

Do drug policies affect cannabis markets? A natural experiment in Switzerland, 2000–10

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Martin Killias

University of Zurich, Switzerland

Giang Ly Isenring

University of Zurich, Switzerland

Gwladys Gilliéron

Max Planck Institute for Foreign and International Criminal Law, Germany

Joëlle Vuille

University of Lausanne, Switzerland

Abstract

Scholars and policymakers have long debated whether drug policies have any impact on demand for, supply of and prices for illegal substances. Switzerland's recent experience with changing policies offers an opportunity to study this issue. During the 1990s, the production and sale of this substance became increasingly tolerated. As a result, visible market structures (producers as well as shops) emerged. In 2004, however, traditional repressive policies were resumed and visible structures of production and distribution of cannabis disappeared again. During these critical years, market structures were monitored by a mail survey among cannabis shops and two 'fake client' studies. The results suggest that the policy shift led to decreased availability of the substance, higher prices and lower levels of cannabis use, particularly among the youngest age groups. Despite the illegal status of cannabis, other substances are still not available from the same dealers.

Keywords

cannabis market, cannabis retailers, drug policies, fake clients, THC level

Corresponding author:

Professor Martin Killias, Institute of Criminology, University of Zurich, Rämistrasse 74/39, 8001 Zurich, Switzerland.

Email: martin.killias@rwi.uzh.ch

Introduction

In most countries – including Switzerland – cannabis is an illegal narcotic substance. As such, the police have been fighting its production, distribution, possession and use over the last few decades. During the 1990s, however, public opinion became increasingly critical of repressive policies regarding illicit drugs in Switzerland, as evidenced by a series of referendums at both national and local levels that approved heroin prescription to addicts. Ever larger numbers of newspaper articles have contested the claim that cannabis has damaging effects on health, and there are increasing number of juveniles and young adults who, during interviews, admitted using this drug (Sucht-Info Schweiz, 2009). All this has undermined the credibility of repressive policies (Message, 2001). Given the lack of support for repressive policies towards consumers of and dealers in cannabis, the police and prosecutors increasingly relaxed their position regarding this substance. As a result, consumers and even dealers were less proactively investigated and arrested. This resulted in stable rates of prosecutions for the trafficking of cannabis, despite sharply increasing levels of production, sale and use of this substance.¹

In this climate, the federal government prepared an amendment to the Narcotics Act (Message, 2001) that was inspired by the Dutch model, i.e. a regime under which the sale, possession and use of small amounts of cannabis (usually below 5 grams) are tolerated.² The draft sent to the parliament provided for the substitution of the traditional ‘legality doctrine’³ by the so-called ‘expediency principle’ (which makes prosecution optional), with the idea that the production, sale and possession of minor quantities of cannabis should be not only tolerated but widely legalized. The government also attempted to avoid some shortcomings of the Dutch model. Specifically, the production and sale even of larger quantities would be tolerated as long as producers and retailers agreed to act under strict control by the police and the Department of Agriculture (Message, 2001).

As is often the case, the development of this policy change took some time. During the years of preparation and in anticipation of the new policy, visible and quasi-official structures of production, distribution and sale emerged. This made some side-effects of the anticipated new policy more visible. As a result, parliament rejected the Amendment to the Narcotics Act in September 2003, and it confirmed this vote in June 2004. Over the following months, police and prosecutors resumed the former repressive policies. Although consumers continued not being arrested proactively, shops and production centres were closed during the years 2005 and 2006. These policy shifts will be described in detail below.

In order to evaluate the outcomes of the planned policy change, the Federal Office of Public Health mandated studies to monitor its impact on the cannabis market. Although designed for the change from a traditional to a ‘liberal’ policy, they remained of equal relevance to assess the outcomes of the unexpected return to a more repressive policy (Chabloz et al., 2010). In the following sections, we shall summarize these studies and look at how the policy change affected the sale and use of cannabis.

The market prior to the policy change in 2004

The expanding cannabis market between 1993 and 2003

The 1990s was a period of considerable expansion of the cannabis market. It was also a time when the sale of cannabis moved from the streets to shops and when cannabis was

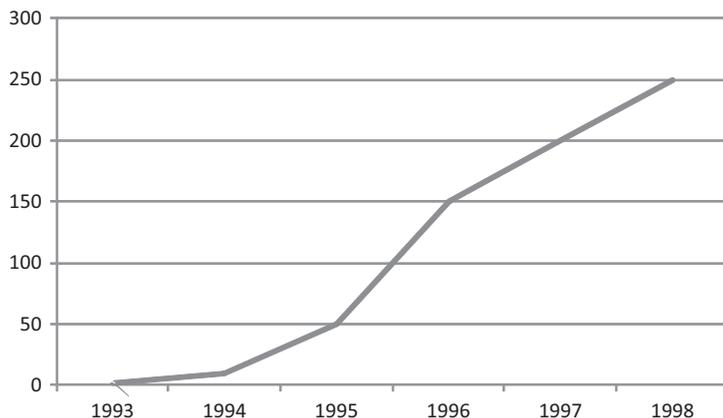


Figure 1. Surface area of production of cannabis for ‘other’ (non-industrial, i.e. largely illegal) purposes in Switzerland, 1993–8 (hectares).

Source: Federal Institute of Agricultural Research and Technology (1998).

increasingly produced in Switzerland rather than imported from abroad (Chabloz et al., 2010). Figure 1 gives an idea of the expansion of production for purposes ‘other’ than (legitimate) industrial use. Unfortunately, the collection of these data was abandoned after 1998.

