. Half of the respondents believed that changes were occurring in the marijuana market, and many of them classified these as major changes. The fewest changes were reported in the types of growers; less than 10% believed there were major changes, and the reported changes mostly suggested greater variation. This, in combination with the types of cultivation sites being encountered, led some observers to speak of a more sinister atmosphere and an increasing involvement by organised crime in marijuana cultivation.

Table 4. Price in euros per kilo of marijuana (most commonly sold type), 2004-2006, in three regions

	Average	sd	Median	n
2004				
Amsterdam Amstelland	2800	341.32	2900	11
Haaglanden	2881	432.55	2825	8
Rotterdam Rijnmond	2429	341.39	2600	7
2005				
Amsterdam Amstelland	3306	322.53	3300	9
Haaglanden	2886	504.74	2800	7
Rotterdam Rijnmond	2743	545.76	2950	7
2006				
Amsterdam Amstelland	3529	423.44	3525	12
Haaglanden	3478	720.72	3200	9
Rotterdam Rijnmond	3550	267.71	3600	7

Others contradicted this, though, and it may be too hasty to assume criminal involvement simply on the basis of the technical equipment found at cultivation sites.
Although not all observers reported changes in the marijuana market, many of those who did so spoke of very significant shifts, pointing mainly to the soaring price of netherweed, particularly in 2006. Data we obtained at the kilogram level indeed confirmed this price rise (see Table 4). Yet this cannot automatically be attributed to the dismantling operations, or at least not entirely. The summer of 2006 was a hot one, and the number of crop failures was relatively high. We detected a mild sense of panic in the marijuana market, and the very rumours of supply shortages may have driven prices even higher. Our impression that the prices had again begun to decline by the end of our study leads us to doubt whether there is a continuing upward trend.
All things considered, we conclude that the dismantling of marijuana cultivation sites, in combination with accompanying measures such as evictions, may have triggered some changes such as the relocation of cultivation sites, but that relatively autonomous processes were also at work. Significant among these were technological innovations, most of which were neither specific to marijuana cultivation nor specific to the Netherlands.

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In the implementation of the Dutch national government to control marijuana cultivation, several processes of change may be identified which relate to the actual practice of site dismantling and to the broader public safety policies pursued. We shall now examine these trends in a wider theoretical framework. They are
1. commercialisation,
2. confiscation of criminal proceeds,
3. bureaucratisation and a preponderance of short-term operations, and
4. the use of anonymous tips.

As we shall point out, each of these processes carries potential risks.

6.8.1 Commercialisation

As noted above, Dutch police forces increasingly engage commercial firms in the dismantling operations. For police personnel, this means spending far less and this may compromise the reliability of the records kept on the numbers of sites dismantled and plants destroyed. The firms might also be tempted to take time on a task that many of them find unpleasant or even inappropriate to their jobs – 'playing dustman'. It is well conceivable that dismantling firms may begin competing with one another (some regions have already switched firms), over investigative tasks from the police and set out in search of cultivation sites themselves. What is certain, in any case, is that Dutch police work closely with energy companies. In view of the illegally tapped electricity, these have a significant interest in closing down as many sites as possible. They have more technological equipment at their disposal than the police for track-

ing down illegal power taps. After sites have been raided, the companies can use the police reports to claim large sums in back payments from growers that have stolen electricity. What safeguards are in place to keep dismantling firms and energy companies from working together to maximise profits?

Garland (2001) describes a trend in policies on public safety whereby crime is now explained more in terms of a lack of control, and less in terms of deprivation, as was previously the case. Governments now attempt to manage crime using techniques of control, trying, at the very least, to create an illusion of improving community safety. Protection of the public by the state is heavily emphasised. At the same time, Garland argues, the boundaries between public and private spheres are blurring. Within law enforcement, previously the unique domain of the state, responsibilities are now being shared with citizens and with commercial enterprises. This development is patently evident in the marijuana raids, most notably in the role played by energy and dismantling companies. In investigation, dismantling and evidence collection, the police thus enlist the aid of commercial firms which pursue their own aims as well as helping the law. Obviously, the conviction of an offender brings them financial gain.

6.8.2 Confiscation of criminal proceeds

Since 1993, Dutch courts have been authorised to seize revenues from criminal activities. This also applies to the proceeds of marijuana cultivation. On the basis of the numbers of plants seized and the presumed number of past harvests from a particular site, authorities estimate how much gross revenue the site will have generated. If a grower provides proof of costs incurred for the site, such as potting soil, equipment, wages and energy costs (if paid), these are deducted from the estimate. Wrongfully claimed social benefits as well as dismantling costs[19], illegally tapped electricity and any other accrued debts (such as the repair of damages to rental properties) must be reimbursed. The Prosecution Service Criminal Assets Deprivation Bureau (BOOM) is charged with these tasks. In 2006, confiscation orders, penalties and settlements yielded a total of €83,650,047 for all criminal activities (BOOM, 2006). Although the amount obtained specifically from marijuana cultivation sites cannot be distinguished, it is possible to ascertain the amount confiscated under Article 3 of the Opium Act, which applies mainly to cannabis[20].6 In 2006, a total of €24,380,338 was seized under that article[21], and although exact percentages are not available, the vast majority of those cases are known to involve marijuana cultivation sites. That would mean that cultivation-related confiscations account for nearly one third of the total amount seized for all criminal activities. As each court district has a minimum yearly amount prescribed for confiscations of criminal proceeds, the raids on marijuana sites play an important part in achieving this target.

Garland (2001) identifies a new style of management and practice in institutions involved with

[19] Whether made by the police or private dismantling firms.

[20] The Opium Act prohibits any substance from Schedule II (which includes cannabis) from being (a) transported into or out of the territory of the Dutch state; (b) cultivated, prepared, treated, processed, sold, delivered, supplied or transported; (c) possessed; or (d) manufactured.

[21] We thank D. Gardenier of BOOM for providing this information.

criminal justice. More precisely, he refers to the 'cost-effective management of risks and resources' (p. 19). Under this method, the most costly law enforcement measures are to be reserved for serious types of crime or for criminality thought to be linked to it, whereas 'gate-keeping [takes place] to exclude trivial or low-risk cases' (p. 19). Evidently, marijuana cultivation is viewed as one of those serious types of crime. An essential condition for that lies in the public perception of marijuana cultivation, as public acceptance of the current stringent campaign stands or falls with the degree to which it is widely perceived as necessary. As in many other countries, the Dutch law enforcement authorities increasingly work with performance indicators, and that is now the case with respect to confiscations of criminal proceeds and the imposition of fines. In such circumstances, it is relatively easy to 'score points' by raiding marijuana sites.

6.8.3 Bureaucratisation

In our interviews and survey, the typical scenario of street-level bureaucracy loomed large. As Lipsky (1980) observed, centrally formulated policy has to be put into practice at lower levels. Policy implementers thereby devise their own approaches, such as by concluding cooperation agreements in their region. Staff on the ground have their own discretionary powers and make their own interpretations of their tasks. The original aim of cracking down on organised crime does not necessarily remain paramount. Moreover, as indicated above, Dutch police forces are increasingly bound by national government to 'performance contracts' that specify quantifiable targets for police work (such as X number of fines for road traffic offences or Y per cent property crime clear-up rate); non-achievement of those targets affects police funding. In terms of the dismantling of marijuana cultivation sites, this may translate into more systematic approaches (harvest days) and the contracting of commercial firms. As Bovens (2003) has observed, crime investigation policy in relation to the cannabis market is now increasingly determined by system-level bureaucrats – information technologists, the men and women from the data systems, the planners in the office. The practice that has emerged might be characterised as predominantly hit-and-run: busting a maximum number of sites with maximum efficiency, but not always weighing the potential impact on organised crime.

Four comments need to be added to this observation. First, hit-and-run operations are in some cases consistent with official national-level policy, as when acute situations like fire hazards or flooding come to light. Second, contrary to what might be implied by 'hit-and-run', many operations, as already observed, are based on a systematic strategy, evidenced by practices such as staging 'harvest days' and hiring dismantling firms. Third, by extension, hit-and-run operations can indeed be effective in fighting organised crime if carried out on a large scale (van de Bunt & Kleemans, 2007). Fourth, the number of cases accompanied by thorough investigation of the organisations behind marijuana cultivation tends to get obscured by the sheer number of dismantling operations. Although most operations are indeed characterised by the hit-and-run approach of swift action, some other cases are the objects of longer police investigation. A study by Spapens, van de Bunt & Rastovac (2007) has shown convincingly that

criminal investigations like these yield a wealth of information about the ways marijuana cultivation is organised, and may even enable police to successfully track down and prosecute the organisers behind this type of drug trade. At the same time, such investigations are extremely time-consuming and therefore costly, and budgeting that time and expenditure in advance is far more difficult than is the case for harvest days. Long-term investigations are therefore less compatible with the culture of police performance contracts.
Not only the Dutch police, but also the Public Prosecution Service is assigned performance targets. Under such conditions, Lipsky (1980) warns of the risk of goal displacement, whereby a performance target that is actually designed to serve a different, higher or more abstract goal may be transformed into a goal in itself. He illustrates this with the performance targets set for a judge. The judge is required to try a minimum number of cases per week; the goal is to ensure that the process of justice will go smoothly and that the public will not have to wait for decisions too long. The judge, however, begins to see the target number of cases as a goal in itself, and hence deals with the cases quickly but not always correctly. The public does not benefit from such a development in the long run. Goal displacement may play a part in the Dutch campaign to dismantle marijuana cultivation sites: raiding a larger number of sites may no longer serve the purpose of public order and safety, but may turn into a goal in itself.

