

Cannabis Legalization in Canada

Case studies:

British Columbia, Ontario and Quebec

Literature Review (Technical Report)



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Report prepared as part of the ASTRACAN research project
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coordinated by Ivana Obradovic, Deputy Director of the
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Summary

This report¹ analyzes the regulation of cannabis in Canada, as well as the political, economic and social impact of the policies adopted. Using data allowing a comparative analysis of British Columbia, Ontario and Quebec, we take into account the political choices made by stakeholders at the federal and provincial levels and known effects of these choices since the legalization of recreational cannabis on October 17, 2018. To do this, we rely on both a systematic review of scientific research, a review of relevant institutional documents and a series of 30 interviews conducted with stakeholders of cannabis legalization in the three provinces studied.

In the first section, we provide a historical background on cannabis policy in Canada and discuss the initial goals of legalization. In the second section, we compare cannabis policies across Canada, with a particular attention to the three provinces studied. In the third section, we briefly discuss the role of medical cannabis policies. The fourth and fifth sections respectively analyze the development of a legal cannabis industry and the economic effects of legalization across Canada. After discussing the political and economic issues of the legalization, we proceed in the sixth section to an exploratory analysis of the effects of legalization on public health. In the seventh section, we review the effects of legalization on criminality. In section eight, we describe some of the disparities in the implementation of cannabis policies. The last section concludes the analysis by presenting some preliminary learned-lessons. Ultimately, this synthetic work can lay the foundations for more in-depth assessments of the challenges of legalization of cannabis in Canada.

¹ This document is a translation of the original report in French : https://www.ofdt.fr/BDD/publications/docs/ASTRACAN_UQAM_201015.pdf. Note that translated version of the report is an unpublished work and should be considered as such. Please refer to the original document if needed. In case of any discrepancy between the original document and the translation, the original version prevails.

The author would like to thank Gavin Furrey (M.A, Political science, Université de Montréal) for his great help with the translation.

Methodology

This report is based on two main sources of data, namely the systematic review of scientific literature and data from the interviews that were conducted with legalization stakeholders in British Columbia, Ontario and Quebec. To these two data sources, we added relevant statistics, in particular those available on cannabis from Statistics Canada (2020a), as well as government publications (government reports, web pages, etc.), scientific articles, book chapters and newspapers articles deemed relevant to the conduct of our research. In total, more than 400 documents and interview notes were considered in the production of this report. Of these, 244 are referenced throughout the report.

Systematic Review of Scientific Literature

We conducted a systematic review of scientific literature on cannabis legalization in Canada. Four databases were selected based on their relevance and their accessibility: *Academic Search Complete and Humanities Source* (EBSCO), *ProQuest Central* (ProQuest), *Virtuose* (database of the University of Quebec at Montreal) and *PubMed* (database of the *National Library of Medicine*). The aim was to cover all the scientific disciplines that are likely to take an interest in legalization in order to produce an analysis that reflects a multitude of concerns. Throughout our review, the following disciplines were identified: (1) economics [économie], (2) policy sciences [politiques publiques et gestion publique], (3) public health [santé publique], (4) medical sciences [sciences médicales] and (5) sociology and other social sciences [sociologie et autres sciences sociales].

