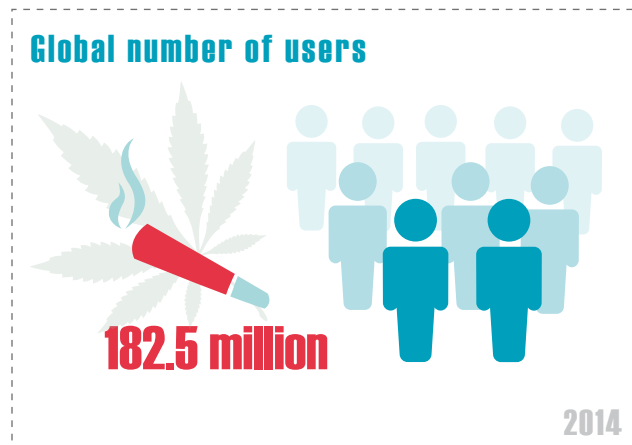
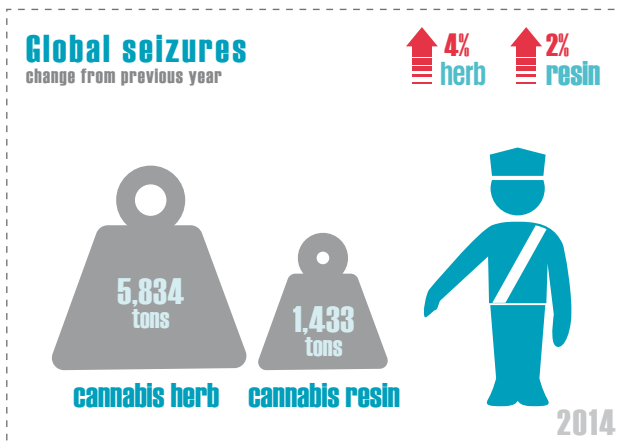


CANNABIS
Key figures



Cannabis market developments

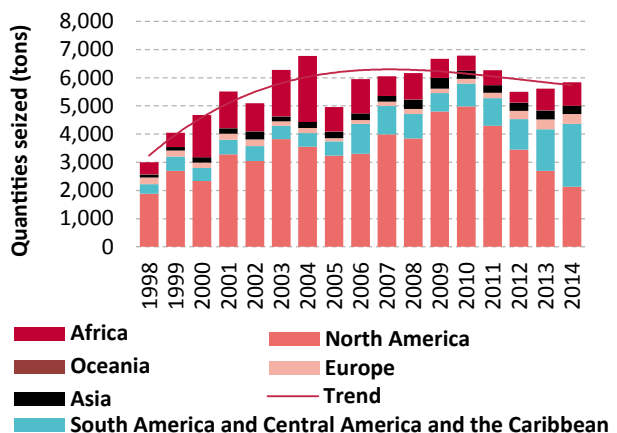
Cannabis continues to be the most widely cultivated, produced, trafficked and consumed drug worldwide

Cannabis plant cultivation — either through direct indicators (cultivation or eradication of cannabis plants) or indirect indicators (seizures of cannabis plants, domestic cannabis production being indicated as the source of seizures, etc.) — was reported on the territory of 129 countries over the period 2009-2014. Given the absence of systematic measurements, however, the extent and trends in cannabis cultivation and production are difficult to assess. Most indirect indicators come from law enforcement authorities and, to a certain extent, reflect their priorities and activities¹⁷³ and not simply the existence of cannabis cultivation and production. Since 1998, the total area of eradicated cannabis plants (in hectares), though it has fluctuated, has actually decreased, as have seizures of cannabis plants. These trends contrast with seizures of cannabis herb and cannabis resin, which, after a twofold increase over the period 1998-2004, have remained largely stable.

Reports from Member States on source countries for cannabis resin during the period 2009-2014 suggest that the world's largest producer of cannabis resin continues to be Morocco, followed by Afghanistan and, to a lesser extent, Lebanon, India and Pakistan. Using as a basis cannabis seizures (which reflect law enforcement activity, as well as cannabis production), the size of local cannabis markets (derived from the number of users) and information on the sources of the cannabis consumed, it can be assumed that most of the world's production of cannabis herb takes place in North America. In North America, cannabis herb is mainly produced in Mexico and the United States, for consumption in the subregion, while hydroponic cultiva-

tion of cannabis plants seems to be concentrated in Canada and the United States. Reports by Member States over the period 2009-2014 indicate that Albania, Colombia, Jamaica, the Netherlands and Paraguay are important source countries of the cannabis herb sold in international markets.

FIG. 52 Quantities of cannabis herb seized, by region, 1998-2014



Source: Responses to the annual report questionnaire and government reports.

The Americas, followed by Africa, remain the main markets for cannabis herb

In 2014, the Americas accounted for about three quarters of all the cannabis herb seized worldwide, Africa accounted for 14 per cent and Europe accounted for 6 per cent. At the subregional level, the largest amount of cannabis herb was seized in North America (accounting for 37 per cent of global seizures of cannabis herb in 2014), South America (24 per cent) and the Caribbean (13 per cent). Despite an increase in cannabis use, the quantity of cannabis herb intercepted in North America, after reaching a peak in 2010, has been declining, reflecting the fact that a decrease

173 For a discussion, see *World Drug Report 2015*, box entitled "Interpreting drug seizures", p. 37.

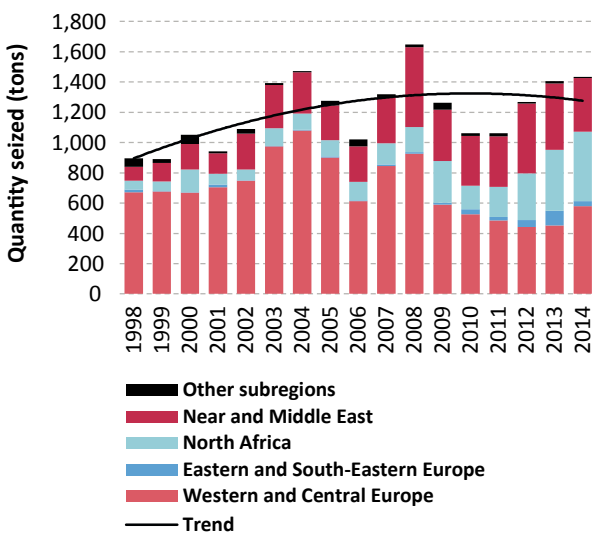
in cannabis production has been reported in Mexico and that cannabis interdiction may have become less of a priority in the United States since the decriminalization and legalization of recreational use of cannabis in some of the states in that country. Nonetheless, the quantity of cannabis herb seized in other parts of the world, particularly in South America, the Caribbean and Africa, is actually on the increase.