6.8.4 Anonymous tip-offs

For several years now, Dutch police have been able to act on anonymous tips from the public about criminal or suspicious activities. People can call a free phone number known as Meld Misdaad Anoniem ('report crime anonymously', or MMA). Members of the public are encouraged to phone this number to report activities such as marijuana cultivation in their neighbourhood. An example of such an appeal appears on the municipal website www.rotterdam.nl: 'Illegal cannabis farms are hazardous to you and your environment. Short-circuits and overheating in cannabis farms cause two fires every month in residential and commercial premises in Rotterdam. Several thousand cannabis farms are now operating in the city, so there's a strong chance that the drug is being grown right in your neighbourhood. Cannabis farms are a danger and nuisance to you and those around you. Just think of the fires, water damage, stench, mould growth and legionella infections that can arise from these criminal activities. That means higher costs for all of us. Illegal electricity taps mean higher energy bills to all customers, including you! Do you suspect that a cannabis farm is operating in your building, neighbourhood or district? Then we urgently ask you to report it to Meld Misdaad Anoniem on 0800-7000. It's in the interest of your safety and that of others. The anonymity of all callers is assured at all times. Nobody in your neighbourhood will know you called.'
All tips to this nationwide hotline are first screened on criteria such as whether they contain sufficient information and refer to an existing address. If so, they are transmitted as 'usable tips' to the police region that has jurisdiction. In 2005, more than 10,000 tips were received, nearly half of which were drugs-related. By 2006, the number had exceeded 13,500, the majority about drugs. In that year, the first breakdown of the drug tips was made in terms of the

type of offence being reported; 4,334 usable tips were found to involve marijuana cultivation sites. According to data supplied by MMA, 753 people were arrested as a follow-up to the tips, 693 cases were solved and almost 210,000 marijuana plants were seized, or an average of about 300 plants per case or site[22].

We can infer from these statistics that MMA has been very successful in mobilising the public in its operations against cannabis cultivation. One in three usable tips (32%) came from the hotline. Based on the figures from the hotline, 7.5% of the confiscated plants would have been attributable to such tips. The actual percentage is probably higher, as an earlier study (albeit on a different type of crime) found that not all police actions prompted by MMA tips get recorded as such (Bovenkerk & Pronk, 2007).

What types of people report suspected marijuana cultivation sites? Since MMA has a strict policy of not keeping information about callers, it is not feasible to give a profile of the anonymous informers. From the meagre information available, we may deduce that the vast majority of usable MMA tips (those that remain after initial screening) do not result in successful actions against cultivation sites. We can only speculate about why that is. Do police not consider the tips worth following up? Do the tips contain too little concrete information? Do many of them turn out false, with police making no finds when arriving at the scene? And if so, what motivates the false informants? Are they trying to frame or harass their neighbours? During our study, police officers intimated to us that they sometimes had the impression that people were misusing MMA to fight out neighbourhood feuds. It would take further research to confirm this.

When tips do result in the dismantling of sites, that also raises some important questions. What interests are involved in the tipping? Are the informers simply law-abiding citizens performing their civic duty, or might marijuana growers themselves be using the hotline to obstruct or eliminate their competitors? If so, could these be systematic campaigns by rival criminal gangs? When police follow up such tips, are they inadvertently assisting in the feuds of organised criminals, thereby becoming 'partners in crime'?

MMA fits the definition of preventative partnership as used by Garland (2001):

'patient, on-going, low-key efforts to build up the internal controls of neighbourhoods and to encourage communities to police themselves'. To a growing extent, law enforcement agencies engage members of the public in their tasks. Ordinary citizens also want protection against every conceivable risk, and they are willing to sacrifice their own privacy to that end. This process is reflected in the large numbers of tips phoned in to MMA annually.

Conc u ion

The Dutch cannabis market has become increasingly self-provisioning in recent years. The overwhelming proportion of the cannabis consumed in the Netherlands is now domestically grown. The Netherlands is the only country in Europe that officially allows the sale of cannabis to consumers, via 'cannabis coffee shops'. To supply the product to customers calling at

[22] We are grateful to Ellen Verbeem, communications manager at Meld Misdaad Anoniem, for providing this data at our request.

the 'front door', the coffee shops have to stock themselves illegally via the 'back door'. Although the increasing domestic cultivation of marijuana is not an exclusively Dutch phenomenon, the 'back door' policy and the coffee shops are. Yet in a broader sense, cannabis is now increasingly being defined as a problem in the Netherlands, just as in neighbouring countries. Alongside the media reports of growing involvement of organised crime in the cultivation of marijuana – which we have partly called into question in this paper – older issues like cannabis addiction and cannabis psychosis (schizophrenia) are resurfacing in social and political discourse. Such concerns have translated into more repressive strategies against marijuana cultivation, which began earlier and have assumed greater proportions in the Netherlands.

In practice, the Dutch strategy has largely consisted of dismantling large numbers of cannabis cultivation sites; to a lesser extent, there are longer-term police investigations into criminal networks and organisers of mainly large-scale marijuana cultivation. The structural and organisational characteristics of the Dutch cannabis market are now in a state of flux, largely due to relatively autonomous processes fuelled by technological innovations, but also partly in reaction to the policies being pursued by the authorities. Approximately 6,000 marijuana cultivation sites are being dismantled annually. The 2.7 to 2.8 million confiscated plants and seedlings would have yielded about 70,000 kilos of marijuana per month if they had all reached harvest age (based on the cautious assumption of 25 grams per mature plant). This marijuana is now being destroyed, and is therefore not entering the market. If it was all intended for coffee shops, that would have amounted to about 100 kilos of marijuana per coffee shop per year which is now not being supplied[23].

The figures discussed here pertain only to the numbers of sites actually dismantled. We have no information about the total number of marijuana cultivation sites in the Netherlands. Yet the conclusion seems justified that the supply chains to the cannabis coffee shops are now under serious strain. It is not known how much netherweed is transported abroad. Possibly the actions against the cultivation sites have forced a cutback in cannabis exportation, thereby making up for the reduced supply to the shops. Increased cultivation of marijuana has been reported in neighbouring countries (EMCDDA, 2007), possibly boosted by the intensified Dutch campaign against cultivation sites. If the Dutch strategy is continued in its current form and scale, the near future should tell what the longer-term effects have been for cannabis supply to the coffee shops. The least surprising consequence would be a further price rise. That, of course, would make the cannabis market even more attractive to criminal entrepreneurs.

Several attributes of Garland's 'culture of control' are clearly recognisable in the Dutch campaign against cannabis cultivation. The commercialisation, anonymous tips, confiscation of proceeds, and bureaucratisation that we have highlighted here all point to a belief in the policing of cannabis, as well as to an increasing conflation of the public and private domains. Such developments have their inherent risks.

[23] According to the most recent count, there were 729 cannabis coffee shops in the Netherlands in 2005 (Bieleman & Naayer, 2006). The number has been further reduced since that time.

Chapter : Conc u ion i cu ion

In the Netherlands, the sale of cannabis to consumers is tolerated through so-called coffee shops. The form this takes has changed considerably over the years. Since the mid-1990s, stricter legislation and guidelines have been introduced. More recently combating the cannabis cultivation has been intensified as well. These developments in the Dutch cannabis policy raise questions that are at the core of criminology. Answering these questions can contribute significantly to the ongoing international debate on the effects of drug policy as well as contribute to further developing criminological theories.

The central question of this study, as formulated in Chapter 1, refers to consequences that formal changes in the Dutch cannabis policy since the middle of the 1990s have had for the legal regulation of the cannabis market in practice. How and to what extent do these developments relate to (developments at) the supply side of the cannabis market, the sale of cannabis at consumer level, and the consumption of cannabis and other drugs? In chapters 2 to 6, the central question was translated into more specific and detailed research questions. In this chapter, findings from the previous chapters will be brought together and discussed.

1 ai a i it and oca po itic

Local cannabis policy in the Netherlands is not always the same as the national policy. This can be seen in the decision to allow coffee shops or not. Chapter 2 looked at how the interlocal variations in the availability of cannabis through coffee shops have arisen, how large such variations are and how they can be explained. This chapter showed that municipalities with a majority of progressive seats often allow coffee shops, while those with a majority of confessional seats do not. In addition, the demand for cannabis in a municipality has to be sufficient for it to allow coffee shops, in other words: there should be enough potential customers for the coffee shops. Finally, the degree of urbanisation also matters. In the number of coffee shops that is condoned in a municipality, the demand (number of potential customers, for which the number of inhabitants was used as a proximal measure) has the most important role, followed by municipality spread (which is negatively related to degree of urbanisation). Exceptions to these rules are smaller municipalities that have one or more coffee shops; these often have a regional function, which means that in the area, night life or shopping activities are concentrated in this municipality, or many tourists visit them. Larger municipalities without coffee shops are also exceptions; they are often next to a relatively larger municipality with a high concentration of coffee shops, or they have a relatively low urbanicity. Surprisingly, the percentage of young adults (the group with the highest percentage of cannabis users) did not make a difference.

Based on a study by Lenke and Olsson (1996) we expected the presence or absence of conservative parties to be the most influential in the decision whether to allow a coffee shop or not. However, this was not confirmed: we found that the percentage of progressive seats was most important. The percentage of conservative seats did not make difference but the percentage of confessional seats did. Internationally, one might consider confessional parties to be generally conservative in their political opinions; for the Dutch situation this does not hold true. Sometimes Dutch confessional parties would internationally be seen as progressive with regard to certain social or economic issues.

There are several differences between our study and Lenke and Olsson's that could explain the discrepancy between the two. Firstly, our study looked at local politics, not national. At a local level, other dynamics might be at work. Secondly, in the past years the classical pattern of a working class that votes for left-wing parties, and a middle class that votes for right-wing parties has changed. In addition, there has been a rise of 'new right' parties in several countries, including the Netherlands (Achterberg, 2005). Although older themes concerning economic redistribution did not disappear, cultural themes such as norms and values, and safety, have become more important. Increased prosperity and material security have led to a lessened interest in old themes, and cultural themes have been gaining ground. The 'new right' parties combine economically left-leaning standpoints with right-wing outlooks when it concerns cultural themes. This might have influenced the process of decision making at a political level.

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Why do cannabis users in the Netherlands buy marijuana or hashish at sales points other than coffee shops? If cannabis users buy through illegal channels, they often do this through delivery services and home dealers, but also through home growers, under-the-counter sellers and street dealers. With street dealers in particular there is a risk of exposure to other drugs, but even in the case of other sales points still twenty to thirty per cent sold other drugs in addition to marijuana or hashish. Chapter 3 showed that cannabis users that live in towns where there are few or no coffee shops, buy through non-tolerated sellers more often. In addition to cannabis buying behaviour, availability of coffee shops can influence the *use* of marijuana or hashish. In Chapter 4 no relationship was found between proximity to coffee shops and last year cannabis use, nor frequency of use and amounts used. Those that buy exclusively in coffee shops did prove to be more frequent and more intense users of cannabis. However, there was no relationship between proximity to coffee shops and the use of hard drugs in the year prior to the survey. It is possible that the availability of coffee shops does not influence the prevalence of cannabis use, but does stimulate more frequent and intense use. Conversely it can also mean that specifically the frequent users prefer the coffee shop above non-tolerated sellers, because of a guaranteed availability of cannabis, a relatively stable quality and perhaps also the social interaction with coffee shop employees and other customers.

