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TENDANCES

THE LEGALISATION OF CANNABIS IN NORTH AMERICA FROM A PUBLIC HEALTH PERSPECTIVE

PART 1 - REGULATION OF CANNABIS: ISSUES AND INSTRUMENTS

ABSTRACT

Based on a research work coordinated by the OFDT, this issue describes the structure and methods of cannabis regulation from a public health perspective, comparing six jurisdictions In the United States (Washington State, Oregon, California) and Canada (British Columbia, Ontario, Quebec). Drawing on the range of actions of tobacco and alcohol policies, cannabis regulation focuses in particular on limiting the product's visibility, attractiveness, and accessibility to minors, and sometimes includes legal measures to protect them. In practice, the aim of regulation is to bring order to the market and regulate supply, but also control usage patterns and the associated risks.

Although cannabis is internationally classified as a narcotic and its use is prohibited, it has become widely used, particularly in North America and Europe. Considering this paradox, a number of governments have undertaken to legalise cannabis in various ways, in order to trial an alternative policy that would enable the public authorities to “regulate” supply and use. Beyond simply decriminalising cannabis, “legalising it” means authorising and supervising its use, by organising a controlled market where production and sales are regulated. The movement began in the United States, the world’s largest cannabis market and a long-standing proponent of drug control: in the space of around a decade (2012-2023), 23 of the 50 states (plus Washington DC) have legalised cannabis, for both ‘medical’ and ‘recreational’ use[1]. These reforms, going against federal prohibition and international conventions on narcotics, have opened a breach in the prohibition paradigm, to the point of being followed by other countries: Uruguay in 2013, then Canada in 2018, the first G7 country to reform the legal status of cannabis.

These initiatives to regulate cannabis are attracting particular attention because they raise various issues related to public health and the protection of minors, since the health risks associated with this product are well documented[2]. In the arguments in favour of reform, legalisation promised to strengthen the ban on minors’ access to cannabis, to regain control of the market, and to protect consumers through better control of the substance, its uses and its consequences. In practice, these objectives have been converted into very different regulatory policies, with varying degrees of emphasis on the initial objectives. What has become of these approaches to regulating cannabis, almost ten years on? What are the aims and scope of this regulation? How has it been implemented, and what are the effects in terms of public health and the protection of minors?

This double issue of *Tendances* addresses these issues through the results of comparative research focused on North American experiences and conducted in six jurisdictions: three in the United States (Washington State, Oregon,

1. In common language, the term "recreational" is used, although there is no scientific definition. By convention, the terms "cannabis" and "use" shall be used here to refer implicitly to the non-medical use of cannabis (known as "recreational" use), defined as use with a psychoactive aim (seeking an intoxicating effect or a change in the state of consciousness, including if the use is motivated by the search for anxiety-reducing effects or the improvement of sleep disorders). Therefore, unless explicitly stated otherwise, cannabis use in the remainder of this article must be distinguished from the use for medical purposes or the industrial use of hemp, which comes from the same plant.

2. Three recent systematic reviews provide a solid basis for understanding the potential health effects of cannabis [1-3].

California) and three in Canada (British Columbia, Ontario, Quebec) (see the "Methodology" section). The first part of the analysis, presented here, provides an overview of the range of actions put in place to regulate cannabis, specifying the control issues arising in these different jurisdictions, in order to document both convergences and particularities. Regulatory choices are described according to the logic of the life cycle of cannabis-derived products, from the basic regulatory structure (governing production and sale) to the scope of the legal supply (types of products authorised, composition, price, control, and tracing, etc.), via the access conditions to supply (authorised places of use and sale, control of the number of sales outlets, or opening times, etc.). Regulatory policies also take other forms, including a criminal law component and sector-specific measures designed to limit the negative external effects of legalisation. The aim is to show that the legalisation of cannabis, often referred to in North America as 'regulation', in practice seeks not only to bring order to the market and regulate supply, but also to control cannabis use patterns and the associated risks. This comparative analysis of the issues and instruments of regulation precedes a second section focusing on current regulatory practices and the initial effects of legalisation from the point of view of various players, from a public health perspective [4]. To provide the reader with an overall, detailed, and comparative view of the different regulatory regimes, a summary table of the data used in the analysis can be consulted online, along with a set of monographs and summary materials (Cf. Table on the OFDT website).

Public health, one of several issues in the regulatory framework

All the cannabis legalisation process implemented to date claim two common objectives: 1) a public health objective, aimed at preventing use among minors and reducing the risks associated with use; 2) an objective of improving public safety, in order to regain control of the cannabis market by drying up trafficking and the associated criminal networks. The regulatory framework built up to meet these two objectives reveals similarities and differences. Although public health issues lie at the heart of the promises of legalisation, in particular the protection of minors (one of the aims being to "keep cannabis out of the hands of young people"), they are not exclusive of other types of issues in the regulatory framework.