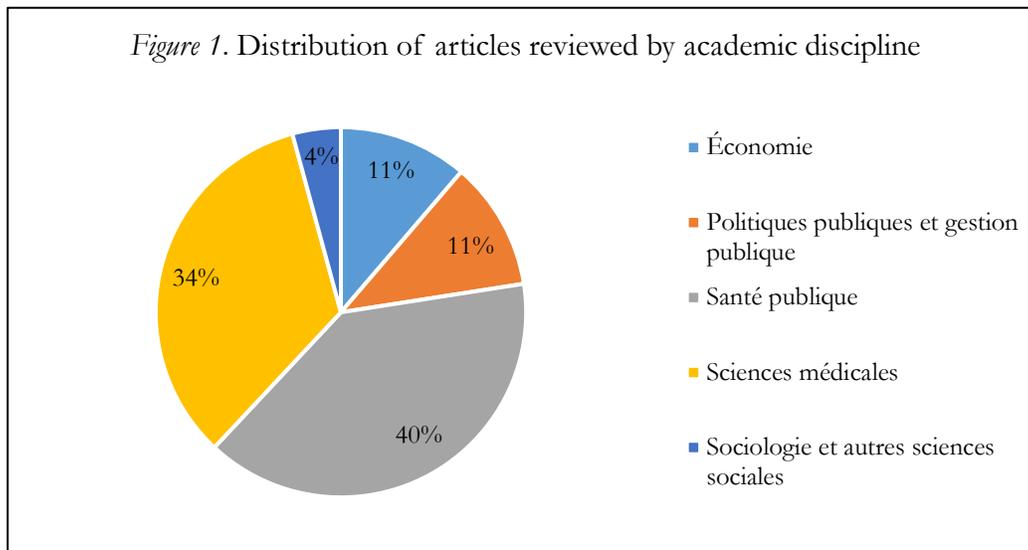
We assumed that there was a relative scarcity of publications on cannabis legalization in Canada. In this sense, the expression “cannabis legalization Canada” was used for database research without specifying further. Only publications that were available from 2018 (year of legalization) until the search date were selected². Overall, 743 results were found from the four databases³. Some exclusion criteria were then applied: (a) each publication had to be an original article published in an academic journal, (b) had to primarily discuss of cannabis legalization in Canada and (c) should not have presented any potential conflict of interest (e.g. funding by the cannabis industry). Duplicates were also eliminated.

At the end of the process, 71 articles were considered for our research. *Appendix 1* lists reviewed articles alphabetically, stating the general discipline to which the article can be associated as well as the particular issues dealt with in the article. Thirteen of the 71 articles are reviews (systematic or not) of the existing literature on their subject. The 58 other articles have variable formats, from opinion pieces to longitudinal study of user cohorts. *Figure 1⁴* below shows the distribution of articles by discipline.

² Search in *Academic Search Complete and Humanities Source*, *ProQuest Central* and *Virtuose* was conducted March 19 2020. Search in *PubMed* was conducted on July 21 2020.

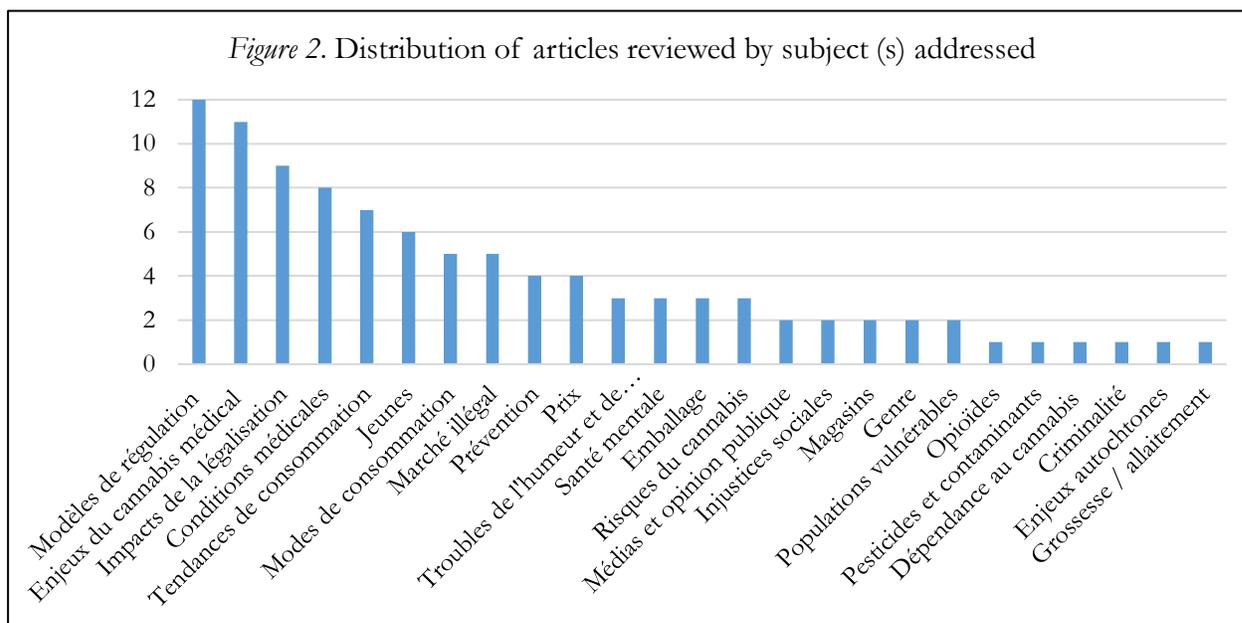
³ 48 into *Academic Search Complete and Humanities Source*, 256 in *ProQuest Central*, 231 in *Virtuose* and 208 in *PubMed*.

