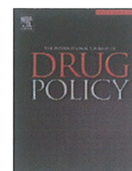




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Policy analysis

### Cannabis policy reforms in the Americas: A comparative analysis of Colorado, Washington, and Uruguay<sup>☆</sup>



Bryce Pardo\*

Organization of American States (OAS), 1889 F St. NW, Washington, DC 20006, United States

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#### ABSTRACT

Legal reforms in the Americas are influencing the public debate on cannabis policy. Uruguay and the two US states of Colorado and Washington have taken steps to regulate and legitimize the production, distribution, and use of cannabis and its derivatives. Earlier experiences with medical cannabis in the United States and limited access and production models in Europe have been insightful. However, these reforms are going further still, venturing into a new area of cannabis policy. A lack of empirical evidence regarding the effects of such reforms poses a challenge for policymakers. These examples will inform the design and implementation of any future cannabis policies. Therefore, a clear understanding of the details of each jurisdiction is necessary in developing future legal changes. Literature comparing the models of Uruguay, Colorado, and Washington is thin. This paper is based on an exhaustive examination of the laws, regulations, and discussions with regulators and functionaries of each jurisdiction. The research and analysis herein will provide policymakers with a greater understanding of the laws and regulations relevant to legal cannabis in these three jurisdictions, as well as draw to their attention some potential impacts and challenges of cannabis reform that require additional consideration to ensure public safety and health.

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#### Introduction

Legal reforms in the Americas are influencing the current global debate on cannabis policy. Existing evidence on cannabis regulation from Europe and the US has been instructive in advancing the policy debate. In some parts of the world public opinion has shifted this debate toward *how* to regulate cannabis. Uruguay and the two US states of Colorado and Washington are regulating and legitimizing the production, distribution, and use of cannabis and its derivatives for non-medical or non-scientific purposes. Earlier reforms, including *de facto* legalization in Europe or medical access in the US, sought to stay within the confines of the international drug control treaties, never regulating the entire non-medical cannabis market. Deviating from earlier reforms, Uruguay, Colorado, and Washington are seeking to regulate the entire cannabis market. Their experience will contribute to a base of evidence and will serve

as legal models. This paper further enhances the debate by providing research into the intricacies of the rules that regulate cannabis in each of the three aforementioned jurisdictions.

Policymakers should be cognizant of the details in designing broad reforms, learning from the successes and failures of previous cannabis-related initiatives while taking into account other theoretical models. The literature on regulating cannabis has been constructive in describing actual and theoretical regimes, including new international accords (Caulkins, Hawken, Kilmer, & Kleiman, 2012; Kilmer, Kruithof, Pardal, Caulkins, & Rubin, 2013; Rolles & Murkin, 2013; Room, Hall, Reuter, Fischer, & Lenton, 2010). A granular examination of regulations in Uruguay, Colorado, and Washington will serve as a useful guide for policymakers. Today, the literature comparing these three regulatory models is thin; one notable exception is Rolles and Murkin (2013). Additionally, articles by Room (2013) and Caulkins (2014) provide comparative analysis and important conclusions regarding public health, eschewing commercialization in favor of more restrictive models. This paper advances the research of the three aforementioned jurisdictions, providing a comparative table of the regulations while examining, in short, some of the broader possible policy challenges posed by these recent reforms.

<sup>☆</sup> The analysis and statements made in this document are of the author's alone and not of the OAS.

\* Tel.: +1 2022304391.

E-mail address: [brycepardo@gmail.com](mailto:brycepardo@gmail.com)

## Background

Prohibitions on cannabis have deterred many policymakers from considering sweeping policy changes. Yet, cannabis control policies have undergone several waves of reform, moving away from the criminal penalties dictated by the international drug control framework (Blickman, Bewley-Taylor, & Jelsma, 2014, pp. 27–31). Reforms in the US were first limited to reducing sanctions for use, but later included medical access to cannabis. European policy reforms experimented with some means of permitted, yet restricted, access to the drug for non-medical use. Perhaps the best-known European models are the Dutch *coffeeshops* and Spanish *cannabis clubs*. However, these policies are limited in their design, sometimes creating peculiar workarounds to complex problems—something that Colorado, Washington, and Uruguay are attempting to avoid through the establishment of codified laws and regulations.

### Earlier supply-side reforms

Since the 1970s, the Netherlands' policy has been characterized as *de facto* legalization; cannabis retail and use is accepted as legal for practical purposes under certain guidelines, but remains illegal as required by international conventions (MacCoun & Reuter, 2001, pp. 230–260). Within a licensed *coffeeshop*, acquisition and possession of a personal amount of cannabis (limited to 5 g) is permitted, but it must be consumed on-site. The policy restricts advertising and limits the potency of retail cannabis. Furthermore, cultivation, processing, and wholesale is strictly prohibited and enforced as per national law and in compliance with international conventions. This creates a complicated scenario known as the "backdoor problem," where cannabis is legal for purchase at retail when one steps through the front door of the *coffeeshop*, but illegal when the wholesale transaction occurs at the back door. This policy, while contradictory, has been successful in maintaining the substance's high prices and deterring heavy use.