Generally, one would expect users of cannabis to prefer buying it through legal channels. However, although most cannabis users in the Netherlands predominantly buy it in coffee shops, some (also) buy from illegal dealers. This can be explained by several factors. Firstly, coffee shops are not omnipresent in the Netherlands. However, even in municipalities with a high coffee shops density, not all cannabis users buy at a coffee shop. In addition to the geographical location, other factors might play a role in cannabis users' buying decisions. Some of these factors were discussed in a report by Korf et al. (2005), in which an ethnographic field study indicated that opening hours were one of the factors; many municipalities restrict the opening hours and sometimes these are very limited. Other factors that they found are prices (some non-tolerated sellers have a lower price), quality and larger amounts per purchase.

In studying the relationship between availability of coffee shops and cannabis use, criminological theories are of interest. Firstly, Routine Activity Theory might explain the choice of buying in a coffee shop or elsewhere. According to this theory, individuals encounter opportunities for crime in their daily life and this leads to criminal behaviour. In this case, it would mean that persons who come across illegal sellers of cannabis at a moment when they are willing to buy cannabis, before they pass a coffee shop, they will buy from this illegal seller. Within the framework of Routine Activity Theory, the concept of "awareness space" has been addressed (Bernasco, 2010). Awareness space refers to the areas and places offenders are familiar with as they go about their daily life. In future studies it would be interesting to further expand the variables taken into consideration when studying the relationship between availability of coffee shops and cannabis buying behaviour, and cannabis use. It would be wise to take for instance opening hours, daily travel routines, and other significant places outside of location of residence, such as school or work locations, and most used supermarket.

Secondly, one might consider Rational Choice Theory; this theory states that criminals weigh pros and cons of criminal behaviour and make rational decisions on where and when to commit crimes. This would mean that for cannabis users to resort to non-tolerated cannabis sales points, coffee shops would need to be limited in their availability. This could take the form of being far away, inaccessible due to minimum age, but also very limited opening hours, high prices or even an unpleasant atmosphere would increase the threshold to coffee shops. Empirical studies show, within the perspective of Rational Choice Theory, that there are greater gains for greater distances travelled, but also that offenders commit fewer crimes when the distance to their home increases. This would mean that cannabis users are more likely to buy at non-tolerated cannabis sellers when these are close to their home or other places they frequent in their daily routines.

No relationship was found between proximity to coffee shops and current use of cannabis. From other studies in for instance the field of tobacco (Leatherdale & Strath, 2007; Pokorny, Jason & Schoeny, 2003), it can be deduced that the relationship between proximity, or more generally availability, of coffee shops and cannabis behaviour might be a dynamic one. The relationship might differ according to the stage in cannabis career; while a beginning user might get his or her cannabis for free, when continuing this use and becoming a more frequent user, the user might stop depending on friends to support this habit, and the user might start buying at coffee shops (more often), and thus be more influenced by their availability. If the user is a very frequent user, one would also expect a different relationship between coffee shop availability and the buying and using of cannabis than if they use less frequent.

Co ee hop and inor

Although minors are not allowed to buy in coffee shops, some do still use cannabis. Does a higher minimum age deter the use of cannabis, resulting in fewer minors that use cannabis, or postponing the use of marijuana or hashish? This might work for some minors; however, despite minimum age for coffee shops being enforced, there are youth that do start using cannabis before the age of 18. Many studies have shown that with alcohol, raising the minimum legal age does reduce the use of

alcohol among minors, but also that underage drinking does not disappear completely (Wagenaar & Toomey, 2002; Willner & Hart, 2001; Wolfson & Hourigan, 1997).
Chapter 5 shows that among the secondary school students in the Netherlands, there is a decrease in prevalence of cannabis use from 1997 onwards. To what extent can this decrease be attributed to raising the minimum legal age for coffee shops in 1996? The declining trend from 1997 onwards in national prevalence rates of cannabis use among students of secondary education can be seen in Amsterdam as well. However, when this declining trend in Amsterdam is broken down for subgroups according to sex, ethnicity and educational level, a large variation in how these prevalence rates have developed can be observed. The changes in cannabis prevalence rates in Amsterdam seem to be more attributable to changes in the demographic characteristics of the population than to the change in policy. This is at odds with the results of the national evaluation of the Dutch drug policy (Van Laar & Van Ooyen-Houben, 2009), which showed that after controlling for changes in the demographics of the national population of students, there still was slight decline in prevalence rates after raising the minimum age. Perhaps surprising at first sight, the percentage of current cannabis users among 16 & 17 year olds in Amsterdam that buy cannabis did not change over time. However, the absolute number of 16 & 17 year olds that buy cannabis did decrease since the total number of cannabis users decreased. The place where students of secondary education in Amsterdam acquired their cannabis shifted from coffee shops to other sources, including non-tolerated dealers. Similarly, Chapter 3 showed that minors that use cannabis, buy cannabis less often than young adult cannabis users, but also that being a minor does increase the chance of buying through non-tolerated sellers. It should not come as a great surprise that raising the minimum age for coffee shops as such had a limited influence on underage youth. Generally speaking they do not buy their own marijuana or hashish that often, after initiation into cannabis use many consumers take some time to develop into buyers of cannabis. Often they get marijuana or hashish for free from friends (Abraham, Kaal & Cohen, 2002; Korf, Nabben & Benschop, 2003; Ogilvie, Gruer & Haw, 2005). The finding that raising the minimum age for coffee shops has had little influence on the decline in prevalence rates of cannabis use and buying behaviour, gives cause to investigate more closely what *did* curb the prevalence rates among youth. It may be something that changes in the future, causing prevalence rates to go up again. Also, it could be that these are 'natural' fluctuations over time, that do not relate to policy changes.

eparation o ar et

When cannabis users buy cannabis from non-tolerated sellers, it increases their chance of being exposed to the sale of hard drugs. Chapter 3 shows that a majority of unlicensed cannabis selling points predominantly sells cannabis only. However, a substantial number sells other drugs as well, thereby increasing the risk of exposure to hard drugs when buying soft drugs. As mentioned above, there is a possibility that problem youth buy their cannabis from this illegal network, and this might add to their level of marginalisation.

In Chapter 4, the separation of markets policy does not seem to have much influence on the use of hard drugs among Dutch party-goers and clubbers. Buying cannabis at coffee shops did not reduce

the chances of having used hard drugs to zero. For last year use of hard drugs, having used cannabis at an early age was an important factor in our study, confirming earlier findings (Baumeister & Tossmann, 2005; Lynskey, 2003; Lynskey, Vink & Boomsma, 2006). Although a decrease in the availability in coffee shops will hazard the notion of the separation of markets policy, there does not seem to be a direct influence on the use of hard drugs. It is more likely that other factors such as risk seeking behaviour, or a socially deprived background, causes or increases the chances of hard drugs use.

i ant in canna i cu ti ation ite

From the 1990s onwards, the Dutch cannabis market has become increasingly self-provisioning. Since then import substitution has resulted in an overwhelming proportion of cannabis consumed in the Netherlands being domestically grown (Korf, 2011; Potter, Bouchard & Decorte, 2011). To sell the product through coffee shops to consumers calling at the 'front door', the coffee shops have to supply themselves illegally via the 'back door'. Although the increasing domestic cultivation of marijuana is not an exclusively Dutch phenomenon, the 'back door' policy and the coffee shops are.

Since the mid-1990s, cannabis has increasingly been defined as a problem in the Netherlands, just as in neighbouring countries. Alongside the media reports of growing involvement of organised crime in the cultivation of marijuana, generally more problematic sides of the Dutch cannabis and coffee shop policy are discussed, resulting in more repressive strategies against marijuana cultivation. Chapter 6 looked at how the dismantling of cannabis cultivation sites is put into practice, and what the effects are on the cannabis consumer market. In addition, the possible negative consequences of this policy were analysed. In practice, the Dutch strategy has largely consisted of dismantling large numbers of cannabis cultivation sites; to a lesser extent, there are longer-term police investigations into criminal networks and organisers of mainly large-scale marijuana cultivation. Approximately 6,000 marijuana cultivation sites were dismantled in 2006. In 2010 and 2011 this was around 5,500 cultivation sites[24]. As Korf points out, dismantling has become a 'structured, streamlined and even routinely conducted campaign' (Korf, 2011). The marijuana from the confiscated plants was now destroyed, and therefore did not enter the market. The figures pertain only to the numbers of sites actually dismantled; there is no information about the total number of marijuana cultivation sites in the Netherlands, but the conclusion seems justified that the supply chains to the cannabis coffee shops were under serious strain. There were some observations of shifts in the types of cultivation sites. In 2006 there was a slight increase in the price of cannabis at the kilogram level, but our impression was that the prices had begun to decline by the Spring 2007. However, since then, there has been a steady increase in cannabis prices; in 2006 the price per kilo for the most often sold "netherweed" was €3,200 - € 3,600, while around Spring 2010 this had increased to € 3,500 - € 4,000. The average price of Dutch-grown cannabis in coffee shops increased significantly, from €7.30 per gram in 2006/2007 to €9.30 in 2011/2012 (Niesink & Rigter, 2012).

[24] Personal communication, Jan van der Kleijn, 11 October 2012.

Broadly speaking, Garlands 'Culture of Control' helps to understand the shift towards a more repressive drug policy that has taken place since the mid-1990s in the Netherlands. According to Garland (2001), policies are more and more repressive, less is being tolerated when it comes to judiciary rules. compared to the 1980s, both progressive and conservative parties increasingly are proponents of repressive measures. Crime is explained more in terms of lack of control than of deprivation, as was the case before, and drug use and drugs markets are viewed from a law-and-order perspective, rather than in public health terms. Within the scope of the cannabis debate, we see that there is more emphasis on the problematic aspects of cannabis use (Vuillaume, 2008). More specifically for the Netherlands, this leaves less room for coffee shops; the debate centres around the nuisance caused by coffee shops, the dilemma of the cannabis supply chain, and the dangers of cannabis use at an early age.