⁴ Except for their title, figures in this document were not translated.



Source: Original data compiled by the author.

As shown in *Figure 1*, the articles reviewed (52/71) are mostly produced from the point of view of public health or medical sciences. Production from the social sciences (including economy and policy sciences) is much smaller. Nevertheless, such as illustrated in *Figure 2*, there is quite a fair distribution and a greater diversity regarding issues addressed in the articles reviewed.



Source: Original data compiled by the author.

Interviews

To complete the literature review, a series of interviews was carried out with cannabis legalization stakeholders in British Columbia (n=3), Ontario (n=7), Quebec (n=12) and without a particular

provincial affiliation (n=8)⁵. In total, 30 interviews were carried out from June 18 to August 28, 2020⁶. Apart from one of the interviews which was conducted by exchange of emails, all other interviews were done through a video conference or a phone call and lasted approximately one hour (the shortest was approximately 30 minutes long and the longest lasted about 3 hours). The participants in these interviews come from a diversity of backgrounds (public administration, industry, universities, etc.) Several categories of actors participated in the interviews: public management (n=5), cannabis retail (n=4), cannabis production (n=6), municipalities (n=4), public health (n=8), regulatory implementation (n=11), indigenous issues (n=3) and experts (n=9)⁷.

All participants were contacted using an invitation email. We have targeted most of the participants ourselves, but some of them were recommended by others participants. In every interview, a consent form was read and signed by the participant. The interviews were not recorded, but the content of the discussions was noted. The documents containing the notes of these interviews were kept in a secure manner and only the author had access to it.

The general objective of the interviews was to deepen our knowledge on the implementation practices surrounding cannabis legalization in the selected provinces. As such, the questions were adapted to each participant in order to make the most of each interview. When possible, strategies to ensure that our interpretation of the participant's thoughts was correct were adopted (e.g. reformulating the participant's view, making him repeat, asking him to clarify a given point, asking a similar question later in the interview, etc.)

From the outset, a participant working in academia indicated that during one of his own projects on legalization, British Columbia, Ontario and Quebec were the provinces where it was most difficult to reach participants. Access to participants has indeed been a notable challenge, especially in British Columbia. Beyond the challenge of selected provinces, the impact of the COVID-19 pandemic played a role in the availability of participants, especially those working in public administration or public health. Nevertheless, the participants were very generous of their time and undoubtedly contributed to a better understanding of the issues and challenges the implementation of policies when it comes to cannabis. For that, we would like to thank them.

⁵ For this stage of the research, an ethics certificate from the Institutional Research Ethics Committee from UQAM for research with human being was obtained (certificate number: 4140_e_2020).