Another often cited European model is the Spanish *cannabis club*. Under a series of Spanish Supreme Court rulings, clubs have been more or less permitted since 2002 within a legal "grey area" (Barriuso Alonso, 2011). The clubs allow non-commercial social groups to cultivate and distribute cannabis for the personal consumption needs of their members. A degree of flexibility enshrined by Article 3, paragraph 2 of the United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances dictates that the criminalization of cultivation and possession for personal consumption of substances are "subject to constitutional principles and the basic concepts of [a country's] legal system." According to Spanish law and jurisprudence, private use of a drug or the collective cultivation of cannabis is not penalized so long as it is not destined for illicit trafficking. No national regulations are in place to govern these clubs. Membership is limited to a certain number of registered, paying adults who can use cannabis on the premises. Each club establishes its own membership requirements and internal prices and procedures. A non-commercial, non-profit cannabis club has the advantage of preventing commercialization and price competition, while also restricting supply. Because these clubs exist in a legal grey area without state oversight and regulation, the Spanish government has expressed concern regarding clubs seeking to promote consumption (Kilmer et al., 2013, pp. 11–13).

Policymakers responsible for drafting new laws can learn from these and other examples of cannabis reform. Some legal changes require greater creativity and attention to detail than others. For example, policymakers and legislators must do substantially

more work to design a regulatory system for the provision of medical cannabis than abolishing criminal sanctions for the mere possession of the drug. California, as the first jurisdiction in the United States to legalize medical cannabis in 1996, was at a distinct disadvantage in its attempt to design a rigorous set of policies to minimize disorder and costs associated with public safety and health (Saloga, Boustead, Jacobson, Pacula, & Anderson, 2013). Some jurisdictions have learned from California's earlier mistakes and favor more rigorous regulations.

### Recent reforms in the Americas

Colorado, Washington, and Uruguay are on the forefront of cannabis policy reform. The three surpass earlier models by regulating and legitimizing the production, distribution, and use of cannabis for adults for non-medical purposes. Furthermore, it is noteworthy that these initiatives will regulate most activities related to supply and use—something that many earlier initiatives do not address. Their successes and failures will be a source of great information for researchers and policymakers in the future.

Each jurisdiction proposed the legalization of the production, distribution, and consumption of cannabis in 2012. Though similar in their goal to regulate the cannabis industry and trade, the initiatives differ in their genesis, development and details. In Colorado and Washington voters made the decision, while Uruguay's initiative was proposed by the executive branch and modified by the legislature through a more gradual process of debate. The referendum-driven changes in Colorado and Washington caught many legislators and policymakers by surprise, commercialized the market, and constrained the design of future laws and regulations. The passage of the two states' initiatives has further complicated matters for the US federal government.

### Process toward regulation in Colorado

Amendment 64 in Colorado was a public referendum championed by advocates from civil society and business community, including the medical cannabis industry. In November 2012, Amendment 64 to the Colorado State Constitution legalized the production, distribution, and sale of cannabis, necessitating further statutory changes by the State Assembly. Additionally, it established restrictions and taxes, requiring the Colorado Department of Revenue to license and regulate the industry. Governor John Hickenlooper formed a Task Force to study requisite legal changes and the processes for developing effective laws and regulations that allow for adult access to cannabis, monitoring the impacts, and designing new methodologies for cannabis-specific prevention programs.

The Task Force comprised about thirty stakeholders, including district attorneys, staff from the Department of Public Health, legislators, business members, and civil society members. Sixty recommendations were issued in March of 2013 related to taxation, drugged driving, public safety, monitoring public health, enforcement, criminal justice, and civil law. The recommendations guided the State Assembly in the passage of five laws, which were subjected to debate and formed the basis for the rules written by the Colorado Department of Revenue. Refer to Table 1 for more information.

The Colorado Department of Revenue (CDR) drafted initial rules in July 2013, using three years of prior experience regulating the medical cannabis industry. This knowledge was adapted and expanded to suit a legal, non-medical cannabis industry. Initial rules were further amended after public input over the summer

of 2013, and final rules were adopted in September of 2013. Starting in November 2013, the CDR began accepting applications for producer, processor, and distributor licenses. Licenses were issued and the legal, non-medical cannabis system began distribution in January 2014.

#### *Process toward regulation in Washington*

In November 2012, voters approved Washington's Initiative 502 (I-502), a detailed 64-page referendum that amended existing state law to legalize the production, distribution, and sale of cannabis, establish restrictions and taxes, and remand the licensing and regulation of the industry to the Washington State Liquor Control Board. Unlike Amendment 64 in Colorado, I-502 amended existing statutes, which did not require additional legal changes from the state legislature. It further detailed necessary stipulations for a legal cannabis industry and established funding and monitoring mechanisms to evaluate the law's implementation. Refer to Table 1 for more information.