Europe, North Africa and the Near and Middle East remain the main markets for cannabis resin

The subregion in which the largest amount of cannabis resin was seized in 2014 was again Western and Central Europe, accounting for 40 per cent of the global seizures of cannabis resin (Spain alone accounted for 26 per cent of the world total); 32 per cent of the world total was accounted for by countries in North Africa (mainly Morocco and Algeria) and 25 per cent was accounted for by countries in the Near and Middle East (mainly Pakistan, followed by the Islamic Republic of Iran and Afghanistan). The proportion of global quantities of seized cannabis resin accounted for by Europe declined from 77 per cent of the world total in 1998 to 48 per cent in 2009 and 43 per cent in 2014, which reflects the decrease in the share of cannabis resin in the European cannabis market, where cannabis herb from domestic production has gained in popularity.

As in previous years, cannabis resin from Morocco was mainly smuggled to Europe and other countries in North Africa, while cannabis resin produced in Afghanistan continued to be smuggled to neighbouring countries, particularly Pakistan and the Islamic Republic of Iran. In the Near East, cannabis resin produced in Lebanon is used to supply other markets in the subregion.

FIG. 53 Quantities of cannabis resin seized, by region, 1998-2014



Source: Responses to the annual report questionnaire and on government reports.

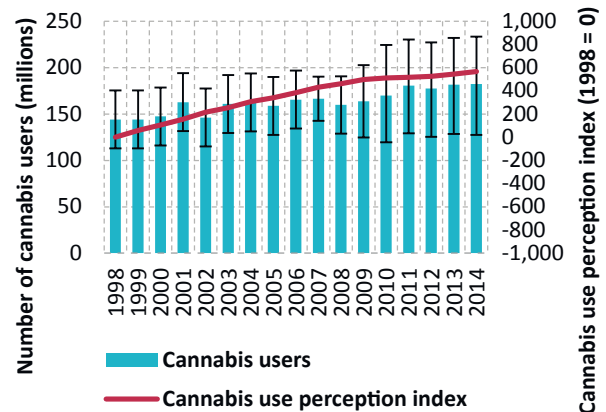
Despite major changes in some regions, global cannabis consumption has remained rather stable in recent years

About 3.8 per cent of the global population used cannabis in 2014. A proportion that has been somewhat stable since 1998, this means that cannabis was used by an estimated 183 million people (range: from 128 million to 234 million people) in 2014. A figure about 27 per cent higher than in 1998, this reflects the growth in the global population over the period 1998-2014. Given the large margin of error, caution needs to be applied when considering this figure; however, analysis of the perception of changes in use, as reported by Member States, shows a similar pattern, indicating that the use of cannabis increased until 2009, only to grow less rapidly thereafter.

Oceania is the only region in which a marked decline in cannabis use, from comparatively high levels, has been noted since 1998, which is mainly a reflection of a reduction in cannabis consumption in Australia. In Europe, following a twofold increase from the early 1990s onwards, a temporary decline in cannabis use was seen after 2009, until cannabis use increased again in 2013 and 2014, returning to the level reported in 2009.¹⁷⁴

Since 2009, cannabis consumption has been rising in the Americas. Although the United States continues to be the largest market for cannabis in the Americas, cannabis use

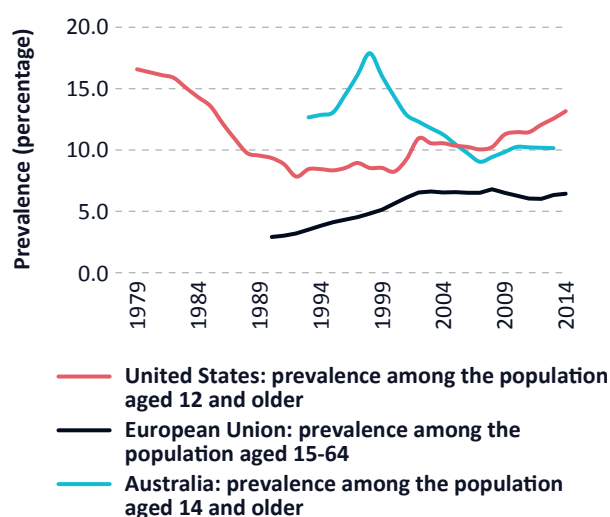
FIG. 54 Global trends in the number of past-year users of cannabis and the cannabis use perception index, 1998-2014



Source: World Drug Report, 2000-2016; UNODC, Global Illicit Drug Trends, 2001-2003; and responses to the annual report questionnaire.

Note: The uncertainty intervals were calculated by UNODC for the period 2007-2014; for data prior to 2007, the three-year average of the uncertainty intervals found over the period 2007-2009 was used as a proxy. For more details of perception indices, see the online methodology section of the present report.

174 The Eurobarometer survey also shows a slight increase in the use of cannabis between 2011 and 2014 among young people in the European Union (past-month use increased from 6.2 to 7.0 per cent over that period (Gallup Organization, Youth Attitudes on Drugs: Analytical Report, Flash Eurobarometer series No. 330 (European Commission, July 2011); and European Commission, Young People and Drugs, Flash Eurobarometer series No. 401 (August 2014)).

