

Cannabis regulation in Colorado:

early evidence defies the critics

The core argument made by opponents of legal regulation is that any regulated market for cannabis would inevitably fuel a significant rise in use and associated harms – particularly among young people. So inevitably, as the first jurisdiction in the world to implement a legally regulated market for non-medical cannabis use, Colorado is under intense scrutiny, with advocates keen to demonstrate its successes, and prohibitionists keen to highlight its failings.

Given that Colorado's cannabis market only began trading in January 2014, it is not yet possible to draw firm conclusions about longer-term impacts. But a review of early evidence on key indicators suggests that, aside from some relatively minor teething problems, the state's regulatory framework has defied the critics, and its impacts have been largely positive.

There has been no obvious spike in young people's cannabis use, road fatalities, or crime, and there have been a number of positives, including a dramatic drop in the number of people being criminalised for cannabis offences; a substantial contraction in the illicit trade, as the majority of supply is now regulated by the government; and a significant increase in tax revenue, which is now being spent on social programmes. Consistent public support for legalisation also suggests Coloradans perceive the reforms to have been a success. Where challenges have emerged, for example around cannabis edibles, the flexibility of the regulations has allowed for modification to address them.

Background

In 2012, Colorado and Washington State became the first jurisdictions in the world to legalise cannabis markets for non-medical use. The reforms were passed through ballot initiatives, with voters in both states choosing legalisation by a solid margin. Colorado's Amendment 64 was approved in November 2012, with the state's first retail stores opening on January 1, 2014, following the development of a comprehensive regulatory infrastructure devised by an expert task force.¹

Cannabis use

Unfortunately, it is too early to say what any medium to long term impact of a commercial cannabis market has been on consumption, as the latest data on use only goes up to 2015, and the first retail cannabis stores only opened in 2014. However, Amendment 64 became law on 10 December 2012, enabling adults aged 21 or older to possess cannabis, grow up to six cannabis plants themselves, and give up to one ounce to other adult users. So while not particularly revealing at this stage, the available data provides a limited indication of the effect

that three years of the reforms have had on cannabis consumption.

- According to the biennial Healthy Kids Colorado Survey (HKCS), "The trend for current and lifetime marijuana use [for high school students in Colorado] has remained stable since 2005."² Marginal falls were observed, but deemed not statistically significant. The latest 2015 data shows no change from 2013 (see below from Colorado Dept of Public Health).³ Looking at two youth demographics, the National Survey on Drug Use and Health found that, although cannabis use (last month and year) among adolescents (aged 12-17) and young adults (aged 18-25) showed a marginal rise in Colorado between 2011-2012 and 2013-14⁴ it fell for adolescents in 2014-15 and stayed the same or rose marginally for young adults.⁵ None of these changes, however, were statistically significant suggesting relatively little change during or since the reforms. A 2016 report from the Colorado Department of public health noted that "For adults and adolescents, past-month marijuana use has not changed since legalization either in terms of the number of people using or the frequency of use

among users”⁶

- While arguably a lesser public health concern, there have, however, been statistically significant increases in cannabis use among adults in Colorado in recent years. Between 2011-12 and 2012-13, past-month cannabis use among those aged 26 and above rose from 7.6% to 10.1%⁷, reaching 12.4% in 2013-14, and 14.6 in 2014-15.⁸ These rises fit with broader national patterns - albeit more pronounced (see below), including states that have not legalised cannabis⁹
- A year after the retail cannabis stores opened, a Denver Post survey asked: ‘Since marijuana became legal, has your use changed?’ 13% said it had decreased, 17% increased and 70% stayed the same¹⁰

In summary, to date, the dramatic increases in youth cannabis use predicted by some have not materialised, with any changes broadly in line with those seen elsewhere in the US. While recorded adult use has risen, it was rising even before the legalisation vote in 2012, this increase may, in part, reflect a greater willingness to admit to cannabis use now that it is legal, rather than an actual change in the number of users. The novelty and huge publicity around the newly legal drug market may also have contributed to the rise in use, as curious older users in particular exercise their new freedoms. It is too early to say what will happen as this novelty wears off.