⁶ The term "participant" is uniformly referred to in its masculine form throughout this report. Women are a minority in the field of cannabis, especially within the industry (Robertson 2020, Cannabis Ground 2019, Nephew 2020). Women are correspondingly under-represented in interviews (7/30 participants). Knowing that, using both feminine and masculine pronouns could constitute a means of identifying some of the participants.

⁷ Some participants were sorted in more than one category.

Background and Objectives of Cannabis Legalization

On October 17, 2018, Canada became the second country after Uruguay and the first in the G7 to legalize cannabis for recreational purposes. This decision comes about after almost a century of prohibition (1923-2018) whose effectiveness has more than once been questioned (Potter 2019). As legalization celebrates its second anniversary, all government orders (federal, provincial and municipal) and all other stakeholders (industry, public health, etc.) are still adapting to this major policy shift. In order to contextualize recent cannabis policies, this section proposes to focus first on the historical sequence that led to legalization⁸.

Cannabis Prohibition (1923)

Cannabis became illegal in Canada with the adoption of the *Opium and Narcotic Drugs Act* of 1923. The reasons for such a prohibition remain unclear. One of the potential causes identified in historiography is the impact of a series of articles by activist and lawyer Emily Murphy, collected in the book *Black Candle* (1922). This collection of essays depicts cannabis as a dangerous drug and establishes a strong link between its use and presumed insanity of immigrant populations (Carstairs 1998, Tattrie 2016). Identification of other grounds for criminalization is particularly difficult, since debates on the 1923 criminalization cannot be found in the parliamentary archives (CBC Radio 2018). To add to the conundrum, there was no evidence of cannabis use at the time. Indeed, despite prohibition, consumption was not documented until the 1930s (Booth 2003). It was not until 1937 that an arrest for possession of cannabis took place in Canada, and it was not until the 1960s that the number of arrests became significant (Nolin & Kenny 2002a)⁹.

UN Convention (1961)

On a global scale, the United Nations (UN) adopts *The Single Convention on Narcotic Drugs* in 1961 and urges its members to enact its principles in their own legislation. The Canadian government moves forward the same year with the *Narcotic Control Act*. The law creates the legal category of “narcotics”, drugs that are considered to be the most dangerous. Cannabis appears on that list. Severe penalties are applied to activities surrounding this new category of drugs. For simple possession, a fine of \$1,000 may be imposed¹⁰. In the case of more serious offenses (e.g. trafficking), a prison sentence of up to seven years can be imposed (Bertrand 2004). The 1961 law thus enshrines the prohibition by tightening cannabis-related sanctions. Unlike the previous framework which regulated a substance that only few in Canadian society used, these measures have a real effect on a population that increasingly uses cannabis. It is also part of a new era of international drug control.

Le Dain Commission (1969-1972)

Mandated by the Liberal government of Pierre-Elliott Trudeau, the *Le Dain Commission of Inquiry into the use of drugs for non-medical purposes* took place between 1969 and 1972. The objective of the

⁸ This section is adapted from Lévesque (2020).

⁹ 21 arrests in 1961, 39 in 1964, 431 in 1967 and so on.

¹⁰ For the purposes of this report, all economic data is in Canadian dollars.

Commission is to examine drug use in Canada, survey scientific literature on the matter and to provide recommendations on the best policies to adopt.

After extensive consultations across the country, the Commission's report is tabled in 1973. The section of the report dealing with cannabis draws attention because of its evident departure from the prohibitive approach. Among other things, the commissioners underline that the scientific literature does not recognize the use of cannabis as inherently dangerous. Consequently, the laws in force are apparently not based on scientific findings, but rather on misconceptions (Nolin & Kenny 2002a). The report also highlights that the dangerousness of a drug for individual health is not a sufficient criterion for its prohibition if there is a better way to regulate its use (Le Dain 1973). In the conclusion to the Commission report, the majority of commissioners considered the decriminalization of cannabis to be a viable option. In a dissenting opinion, Quebec Commissioner Marie-Andrée Bernard recommends full legalization (Le Dain 1972). In that sense, the Commission's conclusions help to legitimize anti-prohibition voices that had been on the rise in the 1960s (Booth 2003, Dufton 2017). Despite constructive recommendations based on scientific data, the conclusions of the commission were rejected by the government of the day. The reluctance towards those conclusions must nevertheless be situated in a North American context of consensus *vis-à-vis* the repression in drugs (Schwartz & Talatovich 2018).