FIG. 55 Prevalence of past-year cannabis use in Australia, the United States and the European Union, 1979-2014

Source: Responses to the annual report questionnaire and data from EMCDDA.

is still significantly less prevalent in that country now than in the late 1970s. Increased cannabis use has also been reported in Africa, but those reports are based on limited information and caution should thus be applied when considering them.

Developments in the countries where cannabis legalization has occurred

In the past four years, four jurisdictions in the United States and Uruguay have passed laws to allow the production, distribution and sale of cannabis for non-medical purposes (i.e. for recreational use), which is contrary to the spirit of the international drug control conventions.

United States

In the United States, cannabis is federally prohibited as a substance in schedule I of the Controlled Substances Act.¹⁷⁵ The states of Colorado and Washington, after passing ballot initiatives in November 2012, became the first jurisdictions in the country to legalize large-scale commercial production of cannabis for recreational use by adults (persons aged 21 and older); Colorado also permitted home cultivation of cannabis. In November 2014, similar initiatives were approved by voters in the states of Alaska and Oregon. Washington, D.C., took a narrower approach by legalizing only the possession and home cultivation of cannabis.

While each of the jurisdictions legalizing cannabis had previously approved medical cannabis laws, only Colorado, Oregon and Washington, D.C., regulated commer-

cial medical cannabis businesses.¹⁷⁶ Colorado restricted initial applications for recreational cannabis licences to businesses already licensed to sell medical cannabis, and the first recreational stores opened on 1 January 2014. Oregon temporarily allowed the sale of recreational cannabis through existing medical dispensaries beginning in October 2015, though licensed recreational stores are not expected to open until late 2016. The state of Washington had an extensive medical cannabis industry, including many brick-and-mortar dispensaries that operated openly, but without regulation. Alaska will not have recreational cannabis sales until licensed stores open, which is expected by late 2016. In order to develop and enforce regulations for the legal cannabis industry, each state has appointed a regulatory agency. The resulting regulatory details vary depending on the jurisdiction, including limits on the quantities that can be possessed or purchased, and market structure (for the regulatory details in each jurisdiction, see table on page xxv in the annex of the present report).^{177, 178}

Uruguay

Uruguay announced in mid-2012 that it would permit the production and distribution of cannabis for recreational use by adult residents (persons aged 18 and older). Law 19,172 was enacted in December 2013, and regulations for the new industry were issued in May 2014.¹⁷⁹ The law and its supporting regulations permit the sale through pharmacies and non-medical use of up to 40 grams of cannabis per month for individuals registered with the Institute for the Regulation and Control of Cannabis (IRCCA).

The circumstances of legalization in Uruguay were quite different from the developments in the United States in that the legislature itself initiated the law, although with limited popular support (only a third of Uruguayans).^{180, 181} There was no prior regulation for the use of cannabis for medical purposes (although the possession of cannabis was not a criminal offence), nor was there significant illicit cannabis production in Uruguay.¹⁸²

¹⁷⁶ Ibid.

¹⁷⁷ Bryce Pardo, "Cannabis policy reforms in the Americas: a comparative analysis of Colorado, Washington, and Uruguay", *International Journal of Drug Policy*, vol. 25, No. 4 (2014), pp. 727-735.

¹⁷⁸ Becky Bohrer, "Alaska regulators are 1st to OK marijuana use at pot shops", *Big Story* (Juneau, Alaska), 20 November 2015.

¹⁷⁹ Pardo, "Cannabis policy reforms in the Americas" (see footnote 177).

¹⁸⁰ Maria F. Boidi and others, "Marijuana legalization in Uruguay and beyond" (Miami, United States, Florida International University, Latin American and Caribbean Centre, Latin American Marijuana Research Initiative, 2015).

¹⁸¹ John Walsh and Geoff Ramsey, "Uruguay's drug policy: major innovations, major challenges" (Washington, D.C., Brookings Institute, 2015).

¹⁸² Uruguay, Junta Nacional de Drogas, "Regulación controlada del mercado de marihuana: una alternativa al control penal y a la criminalización de los usuarios". Available at www.infodrogas.gub.uy.

¹⁷⁵ Rosalie L. Pacula and others, "Assessing the effects of medical marijuana laws on marijuana use: the devil is in the details", *Journal of Policy Analysis and Management*, vol. 34, No. 1 (2015), pp. 7-31.

Uruguay has created three legal channels for obtaining cannabis: home cultivation; access to social clubs; and retail pharmacies. Individuals are allowed to access only one mode of supply, which they must declare upon registering with the cannabis registry.

Nearly two years after the enactment of the law, critical parts of the distribution system have yet to be put in place. In October 2015, only two private firms were issued licences to cultivate cannabis, and to date no cannabis has been sold in pharmacies. Officials estimate that cannabis from the first harvest will not be ready for sale until mid-2016. By February 2016, about 4,300 people had registered to grow cannabis at home, and 21 cannabis clubs had been licensed. Recent surveys reveal that 40 per cent of the cannabis users in the country are hesitant to register with the system to obtain cannabis,¹⁸³ while the rest have indicated that they intend to register and obtain the drug through pharmacies.¹⁸⁴

Outcomes

Although three and a half years have elapsed since the first regulations on legal cannabis went into effect in Colorado and Washington, the outcomes of the legalization of cannabis in those jurisdictions are still not fully understood and may not be for some time. Some may play out in the longer term, especially as the regulations evolve and the markets mature. In the United States, it will be particularly difficult to assess the impact of cannabis legalization, as many states have made incremental changes to their cannabis laws over the past few years that may have affected outcome trends prior to the legalization of recreational cannabis. Currently, the best data on the outcomes of cannabis legalization come from Colorado and Washington, the states that adopted cannabis legislation early. That cannot be said of the other jurisdictions in the United States (Alaska, Oregon and Washington, D.C.) or of Uruguay, which have yet to fully establish their retail systems.