Concomitant with increasing production, shops selling cannabis – often as ‘aromatic sacks’ or other disguised products – had been spreading around the country and reached a climax around 2002 with over 400 shops listed by two organizations of retailers of cannabis.

The return to the former repressive policies started in Ticino in 2003 and reached the other regions of Switzerland during the years 2004 and 2005. Not only shops but also sites of production were gradually closed and products seized. Shortly before most cannabis shops were closed, a survey was conducted among retailers of cannabis early in 2004. The first fake client study took place during the summer of 2004, when many shops were still operating.

A survey among retailers

Inspired by the model of the International Business Crime Survey (Van Dijk and Terlouw, 1996), the first two authors of this article undertook a survey of shops that operated in this sector in Switzerland (Isenring and Killias, 2004). The purpose was to obtain information on products, clients and the business model applied by these actors. Names and addresses were obtained from a national organization of cannabis retailers, and a mail questionnaire was duly sent to 420 addresses. Owing to high fluctuation in this volatile sector, however, many shops listed were no longer operating at the time of the survey: 180 questionnaires were returned by the postal services with the response that the shop no longer existed, or at least not under the given address. After the elimination of these shops, the consolidated list comprised 240 businesses, of which 132 (or 55 percent)

Table 1. Type of activity among cannabis retailers, by region (N = 132)

Region	Main business activity					
	Production	Sale of cannabis	Sale of related products	Gross retailers	Other	Total
	Percent (No.)	Percent (No.)	Percent (No.)	Percent (No.)	Percent (No.)	Percent (No.)
German-speaking regions	22 (21)	29 (28)	22 (21)	13 (13)	14 (14)	100 (97)
French- and Italian-speaking regions	40 (14)	6 (2)	34 (12)	9 (3)	11 (4)	100 (35)

responded. It is not known how many among the non-respondents had actually gone out of business or had abandoned this sector of activity by the time of the survey. Among the 132 respondents, 97 were from Switzerland's German-speaking areas, 31 from the French-speaking regions and 4 from Ticino. Table 1 provides an overview of the kind of business activity by geographical area.

In German-speaking areas, the largest group of retailers (29 percent) was, early in 2004, mainly involved in the sale of cannabis. In French-speaking areas, just two respondents indicated this as their main activity, and none in Ticino. This reflects the fact that cannabis shops started to close in these areas during the second half of 2003. Conversely, a relatively high proportion of retailers in Ticino and western Switzerland were still engaged in the production of cannabis, probably owing to the more favourable climate in these regions.

According to the respondents, about half of the shops were opened in 1999 or 2000. Most shops were open every working day, they had two to four employees, and half had a weekly turnover of less than SF5000 (or roughly €3500 at that time). The number of customers per day exceeded 20 for more than 42 percent. About 1 shop in 10 operated far above the average, having more than 50 customers per day and a weekly turnover of more than SF20,000. Compared with retailers in other sectors, these shops were extremely successful. Nearly all (95 percent) shops insisted on payment in cash and did not give credit to customers.

About 80 percent of the sales were produced in the country.⁴ According to at least half of the retailers, the supply of cannabis was of good quality and sufficient to meet demand. The average customer was described as being male and aged above 25, followed by men between 18 and 25. Competition between shops was said to be quite stiff, particularly regarding prices; most retailers (86 percent) felt a need to provide excellent products and service to keep their customers. According to retailers, customers consider first the quality of products, including the THC content, followed by the quality of service. Surprisingly, 40 percent claimed never to have sold products containing more than 0.3 percent of THC⁵ and 69 percent said they never sold cannabis suitable to be smoked – a finding that contrasts with the fact that 68 percent had trouble with the police (and 66

percent were prosecuted), in most cases (59 percent) because of THC levels beyond the legal limit. Police interventions often resulted in pre-trial detention (51 percent) and seizure of products (90 percent). Multivariate analyses revealed that the size of commercial activity (number of customers per day and turnover) was unrelated to the risk of being arrested, whereas having been previously convicted for possession of or trafficking in cannabis strongly increased this risk (OR = 4.7, $p < .01$).

Among the retailers, 60 percent admitted having used cannabis during the last 30 days, and 36 percent admitted using it daily. Despite this, 56 percent were hostile to the use of cannabis by minors, 90 percent rejected making it available to juveniles and only 2 percent admitted having sold it to minors. (The same percentage – 2 percent – admitted having been prosecuted because of the sale of cannabis to minors.) Nearly two in three, however, believed that other shops sold cannabis to minors. Interestingly, only one respondent in four felt cannabis could be used without health risks regardless the quantity, but 70 percent were convinced stopping its use would be easy. ‘Hard’ drug use (including heroin and ecstasy) was rejected by about one retailer in two, and 98 percent stated that they never sold other illegal substances.