War on Drugs (1986-)

In stark contrast with the conclusions of the Le Dain Commission, and largely inspired by the U.S War on drugs that had taken place from Richard Nixon's presidency (1969-1974), the Canadian government adopted a further repressive approach to drugs in 1986. Suffering from a very low approval rate, and considering popular aversion towards drug use at the time, Prime Minister Brian Mulroney of the Progressive-Conservative Party is tempted by a repressive drug policy that has the potential to resolve its legitimacy crisis (Jensen & Gerber 1993). From the following year, repression spending is increased substantially, announcing an intensified crackdown on drug use (Gordon 2006).

Controlled Drugs and Substances Act (1996)

The *Controlled Drugs and Substances Act* was adopted in 1996 to replace the *Narcotic Control Act* as well as Parts III and IV of the *Food and Drugs Act*. It defines eight schedules of controlled substances. This law aims to adapt Canadian regulations to provisions of two international conventions adopted at the UN in 1971 and 1988 (*Convention on psychotropic substances* and the *Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances*). Some changes are made regarding cannabis, including its legal distinction with hemp. Then, for the possession of quantities less than 30 grams for cannabis and gram for resin, fines for misdemeanours may be reduced at the discretion of the judge. Finally, the maximum prison sentence is reduced from seven to five years less a day (Bertrand 2004).

Challenging the Prohibitive Paradigm (2000-2003)

By the end of the 1990s, debates on the medical uses of cannabis had become salient. In this context, the decision of the Ontario Court in *R. v. Parker* in 2000 consolidates a challenge to the prohibitive paradigm that was already underway within civil society. According to the decision, the prohibition of cannabis for medical purposes infringes the right to safety under the Canadian Charter of Rights and

Freedoms (Potter 2019). This decision prompts the Canadian government to decriminalize the use of cannabis for therapeutic purposes. To that matter, the *Marihuana for Medical Purposes Regulations* (RMFM) is implemented in 2001¹¹.

While the judiciary plays an active role on the issue, the Senate also contributes to the debates by setting up the *Special Senate Committee on Illicit Drugs* in 2000. The latter is in charge of studying cannabis policy models among other things. The committee's report states the following conclusion:

“In a free and democratic society, which recognizes fundamentally but not exclusively the rule of law as the source of normative rules and in which government must promote autonomy as far as possible and therefore make only sparing use of the instruments of constraint, public policy on psychoactive substances must be structured around guiding principles respecting the life, health, security and rights and freedoms of individuals, who, naturally and legitimately, seek their own well-being and development and can recognize the presence, difference and equality of others.”(Nolin & Kenny 2002b)

For commissioners, the role of a constitutional state like Canada should not be repression of consumption, but rather the supervision of individual choices. Following this assertion, the conclusions of the report are unequivocal. On the one hand, the scientific community does not recognize cannabis as a dangerous drug when used with moderation. Thus, the dangerousness of cannabis does not appear sufficient to justify its prohibition. On the other hand, given that criminalization clearly does not prevent use, billions of dollars have been unnecessarily spent by the State in enforcing repressive laws. With this in mind, the main recommendation of the Committee is the legalization and regulation of cannabis for recreational purposes (Nolin & Kenny 2002b).