Health harms

Assessing the health impacts of cannabis use is challenging, and isolating any impacts of a policy change related to cannabis use even more so. However, the following trends have been observed:

- The number of treatment admissions with cannabis as the primary substance of abuse has risen from around 5,500 in 2005, to around 6,900 in 2009, before falling to around 5,500 again in 2013¹¹
- Since 2000, cannabis-related emergency room and hospital admissions (‘visits with marijuana-related billing codes’) have risen consistently. Emergency room admissions rose from 618 in 2011, to 10,392 in 2014.¹² A major caveat in interpreting this data is that ‘cannabis-related’ means the drug was mentioned, rather than identified as the cause of the admission (again, legal changes may have made people more forthcoming about their use, and increased awareness of cannabis issues amongst medical staff). There have also been changes in how, and how consistently, emergency room data is reported, which is likely to have contributed to the increase
- Accidental ingestions of cannabis by children have

risen, although in real terms, the numbers remain low – for under-9s, the number rose from 19 in 2011, to 48 in 2015, then falling to 40 in 2016¹³ (all made full recoveries). For perspective, the equivalent 2014 numbers for under-5 pediatric exposures to painkillers were 2,178, and 1,422 for cleaning products¹⁴). The reduced stigma associated with attending A&E post-legalisation may also go some way to explaining this trend

Crime

Unsurprisingly, arrests for cannabis possession have dropped dramatically – by nearly 80% – since 2012, an obvious direct and positive outcome of the change in the law.¹⁵ And while it is disappointing that black people are still disproportionately arrested for cannabis-related offences, there has nonetheless been a significant drop in criminalisation across the board.

There has, however, been a contrasting rise in citations for public consumption of cannabis. In the first nine months of 2014, police wrote 668 tickets, up from 117 for the same period the year before.¹⁶ Despite the size of this increase, these are still small numbers, and their significance should not be overstated given that public cannabis consumption is classed as a minor administrative offence. This trend is likely explained by an absence of legal consumption venues (outside of private homes), a poor initial understanding of the new law (particularly among out-of-state visitors, who do not have any designated consumption spaces), and changes in policing priorities now that resources are no longer needed for other cannabis offences.

Other crime data – on, for example, theft, sexual assault, and violent crime – has been seized on by both advocates and critics to support their positions. Figures for some crimes have gone up, and some have gone down, with considerable variation between demographics and regions. With the link between most of these variables and cannabis legalisation generally unclear, it is probably unhelpful to infer much from them in the absence of more focused, longer-term comparative studies.

Estimates from the Colorado Department of Revenue suggest that 41% of the total demand for cannabis is not being met by licensed recreational vendors.¹⁷ Instead, it is being met by (as they describe them) ‘grey-market’ medical suppliers, or ‘black-market’ illicit production. This means that 59% of the recreational market has now been legalised, regulated, and taxed, which, even if total demand has increased marginally, still represents a significant contraction in the untaxed criminal market.

Tax revenue

There are three types of state taxes on recreational cannabis: the standard 2.9% sales tax, a 10% ‘special marijuana sales tax’, and a 15% excise tax on wholesale cannabis transactions (to put this in perspective, cigarettes are taxed in Colorado at 3.74%). The cumulative revenue total (including both recreational and medical cannabis taxes and fees) was over \$120 million in 2015 and over \$180 million in 2016.¹⁸

The terms under which retail cannabis sales were legalised require the first \$40 million of the excise tax revenue to be spent on Colorado school construction projects. This total has been reached and distributed for 2015-16, and 2016-17 (with an additional \$40 million in surplus for 2015-16), along with millions more for other education programs.¹⁹

Sales of medical cannabis have been more resilient than expected, possibly because taxation, and hence prices, remain substantially lower than for non-medical supplies. Taken together, the legal medical cannabis industry and legal recreational industry in Colorado generated \$700 million in sales in 2014 (\$386 million and \$313 million respectively),²⁰ and more than \$1.3 billion in 2016.²¹

Driving under the influence of cannabis

With available data not systematically collected in a methodologically consistent manner, the absence of a control, and the ongoing challenges in determining the extent of the link between blood-THC levels and

impairment²², it is very difficult to draw useful conclusions about levels of cannabis impaired driving in Colorado, or the impact of recent reforms on it. This obvious data void should be an urgent incentive for Colorado, and other states, to dramatically improve monitoring of cannabis impaired driving and related risks.

Data for fatalities involving drivers testing positive for cannabis is available from the Colorado Department of Transport.²³ There has been an apparent rise in the last two years but little obvious longer-term trend in this data; there were 40 recorded fatalities in 2003, 20 in 2004, rising to 56 in 2011, and 68 in 2015/16.