The responsibility to write regulations, as required by I-502, fell to the Liquor Control Board. Incidentally, the Board recently privatized the state's alcohol distribution monopoly, as required by an earlier voter initiative. This allowed the Board to build similar internal, thematic teams of research and area experts to write the rules that would govern the new legal cannabis industry. In addition to thematic regulatory teams, the Board also hired and consulted with outside experts, specifically BOTEK Analysis and RAND Corporation, to provide research and feedback in the design of the regulations.

A first draft of regulations was filed in July 2013. Over the next two months the Board conducted a series of 13 public hearings across the state and met with over 6000 citizens. After taking into account public input, new rules were filed in September 2013 and adopted a month later. The Board began to accept applications for producer, processor, and distributor licenses in December 2013. Licenses will be issued the first half of 2014.

#### *United States Federal government's response*

In late August 2013, approximately ten months after the passage of the state initiatives, the Department of Justice issued a policy memorandum (known as the Cole Memorandum after Deputy Attorney General James Cole) allowing states to carry out initiatives without federal interference or the enforcement of federal law that conflicts with the new state laws. The memorandum stipulated that a state must adhere to eight guidelines and implement strict regulations and enforcement (Department of Justice, 2013). The federal government will ostensibly permit these initiatives, but reserves the right to preempt and nullify state law at any moment. It remains to be seen if all apparatuses of the federal government will abide by the guidelines set forth in the Cole Memo.

Interestingly, the federal government did not preempt these state laws. Federal law supersedes state law under the US Constitution and any state law in conflict with federal law can be preempted in a federal court at the behest of the Department of Justice. However, under US jurisprudence, the federal government cannot force a state to criminalize an act under state law (Carvey & Yeh, 2013, p. 14). While the voters of Colorado and Washington passed initiatives to legalize, regulate, and tax the cannabis industry, they simultaneously repealed the penal provisions and sanctions prohibiting and criminalizing unauthorized cultivation, trafficking, and possession of cannabis. Paradoxically, had the federal government nullified these state laws through preempting, neither a regulated market nor state laws to control

cannabis would exist—creating a truly anarchic scenario. Since federal law enforcement relies heavily on state and local law enforcement to apply drug laws, the federal government would need to provide the resources and manpower to replace state and local enforcement to enforce federal drug laws—an impossible task given existing political and budgetary constraints. Rather, the federal government seems to have opted for a more pragmatic solution which allows for a rules-based cannabis industry, as dictated by state regulations, while maintaining the future option to preempt.

#### *Process toward regulation in Uruguay*

There are three important things to note about Uruguay. First, Uruguay will become the first and only state party to the international drug control regime to legalize the production, distribution, and use of cannabis for non-medical or non-scientific purposes.<sup>1</sup> Second, regulatory reform is a government-led initiative, not a public referendum. According to polls, the public is not in favor of this policy change (Cifra, 2013). Lastly, no existing regulatory body predated the law. Unlike Colorado and Washington, which had the Colorado Department of Revenue and the Washington State Liquor Control Board, Uruguay must establish the Institute of Regulation and Control of Cannabis (IRCCA).

In July 2012, President Jose Mujica announced his government would seek to amend the nation's drug law to allow the state to monopolize the production, processing, and sale of cannabis for adult consumption. The executive branch proposed a draft bill in August of the same year, seeking to grant the state sole authority over the entire cannabis industry. The initial bill contained 12 pages of perambulatory clauses—some of which derided the failure of the war on drugs—while containing a single operative clause (Presidencia de la República Oriental del Uruguay, 2012). During the first six months of 2013 the executive branch conducted public hearings to increase public support. The lower house, controlled by the president's party, significantly modified the bill with input from civil society. The new version of the draft bill included practical details such as age restrictions, production caps, transaction limitations, etc. The bill was debated and passed the lower house with a slim majority in late July 2013. In December 2013, the senate passed the law without amendments and the president signed it into law. Refer to Table 1 for more information.

The executive branch delivered regulations approximately four months after the passing of the law. The Executive Secretary of the National Drug Board has suggested that a legal industry will be functional by September 2014 (Telam, 2013).

#### **Comparative analysis**

The analysis below is based on the research of recent laws and regulations, as well as in-person and virtual discussions with regulators and policymakers from each of the three jurisdictions, including on-site visits to Denver, Colorado in October of 2013 and Seattle, Washington in May of 2014.

<sup>1</sup> Some states in India regulate the production, preparation, sale, and use of *bhanga*, an infusion made from cannabis leaves as permitted under the definition of cannabis in the international conventions. (Room, 2013). Uruguay is still the first state to legalize cannabis since the convention's inception in 1961.