Moreover, 43 percent of respondents reported their shop having been a victim of burglary over the previous year; 40 percent said they had been the target of an attempt (Isenring and Killias, 2004). These rates are all far higher than for shops in general. According to the 1994 International Business Crime Survey (Van Dijk and Terlouw, 1996), 15 percent of Swiss shops experienced a successful burglary and 25 percent an attempted burglary per year. According to the same survey, shoplifting by clients was experienced by 19 percent of the shops in Switzerland, and theft by staff by 3 percent (Isenring, 2003). In the cannabis sector, however, these rates were 52 percent and 19 percent, respectively (Isenring and Killias, 2004). Victimized cannabis shops called the police less regularly than ordinary shops, mostly because they did not want to deal with the police given the kind of products they have for sale or because they feared retaliation from suspects. None of these two reasons, given by one victimized cannabis shop in four, was ever cited during the Business Crime Survey in Switzerland. In sum, the results left the impression of a lucrative sector that suffered from its marginal situation while striving to become legitimate.

The fake client study of 2004

The findings of the survey are corroborated by a study with fake clients (Killias and Isenring, 2004) conducted during the summer of 2004 when many shops were still operating. With the permission of the Federal Office of Public Health, the Chief Prosecutors and the Police Chiefs of all the cantons and cities involved in the survey, two young men aged around 18 visited 50 cannabis shops located in and around Zurich, Lucerne, Berne and St. Gall.⁶ They were personally known to the research team, had never used cannabis and were instructed to buy a normal quantity of cannabis (in general, 5 grams) from as many shops as possible. In each city, a police officer who was in charge of supervising the operations provided them with information regarding the area and the shops to visit. As far as possible, all shops were visited in the four areas. Since this study was not designed as an undercover operation, it was agreed with police and prosecutors that no arrests or prosecutions would be initiated as a result of observations made during the

study, and that no information obtained during these tests was to be used as evidence. After every successful purchase, the sample was handed over to the police officer, who forwarded it for analysis to the forensic science laboratory of the University of Lausanne. The fake clients filled out a short questionnaire for every cannabis shop they visited. No incidence of cheating, violence or threats was reported.

Out of 50 shops visited, 29 (or 58 percent) sold cannabis without reservation. Among those that did not sell cannabis to our fake clients, half made, on request, suggestions concerning other possible points of sale. Only 8 out of 29 shops that spontaneously sold cannabis asked about the fake client's age, and 5 requested to see an ID. Following verification, three shops sold cannabis despite the fact that the ID identified one of the clients as a minor. Overall, 26 out of 29 shops sold cannabis to our fake clients regardless of their age.

Usually, the fake clients asked for 5 grams, or the quantity available for approximately SF50 (€35 at that time). These quantities were in line with common patterns on local markets. The quantities sold varied between 3.8 and 6.5 grams in all but four cases. One shop refused to sell quantities below 5 grams, and in three shops the salesperson did not want to sell for less than SF100 – and in two cases sold 10 grams and in one instance 6.5 grams. The price was SF11 per gram on average.

In most cases, the product was said to be of Swiss production. In two cases, the clients were told that the substance was 'strong' and that it came from the Netherlands or Morocco. In one instance, the label indicated a THC content of 29.5 percent. The clients were offered the chance to taste the product in one instance, but declined to do so. In half of the shops, other clients were simultaneously buying cannabis. Operations were completed in two minutes on average.

Out of 26 samples of cannabis, 22 were analysed by the forensic science laboratory of the University of Lausanne. The THC level was 15.7 percent on average, the extremes being 7.9 percent and 28.4 percent. The sample whose label indicated 29.5 percent THC actually contained 11.9 percent. Interestingly, the observed THC levels are strongly in contrast to the indications of retailers during the mail interviews; indeed, only 4 percent admitted to selling products containing more than 2 percent of THC. The fake clients observed that they might have failed to obtain cannabis in a few shops because they were not personally known to the salesperson, or because they did not know a password. In one instance, the salesperson offered them (free of charge) a DVD, in order to 'mask' the real reason of their visit. Most shops, however, did not take any precautionary measures. Overall, the study confirmed that minors easily obtained cannabis that contained high concentrations of THC. Most of the samples contained THC close to the average of 15.7 percent and prices varied little around the mean (and median) of SF11 per gram. In short, quality and prices were fairly well standardized.

The policy changes between 2004 and 2009

Prosecutions

The natural experiment that brought about important policy shifts in Switzerland was evaluated from 2004 to 2009. Beyond national population surveys and observation

studies, qualitative interviews with panels of stakeholders from police and prosecutors' services, schools and public health professionals were conducted in the four cantons of Zurich, Vaud, St Gall and Ticino (Chabloz et al., 2010; Zobel et al., 2006). Only perceptions among our panels of police and criminal justice experts are presented here. The panels of experts included usually two to three representatives of the major police forces operating in these four cantons, one prosecutor and one magistrate from a juvenile court. All experts were selected in view of their daily contact with drug trafficking. The interviews took place every year from 2004 to 2009 in order to monitor changes over the previous year. The semi-structured interviews were held in groups. They were recorded and a summary was submitted to all respondents.

Interestingly, the policy shift in 2003–4 did not go along with sharply increasing numbers of prosecutions for trafficking in cannabis. The canton of Ticino was the only exception, where prosecutions were about five times higher in 2003 than during the preceding and following years. The reason was that in 2003, in an action that lasted several weeks, the police closed 75 shops and plantations, prosecuting retailers and employees (Chabloz et al., 2010: 15). In other cantons, no such peak is visible, probably because a fairly constant stock of 'ordinary' dealers of cannabis were prosecuted over the years, so that the additional cases resulting from the dismantling of the cannabis shops did not translate into markedly increased levels.