The Committee's conclusions have a significant effect on the conception that certain elected officials have of the issue. This is especially true of elected officials from the Liberal Party of Canada, in power at the time. In 2003, Martin Cauchon, Minister of Justice in the Jean Chrétien government, introduces Bill C-38, *An Act to amend the Contraventions Act and the Drugs and Substances Control Act*. One of the goals of this project is the decriminalization of recreational cannabis¹². The proposed Bill, however, died on the order paper from lack of support by the Conservative opposition. This event was the last episode of a short but important wave of challenge to the prohibitive paradigm between 2000 and 2003. Following the failure of Bill C-38, even though the Liberal Party was re-elected from 2003 to 2006, no new policy regarding cannabis was proposed.

Return to Law and Order (2006-2015)

After a relative decline in repression during the Liberal Party governance from 1993 to 2006, the election of a Conservative government in 2006 signals the return to law and order. Indeed, shortly after coming to power, the government of the Conservative Party of Stephen Harper launches its *National Anti-Drug Strategy* (Employment and Social Development Canada 2014). From the 2007 budget, the government invests tens of millions of dollars to put in place a stricter drug control and

¹¹ The section “Cannabis for therapeutic purposes” of this analysis note provides the necessary details on the regime established.

¹² PL C-38, An Act to amend the Contraventions Act and the Regulation of Certain Drugs and Substances Act - Parliament of Canada, 2 e Session, 37 th Legislature, 2003 (6 November). <<https://www.parl.ca/DocumentViewer/en/37-2/bill/C-38/second-reading/page-16#1>> .

enforcement program (The Canadian Press 2007). In the midst of the opioid crisis in 2015, the strategy was relaunched under the name of the *Canadian Drugs and Substances Strategy*. The latter increases the budget allocated to the program by 20%.

Agenda setting and legalization of recreational cannabis (2012-2018)

In 2012, the Liberal Party of Canada officially incorporates cannabis legalization into its program, following a proposal from the party's youth commission (Radio-Canada 2012). During the 2015 election campaign, the party led by Justin Trudeau makes it a central issue (Liberal Party of Canada 2015). The decisive victory of the Liberal Party (184 deputies out of 308 elected officials) gives it free rein to move forward quickly with cannabis legalization.

From June 2016 to December 2016, the Ministers of Justice, Public Security and Health jointly establish the *Task Force on Cannabis Legalization and Regulation*. The task force is formed “to consult and provide advice to the government of Canada on the design of a new legislative and regulatory framework for legal access to cannabis, in line with the government’s commitment to “legalize, regularize and restrict access” as described in his Throne Speech of December 2015” (Task Force on Cannabis Legalization and Regulation 2016, 11). During his mandate, the latter consults 30,000 individuals and organizations in person or online. His report of 85 recommendations lays the foundation for the public health approach adopted by the government. For the Group, this public health objective entails the implementation of a health program security, the establishment of a safe and responsible supply chain, as well as a harm reduction approach to cannabis use (Train & Snow 2019, 553). According to Train and Snow (2019, 553-554), although it did not have any binding power over the government, the report of the Task Force had considerable impact on the orientations of federal and provincial governments.

On April 13 2017, the government introduces a first version of Bill C-45, *An Act respecting cannabis and amending the Drugs and Substances Control Act, the Criminal Code and other acts*. The objectives of the bill are presented as follows: “The objectives of the Act are to prevent young persons from accessing cannabis, to protect public health and public safety by establishing strict product safety and product quality requirements and to deter criminal activity by imposing serious criminal penalties for those operating outside the legal framework. The Act is also intended to reduce the burden on the criminal justice system in relation to cannabis.”¹³ Bill C-45 (hereinafter “the Cannabis Act”) was accompanied by of Bill C-46, *An Act to amend the Criminal Code (offenses relating to means of transport) and to make consequential amendments to other laws*.

¹³ C-45, An Act respecting cannabis and amending the Regulation of Certain Drugs and Substances Act, the criminal and other laws, 1 st Session, 42 th Legislature, Canada, 2018 (June 21). <<https://parl.ca/DocumentViewer/fr/42-1/projet-loi/C-45/sanction-royal>> .