Garland describes how the boundaries between public and private spheres are blurring. While law enforcement was previously the unique domain of the state, increasingly responsibilities are being shared with citizens and with commercial enterprises. The possibility to report crime anonymously by phone ("MMA") is an example of sharing this responsibility with citizens. However, involving citizens in safeguarding public order risks abuse for personal gain. Since MMA is anonymous, nothing is known about the individuals reporting suspected cannabis cultivation sites. Why do people report cultivation sites? Are the informers simply law-abiding citizens performing their civic duty, or do people abuse it to plague neighbours they do not get along with? Or will cannabis growers abuse the hotline to eliminate the competition, leading to the police unknowingly assisting criminals? The involvement of dismantling companies, who are hired by the police to dismantle cannabis cultivation sites, as well as energy companies, is an example of commercial enterprises being involved. This commercialisation of the dismantling activities might lead to companies taking advantage of the dependency of the police on their services and cooperation during these dismantling activities (see also Korf, 2011; Wouters, 2008). Commercialisation might also apply to law enforcement. Confiscations of criminal proceeds of cannabis cultivation sites covered around one third of all criminal proceeds in 2006. Court districts have concrete targets for proceeds of confiscations, and cannabis cultivation sites play an important role in achieving these goals. Finally, there is a risk of 'goal displacement' (Lipsky, 1980) taking place with the dismantling of cannabis cultivation sites; here dismantling a maximum number of sites might take precedence over the dismantling serving the purpose of public order and safety.

ethodo o ica re ection

Although the data used in the various chapters were suitable for studying the issues put forward and in some ways even unique, they were not perfect. The methodological limitations will be discussed below, among which those related to the variables used, representativeness and causality.

Our measures for coffee shop availability had some limitations; one of the variables was not measured at an individual level, and another did not provide a large range of distances. Also, due to the skewed distribution of several variables, these were often recalculated into dichotomous variables. This also leads to less differentiation in the measures. Some of the variables had rather low cut-off

points, for instance for frequency of use or amount used, so when referring to 'frequent' or 'more intense' users, this does not represent a very intensely using group. Also, regarding cannabis buying behaviour, groups of non-buyers, coffee shop only buyers and (also) elsewhere buyers were distinguished. It should be noted that the last group still purchased most of their cannabis at coffee shops. Conclusions on the relationship between cannabis buying behaviour and intensity of use should therefore be treated with some caution. The fact that differences between these groups were found, however, is still interesting, especially since the difference in buying behaviour is relatively subtle.
Also, the methods used in Chapter 5 are not perfectly suited to studying the causal relationship between raising the minimum age for coffee shops and prevalence of cannabis use. Ideally, other types of methods and data should be used to assess the influence of the change in minimum age for coffee shops; however, these were not available.

In three chapters, surveys were used to study cannabis use and cannabis buying behaviour. In Chapter 5, representative samples from a recurring study among students of secondary education in Amsterdam were used. The other two chapters (3 and 4) did not use random, representative population samples. Therefore, we cannot contend that the users surveyed are statistically representative of the entire population of cannabis users in the Netherlands. Since the proportion of current users of cannabis is low in the general population, a very large and prohibitively expensive sample would be needed to make generalizable claims about cannabis use and cannabis buying behaviour of all cannabis users in the country. For instance, in the most recent general population study on substance use in the Netherlands from 2009, 4.2% had used cannabis in the last month, or 242 of a total of 5,769 respondents (Van Rooij, Schoenmakers & Van de Mheen, 2011). From this proportion it can be deduced that inclusion of, for example, 800 respondents that had used cannabis, would have required about 19,000 respondents in total. Since this is a very costly and time intensive task, a more pragmatic solution was chosen, namely intercept survey strategies by interviewing convenience samples. For chapters 3 and 4 these convenience samples were recruited at neutral locations with regard to the types of cannabis users that might be present; either outside on the streets or in night life locations. Throughout the different chapters, different types of populations were studied, thus providing a large variation in types of cannabis users.

When studying minors, data from Amsterdam were used. The developments among school youth in this largest Dutch city is somewhat different from other cities in the country. Firstly, because the population characteristics are different. The percentage of ethnic youth increased much more compared to smaller cities. Also, population in urban areas is known to use cannabis more often (Van Laar et al., 2011). Thirdly, Amsterdam has a very high number of coffee shops which might influence the effect of raising the age limit.
There also was a substantial overlap between ethnicity and educational level in the study among minors. For example, around two thirds of the students in lower level education were of non-Western ethnicity, while in higher education this was one third. In addition, educational level represents social economic status. Although technically this did not prove to be a problem in the logistic

regression analyses, the interpretation of the influence of ethnicity might be complicated by the overlap.

When looking at the relationship between coffee shops, and cannabis use and buying behaviour, there can be different effects for different sizes and locations of coffee shops. Some coffee shops are small and draw limited clienteles, whereas others are much larger and have far more customers. It has not been possible to take this aspect into account in the previous chapters. Larger coffee shops might be more often located near the border for instance, thus explaining why only a few such border towns emerged in Chapter 2 as having high coffee shop densities relative to the local population.

Although temporal precedence and determining covariation of cause and effect are possible to achieve when studying the consequences of policies, excluding other plausible explanations is much harder. Even when a more lenient drug policy is followed by an increase in drug use, or a more repressive drug policy by a decrease in drug use, there are other factors that need to be taken into account, for instance population characteristics. One of the ways to establish whether drug policy influences drug use is comparing policies and drug use levels of different countries. A problem is that many of the indicators of drug policy and of cannabis use are not easily comparable. In addition, formal policy is different from how a policy is implemented. For example, there are countries with stricter policies than the Netherlands, but because of the (lack of) implementation, in practice the situations might turn out to be similar; even though a behaviour is legally punishable, does not mean the punishment is always implemented. In the EMCDDA Annual report 2011, no direct association was found between prevalence rates in recent cannabis use and changes made to either increase or decrease penalties for use. According to the EMCDDA this suggests “that more complex processes are at work” (EMCDDA, 2011). Determining the causal relation between (changes in) drug policy and drug use prevalence is a complicated task.

uture tudie

Earlier in this chapter, some suggestions for future studies have already been made. However, more issues for future research have emerged. In Chapter 4, current use and proximity to coffee shops did not correlate, but the early use of cannabis might still be influenced by the proximity or availability of coffee shops. Therefore, it would be wise to include the different stages of use in future studies. Research with a longitudinal design where different stages of using careers are studied can perhaps shed some light on this specific issue. A longitudinal study where different stages of use are studied would also be ideal to further unravel the relationship between availability of coffee shops and cannabis use. In such a design daily routines can also be included as factors of interest.

Since the current study showed that population characteristics influence the prevalence rates of cannabis use, in the future, studies on the consequences of changes in population characteristics for prevalence rates would be helpful in understanding changes in prevalence rates over time. So far, international comparisons have not been very helpful in understanding the influence of drug policies.

Taking the population characteristics into consideration, might help to understand international differences and similarities, and thus unravel the relation between drug policy and the use of drugs.

o ic re ection

An illegal (drug) market is hard to control, apart from trying to eradicate it completely. By condoning some of the sales, there are more possibilities for regulation. However, the criteria for condoning should ideally fit the practice of a drug market. When there is a discrepancy between the practice of the market and the rules, the chances of the rules being broken increases. In the current Dutch coffee shop policy one can see this happening among minors. If we assume raising the minimum age for coffee shops has worked to a certain extent as a general prevention measure, it may have had contradictory effects when considering targeted prevention. While general prevention measures aim to decrease risks for the entire population, targeted prevention aims at high risk groups specifically. Even with a minimum age of 18 for coffee shops, a substantial group of 16 & 17 year olds continue to use cannabis. And some of them buy their own cannabis. This group will have to buy cannabis through non-tolerated channels, thus experiencing marginalisation and increasing the risk of getting arrested. Since many already high risk groups of youth start using cannabis before their 18th birthday, this group might experience even further marginalisation than they would otherwise.

In the past years, there has been much debate about coffee shops in border towns. Some of the border towns experienced nuisance from drug tourists that visited the Netherlands to buy drugs. There was a lot of debate about the busy coffee shops that were frequented mainly by visitors from Germany, Belgium and France. In 2009 several of these coffee shops were closed (Beke & van der Torre, 2011). More recently, in addition to the AHOJ-G criteria, the government introduced the B and I-criteria in October 2011[25]. The B stands for 'Besloten clubmodel', which means that coffee shops will be transformed into private clubs, of which the members have to be registered. In addition, the I-criterion ('Ingezetenen') states that these members must be residents of the Netherlands. These criteria have been introduced on May 1st 2012 in the Southern provinces of the Netherlands (Limburg, Noord Brabant and Zeeland), and are scheduled to be introduced in the rest of the country on January 1st 2013. At the same time, a limit of 2,000 members per coffee shop is planned at the national level. In addition, the minimum distance of 250 meters between coffee shops and schools for secondary education is to be expanded to 350 meters. The elections of September 2012 resulted in a victory for both the PvdA (progressive) and the VVD (right-wing). In negotiations to form a new government, the new criteria were altered somewhat, resulting in cancellation of the registration of coffee shop members[26]. However, visitors of coffee shops will still need to identify themselves as residents of the Netherlands.

[25] T.k. 24077-265. Tweede Kamer der Staten-Generaal vergaderjaar 2011-2012 publicatienummer 24077 nr. 265 (2011).
[26] "Bruggen Slaan. Regeerakkoord VVD-PvdA. 29 oktober 2012."