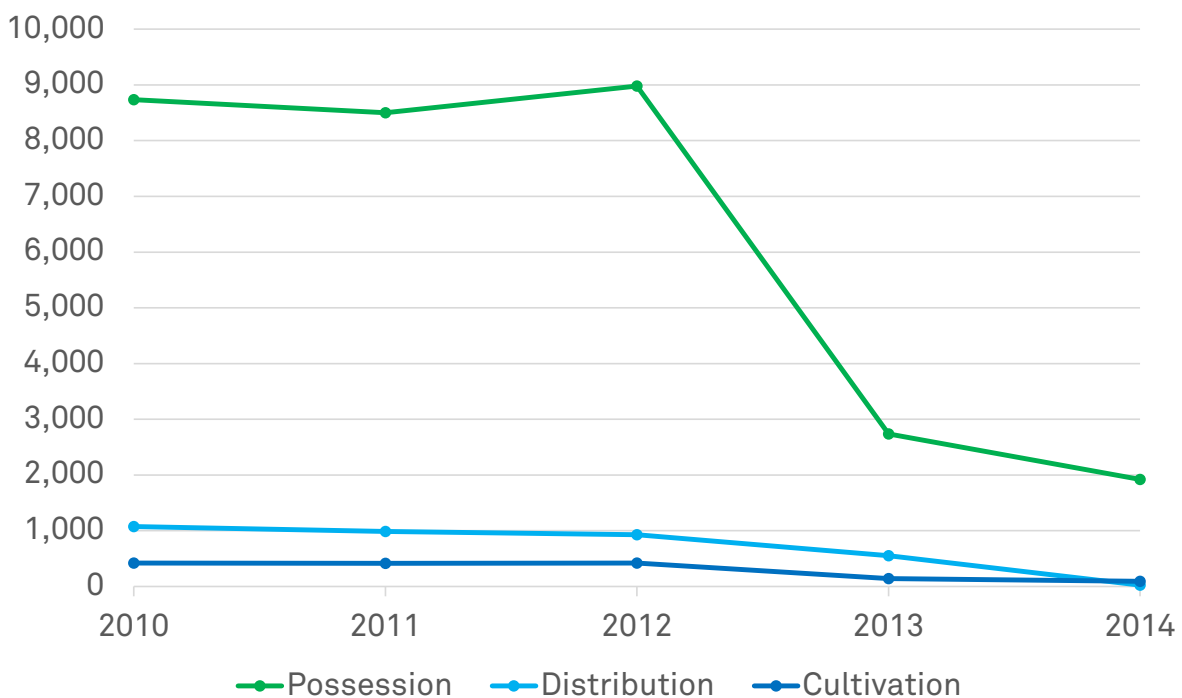
A rise or fall in the number of positive roadside tests is an even less useful indicator, as it can indicate changes in policing activity (the number of tests carried out, or types of drivers targeted), rather than actual changes in drivers’ behaviour, whether as a result of legalisation or not.

Nevertheless, there has, reassuringly, been no jump in total road fatalities, which remain at near-historic lows.^{24,25} This trend is likely to be driven primarily by the ongoing decline in people driving under the influence (DUI) of alcohol, which in itself indicates how DUI incidents do not simply rise when a drug is legal. Instead, cultural norms and public education are the key factors.

Public opinion

An opinion poll undertaken by the Denver Post found that levels of support for legalisation in Colorado were

Number of cannabis charges in Colorado courts, 2010-2014



virtually unchanged from the 2012 vote, a year after the first retail cannabis stores had opened.²⁶ Subsequent polls have shown similar levels of support. February 2015 polling found that 58% of Colorado voters supported keeping cannabis legal, while 38% were against it²⁷, results echoed in further polling in August 2016.²⁸

Regulatory flexibility

It is clear from an initial early assessment that Colorado's reforms are, according to most metrics, far from the disaster predicted by opponents of legalisation. Of course, given the novelty of the market, caution is needed in drawing wider conclusions about the success of cannabis regulation from the Colorado data. The state's regulatory framework is still essentially in its roll-out phase and social norms around retail sales, and novel products like edibles and concentrates are yet to be firmly established (even if the pre-existing commercial medical cannabis market has helped mitigate any cultural shocks). Colorado also remains (for now) an 'island' of legalisation, surrounded by prohibitionist states. This may be distorting a number of outcomes relating to cross-border trade with neighbouring states (two have already launched legal challenges).²⁹

Inevitably, there have been some mistakes made and some challenges have been inadequately anticipated – in particular the need for more stringent regulation of edibles. But even here, the ability of the regulatory system to respond positively to emerging evidence of problems has been reassuring. Now, only single servings containing up to 10mg of THC can be sold, all packaging of edibles must be child-proof, and all edibles must be clearly marked as containing cannabis.³⁰

Over-commercialisation?