**Table 1**  
Comparison of cannabis laws and regulations in Colorado, Washington and Uruguay.

	Colorado	Washington	Uruguay
Level of law	State constitution, laws and regulations (conflict with federal law)	State law and regulations (conflict with federal law)	National law
Regulatory body	Colorado Department of Revenue (CDR)	Washington State Liquor Control Board (LCB)	Institute of Regulation and Control of Cannabis (IRCCA)
Definition of (retail) cannabis	All parts of plant, seed, resin extracted from any part of the plant, and every compound, manufacture, salt, derivative, mixture, or preparation of the plant, its seeds, or its resin, including cannabis concentrate, that is cultivated, manufactured, distributed, or sold by a licensed retail cannabis establishment. Does not include industrial hemp	All parts of the plant with a THC concentration greater than 0.3% on a dry weight basis; the seeds thereof; the resin extracted from any part of the plant; and every compound, manufacture, salt, derivative, mixture, or preparation of the plant, its seeds or resin	Defined in the law as flowering tops with or without fruit of the female cannabis plant, except for the seeds and the leaves separated from the stem, including its oils, extracts, potential pharmaceutical preparations, resins and the like whose natural THC content is greater than or equal to 1% of its volume Regulations limit cannabis to the flowering tops with or without fruit of the female cannabis plant, except for the seeds and the leaves separated from the stem Cannabis cannot be pressed
Definition of retail cannabis(-infused) product	Concentrated retail cannabis and retail cannabis product that are comprised of retail cannabis and other ingredients and are intended for use or consumption, such as, but not limited to, edible product, ointments, and tinctures	Products that contain cannabis or cannabis extracts and are intended for human use. The term "cannabis-infused products" does not include useable cannabis	Not defined separately from cannabis Regulations do not include infusions, oils, extractions or other products
Personal possession quantity	28.5 g	28.5 g	40 g
Penalties for unauthorized personal possession	Drug petty offense, up to \$100 fine	Misdemeanor, up to \$1000 fine or up to 90 days incarceration in jail	None
At-home cultivation for personal consumption and immediate sharing	6 plants, only 3 in flower	None allowed	A single person can have one at-home cultivation of up to 6 in flower plants and up to 480g annual harvest, with no more than one at-home cultivation per household regardless of number of residents
Minimum age	21	21	18
Retail transaction limitation	28.5 g of cannabis or its equivalent in retail cannabis product to CO residents. Up to a quarter of that amount for out of state residents	28.5 g usable cannabis, 453.5 g cannabis-infused product in solid form, 7 g of cannabis-infused extract for inhalation, and 2.13 l of cannabis-infused product in liquid form	40 g/month dispersed in up to 10 g per week
Defined serving size for infused products	10 mg of THC per serving Maximum of 100 mg of THC in edible retail product	10 mg of THC per serving 100 mg of THC per product A single unit of cannabis-infused extract for inhalation cannot exceed 1 g	Not specified
Potency limits	Not specified	Not specified	IRCCA can determine the percentage of THC by the use of approved technical analysts <sup>a</sup>
Residency requirements	Some for consumption (non-state residents can purchase ¼ amount of residents) Yes for licenses (minimum 2 years)	None for consumption Yes for licenses (minimum 3 months)	Yes. Adult citizens and permanent residents inscribed in control registries can produce, distribute or acquire cannabis
Users' registry for non-medical use	None	None	Yes, the Cannabis Registry will be used to control for all methods of production and acquisition
Public consumption	No "open and public" consumption. Smoke-free zones included. Drug petty offense of \$100 fine and 24h community service	Unlawful to use cannabis in view of general public \$50 civil fine	Cannabis use will conform to similar tobacco smoke-free laws, established public spaces are protected by Ley N° 18.256 Sanctions related to smoking in public apply Consumption during the workday at place of work is prohibited

Table 1 (Continued)