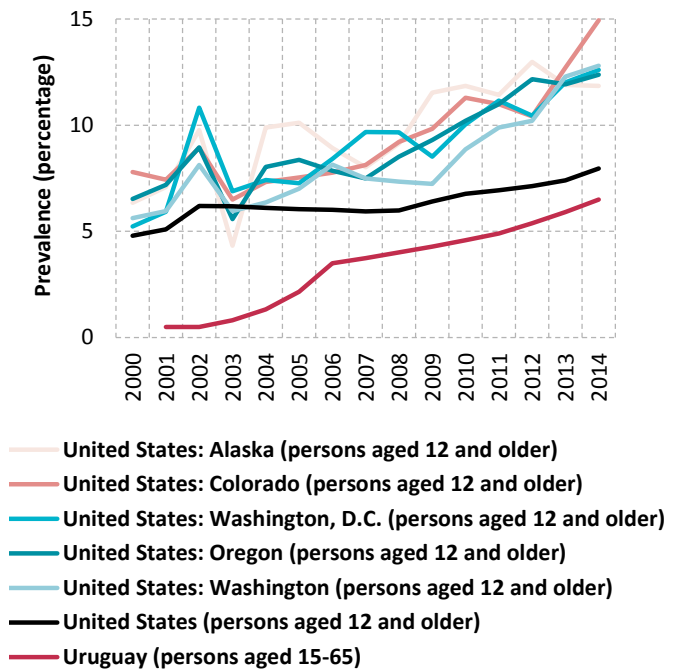
Cannabis use

In the United States, the National Survey on Drug Use and Health indicated that the prevalence of past-month cannabis use among those aged 12 and older increased from around 6 per cent in the mid-2000s to 8 per cent in the period 2013-2014. However, in the jurisdictions that legalized recreational cannabis, where the prevalence of past-month cannabis use has historically been higher, past-month prevalence increased more rapidly than past-month prevalence at the national level during this period. Avail-

183 Maria F. Boidi, Rosario Queirolo and José M. Cruz, "Marijuana consumption patterns among frequent consumers in Montevideo", paper presented at the ninth Conference of the International Society for the Study of Drug Policy, Ghent, Belgium, 19-22 May 2015.

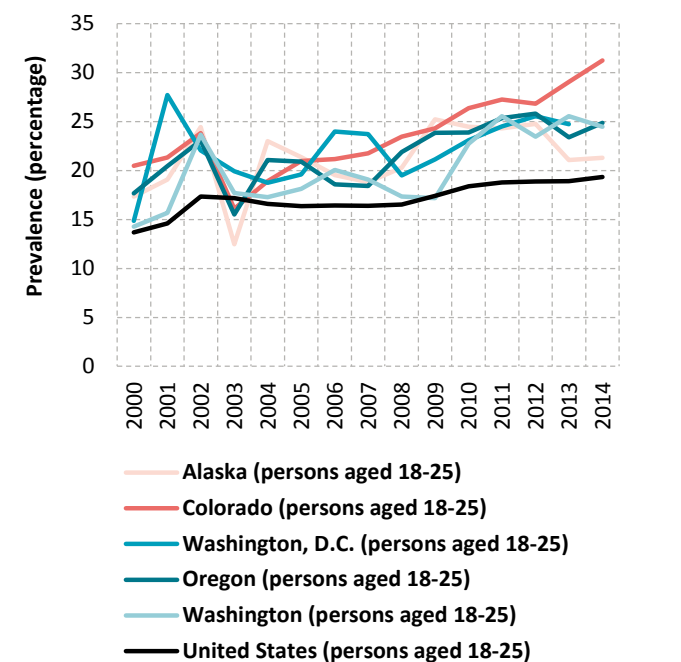
184 Daniela Kreher, "Uruguay: a dos años de la aprobación de la ley que regula el cannabis" (Montevideo, IEPES, 2016). Available at <http://esiglesia.org/>.

FIG. 56 Prevalence of past-month cannabis use among the general population in the United States, including selected areas, and Uruguay, 2000-2014



Source: United States, Department of Health and Human Services, SAMHSA, National Survey on Drug Use and Health; and Uruguay, Junta Nacional de Drogas, Observatorio Uruguayo de Drogas, Encuesta Nacional sobre Consumo de Drogas en Hogares.

FIG. 57 Prevalence of past-month cannabis use among young adults in the United States, including selected areas, 2000-2014



Source: United States, Department of Health and Human Services, SAMHSA, National Survey on Drug Use and Health.

able data suggest that the increase in the prevalence of past-month cannabis use is driven by increased use among young adults (persons aged 18-25), which is more pronounced in Colorado, where the prevalence of past-month cannabis use increased from around 27 per cent in 2011 to 31 per cent in 2014. In Uruguay, the prevalence of cannabis use is much lower, but household surveys suggest that there was an increasing trend even before the legalization of cannabis use. Trends in cannabis use may change as the demand curve evolves in response to changes in price, availability and social norms.

Medical cannabis markets after legalization in the United States

It is unclear whether the legalization of cannabis for recreational use will have any discernible effect on the size of the medical cannabis market. The original purpose of medical cannabis laws was to provide access to cannabis for those with a qualifying medical need. Since the legalization of recreational cannabis use, individuals can now obtain cannabis without having a medical recommendation and without submitting their personal data to be entered into a state-run database. However, the recreational cannabis markets in most jurisdictions are currently higher priced (after taxes) and often have fewer retail outlets than the existing medical cannabis market. For registered or qualifying patients, the introduction of regulated recreational cannabis markets may not present an additional incentive to forego the benefits of their medical status.¹⁸⁵

After the legalization of the non-medical use of cannabis, the number of patients in Colorado's mandatory medical

cannabis patient registry remained fairly stable, although the number decreased in the last quarter of 2015. Furthermore, monthly medical cannabis sales have not exhibited a downward trend in the two years since legalization. Given the evolving markets and one-year duration of medical cannabis identification cards, the impact of legalization on the medical cannabis market may take much longer to become apparent in jurisdictions with both medical and recreational cannabis markets.