Cannabis Regulation and Retail Models

Through the *Cannabis Act*, the Canadian federal government defines several of the general dispositions of legalization. These dispositions apply uniformly or almost uniformly on the whole territory. Provinces and territories also have jurisdictional powers allowing them to define several of the dispositions of the implementation policies, so do the municipalities. Thus, if cannabis legalization was a unilateral decision of the federal government during the 2015-2019 term, the implementation of legalization takes varied forms across Canada. Knowing this, this section aims to provide an overview of the various models of regulation and retail of cannabis, to describe their evolution since legalization and to provide some general explanations about the choices made by all orders of governments. The analysis is focused on our case studies (Colombia-British, Ontario and Quebec), but data from other provinces is also presented to deepen the comparative dimension of the analysis.

Constitutional Distribution of Powers

Unlike other federations (e.g. the United States), the Canadian federation operates under a system of strict distribution of powers between the federal and provincial governments. Under this distribution of responsibilities, the Canadian Constitution¹⁴ provides that the majority of powers are exclusively assumed by one or other of government orders. A minority of jurisdictional competences are shared by the two orders government. Finally, the residual powers (in particular the powers not provided for by the Constitution) are of federal prerogative.

This distribution of powers is of particular importance in the context of legalization cannabis since several of them are mobilized in policymaking. Some are of federal jurisdiction (criminal law, regulation of commerce, indigenous peoples, etc.), some are of provincial jurisdiction (health, municipalities, etc.), and some are shared (taxation, economy, maintenance of order, etc.). This entanglement of responsibilities regarding legalization (Benoit & Lévesque 2020, 514) substantially complicates the process, from policymaking to policy implementation.

Table 3 (Appendix 3) shows the distribution of jurisdictional responsibilities regarding cannabis between the three orders of government. With a few exceptions, we can synthetically present the division of legislative powers as follows: what relates to criminal offenses and the production of cannabis is mostly assumed by the federal government and what relates to the retail and consumption of cannabis is mostly assumed by governments provincial in conjunction with municipal governments. Although the majority of responsibilities were assumed in a climate of relative harmony between the orders of government, some gray areas have led to conflicts. The most salient of these is in way of judiciarization: Quebec and Manitoba claim the right to prohibit personal cultivation on their land, while the federal government claims that this contravenes the very objectives of the *Cannabis Act*. Faced with this legislative ambiguity, the two orders of government have maintained their respective jurisdictional preponderance, while refusing until recently to resort to the courts to resolve the dispute. However, after invalidation of the ban on personal cultivation by the Superior Court of Quebec in September 2019¹⁵, the Quebecois government decided to appeal the decision (Radio-Canada 2019). Everything leads to believe that the Supreme Court will eventually settle the question.

¹⁴ *Constitution Act, 1867*, 30 & 31 Victoria, c. 3 (UK), s. n ° 91-95

¹⁵ *Murray Hall v. Attorney General of Quebec*, 2019 (September 3), QCCS 3664,

Federal Regulations

As mentioned, the federal government is, among other things, responsible for the criminal offenses and production of cannabis. The *Cannabis Act* formulates pan-Canadian guidelines for these two main responsibilities. The objectives stated in the summary of the Bill are as follows: “The objectives of the Act are to prevent young persons from accessing cannabis, to protect public health and public safety by establishing strict product safety and product quality requirements and to deter criminal activity by imposing serious criminal penalties for those operating outside the legal framework. The Act is also intended to reduce the burden on the criminal justice system in relation to cannabis.”¹⁶

Provisions relating to criminal law

Briefly, the Bill enforces a threshold for the legal age at 18¹⁷, the possession of 30 grams of dried cannabis or the equivalent in another form (extracts, edibles, etc.) and authorization for personal cultivation of no more than four cannabis plants. These provisions act as thresholds since the provinces can set more severe limits (e.g. by raising the minimal legal age). Cannabis offenses can range from contraventions to imprisonment, depending on their estimated severity. In this sense, possession offenses slightly exceeding the limit permitted of 30 grams or cultivation slightly beyond the limits set are subject fines. For their part, offenses of possession of cannabis while crossing the Canada-US border or all offenses involving minors (e.g. resale) are punishable by jail terms of up to 14 years for the adults involved (Department of Justice Canada 2019). A participant that is an expert on the drugs in Canada points out that these penalties are more severe than those that existed before legalization. Thus, this creates a distortion within the penal system: while access to cannabis by adults is perfectly legal, access to cannabis for minors is now considered a serious crime.