	Colorado	Washington	Uruguay
On-site consumption in licensed distributors	Prohibited	Prohibited	Prohibited
Drugged driving standard	New 5 ng THC/ml, blood <i>per se</i> DUI/D	New 5 ng THC/ml, blood <i>per se</i> DUI/D	Any THC detectable in the body will deem a motorist impaired to drive. Sanctions apply in conformity with established laws (Ley N° 18.191)
Hash oil/cannabis concentrate	Defined as retail cannabis. Local governments may ban use of flammable gases or solvents in home processing	Defined as retail cannabis but must be infused in other products. Home processing is not allowed	Defined in the law as psychoactive cannabis Regulations do not include these derivatives or products
Outdoor cultivation	Permitted	Permitted	Permitted
Commercial cultivation	Licensed cannabis cultivation facilities	Licensed cannabis producer	Licensed and regulated
Commercial processing	Licensed cannabis cultivation facilities and licensed retail cannabis products manufacturing facility	Licensed cannabis processor for cannabis sales to retailers	Can be licensed and regulated
Commercial retail outlets	Licensed retail cannabis store	Licensed retailer	Licensed pharmacies
Traceability	Yes, seed to sale	Yes, seed to sale	Yes, seed to sale combined with a registry
Market integration	Essentially permitted	Essentially prohibited	Probably prohibited, but not specified
Taxes	15% excise tax from cultivation to processing or retail 10% excise tax on sale in addition to any existing local or state sales tax	25% excise tax at each stage of sales (producer to processor to retailer to customer) Producer-processor license can avoid one tier	Establishes VAT taxability of psychoactive cannabis. A rate of 0% tax for agricultural cannabis goods
Fees	\$2750 application producers and processors \$5000 application retailers \$2750 annual renewal for producers and processors \$3750 annual renewal for retailers	\$250 application producers, processors and retailers \$1000 annual renewal for producers, processors and retailers Additional fees for background check and filing for local business license	Licensing fees are mentioned and will be set by IRCCA
Background investigations	Yes, criminal background check and financial information. Fingerprinting required	Yes, criminal background check and financial information. Fingerprinting required	Some financial information is required by IRCCA and the National Anti-Laundering Secretary for licensed producers
Production and distribution limits	Until October of 2014, establishments must grow at least 70 percent of the cannabis they sell and sell no more than 30 percent of what they grow to other outlets Producers are capped at three different types: Type 1 is no more than 3600 plants; Type 2 is no more than 6000 plants; Type 3 is no more than 10,200 plants	Producers, processors and retailers are limited to 3 licenses, no more allowed to hold more than 33 percent of the allowed licenses in any county or city Producers are capped at three different tiers: Tier 1 is less than 2000 sq. feet; Tier 2 is 2000–10,000 sq. feet; Tier 3 is 10,000–30,000 sq. feet Maximum cultivation is 2 million sq. feet statewide <sup>9</sup> Maximum limit of retail licenses issued by LCB based on population. Currently at 334	Not a fixed specific limit, but the IRCCA can limit the amount of producers and how much each can produce by license
General restrictions and local regulations	Local municipalities can prohibit establishment of cannabis producers, processors, and retailers. Also local zoning and health ordinances can further regulate market	Establishments cannot be located within 1000 feet of certain preexisting zones (schools, playgrounds, etc.) No local prohibitions <sup>8</sup> , but zoning and health ordinances can further regulate market	IRCCA can determine security conditions for cultivators as to avoid youth and non-authorized access
Hours of distribution	Cannot sell, serve, distribute, or initiate the transport between hours of 12–8AM Mon–Sun	Cannot sell cannabis or paraphernalia between hours of 12–8AM	Not specified
Packaging and labeling regulations	Yes: quantity, serving size, ingredients, potency	Yes: quantity, serving size, ingredients, potency	Yes: package must preserve product for no less than six months and cannot exceed 10 g per container. IRCCA will determine further labeling and packaging restrictions

Table 1 (Continued)

	Colorado	Washington	Uruguay
Product warning labels of health effects	Yes	Yes	Not specified, but IRCCA can further regulate labeling.
Child-resistant packaging	Required for final sale of cannabis retail product	Required for cannabis-infused products meant to be eaten, swallowed, or inhaled	Not specified, but IRCCA can further regulate packaging
Quality control and contaminant testing	Yes, for retail cannabis	Yes	Yes, for retail cannabis
Free retail samples	Prohibited to give away retail cannabis or retail cannabis products to a consumer for any reason	Retailers may not provide free samples to customers	Not specified
Advertising and promotion	Permitted, but restricted to avoid reaching minors under 21 for retail establishments. <sup>a</sup> Signage permitted at place of business in compliance with local ordinances	Restricted to no more than a sign for retailers at place of business. Prohibited for producers and processors	All direct or indirect advertising is prohibited in listed mediums. Public events, tournaments or contests that promote cannabis consumption are not authorized
Advertising warnings	No misleading or safety claims can be made	Detailed and required	Not specified
Internet sales	Prohibited	Prohibited	Prohibited
Security systems	Required and detailed	Required and detailed	Required and will be established by IRCCA
Waste disposal	Detailed	Detailed	Not specified
Cannabis club	Not permitted	Not permitted	Permitted. Regulated by IRCCA having between 15 and 45 members that can maintain up to 99 plants. Each member can receive no more than 480 g a year. The Ministry of Education and Culture will approve club statutes as Civil Associations under existing law
Medical cannabis	Yes, continuing in existence with new laws and is tax exempt. Prorated fees when converting medical retailer to non-medical	Yes, continuing in existence with new laws	Permitted with prescription. Further regulations are under consideration
Tax and fee distribution	First \$40 M to Public School Capital Construction Assistance Fund; remainder to General Fund to later be distributed to local governments. The established cannabis Cash Fund will be used to pay for enforcement of regulations	Dedicated cannabis fund run by State Liquor Control Board. \$125 K to Healthy Use Survey; \$50 K to social and health reports; \$5 K to UW for web-based cannabis education; \$1.5 M to State Liquor Control Board; remainder: 15% to drug treatment; 10% for drug education; 1% to state university research; 50% to Washington Health Plan; 5% to community health care; 0.3% to building bridges program; remainder to General Fund	Not specified
Sanctions and penalties for violations or noncompliance	Yes, tiered schedule that includes up to \$100,000 fines and suspension and/or revocation of license	Yes, tiered schedule that includes up to \$2500 fine and suspension and/or cancellation of license	Yes, fines up to 2000 adjustable units, seizure of property, suspension and/or cancellation of license
Prevention and treatment	Yes, law mandates that state agency will establish educational materials regarding appropriate retail cannabis use and prevention of cannabis use by those under 21.	Yes, taxes generated will go to treatment and prevention	Yes, the national health and education systems are required to promote and avail treatment and prevention resources to address the problematic use of cannabis
Monitoring and evaluation	Yes, required by law for Department of Health to monitor health effects of law every two years starting in 2015	Yes, required by law to independently by Washington State institute for public policy to evaluate policies and impacts related to health, security, economic impacts, etc. for years, starting in 2015 until 2032	Yes, within Ministry of Public Health a specialized unit is required by law to independently evaluate policies on an annual basis