The number of prosecutions for possession (and/or use) of cannabis differed markedly across cantons. Following the start of the 'new' policy, however, prosecutions for possession and/or use of cannabis have declined in all four cantons as well as on average nationally. It is possible that this drop reflects decreasing cannabis use, since the number of consumers and the frequency of consumption have decreased since 2004 (see below). A certain number of related measures, including prohibiting tobacco smoking in public places and trains, may have contributed to reduce cannabis smoking in places where it was likely to attract police attention.

According to police sources (Chabloz et al., 2010: 5), however, consumers were never actively prosecuted over the last 20 years. In any event, the policy shift did not initiate an era of substantial prosecutions. Rather, police interventions were targeted at production plants on farms or indoors (including abandoned factories and private premises) and at closing shops. Thus, police interventions were focused on supply and distribution rather than the use of cannabis.

Interviews with police officers and prosecutors

Our respondents from police and prosecutors' services unanimously confirmed that efforts were targeted at reducing cannabis production and distribution. They were increasingly successful at spotting the illegal production of cannabis, for example by using aircraft to monitor remote areas (e.g. in the mountains of Ticino) or cornfields in the lowlands, or by seeking cooperation with providers of electricity to spot abandoned buildings with an unusually high consumption of energy. Regarding shops, they increasingly turned to landlords to inform them of illegal sales on their premises and threatened prosecution for conspiracy and/or, eventually, seizure of buildings. The following observations tend to show that these efforts were relatively successful:

- (1) Border controls reported increasing quantities of cannabis seized, suggesting the importation of cannabis from abroad had resumed. Although our panels had no hard supporting evidence, they suspected that large quantities of cannabis had been produced in and imported from Kosovo, a country with a large minority living in Switzerland. Additional sources of imported cannabis are the Netherlands and Morocco. According to police experts, imported stocks are first brought to the city of Bienne (Biel) and redistributed from there to other cities and regions.
- (2) In 2009, the police were unaware of any shops where cannabis is still for sale. This sharply contrasts with the situation in 2004 when, during the first fake client study, the police advised the young 'customers' where to find the substance. Some new means of distribution have been observed temporarily, such as distributing fliers with phone numbers in nightclubs, but these seem to have been discontinued.

Police experts admitted being not well informed about the current cannabis market, in part because they were focusing on hard drugs. In particular, the origin of products, lines of distribution, prices and relationships between dealers and customers seem to be relatively hard to monitor. As the results of the 2009 fake client study confirmed, several views held by our respondents may be inaccurate, whereas others turned out to be correct, such as the view that the lines of distribution of cannabis and heroin or cocaine continue to be separated.⁷ More recently, an ethnic separation of markets seems to have emerged, with West Africans selling mostly cocaine and North Africans cannabis.

The police often noted problems with seizures of major quantities of cannabis, the rules of evidence requiring proof not only that the level of THC in a given sample exceeds 0.3 percent, but that the defendant also acted with *mens rea* in this respect. A related but logistically tricky problem was the storage of large quantities of seized cannabis over extended periods of time until the trial or final disposition. More recently, the police observe that indoor plantations have resumed, but on a far smaller scale than before 2004. Many consumers also produce cannabis on their own premises for their own use or that of their friends, but such networks do not usually allow outsiders to find cannabis on the local market. The police admit concentrating their resources on hard drugs and that this order of priorities may indirectly allow the cannabis production to resume (Chabloz et al., 2010: 25 and 68).

The fake client study of 2009

Since all known cannabis shops had been closed by the police or had gone out of business since 2004, it was no longer feasible to test retailers' policies by visiting shops. However, anecdotal evidence suggests that cannabis can still be obtained through informal channels. The ease of this access was of interest in the second fake client study conducted between July and October 2009 (Killias and Gilliéron, 2010). Two young adult males with no history of drug use were recruited as fake clients. Their task was to buy 'reasonable' quantities of cannabis during two to four afternoons each in the cities of Zurich, Berne, Lucerne, St Gall and Lugano (Ticino). They walked through the 'appropriate' inner-city areas looking out for possible retailers. After each transaction, they filled out a short form. The substance received was handed to a police officer who supervised the

operations from a distance. The samples were analysed by the forensic science laboratories of the Zurich police or the University of Lausanne. As with the first study in 2004, no legal action was taken against any of the dealers or other persons involved.

During 15 afternoons in all, the fake clients made 29 relevant contacts. In 27, they were able to obtain cannabis. This corresponds to 1.8 successful transactions per afternoon on average. There were, however, some differences across cities. The fake clients were least successful in St Gall and Lugano, with less than one transaction per afternoon, whereas the average was three in Bern and two in Zurich. All sales took place in the streets and in parks (where the fake clients were looking out for potential dealers), usually when the area was not crowded. In 23 out of 29 cases, the fake clients were successful in locating dealers without intermediaries. Dealers were males in all but one case, below 25 years of age in half of all cases and of apparently foreign background in three out of four cases. Two out of three dealers were of African or North African background. Most dealers acted alone, but the fake clients reported having had the impression that they belonged to a group in roughly half of all transactions.

Usually, the fake clients were able to spot a dealer within less than 20 minutes in three out of four successful transactions. However, the fake clients were operating in 'appropriate' locations, as suggested by police officers familiar with the area, and at times they were unable to locate any dealer. After a successful deal, it often took them hours to find another dealer. Only one in four dealers was suspicious or anxious during the transaction, and only four tried to make sure the fake clients were not police officers (by asking them questions about their background). The transaction was completed within less than five minutes in three out of four cases; some dealers had to bring the substance from another place. Only two dealers gave the fake clients their name or phone number.