In the new Dutch drug policy memorandum of 2011[27], the aforementioned B and I-criteria were introduced, as well as more stringent measures regarding cannabis cultivation. It describes how the goals and assumptions of the policy are redefined, focusing on reduction of use, more specifically on the negative social and health consequences. Formerly, the drug policy was aimed at having a "realistic, evidence-based and proportional" drug policy[28]. In addition, the new coffee shop policy is said to be aimed at: returning to catering only to the local population; controlling the number of coffee shops by taking the local situation into account; and carrying on the integral combat against organized crime (involved in cannabis cultivation).
Experiments with regulated cannabis cultivation are ruled out, because of international obligations. As Van de Wijngaart (1990) has said, it is hard to declare the Dutch drug policy a success or a failure, since it is impossible to know what the situation would have been, had the policy not been adopted. Even an informed guess about what the cannabis prevalence rates would have been otherwise, would be hard to make. In addition, drug use develops in the context of its specific cultural and historical situation. As Van de Wijngaart stated: "By its very nature, this understanding cannot simply be extrapolated to other social contexts." (Wijngaart, 1990).
According to Nelen (2008) the evaluation of preventive measures is not easy, since the aim is to prove that the presence of the preventive measure is a plausible explanation for the absence of the phenomenon. He states that is not just important to know whether a preventive measure works or not, but also why it works, for whom it would (or would not) be successful and under what circumstances the measure would be effective. Overall, from the current study it can be concluded that the formal changes in policy has had consequences for enforcement and detection. It influences the shape cannabis cultivation takes, but not whether it takes place or not. Considering the consumer level, changes in the cannabis policy have influenced how cannabis buying takes place, but not whether cannabis users buy. Also, it seems to have a limited influence on the prevalence of cannabis use or the consumption of other drugs. Cannabis use, cannabis buying and cannabis cultivation are all dynamic behaviours that change shape according to the implemented policy, but policy does not influence the existence of these behaviours.

When considering Rational Choice Theory, it would make sense to not further limit the availability of coffee shops, since this would motivate more cannabis users to buy at illegal sales points – as can be concluded from previous chapters. In line with Rational Choice Theory, most cannabis users prefer buying at coffee shops. Therefore if the aim is to control cannabis consumption, the coffee shop would be a very suitable place to do this. For instance through education on risks of cannabis use and information on addiction care. In addition, the quality of the sold goods can be monitored more closely. From this study it becomes clear that increasing the threshold to coffee shops will make cannabis users less inclined to buy there. Cynically speaking one could say that humans are lazy beings that want the maximum gain with the least effort.
The introduction of the B- and I-criteria are not in line with Rational Choice Theory, since this would generate a decrease in coffee shop availability for Dutch residents. These new criteria are aimed at

[27] T.k. 24077-265. Tweede Kamer der Staten-Generaal vergaderjaar 2011-2012 publicatienummer 24077 nr. 265 (2011).
[28] Hoofdlijnenbrief drugsbeleid d.d. 11 september 2009. VGP/ADT 2955486 (2009).

reducing the number of drug tourist, but also have consequences for Dutch residents. However, both groups of cannabis users are potential customers for non-tolerated cannabis dealers. This leads to the careful conclusion that introducing the B and I-criteria will result in an increased illegal cannabis market, which – based on this study – will mainly take the shape of mobile phone dealers and home dealers, in addition to buying it through friends and acquaintances. It can be expected that many cannabis users that currently buy in coffee shops will not continue buying there (Korf, Wouters & Benschop, 2011). And as a result, the cannabis market will become less transparent, and risks to users will increase. Also, with an expanding illegal cannabis market the sales to minors, which already are partially taking place through an underground market, will most likely increase. The increased availability of cannabis through illegal channels will have an effect on the availability among minors, since a growing illegal market will make cannabis easier for them to buy. In future studies, it would be good to take a further look at the relationship between the coffee shop policy and cannabis use. Especially the introduction of the B- and I-criteria provides us with an excellent opportunity to study the effects of a diminished availability of coffee shops on the use of cannabis, buying behaviour and changes in the illegal market.

Nelen (2008) compared criminologists with Theseus walking through a labyrinth of proof, trying to find the way. Scientific evidence is not easy to interpret, and finding the truth is a complicated task. Although the last word about the effects of the Dutch drug policy has not been said, with the current study some of the outlines of the labyrinth have become more visible.

Chapter : u ar

1 enera introduction

Traditionally, the Dutch drug policy can be said to have three dimensions: an active care and prevention policy to counter drug demand, combatting organised crime to fight supply, and protecting and maintaining public order. More recently, the emphasis has shifted to nuisance. Also, Dutch cannabis policy became more strict, parallel to a change in the general discourse to the negative effects of cannabis use. Dutch cannabis policy increasingly is determined at a national level. From 2002 onwards, an increasingly robust stance was taken against cannabis production and the rules applied to coffee shop sales.

After the rise of coffee shops in the 1980s and 1990s, a more repressive policy was proposed in 1995. The AHOJ-G criteria, to which coffee shops should adhere, were made more strict. In 2004 the Ministers of Public Health, Justice and Internal Affairs expressed concerns about the health effects of cannabis use, the high THC-percentages and the (increasing) involvement of organised crime in cannabis cultivation. This was followed by several measures to restrict availability of coffee shops and combat cannabis cultivation. From a criminological perspective, these changes offer challenging opportunities to study the effects of drug policy. The central question of this study therefore is:

"What consequences have formal changes in the Dutch cannabis policy since the middle of the 1990s had for the legal regulation of the cannabis market in practice, and how and to what extent do these developments relate to (developments at) the supply side of the cannabis market, the sale of cannabis at consumer level, and the consumption of other drugs?"

oca po itic and retai canna i ar et

Both cannabis policies and prevalence rates of cannabis use differ considerably across Western countries. Yet a long series of cross-national comparison studies have found no clear connection between policy and prevalence of cannabis use. The Netherlands has coffee shops where people can buy and smoke cannabis without penalty is an exception, but this does not mean the situation is unique. Even though a majority of cannabis users in the Netherlands buy from coffee shops, not all of them do. A large majority of Dutch municipalities have no coffee shops; they are concentrated in specific areas in the Netherlands. In Chapter 2 it is investigated why such wide local differences exist, how these differences have arisen, how large the variation is and how they can be explained. The role of local politics, as well as the influence of demand, were examined. As described in the first chapter, local councils in the Netherlands can decide whether or not they will allow coffee shops; in addition, they can determine how many they will allow, although they have to adhere to national legislation and regulations. Local governments – like the national government – in the Netherlands consist of coalitions of at least two parties, and often more. Broadly speaking, there are three types of parties: confessional, or religiously based, parties who have conservative views on drug policy, progressive parties that propose cannabis legalisation and the right wing liberal party. This last party has no explicit viewpoint on coffee shops. At the time of the study, several new parties had emerged, but had little or no representation in the local councils. In addition, local interest parties were omitted in our study because their lack of uniformity prevented their inclusion. From an economic angle, one would expect the

presence of a coffee shop to be related to a town's population, and the number of coffee shops with the degree of urbanisation. Regression analyses were carried out on data regarding the number of coffee shops per municipality, local council seat distribution and area demographic characteristics.
A contrast analysis of municipalities with no or few, versus many coffee shops was also performed. In municipalities where on or more coffee shops were present, there were significantly more progressive seats and less confessional seats. The percentage of progressive seats in the local council emerged as the most important predictor of whether a town had coffeeshops or not. However, population size and urbanisation were almost equally strong predictors. As to the number of coffee shops in a municipality, population size was the stronger predictor, followed by degree of urbanisation. Urbanisation was negatively associated with the number of coffee shops. This indicates that in municipalities of similar population, those with the most widely dispersed dwellings have more coffee shops than more compactly built communities. The most plausible explanation is that cannabis consumers prefer shorter distances to their coffee shops. It can be concluded that the political composition of the local council generally does make a difference in a municipality decision for or against authorising coffee shops, but not in the number of coffee shops. The latter appears to depend primarily on the scale of local cannabis demand.

cce to icen ed canna i upp

The aim of this chapter was to shed some light on the non-lawful cannabis market in the Netherlands. A field survey was conducted in seven communities that varied in coffee shop density, including two towns without any coffee shop. Close to 800 current cannabis users were interviewed, of which 86.0% (n = 665) buy their own cannabis. Close to half of the respondents who reported buying cannabis said they did so exclusively in coffee shops (48.6%), while an additional one third purchased cannabis in coffee shops as well as from other sellers (38.6%). Close to half of cannabis users bought exclusively from coffee shops, while the other half also or only bought from non-licensed sellers. Over 70% of cannabis purchase was bought in coffee shops. Buyers in the two municipalities without coffee shops reported buying significantly less of their cannabis in coffee shops than buyers in municipalities with coffee shops. Second, the extent to which age influences the way in cannabis is acquired was analysed, in particular how under-age cannabis users in the Netherlands acquire their cannabis. Age was expected to have a substantial impact in cannabis purchasing patterns because coffee shop regulations require that purchasers are at least 18 years of age. As expected, minors were more often non-buyers and were more likely to buy cannabis outside coffee shops, compared to adults. When minors do buy in coffee shops, they buy less of their cannabis there. In several logistic regression analyses, we compared respondents who exclusively buy their cannabis in coffee shops with respondents who additionally or exclusively buy cannabis elsewhere. Three variables were significantly and independently associated with buying from other suppliers: coffee shop density, age, and sex. We found that the higher the coffee shop density, the lower the likelihood that respondents bought cannabis outside the coffee shop system at illicit selling points. Under-age buyers are more than twice as likely to buy their cannabis outside of coffee shops. The most commonly used type of unlicensed cannabis seller was the mobile phone dealer, closely followed by the home dealer. The home grower was also used relatively often, while street dealers and under-the-counter dealers

were used sporadically. In addition to their more frequent use of illicit sales points, under-age respondents were more likely to report buying their cannabis from mobile phone dealers. Respondents reported that a majority of unlicensed selling points predominantly sell cannabis. However, a substantial number of these dealers also sell other drugs as well, thereby increasing the risk of being offered hard drugs when buying soft drugs.

Why do people in the Netherlands buy cannabis from unlicensed selling points? The evidence from our survey suggests that the availability of coffee shops influences whether people buy from unlicensed selling points: with fewer coffee shops, the likelihood that cannabis users will resort to illicit selling points increases. In addition to the geographical concentration of coffee shops, other factors may play a role in cannabis users' buying decisions. Our study shows that finding an optimal minimum age is not an easy task.

Canna i u e and pro i it to co ee hop

The aim of this chapter is to assess the influence of coffee shop availability on the prevalence and intensity of cannabis use, as well as the effectiveness of the 'separation of markets' policy. A convenience sample of nightlife visitors and a sub-selection of previous year cannabis users were used for analyses on cannabis and hard drugs use. Logistic regression analyses showed that coffee shop proximity does not seem to be linked to prevalence of cannabis use or intensity of use. In addition, proximity to coffee shops does not seem to be linked directly to hard drugs use.