Regulatory contexts and biases: similarities and differences

The regulatory systems currently implemented have several common features, which are partly linked to the local historical context of the legalisation. The territories concerned had all previously legalised medical use, some for more than 20 years (California in 1996, Canada in 2001). In this perspective, the legalisation of use for adults ("full legalisation") aimed to integrate and control cannabis for "recreational" and "medical" use in a single legal market: the aim was to regain control of a pre-existing "medical cannabis" market, legalised but partially regulated, considered to be a "grey market" supplying "recreational" users on the fringes of legality.

The North American regulatory regimes are similar in the central role given to the State in structuring a controversial market, expected to be profitable (except in Quebec) without encouraging cannabis use and aggravating its related harms. Three converging objectives determine the regulatory framework: securing the conditions of production, sales, and marketing by subjecting economic operators to strict business rules (declaration, surveillance, traceability); limiting public visibility, accessibility and the authorised perimeter of use of the product in order to protect minors (price control, restrictions on display, advertising and marketing, as in the case of tobacco); guaranteeing tax revenue for governments through taxes. In practice, the balance between these objectives varies greatly from one jurisdiction to another, giving rise to a range of regulatory systems.

Among the differences, the place given to public health objectives in relation to economic objectives is a key aspect, starting with the choice of the cannabis 'marketing' model and the room given to private players. Among the range of possible policy options for regulating cannabis, the American states and, to a lesser extent, some jurisdictions in Canada have overwhelmingly favoured a business-friendly model, which is a priori less inclined to guarantee the protection of public health, compared with models involving a state monopoly or non-profit organisations. The experience with the regulation of alcohol and tobacco has shown that public health issues are often understated, or even lost sight of, when the option of a commercial market is favoured [5, 6]. With the exception of Quebec, which has instituted a public monopoly on distribution (like Ontario and British Columbia) but also on physical and online sales, the other models give a central place for private operators.

The fundamental difference lies, above all, in the relationship between the federal government and the territorial jurisdictions[3]. Canada, for example, which legalised cannabis under federal law, has introduced a decentralised regulatory model that is still overseen be the Canadian Ministry of Health (Health Canada). With the exception of personal production, production is regulated at federal level (e.g. licensing), in order to limit the supply of cannabis circulating in the country. The same applies to public health and safety standards (e.g. restrictions on the promotion, packaging, or labelling of products). On the other hand, rules on distribution and use are the responsibility of local governments (provincial health departments and others), as are certain rules on promotion. As a result, each of Canada's 13 provinces (and territories) organises sales by setting its own rules for access to legal cannabis (minimum legal age, authorised places of sale and use, number and distribution of sales outlet, regulatory authority, tax system, scope of supply, etc.). The result is a highly heterogeneous system, with some provinces favouring retail sales by private operators (Ontario), public operators (Quebec), or both (British Columbia). This is exacerbated by the fact that municipalities are allowed to set stricter rules, which increases the number of regulatory systems in Canada.

In contrast, regulation in the United States runs counter to federal law, which prohibits cannabis (Controlled Substances Act 1970) and classifies it as one of the most dangerous drugs (Schedule 1). As a result, the regulatory framework was developed at state level, in a fragmented way and without any support from the federal government. For example, the regulations on cannabis-based food products were drawn up without the approval of the US Food and Drug Administration (FDA); the regulations on the use of pesticides in cannabis cultivation were not accompanied by the Department of

3. Canada and the United States are federal states in which the federal government shares legislative, judicial, and executive powers with its constituent territorial entities (federated states).

Agriculture; and, above all, the construction of a regulatory framework designed to protect public health and safety in the context of opening of a commercial market was carried out without the help of the Department of Health and Human Services. During the interviews, this situation was described by the representatives of the regulatory authorities and local governments responsible for the authorisation of the regulated cannabis market, as well as by public health officials, as particularly challenging, especially in the first states to legalise, such as Washington State, since there was no prior reference on which to rely.

The role of health authorities in the regulation

In the cannabis legalisation regimes, interpersonal sales remain prohibited, the aim is to professionalise and secure the entire cannabis industry, from production to sale, by creating an industry that is controlled and supervised by the State. This is why legalisation involves a phase of business licensing, as with alcohol and tobacco. The North American regimes are based on a common principle of structuring the market into distinct sectors requiring a business licence: production/cultivation, laboratory testing, processing/manufacturing, packaging, distribution/sales etc. Everywhere, this licensing role has been entrusted to a public regulatory authority. In our case studies, this was the authority already responsible for controlling alcoholic beverages (Oregon, Washington, Ontario, British Columbia), except where an ad hoc regulatory authority was created (California). It should be noted that other US states have attached cannabis regulation to a tax or finance department, revealing targeted expectations in terms of tax revenue (Colorado, Illinois, Maine).