The quantity purchased varied far more than in 2004, ranging from 0.38 to 12.6 grams. Equally inconsistent were the prices, which varied, over all 27 transactions, between SF8 and SF200 per gram, the median being SF28 and the average SF42 per gram (with a standard deviation of 43). The prices did not vary consistently across cities nor was there any correlation with THC content, as Figure 2 illustrates. The correlation (Pearson's $r = -.132$) is far from significant ($p < .50$). Figure 2 also illustrates the extent to which prices varied across transactions. Compared with the fake client study conducted in 2004, two observations can be made: (1) median prices paid per gram have increased, since 2004, from SF11 to SF28, and from SF11 to SF42 on average; (2) prices paid in 2009 varied between SF8 and SF200 per gram, which is far more than in 2004, when they varied between SF10 and SF13 per gram. At that time, the fake clients obtained, through 29 successful transactions, between 3.8 and 5.0 grams for the 'routine' price of SF50. In 2009, the price structure was, from the clients' point of view, obscure and without any relation to regional or quality (THC) criteria. Street sales favour cheating because no balance or equipment can be used to assess the quantity sold. Dishonesty may be possible when dealers tend to be foreign young men with few opportunities for establishing a stable network of regular customers. Shops, as they were in operation before 2005, were clearly interested in gaining customers' confidence. The lack of any effort, on the part of dealers, to obtain or give phone numbers may be rational, as was the absence of sophisticated precautions during the transaction. In 2 out of 29 transactions, our fake clients were deprived of their cash without any product being provided. These

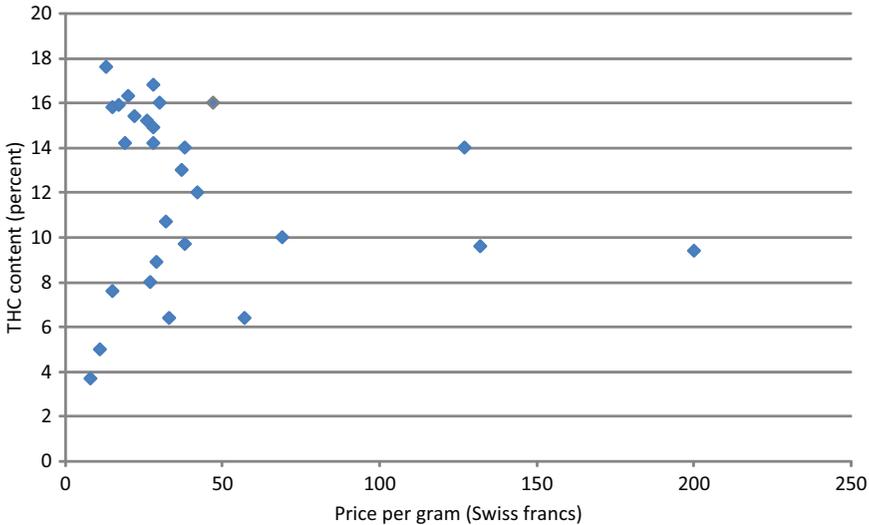


Figure 2. THC content and prices per gram of cannabis.

Notes: 27 transactions and samples analysed.

Source: Fake client study of 2009 (Zurich, Berne, Lucerne, St Gall and Lugano).

incidents further illustrate how unconcerned dealers are about the ‘reputation’ of their market. Unlike in 2004, the fake clients in 2009 reported having been concerned at times about their safety; such concerns were not totally unfounded.

The THC content varied between 3.7 percent and 17.6 percent, with little difference across cities. The average was 12.0 percent, lower than that in 2004 (15.7 percent), as was the maximum, which in 2004 had reached 28.4 percent. The long-term increase in the THC content in cannabis, observed over 30 years in Switzerland and abroad (Vuille et al., 2009), seems to have levelled off recently and stabilized at fairly high levels. At every transaction, the fake clients asked whether the dealer might be able or willing to supply them with other substances. Only one dealer declared being in a situation to comply. This suggests that the cannabis market remained fairly separated from the supply of other substances. Given the heterogeneous lines of distribution of illegal substances, specializing in one drug may indeed be more rational.

In conclusion, the switch from a ‘liberal’ to a more ‘repressive’ policy has substantially affected the cannabis market. Large-scale agricultural production was, to some extent, replaced by small-scale plantations on private premises, and sales moved back from shops to the streets. For users without links to local ‘home-made’ production networks at least, the availability of cannabis may have decreased substantially. So has the transparency of the market and the price structure. On the other hand, prices have soared, reflecting possibly reduced supply on local markets that are now dominated by more marginal and, possibly, criminal actors. On the other hand and contrary to a widely shared view, the markets for cannabis and other substances seem to have remained fairly separated.⁸

Discussion

Do drug policies affect markets?

The results of our studies suggest that policies strongly affect the conditions of production, supply, distribution and sale of cannabis. Switzerland was formerly an export country, but illegal importation of cannabis has resumed, although probably not on a scale that could compensate for the loss of large-scale production. Production on private premises obviously continues, but probably not to the extent necessary to meet the demand. Thus, cannabis is nowadays less freely available on the Swiss market and prices have increased as a result. Given that even heroin addicts (with far more compulsive needs) have been able to adjust their daily consumption to changing conditions of availability (Grapendaal et al., 1995), cannabis users probably adapt to new conditions by reducing their consumption levels. Some studies that we shall now review indeed point to such a possibility.