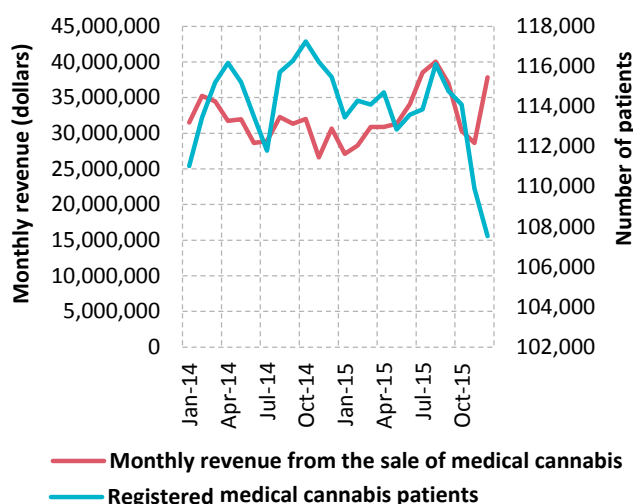
In Colorado, and currently in Oregon, cannabis stores have been allowed to operate simultaneously as recreational and medical cannabis stores, but in the long run it is unclear whether those systems will be separate or intertwined or whether one system will fold into the other, as in the State of Washington.

Products and potency

Cannabis potency in the United States has been increasing over the past three decades, particularly in jurisdictions that have allowed medical dispensaries.¹⁸⁶ Compared with the national average of 11 per cent (based on data from the period 2002-2008),¹⁸⁷ the average THC content of recreational cannabis herb sold in the states of Washington and Colorado is nearly 17 per cent, with some samples reaching up to 30 per cent. Data on cannabis potency are scarce in Uruguay, as authorities in that country only recently began to analyse seized cannabis,¹⁸⁸ but the Government has discussed limiting to 15 per cent the THC content of cannabis products sold in pharmacies. According to the authorities, this limit has been set with a view to reducing health risks caused by cannabis use.

Innovation in the commercial markets has led to the increased availability of a wide range of cannabis products, especially concentrated cannabis extract and cannabis-infused edibles, which pose additional public health concerns. In 2014, such products accounted for an estimated 35 per cent of retail sales of recreational cannabis in Colorado.¹⁸⁹ The high potency of extract-based concentrates such as oil, "wax" or "shatter" can have a THC content of up to 80-90 per cent; "dabbing" or vaporizing these products involves a rapid intake of large amounts of THC, making it difficult for even experienced users to determine an appropriate dosage, potentially leading to over-intoxi-

FIG. 58 Medical cannabis market in the State of Colorado, United States, 2014-2015



Source: Colorado Department of Public Health and Environment and Colorado Department of Revenue.

185 Clinton W. Saloga, "The effect of legalized retail marijuana on the demand for medical marijuana in Colorado", paper prepared for the ninth Conference of the International Society for the Study of Drug Policy, Ghent, Belgium, 19-22 May 2015.

186 Eric L. Seigny, Rosalie L. Pacula and Paul Heaton, "The effects of medical marijuana laws on potency", *International Journal of Drug Policy*, vol. 25, No. 2 (2014), pp. 308-319.

187 Zlatko Mehmedic and others, "Potency trends of Δ^9 -THC and other cannabinoids in confiscated cannabis preparations from 1993 to 2008", *Journal of Forensic Sciences*, vol. 55, No. 5 (2010), pp. 1209-1217.

188 Inés Acosta and Emilio Godoy, Marihuana, de las sombras a los laboratorios", *Inter Press Service*, 24 September 2013.

189 Adam Orens and others, "Marijuana equivalency in portion and dosage: an assessment of physical and pharmacokinetic relationships in marijuana production and consumption in Colorado" (Boulder, Colorado, Marijuana Policy Group, University of Colorado Boulder, Leeds School of Business, 2015).

cation. With edible products, the slower onset and longer duration of intoxication could increase the risk of over-intoxication, especially for new or inexperienced users.¹⁹⁰

A common approach to regulating such products has been to implement stringent packaging and labelling requirements. The four states in the United States require cannabis-infused edibles to be packaged into demarcated individual servings according to the quantity of THC: Washington and Colorado set the serving size at 10 mg of THC; and in Alaska and Oregon, draft regulations proposed a maximum of 5 mg.¹⁹¹ In addition, Washington requires all cannabis-infused products to undergo, prior to approval, a process to determine if they are appealing to children,¹⁹² and Oregon is considering a similar rule.¹⁹³

Health consequences

The proliferation of concentrated cannabis extract and cannabis-infused edibles in licit markets has generated concerns of accidental ingestion or over-intoxication, especially among children and inexperienced users, as those products may often resemble familiar sweets.¹⁹⁴ Since the legalization of recreational cannabis in the states of Colorado and Washington, incidents of accidental cannabis ingestion among young children have been increasing. In Colorado, the number of cases involving exposure to THC-infused edibles in young children increased nearly fivefold, from 19 cases in 2013 to 95 cases in 2014, and the number of cannabis exposure calls to the Washington Poison Center involving persons under 20 years old has doubled since the period 2010-2011.¹⁹⁵ It is unclear to what degree the legalization of recreational cannabis has had an effect on such cases, as cannabis-infused edibles and concentrated cannabis extract existed to some extent in loosely regulated medical cannabis markets for years prior to the legalization of recreational cannabis.

Legalization of the use of recreational cannabis may have also increased the number of accidents or injuries associated with cannabis use or intoxication. In 2014,

190 Mark A. R. Kleiman, “Legal commercial cannabis sales in Colorado and Washington: what can we learn?” (Washington, D.C., Brookings Institute, 2015).

191 United States, Oregon, Office of the Secretary of State, *Oregon Administrative Rules* (Salem, Oregon Health Authority, Public Health Division, 2015), chap. 333, division 7.

192 United States, Government Accountability Office, *State Marijuana Legalization: DOJ Should Document Its Approach to Monitoring the Effects of Legalization*, GAO report GAO-16-1 (Washington, D.C., December 2015).