In most US jurisdictions, the role of public health authorities in regulation remains limited: few states give health authorities an active role. Washington State is one state that has set up an Advisory Board, which includes public health players as well as industry representatives. While the health authorities have been marginally involved in regulating recreational use (with the exception of California and Oregon), the regulation of medical cannabis has generally been the responsibility of public health departments. In Canada, by contrast, regulation is the direct responsibility of the federal public health authorities: most licences are issued by Health Canada (for cannabis production and cultivation, manufacturing, clinical trials and research, export and import), while the provinces and territories authorise the operators responsible for retail sales and distribution.

Controlled access for consumers

Restricted access to the product: conditions, limitations, and thresholds

Wherever cannabis has been legalised, access to the product (purchase and use) is restricted to adults. Authorisation is granted to adults aged 19 and over (British Columbia, Ontario) or 21 and over (Quebec, “full-legalisation States” in the United States). The minimum legal age has been a controversial issue in Canada: the federal government has set 18 as the minimum age, allowing the provinces to limit it further. The medical community recommended 21 or even 25, but public consultations led most provinces and territories to opt for 19.

The authorised channels of supply are physical sale outlets – specialised retail shops, which are well separated from standalone stores selling tobacco or alcoholic beverages – and online purchases (authorised everywhere since the Covid pandemic). In sales outlets, identity compliance checks on entry and age verification of customers are a legal requirement.

Most jurisdictions also allow home growing (or self-cultivation), with legal limits varying from four to six mature plants (ready for harvesting), sometimes as many as 12 per household. Across the United States, three out of 23 jurisdictions prohibit it (including Washington State[4]); in Canada, two of the country's 13 provinces and territories (Manitoba and Quebec) do so. One of the criticisms directed at home-growing is that it is difficult to control products which, by definition, are not subject to the same production requirements or laboratory tests.

The authorisation to buy and possess cannabis is limited by thresholds for legal possession in public places, which vary according to the form of cannabis: around 30 grams of herb (most often), around 7 grams of concentrates, 2 litres of cannabis-infused drinks, etc. Some jurisdictions also regulate the maximum quantity authorised at home, with varying restrictions (150 grams in Quebec; up to 8 ounces, or nearly 230 grams, in Oregon).

These restrictions are inspired by the criteria that distinguished between simple possession and possession for the purpose of trafficking in prohibition regimes. They respond to the concern to limit access to the product among young people and to prevent diversion, considering that this risk is increased by high limits on possession or home cultivation. They also take into account the literature, which shows that young people’s access to cannabis is easier where home cultivation is permitted, thereby helping to bring forward the age of first use and generate earlier use habits and thus an increased risk of dependence [7].

Regulation also includes restrictions on access to sales, in order to limit young people's exposure to the legal cannabis supply. All jurisdictions have introduced zoning restrictions, as for tobacco and alcohol. Everywhere, it is forbidden to open a cannabis business close to facilities frequented by minors (schools and places providing instruction, day care centres, youth centres, etc.) and a regulatory distance is set (for example, 1 000 feet, i.e. 300 metres, in Washington State). Moreover, any locality, in the United States or Canada, could initially choose to prohibit sales or the implementation of a cultivation facility, or even add extra taxes for operators (except in Quebec, and a few Canadian provinces), tightening up zoning rules, and so on. Due to the prerogatives left to municipalities (local bans, opt-out possibilities), in Canada as in the United States, some territories provide no supply at all. In California, for example, in 2023, 61% of localities (cities and counties) did not authorise any cannabis sales outlets. Other jurisdictions have capped the number of retail outlets, such as Washington State, which grants a maximum of 556 operating licences (banned in city centres), or Ontario, which capped the number of licences in 2019 before removing this cap to move towards a more open market [8]. It should be noted that, in both these jurisdictions, the rules have been relaxed over the course of the regulation under pressure from producer and operator organisations [9]. The regulations also target the accessibility of points of sale: Quebec has limited the opening

4. The other two are states where cannabis cultivation is less easy due to climatic conditions: Illinois and New Jersey.

hours of its public branches unlike shops in the United States, which are sometimes open until midnight. More generally, in Canada, federal law prohibits the sale of cannabis over the counter and in vending machines. Offenders risk a heavy fine (up to $5 million) and a three-year prison sentence.

Reinforced prohibition for minors, restricted authorisation for adults

To prevent young people from gaining access to cannabis, the repertoire of criminal law is also being mobilised. In Canada, Bill C-45 prohibits the sale or supply of cannabis to anyone under the age of 18 and creates two new offences, criminalising "the sale or gift of cannabis to minors" and "using a minor to commit a cannabis-related offence", punishable by up to 14 years' imprisonment (on a par with human trafficking). In the United States too, the criminal penalties for selling cannabis to a minor are intended to act as a deterrent. In California, supplying cannabis to a minor is punishable by three to five years' imprisonment, and using a minor to sell cannabis is punishable by up to nine years' imprisonment. Furthermore, selling cannabis in a shop to a person under the legal age carries heavy penalties, often much heavier than for selling alcohol to minors (up to a $20 000 fine and ten years' imprisonment in Washington state).