<sup>a</sup> Government officials have mentioned an upper limit of 15% THC (Montevideo COMM, 2014).

<sup>b</sup> Cap will change as per rules established by LCB.

<sup>c</sup> The issue of local bans remains unclear. The Washington State Attorney General has issued a nonbinding opinion that localities can ban cannabis-related industries (AGO, 2014 No. 2, 2014). However, the Liquor Control Board has stated that "there is also nothing with the law which allows for the Board to deny licenses to qualified applicants" and that the Board will issue state licenses to qualified applicants, yet "a licensee must be in compliance with local laws and regulations" (Liquor Control Board, 2014).

<sup>d</sup> Under litigation by suit filed by *High Times* and *Westword* magazines (Ingold, 2014).



### Commercialization and market integration

The initiatives in Colorado and Washington are similar because they are constrained by the same federal laws and national constitution. For example, Room (2013, pp. 3–4) has concluded that corporate free speech doctrine interferes with the design of a smaller and more responsible legal cannabis industry that protects and prioritizes public health. Under Uruguay's law, it is easy to see several clear and distinct advantages, namely the ability to prohibit advertising and branding, the potential for state monopoly distribution, and the ability to set prices and organize the production market.

The marketing and advertising of cannabis is of great concern to public health officials and drug policy analysts who point to the early failures of alcohol and tobacco policy (Caulkins, 2014; Room, 2013). Initiatives in Colorado and Washington attempt to limit advertising and regulate labeling under external legal and constitutional constraints. Uruguay is not constrained by corporate free speech laws and has prohibited all forms advertising. Additionally, Uruguayan functionaries have indicated a desire to mandate generic and non-appealing labeling regulations, similar to tobacco products, which might deter consumption according to some studies (Freeman, Chapman, & Rimmer, 2008).

A state monopoly on the production and/or distribution of intoxicants is not new. Many countries, and even US states, use government monopolies in the production and/or distribution of alcohol. Notably, current US law and jurisprudence does not permit a state monopoly of any or all of the cannabis trade (Garvey & Yeh, 2013, pp. 14–15). A state monopoly has less incentive to promote the use and abuse of addictive and harmful substances, and it can be better suited to control price and production (Gruenewald, 2011; Siegel, DeJong, Albers, Naimi, & Jernigan, 2013). In this regard, Uruguay is free to establish a monopoly system and control every aspect from seed to sale. Initially it was envisioned that the state would control the entire cannabis industry. However, the law will license production, and the IRCCA will have an oversight capacity, allowing regulated pharmacies to distribute retail cannabis. Cannabis clubs and at-home cultivation will also be overseen and controlled by the IRCCA.

The issue of vertical integration will require future research and study. In order to protect the existing medical market, Colorado regulations permit licensees to cultivate and sell cannabis, requiring establishments to grow at least 70 percent of the cannabis they sell until October 2014. After that date, limits on selling stock to other retailers is no longer required. On the contrary, in Washington producers are legally prohibited from holding retail licenses. Uruguay's model will most likely prohibit vertical integration as producers will be licensed by the state, yet retail will occur in licensed pharmacies.