In this chapter, the relationship between the proximity to coffee shops and cannabis use is explored. We hypothesized that closer proximity to coffee shops would result in more cannabis consumption. This hypothesis was not confirmed, as no association between the distance from the coffee shop to place of residence and previous year cannabis use was found. In addition, coffee shop proximity did not predict more frequent cannabis use and larger amounts used. However, buying behaviour proved to be of influence: respondents who bought only in coffee shops were more regular users than non-buyers and (also) elsewhere buyers. In addition, they used more cannabis per occasion than non-buyers. When the logistic regression with previous year cannabis use as the outcome variable was performed for minors and adults separately, far fewer variables were of significance among minors, with previous year tobacco smoking as the only remaining variable.

The second hypothesis, that proximity to coffee shops is positively related to previous year use of hard drugs, was not confirmed either. First use of cannabis at an early age (before 13 years), however, was an important predictor of hard drugs use. For both frequency of cannabis use and amounts of cannabis used, being a minor increased the chances of belonging to the group of more intense users. Proximity to coffee shops did not influence cannabis use but buying cannabis in coffee shops was related to more regular cannabis use and larger amounts used.

From the results of this study it remains unresolved whether the presence of coffee shops stimulates more intense cannabis use (Routine Activity Theory), or whether more frequent users more often buy at coffee shops (Rational Choice Theory). Proximity did not play a significant role in our analyses. However, buying in coffee shops did show a connection to more regular use and larger amounts used.

Coffee shops might stimulate both frequency of use and amounts used per occasion, but longitudinal studies are required to determine whether this is a causal relationship.

ai in the ini u a e or co ee hop

After 1997, a downward trend can be seen in cannabis use prevalence rates among 16 and 17 year olds in Amsterdam. The changes in population characteristics seem to be more important in explaining this decrease than the change in policy. However, the recent decline in 2007 might be attributable to a delayed effect of raising the minimum legal age for coffee shops from 16 to 18 years. After 1997, a downward trend can be seen in cannabis use prevalence rates. The cannabis prevalence rates show very different patterns for different groups (sex, ethnicity, educational level), from which it can be determined that cannabis use is a dynamic behaviour. In addition, we performed a logistic regression analysis using last year cannabis use as an outcome measure. This showed that changes in population were more important in explaining this downward trend than the change in policy. The percentage of last month cannabis users that buy their own cannabis did not change, but buying behaviour did shift from coffee shops to other sources. The absolute number of buyers did decrease, since the total group of users has grown smaller. The downward trend in cannabis prevalence rates among students was different from trends in other countries (MacCoun, 2011); some researchers think it is the result of raising the minimum legal age. From this chapter one cannot tell whether raising the age limit has had effect on the frequency with which minors use cannabis, or on the amounts that they use. Not having a legal source of cannabis might limit the cannabis intake. More studies are needed to determine whether the recent downward trend among 16 and 17 year olds is the result of raising the minimum legal age. If the decrease is not the product of the change in policy, but a result of changes in population characteristics or 'natural' fluctuations over time, the prevalence rates might go up again in the future.

Contro in canna i cu ti ation

The Dutch cannabis market has become increasingly self-provisioning in recent years. The majority of cannabis consumed in the Netherlands is now domestically grown. The Netherlands is the only country in Europe that officially allows the sale of cannabis to consumers via coffee shops. To supply the product to customers calling at the 'front door', the coffee shops have to stock themselves illegally via the 'back door'. Although the increasing domestic cultivation of marijuana is not an exclusively Dutch phenomenon, the 'back door' policy and the coffee shops are. Yet in a broader sense, cannabis is now increasingly being defined as a problem in the Netherlands, just as in neighbouring countries. Alongside the media reports of growing involvement of organised crime in the cultivation of marijuana – which we have partly called into question in this chapter – older issues like cannabis addiction and cannabis psychosis (schizophrenia) are resurfacing in social and political discourse. Such concerns have translated into more repressive strategies against marijuana cultivation, which began earlier and have assumed greater proportions in the Netherlands.

In practice, the Dutch strategy has largely consisted of dismantling large numbers of cannabis cultivation sites; to a lesser extent, there are longer-term police investigations into criminal networks

and organisers of mainly large-scale marijuana cultivation. The structural and organisational characteristics of the Dutch cannabis market are now in a state of flux, largely due to relatively autonomous processes fuelled by technological innovations, but also partly in reaction to the policies being pursued by the authorities. Approximately 6,000 marijuana cultivation sites are being dismantled annually. The 2.7 to 2.8 million confiscated plants and seedlings would have yielded about 70,000 kilos of marijuana per month if they had all reached harvest age (based on the cautious assumption of 25 grams per mature plant). This marijuana is now being destroyed, and is therefore not entering the market. If it was all intended for coffee shops that would have amounted to about 100 kilos of marijuana per coffee shop per year, which is now not being supplied[29].

The figures discussed here pertain only to the numbers of sites actually dismantled. We have no information about the total number of marijuana cultivation sites in the Netherlands. Yet the conclusion seems justified that the supply chains to the cannabis coffee shops are now under serious strain. It is not known how much "nederwiet" is transported abroad. Possibly the actions against the cultivation sites have forced a cutback in cannabis exportation, thereby making up for the reduced supply to the shops. Several attributes of Garland's 'culture of control' are clearly recognisable in the Dutch campaign against cannabis cultivation. The commercialisation, anonymous tips, confiscation of proceeds, and bureaucratisation that we have highlighted here all point to a belief in the policing of cannabis, as well as to an increasing conflation of the public and private domains. Such developments have their inherent risks.

Conc u ion

In Chapter 7, all previous chapters are brought together; methodological limitations of the study are discussed, as are the recent policy developments. Although for the presence of coffee shops in municipalities the majority of progressive seats in the local council was the most important predictor, the percentage of confessional party seats also showed a significance difference. Internationally these parties might be considered conservative, although with regards to certain issues, they could be said to be progressive. Raising the minimum age for coffee shops might have worked to a certain extent, but the unintended negative consequences of this policy change should also be considered. Minors still use cannabis and cannot buy from coffee shops, thereby increasing the chance they buy from other, non-tolerated cannabis sellers. They might experience marginalisation and increasing the risk of getting arrested. High risk groups of youth have an extra vulnerability in this respect, since they are more likely to use cannabis. Not all cannabis users buy their cannabis from coffee shops; from this study it can be concluded that proximity of coffee shops play a role in the choice where to buy cannabis. However, this relationship might be a dynamic one, with changes according to the stage in cannabis career. It would be interesting to study this more closely in the future.

The increasing robust stance against cannabis cultivation has resulted in an increase in the number of

[29] Since our study was done, the number of coffee shops has further declined. According to the most recent count, there were 651 cannabis coffee shops in the Netherlands in 2011 (Bieleman, Nijkamp & Bak, 2012).

cannabis cultivation sited being dismantled. The consequences for the cannabis market are discussed, as are the possible negative consequences of the systematic conducted dismantling. An increase in the market price of cannabis can be seen. In addition, there is a blurring of the boundaries between public and private spheres; increasingly responsibilities are being shared with both citizens and commercial enterprises. This risks abuse for personal or commercial gain.

Several methodological issues are discussed, including which the limited possibilities to draw conclusions on causal relationships, and exclusion of all other possible factors that play a role in these relationships. For future studies, including the different stages of cannabis use, and daily routine, might help to understand the relationship between proximity to coffee shops, and cannabis use and cannabis buying behaviour. Ideally this would take the form of a study with a longitudinal design.
From this study, it can be deduced that this change in policy most likely will not influence cannabis use, but will influence where cannabis users buy their cannabis. When seen in the light of the Rational Choice Theory, further limiting coffee shop availability leads to more people buying at non-tolerated sellers.

oo d tu : a en attin

1 In eidin

Het Nederlandse drugsbeleid heeft drie dimensies: het tegengaan van de vraag naar drugs door een actief zorg- en preventie beleid, het tegengaan van het aanbod door het bestrijden van de georganiseerde misdaad, en het beschermen en in stand houden van de openbare orde. Meer recent is de nadruk verschoven naar het bestrijden van overlast. Het Nederlandse drugsbeleid is strikter geworden, tegelijkertijd zijn de negatieve effecten van cannabis gebruik steeds nadrukkelijker in het publieke discours naar voren gekomen. In toenemende mate wordt het Nederlandse drugsbeleid op nationaal niveau bepaald. Sinds 2002 wordt krachtiger opgetreden tegen de hennepteelt en zijn de regels waar coffeeshops zich aan moeten houden strenger geworden.

Na de opkomst van coffeeshops in de jaren 1980 en 1990 werd in 1995 een repressiever beleid voorgesteld. De AHOJ-G criteria die de verkoop van cannabis door coffeeshops reguleert, werden strikter. In 2004 werden door de ministers van Volksgezondheid, Justitie en Binnenlandse Zaken zorgen geuit over de gezondheidseffecten van cannabisgebruik, de hoge THC-percentages en de (toenemende) betrokkenheid van georganiseerde misdaad in de hennepteelt. Dit werd gevolgd door het aanscherpen van het beleid, met als doel de beschikbaarheid van coffeeshops te verminderen en de hennepteelt te bestrijden. Vanuit een criminologisch perspectief bieden deze veranderingen de mogelijkheid om de effecten van het drugsbeleid te onderzoeken. De vraag die centraal staat in dit onderzoek is daarom:

“Welke gevolgen hebben veranderingen in de wet- en regelgeving terzake het Nederlandse cannabisbeleid sinds het midden van de jaren 1990 gehad voor de toepassing van de wettelijke regulering van de cannabismarkt in de praktijk, en hoe en in welke mate zijn deze ontwikkelingen gerelateerd aan (ontwikkelingen in) de aanbodzijde van de cannabismarkt, de verkoop van cannabis op consumentenniveau, en de consumptie van andere drugs?”