The places where cannabis use is permitted, whether in smoked or vaporised form, are a core aspect of regulation: they reflect the degree of acceptability conceded by the public authorities but also the concern not to expose passers-by to the sight of cannabis or to the smoke - which has been shown to contain some of the same harmful components as tobacco [10]. By analogy with tobacco, cannabis use is therefore prohibited in enclosed in public spaces (bars, restaurants, hotels, etc.) and may be punished by a fine ($100 in Washington State to $1 000 in Oregon). Smoking is systematically prohibited near places frequented by minors (schools, playgrounds, leisure centres, etc.). While it is permitted to smoke or vaporise cannabis in places where it is permitted to smoke tobacco (although the number of places for cannabis is more limited than for tobacco), specific restrictions may apply. For example, in Quebec, smoking and vaporising cannabis products is also prohibited in open public spaces (streets, parks, beaches, sports fields, etc.), on bicycles or in cars, and even in the home for certain tenants (the landlord may stipulate a ban on cannabis). Most jurisdictions also have cannabis-exclusion zones on university campuses (Quebec) or within certain regulatory perimeters, with municipalities able to add further restrictions.

The aim of these spatial bans is to limit the visibility of the product and to discourage cannabis tourism. However, this situation creates a paradox. In Quebec, for example, some authors referred to a "prohibition 2.0" [11]: even though cannabis has been legalised, permission to smoke or vaporise it is limited to private spaces (on the condition of ownership). To resolve this contradiction, around ten American states and several Canadian provinces (Ontario, British Columbia) have opened a debate regarding on-site use. In 2023, among our case studies, only California officially authorised cannabis lounges, while Ontario authorised temporary spaces at certain festivals.

Although legalised, cannabis use remains prohibited in certain circumstances, like driving under the influence (DUI). While no jurisdiction applies a 'zero-tolerance' for driving under the influence of cannabis, as with alcohol, a regulatory threshold for the presence of Delta-9-tetrahydrocannabinol (THC) in the blood is often defined ranging from 2 nanograms of THC/ml of blood (Canada) to 5 (Washington State). However, some jurisdictions (Oregon, California) do not define a threshold at all. In Canada, the (federal) Criminal Code defines new offences for different levels of drug impairment and mandates police to conduct saliva tests to determine the presence of drugs in the driver's system (Bill C-46 29). A driver tested with a THC level between 2 and 5 ng/ml of blood is now liable to a fine of up to 1 000 Canadian dollars (€700). Above that threshold, they face prison sentences of up to 10 years in the most serious cases.

Regulating supply? Variable geographic control

The shape of the supply of cannabis-derived products and the degree to which it is controlled are major differences between regulatory regimes. Controlling supply involves the authorisation of market operators and the leeway they are given to set prices (via taxation); the range of products authorised for sale; their composition; their presentation; and the conditions under which they are marketed. Everywhere, the regulatory authorities have been faced with the same questions: how far should the scope of supply be extended? Should commercial innovation be encouraged? Should the sale of products with a high THC[5] content be authorised (to compete with the illegal market) and should there be a limit on the THC content authorised? Should it be prohibited to promote the taste of products in order to thwart cannabis marketing strategies aimed at broadening the customer base? Different choices have been made in all these areas, partly for public health reasons.

Procedures for authorised market operators

The restrictions on supply are implemented via regulatory constraints on market operators, who are subject to procedures for awarding and renewing professional licences (which authorise them to invest in the cannabis market), with the risk of having their licences revoked for non-compliance. Supply compliance checks also cover the range of products authorised for sale. Wherever cannabis has been legalised, the products on sale have diversified, including forms that can be smoked, available in a variety of packaging shapes (in sachets or in the form of pre-rolled joints) to a whole range of derived products. With the exception of Quebec, which has banned certain edible forms (e.g. any confectionery-like product), most jurisdictions have opened the way to commercial innovation by authorising various forms of products infused with cannabinoids (THC, CBD, etc.): food products, including biscuits, confectionery, ice cream or THC-infused drinks (edibles), e-liquids and vaping devices (vape pens), cosmetics and 'wellness' products (moisturisers, lip balms, massage oils, etc.), and above all, concentrates - oils (Butane hash oil/BHO), waxes and other solid extracts (shatter, rosin, etc.), whose THC content can possibly exceed 90%. However, the literature shows that the type of product available has an impact on drug use habits and the risk of accidental overdose and dependence [12]. These diverse ways of using cannabis raise new public health issues: while the smoked form presents well-documented risks linked to combustion in particular, the emerging ways of using cannabis are the subject of a limited number of studies looking at the risks of over-use, accidental use

5. Except where specified, when we refer here to THC (tetrahydrocannabinol), we mean delta 9-THC, the main psychoactive component of cannabis.