Vertical integration might be less of a concern if strict regulations limit the size of any one firm, perhaps by capping the amount of product that can be cultivated annually or the number of distribution licenses. Colorado does not restrict the amount of licenses a firm can own, though production limits are established by limiting overall production amounts at cultivation facilities. Washington limits the amount of licenses a single firm can own in one market, as well as establishing overall statewide caps on production (2 million square feet) and distribution licenses (334). In Uruguay, a preliminary national production cap of 22 metric tons grown by two to six cultivators has been mentioned, but further details are needed to assess how this would work (El Observador, 2014).

### Prices and taxes

Regulations and laws should also promote public health and welfare through the use of appropriate pricing and taxation.

Like many commodities, lower cannabis prices can encourage consumption—especially greater consumption by heavy users—and should be avoided. Price controls establish a minimum or maximum price for a commodity, such as cannabis. Under the current design in Colorado and Washington, prices are dictated by the market. Market-driven prices have been studied by some who have concluded that prices will decline over time as cannabis moves from illicit to licit (Caulkins et al., 2012, pp. 160–172). Evidence from Colorado seems to support this analysis, as medical cannabis prices have decreased since the industry's inception in 2009. Research and development, access to better equipment and inputs, economies of scale, price competition, and the general move from inefficient, clandestine production under prohibition have all contributed to a reduction in production costs by approximately 50 percent (Hickey, 2013). Both US states are using taxes to raise prices and deter consumption.

Cannabis and cannabis products can be taxed based on any number of formulas (Oglesby, 2014). A price floor can prevent price competition. A specific excise tax of per gram or per THC content per gram can tax potent or harmful cannabis products at a higher rate than weaker forms of the drug. This is similar to how spirits are taxed versus fermented or brewed alcoholic drinks. Uruguay's law does not detail taxes; regulations mention the applicability of a Value Added Tax, but do not stipulate any percentage. Colorado and Washington apply *ad valorem* taxes to increase the final price to the consumer as the product moves through the supply chain.

*Ad valorem* taxes in both US state models differ in application and amount. Washington's design will levy a 25 percent tax at each point of transaction, making cannabis more expensive to consumers. Colorado's taxes are not as high, levying a 15 percent excise from the wholesale price and 10 percent from the retail price. Colorado's tax laws also require any additional state tax to be approved by popular vote. In both cases, since the tax is not levied on the weight or unit of THC per weight or volume, tax revenues will decline as the cost of production declines. Logically, a tax should increase relative to the decline in the production costs. Declining taxes in the future may not reduce consumption or generate enough tax revenue to pay for enforcement, prevention or education.

Prior to full legal access this past January, prices of useable medical cannabis ranged between \$6 and 12 per gram, depending on quality. Some in the industry have estimated that medium-term retail prices will be slightly higher due to excise taxes, perhaps at a range of \$8–15 per gram (Sullum, 2013). Due to its tax structure, BOTE estimates a wider and higher range for the retail price per gram in Washington (\$7–17), depending on production costs and mark ups (Caulkins, Andrezejewski, & Dahlkemper, 2013). These figures will likely change as price competition, efficiency, and market innovation lead to cheaper products. An exhaustive analysis of alternative tax mechanisms, such as a per unit tax, should be considered. In the context of Colorado, vertical integration makes collecting an *ad valorem* tax even more problematic (Oglesby, 2013). The law requires a 15 percent tax on wholesale, but in most instances because cultivators must also distribute retail cannabis, in reality, no wholesale transaction between two parties takes place.

Officials in Uruguay have declared a “first stage” retail market price point \$1 a gram to effectively compete with street prices (Goni, 2013; Montevideo COMM, 2014). This raises concerns about the state's ability to generate sufficient revenue to pay for any enforcement system or education and prevention programs as established by law. More information is needed to assess the potential costs and benefits of such a model. Perhaps licensing revenues will make up for low sales taxes. Nonetheless, policymakers in Uruguay and elsewhere should be cognizant of these challenges when designing proper price and tax structures.

### *Mechanisms for production and supply*

Production is another key variable of the equation. Overproduction is a potential issue, especially for Colorado and possibly for Uruguay. Currently, Washington State has set statewide production and distribution limits while prohibiting at-home cultivation for non-medical use. Colorado does not have a statewide production cap on total amount of plants, canopy square footage or metric ton limit, but it limits at-home cultivation up to six plants. In conversations, state regulators worry about controlling diversion from at-home cultivation.