Do drug policies affect cannabis use?

It is a widely shared opinion – not to say a dogma – that policies do not affect the use of cannabis because demand is determined by other factors (see Reuter and Schnoz, 2009). The example cited is usually the United States, where policies are restrictive and punishments harsh, yet levels of use remain consistently high (MacCoun and Reuter, 2001). What does the European experience tell us in this regard, especially in the light of changing policies over the last two decades?

The Netherlands, the Czech Republic, Estonia, Spain and Switzerland are all countries that liberalized cannabis policies during the 1990s (although in practice more than in law). In all these countries (and in Slovakia, which later split from the Czech Republic), the number of cannabis users has increased substantially over the last 20 years. According to the ESPAD (European School Survey Project on Alcohol and Other Drugs) surveys conducted between 1995 and 2007 (Hibell et al., 2009: Table 6.1), the percentage of 15-year-old students who reported having used cannabis over the previous 12 months increased from 9 percent (in 1999) to 19 percent in Estonia, from 16 percent to 35 percent in the Czech Republic and from 6 percent to 24 percent in the Slovak Republic. This rate was 25 percent in the Netherlands in 2007, 27 percent in Switzerland and 18 percent in Spain (in 2006).⁹ In 1992, according to the first International Self-report Study (Jungertas et al., 1994: 110, 196 and 247), the rate of ‘drug offences’ (i.e. mostly cannabis use) had been 4 percent in the Netherlands, 5 percent in Spain and 6 percent in Switzerland at the age of 14–15 and over the previous 12 months. Despite the disparate and inconsistent base of these data, there is little doubt that cannabis use also increased considerably in the Netherlands, Switzerland and Spain between the early 1990s and 2006–7.

For the most recent period (2003–7), the ESPAD report also reveals some contrasting trends (Hibell et al., 2009: 374). Previous-year prevalence of cannabis use decreased (among those aged 15) from 17 percent to 13 percent in Austria, from 27 percent to 19 percent in Belgium, from 31 percent to 24 percent in France, from 21 percent to 15 percent in Germany, from 31 percent to 15 percent in Ireland, from 22 percent to 19 percent in Italy, from 23 percent to 18 percent in Slovenia, from 31 percent to 22 percent in the United Kingdom and from 13 percent to 10 percent in Portugal. In Switzerland, the only

country where recent policy changes were monitored, the life-time prevalence rate of cannabis use among juveniles aged 15 decreased from 41 percent in 2002 to 30 percent in 2006 (Chabloz et al., 2010). Moreover, daily cannabis use decreased from 16 percent to 9 percent among those aged 19–29, and from 14 percent to 9 percent in the general population aged 15 and older. It seems, therefore, that the frequency of cannabis use or, in other terms, the quantity used has decreased more than the prevalence of users. This interpretation is shared by police experts who observed that use is increasingly restricted to weekends (Chabloz et al., 2010: 69).

So far, it is not clear to what extent cannabis use is influenced by policies aimed at restricting or liberalizing availability. Data from the National Drug Monitor (2010: 39) in the Netherlands show that life-time prevalence of drug use among students aged 12–18 more than doubled between 1988 (when policies started to be liberalized) and 1996, and has levelled off since that time. Switzerland's upward trend in cannabis use during the 1990s paralleled similar changes in policy, and opposite policies after 2003 were followed by decreasing use. Unfortunately, no other country has systematically monitored policy changes and their consequences. In Estonia, Spain, Czech Republic and Slovakia, little is known about whether the obvious increase during the 1990s can be causally related to liberalization at that time. The same is true with respect to countries that have experienced decreasing use of cannabis in recent years. It is not clear whether policy changes or other factors, including steps to curb smoking in public places and trains, have reduced the attraction of this product. To complicate matters further, the use of other substances (including tobacco, alcohol and heroin) decreased as well (Sucht-Info Schweiz, 2009). Despite these uncertainties, the data are in line with the idea that the 'liberalization' of cannabis production and sale goes hand in hand with increasing use and that restrictive policies contribute to reduce it.

Restrictive policies reinstate the law as it stands in the statute books and may, indirectly, influence people's willingness to abstain from consuming illegal substances. A literature review on the effects of changing the minimum drinking age in the United States showed that the use of alcohol among minors increased when age limits were lowered, and decreased once they were raised again (Killias, 2002). Consistent with this experience, according to criminal justice and health system indicators the production and use of absinthe decreased dramatically after this substance was outlawed in Switzerland in 1908 (Knechtle, 1996). The law as it stands on the books may, thus, be an important force modelling people's behaviour independently of concrete policy actions. There is no reason why this could not be true for cannabis as well.

Effects of cannabis policies on the availability and use of hard drugs

It has often been said that liberal policies towards cannabis may reduce the risk of different substances becoming available through the same lines of distribution. However, such claims are backed by very limited evidence and it is not clear to what extent this goal has actually been achieved. Although some 7 percent of those aged 15 reported, on average across 36 countries, having ever used any illicit drug other than cannabis (Hibell et al., 2009: 90), the type of 'hard' drug varies considerably across countries. Wherever 'hard' drug use is frequent, adolescents usually consume ecstasy – which has been tried by up

to 10 percent or more of young people in certain countries. Amphetamines (3 percent), cocaine (3 percent), crack (2 percent) and heroin (1 percent) are used at such low frequencies that they are not suitable for analyses of differences across space and time. It is hard, therefore, to draw conclusions about the effects of cannabis policies on the use of heroin and cocaine. However, the second Swiss fake client study contradicts the view that a more 'criminal' street-level cannabis market favours the mixing of substances. More research is needed to inform decision-makers about the implications of competing cannabis policies.