(edibles), use of ingredients not intended for vaporisation (electronic vapes), or use of large quantities of THC. Food products, in particular, were the source of acute intoxication in the early days of legalisation: due to the delayed onset of effects (linked to the way they are absorbed by the body), they present a greater risk of over-use than smoked products.

Inspecting the composition of products

One of the expected benefits of legalisation was to improve health safety and inform users about the content of the products they were using. This involved approving the products placed on the market to reduce the risks associated with use; avoiding the addition of components likely to attract children or mislead consumers (THC, additives, flavouring agents, synthetic cannabinoids etc.); regulating the conditions under which cannabis is produced and processed, while allowing products to be traceable, so as to guarantee that they have been tested and are free from potentially harmful contaminants. By setting requirements for the marketing of products, the aim was to reduce the health damage associated with the use of contaminated products (adulterated with toxic ingredients) or products with a high THC concentration (which has been identified as a risk factor for drug-induced acute psychosis (pharmacopsychosis) and subsequent psychiatric disorders) [13]. This compliance check level has been used in different ways in different jurisdictions.

With the exception of Quebec, which prohibits the sale on concentrated products containing more than 30% THC (limited to 10 mg per unit serving at federal level, 5 mg for edibles) and flavourings (on vaping products), most North American jurisdictions do not limit the THC content of products on sale. With regard to cannabis-infused food products, no jurisdictions in Canada authorise foods or beverages containing more that 10 mg of THC (considering that a dose of 2.5 mg is sufficient to produce psychoactive effects). This trend has been followed by most American states (including the three jurisdictions studied), which now require a limit of 10 mg of THC per unit serving. The rules for designating portions of drinks vary from state to state, with some requiring a measuring cup to be provided and other requiring markings on the bottle. On the other hand, no US state has capped THC levels in concentrates. This raised public health concerns, given the growing potency of concentrates on sale (the average THC content of which rose from 57% in 2014 to 69% in 2017 in Colorado, with a growing proportion of products containing more than 90%) and the risk of dependence they entail [3]. A new generation of cannabis-based products has therefore appeared on the market with legalisation, such as extracts and vaping liquids that can contain more than 90% THC. Initially exempt from specific regulations except in a few states (such as Washington State), they were regulated after the outbreak of e-cigarette or vaping product use-associated lung injury (EVALI) linked to the vaping of contaminated products in the United States in 2019[6]. As in Canada, the US states require cannabis products to be tested for a variety of contaminants and pesticides, according to legal thresholds that they have had to set themselves in the absence of federal control [9]. Finally, to prevent the spread of perishable products, some jurisdictions (such as Washington State and California) only authorise cannabis-infused products if they are long-life products and unrefrigerated.

Quality control at every stage

With a view to quality control, all jurisdictions that have opened up a legal cannabis market require products to undergo laboratory testing: accreditation by approved cannabis analysis laboratories is a cornerstone of the control system (via professional licences), in Canada as in the United States, even though there is not systematically an approved reference laboratory. On behalf of the regulatory authorities, these laboratories are responsible for checking the content of products before they are launched on the marketplace: regulatory conformity (compliance), accuracy of labelling (certification of THC content), content of pollutants (mycotoxins, heavy metals, pesticides). However, in the United States, because cannabis remains illegal at federal level, they cannot send samples to another state for testing, which has led each state to set up its own analysis system. This approach has had counter-productive effects because, since testing is the responsibility of cannabis producers and processors in both the United States and Canada, it has led manufacturers to exploit competition between laboratories to obtain favourable results: taking advantage of the wide variations in results from one laboratory to another, some companies have developed fraudulent practices with laboratories of convenience, agreeing to exaggerate the THC content displayed, so that products with higher doses can be sold at higher prices (lab shopping) [9]. In response to this breach of the rules, the Californian cannabis regulator has sent several warnings to state-approved testing laboratories, threatening them with severe penalties for irregularities, up to revocation. It has also undertaken to accredit third-party testing labs which are responsible for validating laboratory results and arbitrating in the event of discrepancies in tests.

Marketing strategies under scrutiny

In the case of alcohol, for example, it is now well-documented that promotion and marketing have an impact on how early users start to use, how often they use, and how much they use [14, 15]. When it comes to cannabis regulation, while the stated aim is to prohibit the marketing, packaging, and labelling of cannabis in an attractive way, the actual degree of constraint on the conditions of sale and presentation of cannabis products and on advertising varies greatly from one jurisdiction to another.