193 Oregon Liquor Control Commission, Recreational marijuana, Packaging and labeling pre-approval. Available at www.oregon.gov/olcc/ www.oregon.gov/olcc/marijuana/Pages/PackagingLabelingPre-Approval.aspx.

194 Robert J. MacCoun and Michelle M. Mello, “Half-baked: the retail promotion of marijuana edibles”, *New England Journal of Medicine*, vol. 372, No. 11 (2015), pp. 989-991.

195 United States, Rocky Mountain High Intensity Drug Trafficking Area, *Legalization of Marijuana in Colorado: The Impact*, vol. 3 (September 2015).

FIG. 59 Cannabis exposure calls to the Washington Poison Center in the State of Washington, United States, 1998-2014



Source: Washington Poison Center.

within one year of the legalization of recreational cannabis use, there was a 29 per cent increase in the number of cannabis-related emergency room visits in Colorado and a 38 per cent increase in the number of cannabis-related hospitalizations.¹⁹⁶

Data on treatment of cannabis use disorders are mixed: in Colorado the number of admissions for such treatment remained stable from 2011 to 2014, while in Washington and in the country as a whole, that number has been decreasing since 2009. The decline in the number of admissions for treatment of cannabis use in the United States, however, may be linked to changes in the referral process used by the criminal justice system (see the discussion in this chapter on the treatment of cannabis use in the section entitled “Extent of drug use”). There are currently no data available on admissions for treatment of cannabis use disorders in Uruguay.

Public safety

The increased availability of cannabis for recreational use is likely to increase the number of users driving while under the influence of cannabis. Studies suggest that cannabis is less hazardous than alcohol in terms of driving impairment, but much more dangerous when used in combination.^{197, 198, 199} Data from the states of Colorado

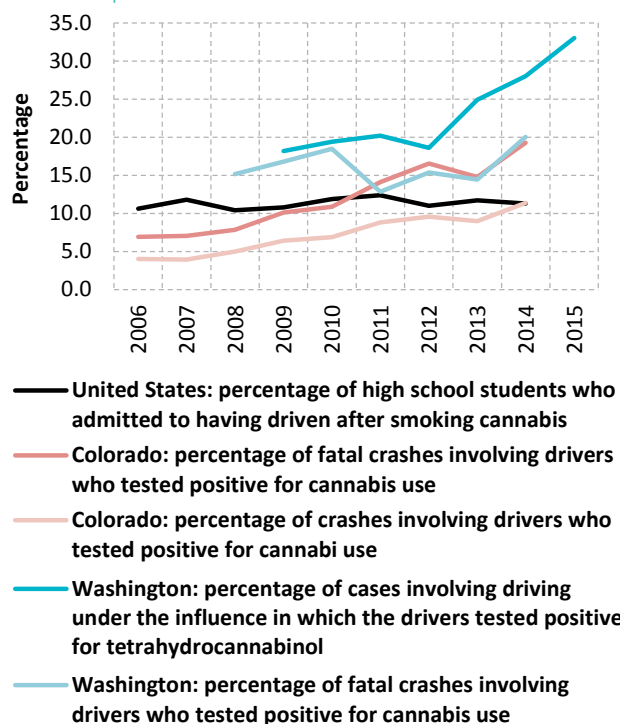
196 Ibid.

197 Richard P. Compton and Amy Berning, “Drug and alcohol crash risk”, report No. DOT HS 812117 (Washington, D.C., United States Department of Transportation, National Highway Traffic Safety Administration, Office of Behavioral Safety Research, February 2015).

198 Rebecca L. Hartman and others, “Cannabis effects on driving lateral control with and without alcohol”, *Drug and Alcohol Dependence*, vol. 154 (2015), pp. 25-37.

199 Johannes G. Ramaekers, Hindrik W. J. Robbe and James F. O’Hanlon, “Marijuana, alcohol and actual driving performance”, *Human Psychopharmacology: Clinical and Experimental*, vol. 15, No. 7 (2000), pp. 551-558.

FIG. 60 Cannabis-related traffic accidents and fatalities out of all traffic accidents and fatalities in the United States, including selected states, 2006-2015



Source: Monitoring the Future; National Highway Traffic Safety Administration's Fatality Analysis Reporting System; Colorado Department of Transportation; and Washington State Toxicology Laboratory.

and Washington show a substantial increase in the number of cases in which drivers involved in traffic accidents or arrested for driving-under-the-influence violations have tested positive for cannabis. However, this may have resulted from increased law enforcement scrutiny.

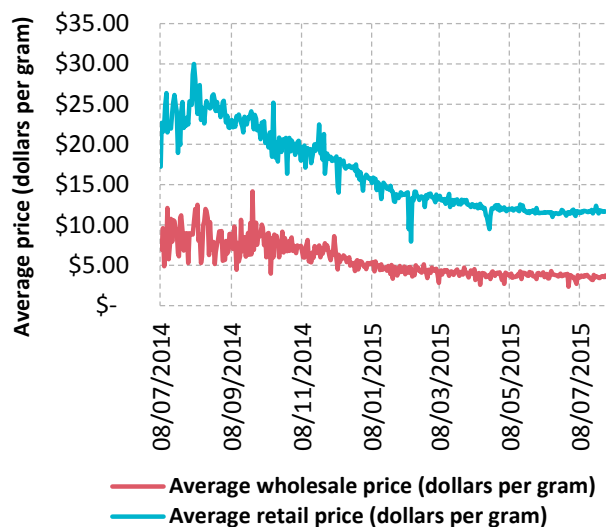
Cannabis markets

Despite the legalization of recreational cannabis use, the illicit cannabis market has not been entirely displaced in the states of Colorado and Washington. In Washington, the medical, recreational and illicit cannabis markets each accounts for approximately one third of the state's cannabis sales,²⁰⁰ while in Colorado the illicit cannabis market still supplied an estimated 40 per cent of the state's total demand for cannabis in 2014.