Conclusions

The studies conducted on the cannabis market showed that this substance was easily available for adults and minors before 2004, that prices and products were fairly standardized and that retailers were striving for respectability. THC levels also turned out to be far higher than retailers claimed to be selling. The qualitative interviews with police officers and prosecutors provide insight into changing policies over time from the viewpoint of these actors. According to these actors, they attempted to restrict the production and supply of cannabis. The second fake client study showed that cannabis continued to be available on local markets, but probably to a lesser extent, at higher prices and under more 'criminal' conditions. Street-level cannabis dealers hardly ever have 'hard' drugs for sale.

Surveys in Switzerland and abroad on drug use among the general population and juveniles suggest that policies making cannabis more easily available were followed by increasing rates of use, whereas Switzerland's opposite policy after 2004 was associated with a drop in both the prevalence and frequency of cannabis use. In several countries, cannabis use has declined recently, although it is not clear to what extent policy changes were responsible for this trend. Therefore, it cannot be ruled out that other factors, such as restrictions on tobacco smoking in public places, produced the change. In sum, causal inferences are impossible for the moment, although the available data are consistent with the assumption that policies affect both the availability and (indirectly) the use of cannabis.

Notes

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- 1 Federal Office of Police, comments on crime statistics for the year 2000.
- 2 An article in the *Swiss Criminal Law Review* (Killias and Grapendaal, 1997) explaining the Dutch model and its relevance for Switzerland may have helped to shape this new policy at the beginning.
- 3 According to this principle, police officers and prosecutors have no discretion over whether or not to investigate and prosecute a case. In theory, all cases need to be brought to court once the available evidence suggests an offence has been committed.
- 4 This finding is in line with information provided to us by police and prosecution experts. Before 2005, police forces of neighbouring countries regularly complained, during periodic

contacts with Swiss police officers, about the infiltration of major quantities of cannabis into their countries. For northern Italy, for example, Ticino became a major supply source and thousands of Italians from Lombardy regularly stopped there to purchase cannabis (Chabloz et al., 2010: 19–20).

- 5 This is the legal limit. Below this threshold, cannabis products are not considered narcotics.
- 6 It was originally planned to conduct this study in the same cantons where policy changes were to be monitored in detail (Zurich, St Gall, Vaud and Ticino – see below). Ticino and Vaud had to be replaced by Berne and Lucerne, however, because the number of shops that still operated there at that time was considered too small.
- 7 According to police experts, arrested dealers of hard drugs sometimes possess small quantities of cannabis. Usually, however, this is for their personal use and not for sale.
- 8 Some of these findings are corroborated by two surveys. Cannabis users indicate that the source of supply has switched from shops to the streets since 2004 (Arbeitsgruppe Cannabismonitoring, 2008). According to a self-report study in the schools of the Canton of St Gall, dealing in cannabis (especially on the streets) has become a substantial source of illegal income among seriously delinquent juveniles with frequent police contacts (Walser and Killias, 2010). These additional sources suggest that the market has indeed become more ‘criminal’ and that transactions are mostly taking place on the streets.
- 9 Data for Spain are from the second International Self-report Study (Junger-Tas et al., 2010). We calculated data for 15 year olds in Spain from the data given by Alberola and Gutiérrez (2010: 221).

References

- Alberola CR and Gutiérrez RB (2010) Spain. In: Junger-Tas J, Marshall IH, Enzmann D, Killias M, Steketee M and Gruszczynska B (eds) (2010) *Juvenile Delinquency in Europe and Beyond*. Dordrecht: Springer, 213–226.
- Arbeitsgruppe Cannabismonitoring (2008) *Veränderungen im Cannabiskonsum 2004 bis 2007: Ergebnisse des Schweizerischen Cannabismonitorings*. Berne: Federal Office of Public Health.
- Chabloz J-M, Gervasoni J-P, Arnaud S, Dubois-Arber F, Vuille J and Killias M (2010) *Monitoring de la problématique du cannabis en Suisse: Etude sentinelle 2004–2008*. Lausanne: Raisons de santé no. 162.
- Federal Institute of Agricultural Research and Technology (1998) *Culture du chanvre en Suisse*. Report No. 516.
- Grapendaal M, Leuw E and Nelen H (1995) *A World of Opportunities: Life-style and Economic Behavior of Heroin Addicts in Amsterdam*. Albany, NY: SUNY Press.
- Hibell B, Guttormsson U, Ahlström S, Balakireva O, Bjarnason T, Kokkevi A and Kraus L (2009) *The 2007 ESPAD Report: Substance Use Among Students in 35 European Countries*. The Swedish Council for Information on Alcohol and other Drugs (CAN), The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Council of Europe (Co-operation Group to Combat Drug Abuse and Illicit Trafficking in Drugs – Pompidou Group).
- Isenring G (2003) Vols dans les commerces: Vols à l’étalage et vols commis par les employés. Facteurs de risques versus mesures de sécurité. MA dissertation, Université de Lausanne, Ecole des sciences criminelles.
- Isenring G and Killias M (2004) *Etude du marché du cannabis. Rapport sur les commerces spécialisés dans la vente de produits à base de chanvre, préparé à l’intention de l’Office fédéral de la santé publique*. Université de Lausanne.
- Junger-Tas J, Terlouw G-J and Klein M (eds) (1994) *Delinquent Behavior among Young People in the Western World*. Amsterdam: Kugler.