Regulation primarily takes the form of legal constraints on packaging and labelling. For example, some jurisdictions prohibit any packaging that reveals the full composition of the product being sold. Buying in bulk is prohibited in Canada, in order to make the product as invisible as possible (it must be packaged in opaque packaging). By contrast, other jurisdictions in the United States allow products to be displayed in shops in a transparent jar (except in Washington State). Similarly, in terms of marketing, the operators' margin of freedom is much more restricted in Canada: federal law prohibits any form of promotion of cannabis, except in very specific circumstances where it cannot be seen by a young person (in the event of the offence, the applicable penalties range from a fine of $5 million and 3 years' imprisonment). In practice, cannabis sold in shops has to be packaged in a neutral packaging (like cigarettes in France), in black or white, with standardised health warnings and precise information on the content, in child-resistant packaging that is difficult for children to open. In contrast, in

6. Vaping-associated lung injury - e-cigarette, or vaping, product use associated lung injury (EVALI) – is a severe, even fatal, lung disease associated with the use of inhalation techniques (dabbing) or certain vaping liquids. The "outbreak" reported in the United States in 2019, which led to the hospitalisations and a total of 68 deaths, was in fact associated with the use of contaminated products with vitamin E acetate obtained on the THC black market. This has led the FDA to ban the sale of flavoured vaping liquids (excluding tobacco and menthol flavours) from 1 February 2020.

the United States, the range of products is wide and colourful, presented in attractive shops where budtenders offer a personalised welcome. While health warnings are required on packaging, other restrictions vary considerably. Our three study jurisdictions share a number of legal requirements, such as a visual symbol indicating that what is sold is a cannabis-based product, with childproof packaging, an indication of THC content, and a ban on therapeutic claims. However, regulations are less strict when it comes to displaying a poison control centre number or a "not for kids" warning (except in Washington State). With regulations far less restrictive than in Canada, the commercial supply in the United States has developed using classic marketing strategies inspired by the codes applied to the sale of alcohol (branding), using billboards, sponsoring and social networks, and calling on 'brand ambassadors', some of whom have even invested in the cannabis industry (Snoop Dogg, Whoopi Goldberg, Jay-Z, Rihanna, etc.). Classically, the strategies deployed build on codes and gimmicks that cultivate humour and complicity with the customer (such as 'Mike Bites', THC-infused sweets marketed by the company owned by former boxer Mike Tyson, shaped like an ear with a bite mark[7]).

Operators' strategies are based on the diversification of forms and methods of use, and are developing a wide range of accessories authorised for sale in specialist shops, which are increasingly attractive and sophisticated: vaping devices, electronic vaporisers (which heat the product to release its active ingredients in the form of vapour), dab rigs (water pipes or bongs, made of glass, titanium, or ceramic, to use cannabis concentrates), and so on. This ever-modernising range of consumer accessories (such as the "new generation vaporiser", which boasts "compact and intelligent" accessories that can be adjusted using a smartphone app) is likely to make cannabis products even more attractive, by arousing consumers' curiosity and appetite for new kinds of use. Constant renewal is a hallmark of any emerging market, and the US cannabis market is no exception. Similarly, the high-THC concentrate market segment, one of the most buoyant in terms of sales, is constantly incorporating new forms, promoted as "new experiences" (live resin, diamonds, etc.)[8]. This vibrant supply contrasts with the appearance of shops in Canada, where products are not visible from the outside (opaque or tinted windows) and are kept out of direct reach of customers (who can neither touch nor smell what they are buying) [16].

While all states prohibit cannabis products likely to attract minors, the precise definition of what might attract them varies considerably. In theory, edibles in the shape of characters, animals, or fruit (gummy bears, for example) are banned everywhere. However, these rules can be easily circumvented [4]. Some jurisdictions go further, banning bright colours, cartoon images or brands or celebrities that might refer to an attractive lifestyle, and products that resemble confectionery or everyday food (cereals, biscuits, etc.). Quebec, for example, strictly regulates product presentation, banning any positive references or references likely to appeal to children (hot chocolate, ice cream, fizzy drinks, chocolate bars, etc.) [17]. In the United States, Washington is the only state to have a regulatory advisory group that meets specifically to review and pre-approve any new cannabis-containing product (including its packaging) for its potential appeal to children [18].

Restricting the advertising and promotion of cannabis products in places where minors could see or hear them (billboards, television, radio, etc.) is de rigueur in all jurisdictions, sometimes as far as a total ban (Quebec). However, it is more difficult to control in the United States, where commercial speech is protected by the First Amendment of the Constitution. Washington State has introduced the most restrictive regime, limiting the number and size of signs identifying a cannabis shop. Oregon's rules are also among the most dissuasive, forcing advertisers to display their messages on signs of contractual size, in bold type and in a sober font (Times New Roman or Arial size 80). Finally, most states impose protection zones: in California and Washington State, billboard advertising is banned within 300 metres (1 000 feet) of any youth facility. In addition to advertising, the rules governing the public visibility of cannabis are often stricter than for tobacco or alcohol, particularly in Quebec, where it is forbidden to organise cannabis-related events open to the public (festivals etc.) or to sell objects referring to use (cannabis leaf or any other evocative image, name, logo, distinctive sign, slogan). The choice of trade names is also under the control of regulators, in Canada and in some American states (Oregon, where certain names of cannabis varieties were banned in 2017, such as Green Crack, Candyland, Girl Scout Cookies, etc.).