In the short term, cannabis prices are likely to remain higher on the recreational cannabis market than on the medical and illicit cannabis markets, due in part to limited supply, higher taxation and regulatory burden. Even though commercialization had already occurred to some degree in the medical cannabis markets, the maturation

200 Mark A. R. Kleiman and others, "Estimating the size of the medical cannabis market in Washington State" (Los Angeles, California, BOTEK Analysis Corporation, 2015).

FIG. 61 Recreational cannabis market prices after tax in the State of Washington, United States, December 2014-December 2015



Source: Washington State Liquor and Cannabis Board.

of licit cannabis markets has already driven down retail prices substantially as competition increases and businesses achieve economies of scale.²⁰¹ Prices have fallen in Washington since 2014,²⁰² and in Colorado the average price of an eighth of an ounce of cannabis (3.5 grams, the most commonly purchased quantity) fell dramatically from nearly \$60 in mid-2014 to \$25-40 in November 2015.²⁰³ Uruguayan policy has not yet set a price but it is projected to be set at between \$1.20 and \$1.30 per gram of cannabis.²⁰⁴

Each jurisdiction that has legalized cannabis use has developed a unique tax scheme for legal cannabis (see table on page xxv in the annex of the present report). The recreational cannabis markets in Colorado and Washington have grown considerably since such schemes were put in place. In Colorado, recreational cannabis market profits reached nearly \$600 million in 2015, compared with \$313 million in 2014. The state collected \$56 million in recreational cannabis tax revenues in 2014 and over \$114 million in 2015. While these figures are large, they represent only a very small portion of the state's total revenues, which totalled nearly \$11 billion in the fiscal year 2014.²⁰⁵ In Colorado, the first \$40 million of excise tax revenues are

201 Jonathan P. Caulkins, "Estimated cost of production for legalized cannabis", Working Paper No. WR-764-RC (Santa Monica, California, RAND Corporation, 2010).

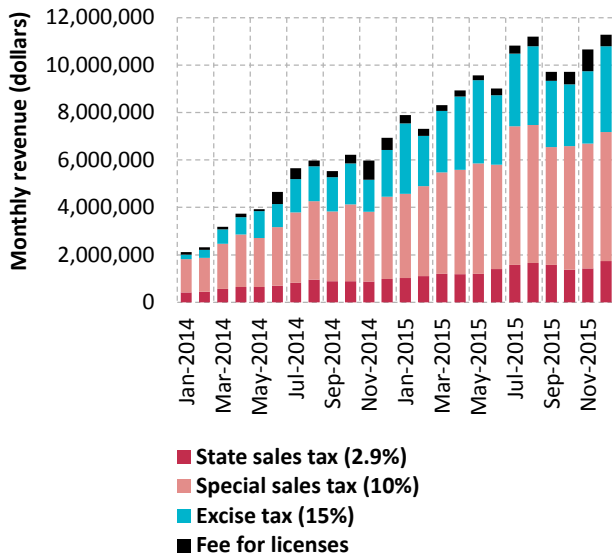
202 B. Smith, Washington State Liquor and Cannabis Board, "Data on LCB prices", e-mail correspondence, 2016.

203 Jessica Rabe, "Marijuana store survey and industry outlook Q4 2015", 18 December 2015. Available at www.convergex.com/.

204 "Cannabis llega a farmacias en 8 meses; tres porros, US\$ 1,20", *El País* (Montevideo), 2 October 2015. Available at <http://www.elpais.com.uy/informacion/cannabis-llega-farmacias-meses-tres.html>.

205 United States, Colorado Department of Revenue, *2014 Annual Report*, (2015).

FIG. 62 Retail cannabis: monthly revenue from sales tax, excise tax and fees for licences and applications in the State of Colorado, United States, 2014-2015



Source: Colorado Department of Revenue.

earmarked for public schools, as required by law. Additional revenues are distributed primarily to the Marijuana Enforcement Division and to public health programmes such as substance abuse intervention and prevention programmes and educational campaigns.²⁰⁶

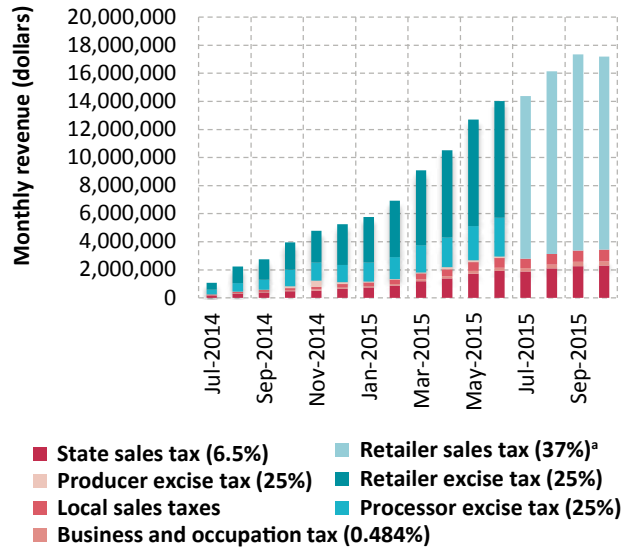
In Washington, in the fiscal year 2015 (July 2014-June 2015), sales of legal cannabis totalled \$256 million. Just eight months into the fiscal year 2016, sales have already more than doubled, reaching nearly \$580 million. Washington collected \$65 million in tax receipts in the fiscal year 2015 (accounting for 0.3 per cent of the state’s total revenues) and over \$100 million during the first eight months of the fiscal year 2016.^{207, 208} All revenues collected from the production and sale of recreational cannabis go into Washington’s general fund, with the exception of allocations for certain programmes: \$5 million to the Washington State Liquor and Cannabis Board to regulate the industry; \$500,000 to the Washington State Healthy Youth Survey; \$200,000 to fund cost-benefit analyses of the effects of cannabis legalization on the economy, public health and public safety; and \$20,000 to the University of Washington Alcohol and Drug Abuse Initiative to publish medically and scientifically accurate information on cannabis.