Colorado's cannabis market has also been subject to some criticism from within the pro-legalisation movement for being too commercialised. Whether this is the case remains to be seen, and the data now emerging will provide an instructive contrast to that coming from other US states, and other types of cannabis markets, such as those in Uruguay,³¹ Spain,³² the Netherlands³³ and elsewhere. What is clear is that even if the Colorado model does turn out to be sub-optimal in some respects, it is a dramatic improvement on the prohibition it has replaced, and is providing invaluable evidence to guide other jurisdictions as they legally regulate cannabis. As a result, its very existence is already undermining decades of cannabis prohibition, not just in the US, but worldwide too.

References

- 1 State of Colorado (2013) 'Task Force Report on the Implementation of Amendment 64: Regulation of Marijuana in Colorado', <http://www.colorado.gov/cms/forms/dor-tax/A64TaskForceFinalReport.pdf>
- 2 Healthy Kids Colorado Survey (2013) 'Marijuana Overview of 2013 Data', <http://www.chd.dph.state.co.us/Resources/HKCS/FactSheets/Marijuana.pdf>
- 3 Colorado Department of Public Health and Environment (2016) Infographic 'Marijuana Use Among Youth in Colorado' https://www.colorado.gov/pacific/sites/default/files/PF_Youth_MJ-Infographic-Digital.pdf.
- 4 Substance Abuse and Mental Health Services Administration (2014) 'Results from the 2013 National Survey on Drug Use and Health: Detailed Tables', Table 1.24B. <http://www.samhsa.gov/data/sites/default/files/NSDUH-Deftabs2013.pdf>
- 5 Substance Abuse and Mental Health Services Administration (2016) 'National Survey on Drug Use and Health: Comparison of 2011-2012 and 2012-2013 Model-Based Prevalence Estimates' <https://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2012-2013-p1/ChangeTabs/NSDUHsaeShortTermCHG2013.htm>
- 6 Retail Marijuana Public Health Advisory Committee (2016) 'Monitoring health concerns related to marijuana use: 2016' Colorado Department of Public Health & Environment <https://drive.google.com/file/d/0B0tmPQ67k3NVRHpuOEFYN0ZHQ0E/view>
- 7 Substance Abuse and Mental Health Services Administration (2014) 'National Survey on Drug Use and Health: Comparison of 2011-2012 and 2012-2013 Model-Based Prevalence Estimates (50 States and the District of Columbia)', Table 3. <http://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2012-2013-p1/ChangeTabs/NSDUHsaeShortTermCHG2013.htm>
- 8 Substance Abuse and Mental Health Services Administration (2016) 'National Survey on Drug Use and Health: Comparison of 2011-2012 and 2012-2013 Model-Based Prevalence Estimates' <https://www.samhsa.gov/data/sites/default/files/NSDUHStateEst2012-2013-p1/ChangeTabs/NSDUHsaeShortTermCHG2013.htm>
- 9 Substance Abuse and Mental Health Services Administration (2014) 'Results from the 2013 National Survey on Drug Use and Health: Detailed Tables', Table 1.24B. <http://www.samhsa.gov/data/sites/default/files/NSDUH-Deftabs2013.pdf>
- 10 Simpson, K. (2014) 'Poll: One year of legalized pot hasn't changed Coloradans' minds', The Denver Post, 28.12.2014. http://www.denverpost.com/marijuana/ci_27216162/poll-one-year-legalized-pot-hasnt-changed-coloradans
- 11 Mendelson, B. (2014) 'Patterns and Trends in Drug Abuse in Denver and Colorado: 2013', National Institute on Drug Abuse. <https://www.drugabuse.gov/sites/default/files/denver2014.pdf>, p. 20
- 12 Retail Marijuana Public Health Advisory Committee (2016) 'Monitoring health concerns related to marijuana use: 2016' Colorado Department of Public Health & Environment <https://drive.google.com/file/d/0B0tmPQ67k3NVRHpuOEFYN0ZHQ0E/view>
- 13 *Ibid*
- 14 Rocky Mountain Poison and Drug Center (2014) 'Colorado 2014 Annual Report', <http://rmpdc.org/Portals/23/docs/Colorado-Annual-Report-2014-Poison-Center.pdf?ver=2015-06-02-134623-980>