Influencing behaviour through taxation and pricing

The taxation of "recreational" cannabis is a crucial issue, both economically and in terms of public health. Lessons learnt from the regulation of tobacco and alcohol show that tax choices help to encourage (or discourage) certain behaviours that have health consequences [19]. Generally speaking, high taxes, going hand in hand with a high price for the consumer, are likely to benefit the black market, whereas low taxes can lead to an increase in use because of accessibility. Therefore, one of the challenges of regulation is to find a balance in the level of taxation, to attract consumers and prevent them from turning to illicit sources of supply without encouraging use, particularly among young people. However, the question of an acceptable and effective level of behavioural taxes on cannabis is a delicate one, because cannabis use is less monolithic than alcohol or tobacco use subject to sin taxes/excise duties[9] (as well as gambling): cannabis covers a wide range of products and modes of use, and the effects of intoxication and the consequences on health are more difficult to assess and less widely documented.

To date, the tax system applied to cannabis in North America has two characteristics. Firstly, complexity, because it combines taxes on production, on the sale price (wholesale and retail) -

7. The shape of these sweets refers to a highly publicised fight in the career of the boxer who, in the middle of the fight in 1997, bit the ear of his opponent in the ring (Evander Holyfield). This fight became known as the "Bite Fight".

8. A product of the legal cannabis industry, live resin is a concentrate prepared directly from fresh harvested cannabis buds, without going through a drying and refining process. The aim is to optimise the flavour (terpene) and cannabinoid content of the final product (live resin can contain up to 95% THC). This production technique requires special equipment for intense freezing (-180°C), followed by chemical extraction using solvents (dry ice, liquid nitrogen). Diamonds are a concentrate of cannabinoids (most often THCA or CBD) in a semi-transparent solid form (reminiscent of diamonds).

9. Sin taxes (literally taxes on sins) are indirect taxes on the sale of goods that generate negative social externalities, the use of which the public authorities wish to limit (luxury, rare, or dangerous products: tobacco, alcohol, casino games). In economics, these are known as "protected goods": products that are taxed according to a specific regime justified by the State's desire to ensure that the priorities of public decision-makers (in this case, public health objectives) take precedence over those of individuals when it comes to the use of potentially dangerous goods.

mainly excise tax, on retail sales based on an amount indexed to the quantity of product purchased, to which is sometimes added sales tax - and even local taxes. A fortiori, in Canada, several levels of taxation are combined at federal and provincial level. In all US jurisdictions that have legalised cannabis, excise tax ranges from 10% (Maine) to 15% (California), but exceeds this rate in some states (17% in Oregon), peaking at 37% in Washington State (the highest rate worldwide). In Canada, the tax rate on cannabis sales (cumulative taxes) varies from 5% (in Alberta, for example) to almost 15% (in Quebec). Each province has developed its own tax policy taking into account the federal directive to tax cannabis in a way that competes with the black market (one dollar per gram or 10% of the producer's selling price). In addition, some provinces have modulated the tax policy applied to cannabis depending on the product. For example, British Columbia, which applies a 12% sales tax to cannabis products, applies an additional tax rate to vaping products (20%).

The other characteristic of the tax system applied to cannabis is that it is fast-evolving and characterised by increasing sophistication. For example, Oregon and California, which had initially planned a tax based on weight, abandoned it. Similarly, California abandoned the tax on cultivation in 2022, so as not to penalise small producers. Finally, in Canada, a new excise tax has been created for producers of THC-infused extracts and edibles. Since 1 May 2019, Canadian producers of cannabis oils have been taxed according to their THC content rather than on the basis of the weight of the product (10 cents per edible unit containing the maximum dose of 10 mg of THC). In both the United States and Canada, the tax policies applied to cannabis are constantly debated. While entrepreneurs argue that they must leave enough room to generate a profit and stimulate the commercial dynamism of the legal cannabis sector, public health authorities argue that they should not encourage use. These debates on taxation are renewed with each legalisation initiative. For example, the question of taxation based on the total weight of the product has been raised, but criticised for the risk of encouraging the purchase of concentrates (which are lighter but contain higher levels of THC). In 2023, the debates focused more on taxation indexed on THC content, which would make it possible to limit the use of products harmful to health, but at the risk of encouraging people to diversify their use in favour of new products with a lower THC content. In September 2023, cannabis taxation was most often indexed to the sale price (in 11 American states, including the 3 studied here), while incorporating new bases for calculation, depending on the quantity purchased (Alaska, New Jersey), or providing for a mixed system indexed to price and/or THC (Illinois, New York, Connecticut).