o a e po itie en de canna i ar t op e rui er ni eau

Zowel cannabisbeleid als prevalentie van cannabisgebruik variëren sterk in verschillende westerse landen. Toch hebben meerdere onderzoeken die internationale vergelijkingen hebben gemaakt, geen verband gevonden tussen beleid en prevalentie van cannabisgebruik. Nederland vormt een uitzondering omdat hier in coffeeshops cannabis gekocht en gebruikt kan worden, maar dit wil niet zeggen dat deze situatie uniek is. Ook al koopt een meerderheid van cannabisgebruikers in Nederland hun cannabis bij coffeeshops, zij doen dit niet allemaal. De meerderheid van Nederlandse gemeenten heeft geen coffeeshop, en coffeeshops concentreren zich met name in bepaalde gebieden in Nederland. In hoofdstuk 2 is gekeken waarom er zoveel variatie zit in het aantal coffeeshops: hoe zijn deze verschillen ontstaan, hoe groot is die variatie, en hoe kan zij verklaard worden? De rol van lokale politiek en de invloed van de vraagzijde zijn onderzocht. Gemeenten kunnen zelf bepalen of zij een coffeeshop toestaan of niet; ook kunnen zij bepalen hoeveel zij er gedogen, al moeten zij zich hierbij wel aan de nationaal bepaalde richtlijnen houden. Gemeenteraden in Nederland bestaan net zoals de nationale regering, uit coalities van ten minste twee, maar vaak meer, partijen. Grofweg zijn er drie typen politieke partijen te onderscheiden: christelijke partijen met een conservatieve visie op drugs-

beleid (CDA, CU, SGP, e.d.), progressieve partijen die voor de legalisering van cannabis zijn (PvdA, D66, Groen Links, SP, e.d.), en de rechtse, liberale partij VVD. Deze laatste partij heeft geen expliciete visie op coffeeshops. Ten tijde van het onderzoek waren een aantal nieuwe partijen ontstaan, maar deze hadden nog weinig zetels in de gemeenteraden. In het onderzoek werden ook de lokale partijen niet meegenomen wegens een gebrek aan uniformiteit in hun visies op cannabisbeleid. Vanuit economisch oogpunt zou men verwachten dat de aanwezigheid van coffeeshops gerelateerd is aan het aantal inwoners van een gemeente, en dat het aantal coffeeshops samenhangt met de urbanisatiegraad. Er zijn regressie analyses gedaan met gegevens over het aantal coffeeshops, de verdeling van de gemeenteraadszetels en demografische kenmerken van alle gemeenten in Nederland. Ook werd een contrast analyse uitgevoerd om gemeenten met weinig of geen coffeeshops te vergelijken met gemeenten met veel coffeeshops. Met betrekking tot de aanwezigheid van één of meerdere coffeeshops in een gemeente, kwam het percentage progressieve zetels in een gemeenteraad naar voren als de belangrijkste voorspeller. Het aantal inwoners en de urbanisatiegraad waren echter bijna even sterke voorspellers. Met betrekking tot het aantal coffeeshops was het aantal inwoners de belangrijkste voorspeller, gevolgd door urbanisatiegraad. De urbanisatiegraad was omgekeerd gerelateerd aan het aantal coffeeshops. Dit betekent dat in gemeenten met een vergelijkbaar aantal inwoners, de gemeenten die geografisch meer verspreid liggen meer coffeeshops hebben dan gemeenten die compacter gebouwd zijn. De meest waarschijnlijke verklaring is dat cannabisgebruikers liever kortere afstanden reizen tot de coffeeshop. De conclusie lijkt gerechtvaardigd dat de politieke samenstelling van de gemeenteraad een verschil maakt bij de beslissing om wel of geen coffeeshop toe te staan, maar niet in het aantal coffeeshops. Het aantal coffeeshops lijkt voornamelijk af te hangen van de grootte van de vraag naar cannabis.

e chi aarheid an co ee hop

Het doel van dit hoofdstuk was om inzicht te geven in de illegale cannabismarkt in Nederland. In zeven gemeenten werd een enquête op straat afgenomen. Deze gemeenten varieerden in hun coffeeshop dichtheid, en twee van deze gemeenten hadden helemaal geen coffeeshop. Bij bijna 800 huidige cannabisgebruikers werd een vragenlijst afgenomen, waarvan 86.0% (n=665) hun eigen cannabis kochten. Bijna de helft van de respondenten die cannabis kochten, zeiden dat zij dit alleen in coffeeshops deden (48.6%), terwijl een op de drie (38.6%) in coffeeshops en van andere verkooppunten kochten. Meer dan 70% van de cannabis die gekocht werd, werd bij coffeeshops gekocht. Kopers in de twee gemeenten zonder coffeeshop kochten significant minder van hun cannabis bij de coffeeshop dan kopers in gemeenten met coffeeshop.

De invloed van leeftijd op de manier waarop cannabis gebruikers aan hun cannabis kwamen werd ook geanalyseerd, in het bijzonder hoe minderjarige cannabis gebruikers in Nederland hun cannabis verkrijgen. De verwachting was dat leeftijd een belangrijke invloed zou hebben op patronen van cannabis aanschaf, omdat de minimum leeftijd voor coffeeshops 18 jaar is. Zoals verwacht kochten minderjarigen vergeleken bij volwassenen minder vaak zelf cannabis, en kochten zij vaker ergens anders dan in de coffeeshop. Als minderjarigen wel in coffeeshops kopen, kopen zij er minder van hun cannabis. In verschillende logistische regressie analyses vergeleken we respondenten die uitsluitend bij

coffeeshops kopen met respondenten die (ook of uitsluitend) ergens anders kopen. Drie variabelen hadden een significant en onafhankelijk verband met het kopen bij niet-gedoogde verkooppunten: coffeeshop dichtheid, leeftijd en geslacht. Hoe hoger de coffeeshop dichtheid, hoe lager de kans dat respondenten bij niet-gedoogde verkooppunten cannabis kochten. Minderjarigen hebben een twee keer zo hoge kans om bij niet-gedoogde verkooppunten cannabis te kopen. Het type niet-gedoogde cannabis verkooppunt waar het meeste gebruik van wordt gemaakt, is de 06-dealer[30], gevolgd door de thuisdealer[31]. De thuiskweker[32] werd ook relatief vaak gebruikt, terwijl er van straatdealers[33] en onder-de-toonbank dealers[34] sporadisch gebruik werd gemaakt. Minderjarigen kochten niet alleen vaker bij niet-gedoogde cannabis verkooppunten, zij deden dit ook vaker bij 06-dealers. De respondenten gaven aan dat het merendeel van de niet-gedoogde cannabis verkooppunten uitsluitend cannabis verkoopt. Toch verkoopt een wezenlijk deel van deze verkooppunten ook andere drugs, waardoor het risico op het in aanraking komen met hard drugs toeneemt, wanneer er bij een niet-gedoogd cannabis verkooppunt soft drugs gekocht wordt.

Waarom kopen mensen in Nederland cannabis bij niet-gedoogde verkooppunten? De gegevens uit onze enquête suggereren dat de beschikbaarheid van coffeeshops invloed heeft op het kopen bij niet-gedoogde verkooppunten: als er minder coffeeshops zijn, neemt de kans hierop toe. Naast de geografische concentratie van coffeeshops kunnen andere factoren een rol spelen in de besluitvorming van cannabis gebruikers. Ons onderzoek laat zien dat het vinden van de optimale minimum leeftijd geen gemakkelijke opgave is.

Canna i e rui en na i heid an co ee hop

In dit hoofdstuk wordt de invloed van de nabijheid van coffeeshops op prevalentie en intensiteit van cannabisgebruik bekeken. Ook wordt de effectiviteit van het beleid van scheiding der markten bestudeerd. Er werd een gelegenheidssteekproef getrokken van bezoekers van het nachtleven en een sub selectie van laatste jaar gebruikers werd gebruikt om analyses uit te voeren, waarin cannabisgebruik en het gebruik van hard drugs bekeken werden. Uit logistische regressie analyses bleek dat nabijheid van coffeeshops geen samenhang heeft met prevalentie of intensiteit van cannabisgebruik. Nabijheid van coffeeshops bleek ook geen samenhang te hebben met het gebruik van hard drugs.
De eerste hypothese in dit hoofdstuk was dat een grotere nabijheid tot coffeeshops zou leiden tot meer cannabisgebruik. Dit werd niet bevestigd, aangezien er geen samenhang werd gevonden tussen de afstand tussen de coffeeshop en woonadres, en recent (laatste jaar) cannabisgebruik. Ook bleek een grotere nabijheid van coffeeshops niet samen te hangen met meer frequent cannabis gebruik of het gebruik van grotere hoeveelheden cannabis. Het koopgedrag bleek echter wel invloed te hebben: respondenten die uitsluitend bij coffeeshops kochten, waren meer frequente cannabis gebruikers dan respondenten die nooit cannabis kochten, of die dat (ook) bij niet-gedoogde cannabis verkoop-

[30] 06-dealers worden opgebeld en bezorgen vervolgens de cannabis op een afgesproken plaats of adres.
[31] Thuisdealers verkopen cannabis vanuit hun eigen huis.
[32] Thuiskwekers kweken zelf marihuana en verkopen het ook zelf direct aan cannabisgebruikers.
[33] Straatdealers verkopen, de naam zegt het al, cannabis op straat.
[34] Onder-de-toonbank dealers verkopen cannabis via de plaats waar zij werken, bijvoorbeeld een horeca gelegenheid of een winkel.

punten deden. Ook gebruikten respondenten die uitsluitend bij de coffeeshop kochten grotere hoeveelheden cannabis per keer dan respondenten die nooit zelf kochten. Toen de logistische regressie analyse met recent cannabis gebruik als uitkomst variabele apart werd uitgevoerd voor minderjarigen en volwassenen, bleken veel minder variabelen van invloed bij de minderjarigen, met alleen recent tabaksgebruik als significante variabele.
De tweede hypothese, dat nabijheid van coffeeshops positief samen zou hangen met recent gebruik van hard drugs, werd ook niet bevestigd. Het op een jonge leeftijd (voor het 13e levensjaar) beginnen met cannabisgebruik was echter wel een belangrijke voorspeller van het gebruik van hard drugs. Voor zowel frequentie van cannabisgebruik als de hoeveelheid cannabis die per keer gebruikt wordt, was de kans op intens gebruik groter voor minderjarigen. Nabijheid van coffeeshops had geen invloed op het cannabisgebruik, maar het kopen van cannabis in coffeeshops hing wel samen met regelmatiger gebruik van cannabis en met grotere gebruikte hoeveelheden.