- Junger-Tas J, Marshall IH, Enzmann D, Killias M, Steketee M and Gruszczynska B (eds) (2010) *Juvenile Delinquency in Europe and Beyond*. Dordrecht: Springer.
- Killias M (2002) Zum Jugendschutz im künftigen Drogenstrafrecht. Zugleich ein Beitrag zur (Un) Wirksamkeit von gesetzlichen Verboten. In: Donatsch A, Forster M and Schwarzenegger C (eds) *Festschrift Stefan Trechsel*. Zurich: Schulthess, 393–413.
- Killias M and Gilliéron G (2010) *Untersuchung zur Entwicklung des Hanfmarktes. Bericht an das Bundesamt für Gesundheit über Testkäufe und die Erhältlichkeit von Cannabis für Aussenstehende*. Universität Zürich.
- Killias M and Grapendaal M (1997) Entkriminalisierung des Drogenkonsums oder Einschränkung der Strafverfolgungspflicht – Diskussionsvorschlag zur Vermeidung einer sterilen Debatte, unter Berücksichtigung des niederländischen Modells. *Swiss Criminal Law Review* 115(1): 94–109.
- Killias M and Isenring G (2004) *Etude du marché du cannabis. Rapport sur l'étude des achats fictifs auprès des magasins spécialisés dans les produits à base de chanvre, préparé à l'intention de l'Office fédéral de la santé publique*. Université de Lausanne.
- Knechtle P (1996) La fée verte, ou l'histoire d'une prohibition réussie. *Bulletin de criminologie* 22(1): 67–87.
- MacCoun R and Reuter P (2001) Evaluating alternative cannabis regimes. *British Journal of Psychiatry* 178: 123–128.
- Message (2001) concernant la révision de la loi sur les stupéfiants, *Feuille fédérale* (FF) 2001 3537.
- National Drug Monitor (2010) *Jaarbericht 2009*. Utrecht: Trimbis-Instituut; The Hague: WODC.
- Reuter P and Schnoz D (2009) *Assessing Drug Problems and Policies in Switzerland 1998–2007. Report to the Federal Office of Public Health*. Berne: Federal Office of Public Health.
- Sucht-Info Schweiz (2009) *Gesundheitsbefragungen 1992–2007*. Lausanne: SFA/ISPA.
- Van Dijk JJM and Terlouw G-J (1996) An international perspective of the business community as victims of fraud and crime. *Security Journal* 7: 157–167.
- Vuille J, Hardegger S and Steiger R (2009) *Le taux de THC contenu dans le cannabis saisi par la police. Etude des données de la Société suisse de médecine légale, 1980–2008*. Berne: Federal Office of Public Health.
- Walser S and Killias M (2010) Cannabis: Konsum und Handel sowie Zusammenhang mit Gewalt bei Jugendlichen. Teilergebnisse der Studie 'Jugenddelinquenz im Kanton St. Gallen' (Bericht zuhänden des Bundesamtes für Gesundheit). Universität Zürich.
- Zobel F, Arnaud S, Dubois-Arber F and Isenring G (2006) Cannabiskonsum und Cannabisprobleme: Beobachtungen und Interventionen aus der Sicht von Fachleuten aus den Bereichen Polizei, Justiz, Gesundheit, Soziale Dienste, Schule und Ausbildung. Ergebnisse aus Panelbefragungen. *Abhängigkeiten* 1: 5–12.

Author biographies

Martin Killias is Professor of criminology and criminal law at the University of Zurich, Switzerland. Before 2006, he used to be the director of the Institute of Criminology and Criminal Law of the University of Lausanne, Switzerland. He has been teaching in the United States, Canada, the United Kingdom, the Netherlands, Italy, China and Indonesia. His research interests focus on comparative research. He has been associated with the international crime victimization surveys, the international self-reported delinquency surveys and the European Sourcebook of Crime and Criminal Justice Statistics. He is currently co-chairing the Campbell Collaboration Crime and Justice Group.

Giang Ly Isenring is a Senior Researcher at the Institute of Criminology, University of Zurich, Switzerland. After a Master's in Economics (University of Geneva, Switzerland), she received a PhD in Criminology (University of Lausanne, Switzerland). Her research activity is focused on economic crime, especially offences committed by employees. She is currently conducting, together with Martin Killias, a business crime survey in the commercial and financial sectors in Switzerland.

Gwladys Gilliéron received a PhD in Law from the University of Zurich, Switzerland, and an LLM in Criminal Justice from the University of Lausanne, Switzerland. Currently, she is a research fellow at the Max Planck Institute for Foreign and International Criminal Law in Freiburg, Germany. She has been studying wrongful convictions in several nations and outcomes on randomized controlled trials on new criminal sanctions.

Joëlle Vuille is a researcher at the University of Lausanne School of Criminal Justice, Switzerland. After a degree in law, she studied criminology and has since worked on various research projects in the fields of criminal law, gender and crime, sentencing and the use of forensic evidence in the criminal context.