One of the promises of the legalisation reforms was that the revenue generated by taxing cannabis would be earmarked for prevention and care. In practice, the proportion of tax revenues actually allocated to prevention and health spending fluctuates widely, ranging from 25% in Oregon (earmarked for mental health programmes and care for drug users) to 60% in California (targeted at prevention campaigns aimed at young people). However, a significant proportion of this new revenue is diverted to other areas of expenditure, such as renovating schools or funding law enforcement (See table in annex online). In Canada, in certain provinces such as British Columbia, according to the local players involved, the distribution of tax revenues remains difficult to trace, five years after the legalisation came into force.

Health education and risk reduction

One of the aims of legalisation was to provide consumers with more comprehensive information about the risks associated with cannabis use, in particular through more sustained funding for prevention campaigns. In the years following legalisation, California, Oregon, and Washington State carried out public education campaigns targeting young people, parents and referring adults, pregnant and breastfeeding women and the general adult public. The campaigns focused on encouraging young people to delay their first use ("Stay True to You" in Oregon, "Be Your Selfie" in Washington State) and encouraging the general public to avoid cannabis before getting behind the wheel ("Drive High, Get a DUI[10]" campaigns in several states). Similarly, in Canada, the federal government has launched a national campaign, "Don't drive high", aimed at informing people about the safety and criminal risks associated with "drug-impaired driving". Other types of campaigns have been developed at provincial level, such as Quebec where, just before legalisation, an awareness campaign was launched to remind people that it is still strictly forbidden for minors to obtain even a small quantity of cannabis and use it (TV, radio, and Internet ads). Another focus of the campaign has been on educating parents, urging them to be vigilant about where they store their cannabis at home to avoid any contact with minors (in a locked cupboard).

Conclusion

The results of the ASTRACAN survey reveal a diverse spectrum of cannabis regulation regimes in North America, which remain very much focused on a business-friendly approach. They take their inspiration from tobacco and alcohol regulation policies, whose aim they share, which is to control the visibility and attractiveness of the products on sale, particularly in order to limit exposure to minors. With this in mind, cannabis regulation deploys a series of measures and instruments to limit commercial expansion in the name of public health, such as legislative and regulatory restrictions (minimum legal age, packaging and labelling, restrictions on promotion, etc.), controls, education, and awareness-raising about the risks associated with use.

The research outcomes show, however, that the strategies for establishing a legal cannabis market are guided only in part by public health concerns and create new challenges in terms of protecting the public. Additionally, the scope and ambitions of regulation vary widely in Canada and the United States, and also vary between the jurisdictions of these two countries. With the exception of Quebec, which authorises a much more restricted range of cannabis-infused food products, products with more than 30% THC and flavourings in vaping products, most North American jurisdictions authorise commercial innovation and do not cap the THC content of products offered for sale, at a time when a new generation of highly concentrated THC products has appeared on the legal markets. This diversity of approaches, if reinforced by federalism, reflects the structural tensions between the different interests and objectives underlying the construction of regulatory frameworks, among which public health is arranged with variable and evolving priorities.

10. "Driving under the influence" is a term that has become part of everyday language.

Methodology

The ASTRACAN (Pour une Analyse STRAtégique des politiques de régulation du CANnabis or "For A Strategic Analysis of Regulatory Cannabis Policies) research project examines, from the point of view of local players, the regulatory procedures and practices in six North American jurisdictions that have legalised cannabis for 'recreational' use: Washington State, Oregon, California (United States), British Columbia, Ontario, Quebec (Canada). Coordinated by the OFDT, the study was conducted in partnership with political science academics from the Université Paris 1 Panthéon-Sorbonne and the Université de Québec à Montréal (UQAM).

The analysis is based on three types of sources and empirical material collected between 2019 and 2023, which are: an analysis of official data (regulatory texts, reports by regulatory authorities, epidemiological surveys, etc.); a review of the literature; and lastly, an original qualitative survey in each of the six jurisdictions, comprising a corpus of 71 interviews (individual or group, i.e. 115 people interviewed face-to-face), supplemented by direct observations that provided an insight into local contexts and stakeholder rationales. These included, for example, visits to several industrial cultivation or processing sites for cannabis-derived products, informal discussions with managers of sales outlets and their customers and even, in California, direct observation of five monitoring visits by inspectors from the regulatory authority (for further information, the ASTRACAN project is described on the OFDT website).

The choice of panel was made to diversify the profiles of the jurisdictions (demographics, date of entry into force of the reform, choice of regulation, etc.). The interviews (at least 10 per jurisdiction, 1.5 hours on average) were conducted in English (except in Quebec), following a common framework, with the key players in the implementation of the reform, such as regulatory authorities, local health administrations, public health experts and academics. Several economic and industrial operators were also interviewed in order to gain an understanding of the conditions under which the regulation was received.

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