- 15 Drug Policy Alliance (2015) 'Marijuana Arrests in Colorado After the Passage of Amendment 64', http://www.drugpolicy.org/sites/default/files/Colorado_Marijuana_Arrests_After_Amendment_64.pdf
- 16 Cotton, A. (2014) 'Ignorance is bliss? Citations for public use of pot is increasing', The Denver Post, 28.12.2014. http://www.denverpost.com/marijuana/ci_27215932/ignorance-is-bliss-citations-public-use-pot-increasing
- 17 Colorado Department of Revenue (2014) 'Market size and demand for marijuana in Colorado', <https://www.colorado.gov/pacific/sites/default/files/Market%20Size%20and%20Demand%20Study,%20July%209,%202014%5B1%5D.pdf>
- 18 Colorado Department of Revenue (2015) 'Colorado Marijuana Tax Data', <https://www.colorado.gov/pacific/revenue/colorado-marijuana-tax-data>
- 19 Colorado Department of Education 'Marijuana Tax Revenue and Education' <http://www.cde.state.co.us/communications/20160902marijuanarevenue>
- 20 Ingraham, C. (2015) 'Colorado's legal weed market: \$700 million in sales last year, \$1 billion by 2016', Washington Post workblog, 12.05.2015. <http://www.washingtonpost.com/news/workblog/wp/2015/02/12/colorados-legal-weed-market-700-million-in-sales-last-year-1-billion-by-2016/>
- 21 State of Colorado (2017) 'Colorado Marijuana Tax Data', <https://www.colorado.gov/pacific/revenue/colorado-marijuana-tax-data>
- 22 Rolles, S. and Murkin, G. (2013) 'How to Regulate Cannabis: A Practical Guide', Transform Drug Policy Foundation. <http://www.tdpf.org.uk/resources/publications/how-regulate-cannabis-practical-guide>
- 23 Colorado Department of Transportation (2014) 'Drugged Driving Statistics', <https://www.codot.gov/safety/alcohol-and-impaired-driving/druggeddriving/drugged-driving-statistics.html>
- 24 Balko, R. (2014) 'Since marijuana legalization, highway fatalities are at near-historic lows', The Washington Post, 24.02.2014. <http://www.washingtonpost.com/news/the-watch/wp/2014/08/05/since-marijuana-legalization-highway-fatalities-in-colorado-are-at-near-historic-lows/>
- 25 Department of Transportation (2015) 'Colorado Historical Fatal Crash Trends', https://www.codot.gov/library/traffic/safety-crash-data/fatal-crash-data-city-county/historical_fatal.pdf/view
- 26 Simpson, K., op. cit.
- 27 Lerner, A. (2015) 'Poll: Colorado residents still back legal pot', Politico, 24.02.2015. <http://www.politico.com/story/2015/02/poll-colorado-marijuana-115457>
- 28 Public Policy Polling for the pro-legalisation Marijuana Policy Project <https://www.mpp.org/wp-content/uploads/2016/09/Colorado-PPP-Results-2016.pdf>
- 29 Duggan, J. (2014) 'Jon Bruning files lawsuit over Colorado's legalization of marijuana', omaha.com, 18.12.2014. http://www.omaha.com/news/nebraska/jon-bruning-files-lawsuit-over-colorado-s-legalization-of-marijuana/article_89801fb6-86ef-11e4-b2e8-9bf0786ca418.html
- 30 Colorado General Assembly (2014) 'House Bill 14-1366: Concerning reasonable restrictions on the sale of edible marijuana products', http://www.leg.state.co.us/clics/clics2014a/csl.nsf/fsbillcont/4882145846DC62CE87257C98005D4C5D?Open&file=1366_enr.pdf
- 31 Murkin, G. (2014) 'Uruguay announces final regulations for new, legally regulated cannabis trade', Transform Drug Policy Foundation, 07.05.2014. <http://www.tdpf.org.uk/blog/uruguay-announces-final-regulations-new-legally-regulated-cannabis-trade>
- 32 Murkin, G. (2015) 'Cannabis social clubs in Spain: legalisation without commercialisation', Transform Drug Policy Foundation, 06.01.2015. <http://www.tdpf.org.uk/blog/cannabis-social-clubs-spain-legalisation-without-commercialisation>
- 33 Rolles, S. (2014) 'Cannabis policy in the Netherlands: moving forwards not backwards', Transform Drug Policy Foundation, 12.03.14. <http://www.tdpf.org.uk/blog/cannabis-policy-netherlands-moving-forwards-not-backwards>

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