206 Larson Silbuagh, “Distribution of marijuana tax revenue”, Issue Brief No. 15-10 (Denver, Colorado Legislative Council Staff, 2015).

207 Washington State Liquor and Cannabis Board, “Weekly marijuana report”, 6 April 2016. Available at www.lcb.wa.gov/.

208 Washington State Department of Revenue, Research and Fiscal Analysis Division, “Tax statistics 2015”, December 2015. Available at www.dor.wa.gov/.

FIG. 63 Monthly revenue from the sale of recreational cannabis in the State of Washington, United States, July 2014-October 2015



Source: Washington State Liquor and Cannabis Board; and Washington State Department of Revenue

^a The excise tax was changed to 37 per cent on 1 July 2015.

In Oregon, data on initial sales or tax revenues are not yet available, although the Oregon Liquor Control Commission has indicated that recreational cannabis sales tax revenue after regulatory costs will be distributed as follows: 40 per cent to the common school fund; 20 per cent to mental health, alcoholism and drug use treatment services; 15 per cent to state police departments; and 5 per cent to the Oregon Health Authority for alcohol and drug use prevention.

In Uruguay, taxation on cannabis sale has been deferred, although IRCAA may impose a tax in future. While Colorado and Washington illustrate that tax revenues from cannabis legalization can be substantial, it is still not clear how the total costs of designing, implementing and regulating a legal cannabis market will measure against the current costs of cannabis prohibition. One important consideration for legalization is whether the costs of enforcing prohibition exceed the budgetary costs of regulation. In a recent study, it was estimated that for 2014 the State of Vermont spent approximately \$1 million enforcing criminal laws against cannabis compared with an estimate of “low to middle single-digit millions” of dollars to establish and maintain a regulatory system.²⁰⁹ However, those costs need to be weighed against revenues, which cover the ongoing costs of regulations and additional externalities, such as increased treatment and prevention costs, which are often not included in the budgets of regulatory agencies.

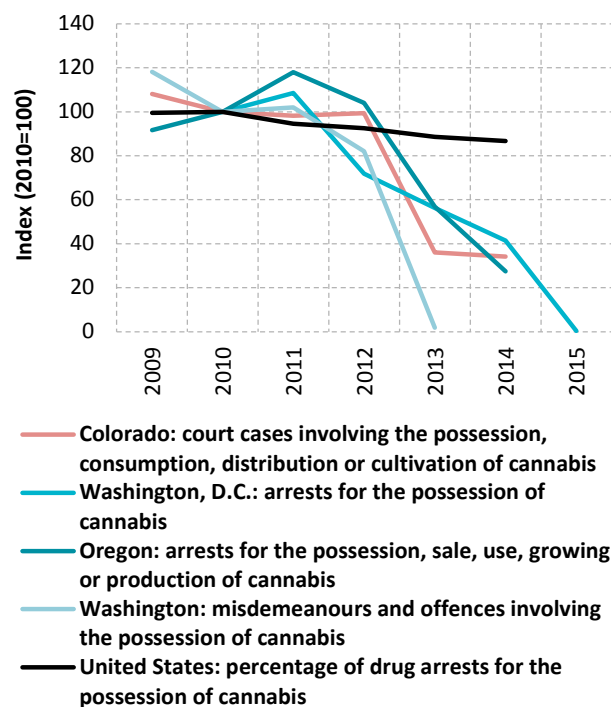
209 Jonathan P. Caulkins and others, *Considering Marijuana Legalization: Insights for Vermont and other Jurisdictions* (Santa Monica, California, RAND Corporation, 2015), p. 150.

Criminal justice

The number of arrests and court cases associated with cannabis-related offences have declined substantially in the states that have legalized cannabis. It should be pointed out, however, that this trend reflects the number of offences recorded in the criminal justice system, and that prior to legalization cannabis-related offences may not necessarily have led to prosecution or sentencing. Data on other cannabis-related police interactions, such as citations or verbal warnings for public consumption, are not readily available. Uruguay does not disaggregate its criminal justice figures by drug-related offences, although overall annual drug-related detentions have remained more or less stable in the past decade.²¹⁰ It is yet to be seen whether or how legalization affects other types of crime or arrests.

Licitly and illicitly produced cannabis in jurisdictions that have legalized recreational cannabis use can be used to supply the illicit cannabis markets of neighbouring jurisdictions, although the extent to which smuggling has increased as a result of cannabis legalization is difficult to evaluate. However, in December 2014, the states of Nebraska and Oklahoma requested that the United States Supreme Court reverse Colorado's decision to legalize cannabis, complaining that the new law in Colorado had generated an increase in cannabis trafficking in neighbouring jurisdictions.²¹¹ Likewise, officials in Argentina and Brazil voiced concern following the legalization of cannabis use in Uruguay.²¹² Interdiction of cannabis originating in Colorado increased from 2011 to 2014,²¹³ although this may have been a result of increased law enforcement searches. Early statements from police officials in Uruguay indicate that cannabis trafficking has remained unchanged and that organized criminal groups may have benefited in the initial period before establishment of the retail pharmacy system.²¹⁴

FIG. 64 Cannabis-related arrests, charges and offences in the United States, including selected areas, 2009-2015



Source: Colorado Judicial Branch; Washington State, Administrative Office of the Courts; Metropolitan Police Department of the District of Columbia; and Oregon Annual Uniform Crime Reports.

210 Uruguay, Junta Nacional de Drogas, Observatorio Uruguayo de Drogas, "Indicadores de control de la oferta" (May 2012).

211 Caulkins and others, *Considering Marijuana Legalization*, p. 4 (see footnote 209).

212 "Preocupa a la región el proyecto de legalización de la marihuana", *El País* (Montevideo), 9 December 2013.

213 *Legalization of Marijuana in Colorado* (see footnote 195).

214 "Policía: a pesar de regular, no varía comercio clandestino de marihuana", *El País* (Montevideo), 28 January 2016.