Uruguay's law permits four distinct methods of supply: the medical access system, the licensed system, the permission of at-home cultivation for personal use, and the cannabis club model. A registry will control who belongs to each method of supply, and the law prohibits an individual from belonging to more than one. An individual must inscribe his or her information into the Cannabis Registry under his or her desired route of access, which permits a maximum annual amount of 480 g. Presumably this will address overproduction and diversion. Current at-home cultivators have six months to register with the IRCCA to comply with the law, and the IRCCA will have the power to inspect households with the consent of the landowner or by order of a judge. Given privacy concerns, questions remain regarding the willingness of those who grow at-home or seek to acquire cannabis by registering with the government. At-home cultivation and cannabis clubs can have distinct advantages over licensed commercial production, because they can prevent industry capture of the cannabis market. Although, this model may escape tax collection and could lead to diversion. Furthermore, enforcing a six plant limit could pose additional challenges. The yield of six plants will vary depending on the individual's skill and the inputs used, though Uruguay has restricted at-home cultivation amounts to a strict annual weight limit of 480 g, Colorado, which does not maintain a registry of at-home cultivators, will face further challenges in enforcement. Transaction limitations also vary in each model, with Uruguay establishing a retail limit of 40 g per month controlled by a user registry. Colorado maintains a residency restriction for transaction limits, unlike Washington. In both Colorado and Washington, a user registry for non-medical cannabis does not exist and individuals are only limited by quantity at each point of sale. It is possible that individuals, both in state and out of state, could drive to multiple retail establishments, purchasing the maximum limit at each and bundle the product for export out of state. Uruguay's strict quantity limit and user registry will foreseeably prevent the bundling of repeat purchase of small amounts that avoid detection, otherwise known as smurfing.

Uruguay's transaction limit established by law at 40 g per month disbursed in 10 g per week increments may be too restrictive for some users. Presumably, lawmakers referred to dried cannabis, but the law defines cannabis to include derivatives like oils and extracts. The regulations limit the definition of cannabis to flowering tops. This may cause some inconsistency and could necessitate further regulatory clarification. Cannabis can come in many different forms. If the production and sale of oils and extractions is permitted, then a 40 g limit might prove shortsighted, and could incentivize the purchasing of more potent products. Because this weight limit is established in the law, there might not be sufficient regulation flexibility and it might require additional legislation to amend the law to specify "40 g of dried or useable cannabis or its equivalent in other forms."

In addition to Uruguay's transaction limitation, the use of registries and an annual limit of 480 g could also be too restrictive for some users. Understandably, Uruguay is attempting to assuage domestic and international concerns by designing a strict system that deters drug tourism and excess. However, establishing strict

limits on how much a person can access each year, as well as maintaining personal information on a government registry, may be seen by some as an invasion of privacy and encourage some individuals to continue to seek cannabis in the criminal market. If Uruguay's goal is to abolish the illicit cannabis market, then policymakers need to consider how some of these limitations might hinder this goal. Acknowledging these challenges and tradeoffs will give policymakers a better idea of what to address in future policies.

### **Conclusions**

As the debate on cannabis evolves, legislators, policymakers, and regulators considering changes to cannabis policy should be aware of ongoing reforms, monitor changes, and make incremental adjustments based on new evidence. This is especially true as the debate continues in other parts of the Americas, as witnessed by initiatives in other states in the US, and countries in the Western Hemisphere (Allen, 2014; Braveboy, 2013; La Nacion, 2013).

Earlier reforms from Europe and the United States have been instructive for policymakers and researchers. However, due to their design constraints, they do not go as far as the most recent legal and regulatory changes in the Americas. This has created peculiar scenarios such as the backdoor problem in the Netherlands or the legal grey area where Spain's cannabis clubs operate. Learning from earlier examples and in part to control an existing and illicit market, Colorado, Washington, and Uruguay are developing regulations to address most aspects of the cannabis market. It is important to remember these are three distinct models, and other jurisdictions may learn from these jurisdictions to develop superior models to meet the needs of their localities and political realities.

So far, with a few exceptions, the literature comparing the details of actual and theoretical regulatory models is scarce. This research offers comparative analysis and contributes to the wider debate on the latest models of licit cannabis supply and use. Researchers, analysts, and society at large will learn from the successes and failures of these models. Jurisdictions should promote a public health perspective, avoid early commercialization, maintain price, strictly regulate potentially harmful forms of the drug, control production and supply, and ensure public security.

It is important to keep in mind the different challenges each model attempts to address as well as their potential impacts. Colorado, Washington, and Uruguay vary in their design and implementation. Given constraints found in US federal law and free speech doctrine, Colorado and Washington are likely to fall into the trappings of commercialization. Uruguay's more restrictive model of pharmacy distribution and registries is likely to reduce the negative health impacts of licit cannabis, however it may be too restrictive to quash the illicit market as desired by policymakers. In addition, questions remain regarding the price and tax structure Uruguay will employ to pay for regulations and prevention. Further details concerning potency limits and product variability will likely be developed in additional regulation.

If developing new reforms, policymakers should emulate the strengths and avoid the weaknesses previously discussed, focusing on non-commercial models. Regular and ongoing data collection and analysis will give further insight into the full scope of the impacts and challenges of these reforms, and may result in modifications in years to come. Given the lack of empirical data, it is important to keep in mind that no reform of such breadth and depth will be perfect in its initial design. Leaders will have to promote a flexible approach when adjusting any aspects of these systems.

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