De resultaten van dit onderzoek laten in het midden of de aanwezigheid van coffeeshops meer intens cannabis gebruik stimuleert (Routine Activity Theory), of dat meer frequente gebruikers van cannabis vaker bij coffeeshop kopen (Rationele Keuze Theorie) [35]. De nabijheid van coffeeshops had geen significante invloed in onze analyses. Maar het kopen bij coffeeshops liet echter wel een verband zien met regelmatiger gebruik en het gebruik van grotere hoeveelheden. Het zou kunnen dat coffeeshops zowel frequent gebruik als het gebruik van grotere hoeveelheden stimuleert, maar om vast te stellen of het een causaal verband is, zijn longitudinale onderzoeken nodig.

et erho en an de ini u ee ti d oor co ee hop

Na 1997 is er een dalende trend te zien in het gebruik van cannabis onder 16 en 17-jarigen in Amsterdam. De demografische veranderingen van de populatie lijken belangrijker te zijn bij het verklaren van deze daling dan de verandering in het beleid. Toch zou de recente daling in 2007 toe te schrijven kunnen zijn aan een vertraagd effect van het verhogen van de minimumleeftijd voor coffeeshops van 16 naar 18 jaar. Na 1997 is een dalende lijn te zien in het gebruik van cannabis. De cannabis prevalenties laten zeer verschillende patronen zien voor verschillende groepen (naar geslacht, etniciteit, opleidingsniveau), waaruit kan worden vastgesteld dat het gebruik van cannabis een dynamisch fenomeen is. Ook hebben we een logistische regressie analyse gedaan, met recent cannabis gebruik als uitkomstmaat. Hieruit bleek dat veranderingen in de bevolking belangrijker zijn bij het verklaren van de daling in cannabis prevalentie dan de verandering in beleid. Het percentage actuele cannabisgebruikers die hun eigen cannabis kopen veranderde niet, maar het koopgedrag verschoof van coffeeshops naar andere verkooppunten. Toch verminderde het absolute aantal kopers, omdat de totale groep gebruikers kleiner is geworden. De dalende trend in de prevalentie van cannabisge-

[35] Allereerst zou Routine Activity Theory (Cohen & Vila, 1996) de keuze voor het kopen bij de coffeeshop of ergens anders verklaren. Volgens deze theorie komen individuen in hun dagelijks leven kansen voor het plegen van misdaad tegen, en dit leidt tot crimineel gedrag. Ook zou men de Rationele Keuze Theorie in overweging kunnen nemen (Cornish & Clarke, 1986); deze theorie stelt dat criminelen de voor- en nadelen van crimineel gedrag tegen elkaar afwegen en vervolgens een rationele keuze maken in waar en wanneer zij misdaad zullen plegen.

bruik onder studenten verschilt van de ontwikkelingen in andere landen (MacCoun, 2011); sommige onderzoekers denken dat dit het resultaat is van het verhogen van de minimumleeftijd. Aan de hand van dit hoofdstuk kan niet geconcludeerd worden dat het verhogen van de leeftijdsgrens effect heeft gehad op de frequentie waarmee minderjarigen cannabis gebruiken, of op de hoeveelheden die zij gebruiken. Het gebrek aan toegang tot een legale bron van cannabis zou het gebruik van cannabis kunnen verminderen. Er is meer onderzoek nodig om te bepalen of de recente neerwaartse trend onder 16 en 17-jarigen het gevolg is van het verhogen van de minimumleeftijd. Als de daling niet het resultaat is van de verandering in het beleid, maar een gevolg van demografische veranderingen of 'natuurlijke' fluctuaties in de tijd, kan de prevalentie in de toekomst weer omhoog gaan.

e e tri din an de hennepteet

De Nederlandse cannabismarkt is de afgelopen jaren in toenemende mate zelfvoorzienend geworden. De meerderheid van de in Nederland geconsumeerde marihuana wordt nu in eigen land geteeld. Nederland is het enige land in Europa dat officieel de verkoop van cannabis aan consumenten via coffeeshops gedoogd. Om het product te leveren aan klanten die zich bij de 'voordeur' melden, moeten de coffeeshops zich illegaal bevoorraden via de 'achterdeur'. Hoewel de toename in de binnenlandse teelt van marihuana geen exclusief Nederlands fenomeen is, is het beleid van de 'achterdeur' en de coffeeshops dat wel. In bredere zin wordt cannabis in Nederland nu in toenemende mate gedefinieerd als een probleem, net als in de buurlanden. Naast berichten in de media van de groeiende betrokkenheid van de georganiseerde criminaliteit in de hennepteelt – die in dit hoofdstuk deels in twijfel worden getrokken – komen oudere thema's zoals cannabisverslaving en cannabispsychose (schizofrenie) weer boven in het sociale en politieke discours. Dergelijke zorgen worden vertaald in meer repressieve strategieën tegen hennepteelt, die in Nederland eerder zijn begonnen en grotere proporties hebben aangenomen.

In de praktijk bestaat de Nederlandse strategie grotendeels uit ontmanteling van grote aantallen hennepplantages; in mindere mate is er politieonderzoek naar criminele organisaties en organisatoren van voornamelijk grootschalige hennepteelt. Door relatief autonome processen, en gevoed door technologische innovaties, bevinden de structurele en organisatorische kenmerken van de Nederlandse cannabismarkt zich nu in een staat van verandering. Deze veranderingen zijn echter ook deels in reactie op het gevoerde beleid. Jaarlijks worden ongeveer 6.000 hennepplantages ontmanteld. De 2,7 tot 2,8 miljoen in beslag genomen planten en stekken zouden ongeveer 70.000 kilo marihuana per maand hebben opgeleverd, als ze allemaal de oogst hadden bereikt (op basis van de voorzichtige aanname van 25 gram per volwassen plant). Deze marihuana wordt nu vernietigd, en komt dus niet op de markt. Als het allemaal voor coffeeshops bedoeld was, zou dat neerkomen op 100 kilo marihuana per coffeeshop per jaar, die nu niet wordt geleverd[36].

De cijfers die hier besproken worden, hebben alleen betrekking op het aantal hennepplantages dat daadwerkelijk ontmanteld is. We hebben geen informatie over het totaal aantal hennepplantages in

[36] Sinds ons onderzoek is het aantal coffeeshops verder afgenomen. Volgens de meest recente telling, waren er 651 coffeeshops in Nederland in 2011 (Bieleman, Nijkamp & Bak, 2012).

Nederland. Toch lijkt de conclusie gerechtvaardigd dat de toevoer van coffeeshops nu onder zware druk is komen te staan. Het is niet bekend hoeveel nederwiet naar het buitenland wordt geëxporteerd. Mogelijk hebben de acties tegen de hennepplantages geleid tot een vermindering van de marihuana export, waarmee de aanvoer naar de coffeeshops veilig wordt gesteld. Verschillende kenmerken van Garlands 'culture of control' zijn duidelijk te herkennen in de Nederlandse campagne tegen hennepteelt. Commercialisering, anonieme tips, vordering van opbrengsten, en bureaucratisering wijzen op een geloof in de bestrijding van de hennepteelt, als ook op een toenemende samensmelting van het publieke en private domein. Dergelijke ontwikkelingen herbergen risico's in zich.

Conc u ie

In Hoofdstuk 7 worden alle vorige hoofdstukken bij elkaar gebracht; methodologische beperkingen van het onderzoek worden besproken, evenals de recente beleidsontwikkelingen. Hoewel in gemeenten met coffeeshops een meerderheid van progressieve zetels in de gemeenteraad de belangrijkste voorspeller was, was er ook een significant verschil in het percentage van christelijke partijzetels. Internationaal kunnen deze partijen worden beschouwd als conservatief, maar met betrekking tot bepaalde (sociale) kwesties kan gesteld worden dat zij progressief zijn. Het verhogen van de minimumleeftijd voor coffeeshops zou tot op zekere hoogte kunnen hebben gewerkt, maar de onbedoelde negatieve gevolgen van deze beleidswijziging moeten ook in overweging genomen worden. Voor minderjarigen die nog steeds cannabis gebruiken en niet bij coffeeshops kunnen kopen, neemt de kans dat ze kopen van andere, niet-gedoogde cannabis verkopers toe. Ze kunnen marginalisering ervaren en lopen een grotere risico op arrestatie. Risicojongeren zijn in dit opzicht extra kwetsbaar, omdat ze meer kans hebben op het gebruik van cannabis. Niet alle cannabisgebruikers kopen hun cannabis bij coffeeshops, uit dit onderzoek kan worden geconcludeerd dat de nabijheid van coffeeshops een rol speelt bij de keuze waar cannabis te kopen. Deze relatie zou een dynamische kunnen zijn, waarbij de fase in de cannabis gebruikscarrière van invloed zou kunnen zijn. Het zou interessant zijn om dit in toekomstig onderzoek nader te bekijken.

De intensievere aanpak van hennepteelt heeft geresulteerd in een toename van het aantal ontmantelingen van hennepplantages. De gevolgen voor de cannabismarkt zijn besproken, evenals de mogelijke negatieve gevolgen van de systematisch uitgevoerde ontmantelingen. Er wordt een stijging in de marktprijs van cannabis gezien. Daarnaast is er een vervaging van de grenzen tussen het publieke en het private domein; steeds meer verantwoordelijkheden worden gedeeld met zowel burgers als commerciële ondernemingen. Dit herbergt risico's in zich voor misbruik voor persoonlijke of commerciële doeleinden.

Verschillende methodologische kwesties worden besproken, inclusief de beperkingen met betrekking tot het trekken van conclusies over causale relaties, en het uitsluiten van alle andere mogelijke factoren die een rol zouden kunnen spelen in deze verbanden. Toekomstige onderzoek zou kunnen helpen om de relatie tussen de nabijheid van coffeeshops, en het cannabisgebruik en koopgedrag te begrijpen, inclusief de verschillende stadia van cannabis gebruik, en de rol van de dagelijkse routine. Idealiter gebeurt dit in de vorm van een onderzoek met een longitudinaal design.

Uit dit onderzoek kan worden afgeleid dat de veranderingen in het beleid naar alle waarschijnlijkheid niet het cannabisgebruik zullen beïnvloeden, maar wel invloed zullen hebben op waar cannabisgebruikers hun cannabis kopen. In het licht van de Rationele Keuze Theorie, zal verdere beperking van de beschikbaarheid van coffeeshops leiden tot meer mensen die kopen bij niet-gedoogde cannabis verkooppunten.

e erence

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