Provisions relating to the production of cannabis

The Canadian regulatory agency for cannabis production is Health Canada. Its role is to ensure control over production and processing of cannabis, in particular by distributing the various licenses and ensuring the application of regulations. An infographic taken from the Health Canada website summarizes the twelve types of licenses¹⁸.

A participant from industry noted that cannabis producers are subject to higher standards than other agricultural sectors. Indeed, Health Canada requires that cannabis products be subjected to limit of quantification analyzes for a total of 96 active ingredients in pesticides (Health Canada 2019a). Conversely, for most other products agriculture, standards are very low and testing is carried out by government agencies randomly. For Craven & *al.* (2019), these standards are legitimate from a

¹⁶ C-45, An Act respecting cannabis and to amend the Certain Drugs and Substances Regulation Act, the Code criminal and other laws, 1st Session, 42th Legislature, Canada, 2018 (June 21).

<https://parl.ca/DocumentViewer/fr/42-1/projet-loi/C-45/sanction-royal>.

¹⁷ When we talk about legal age, this includes the legal age for consuming, possessing and purchasing cannabis. This also includes the legal age for working in the cannabis industry.

¹⁸ <[12](http://citoyens.souqij.qc.ca/php/decision.php?ID=9BD32DFE8A3250B74E7E2D7D988B2D92&captchaToken=03AGdBq24I6lgSsdTXODBaGJfQnDxC00EWLFRjIfggvja59Rq4RUksheSugO-RN5rDr7z239eJkfQs0XUjxfINmjXFFXF_dKeEOjM1jcZaiZZ6wFTjb_sfqxpXG5cqYueL715Ao_mJlc2TdfjPOY_WYzMDSiLJIP5dNgP6xMpu-sExo9GQLI3eRssQf9bzKBJ9qb95uwo6aQqaJcrFwH8OKrbu0mcBuu1bjGFOgOwIzNznIvn0dijJoLGN6_T0SH34_ULQSFsv3iMtDy3drw8zH00-qstWPq6uQbMiQwp2Ilg10uN12M6VS1PeXrj8SViOzKDgRDhpong3rJ1T5NoSoVP2h7XqkEVi9APR7QrziIhXq8c_v33vXkBKXYCF5exNhnWO0yBdjy8I3E04uMHmpEQI0GjNKxNg526ACw>.</p></div><div data-bbox=)

public health point of view considering that the processing and cannabis consumption would contribute to an increase in the toxic effects of the active ingredients of pesticides. However, for producers, the stringency of standards can be problematic. For example, the same participant said that his company has done a supervised crop testing experiment on a field where only water was used. Although no other product was used, the analyzes revealed that the limits of quantification in these plants were sometimes exceeded by 20 times. For the participant, this situation illustrates that the demands are comparatively too high in a country where very low requirements for the rest of agricultural products lead to high concentrations of pesticides in the air.

Diversity of Provincial Models

In light of the distribution of constitutional powers, provinces were able to define their own legislative framework. Provincial frameworks specify several aspects of the implementation of cannabis legalization, beyond the general rules and provisions put in place by the federal government. The regulations adopted deal especially with the management of cannabis distribution and retail (regulatory authority, retail and online retail models, etc.) and the regulation of use (places of use, legal age, source and price of products, etc.) Confronted with the same public policy dilemma at the same time and following the same federal legislative framework, one could have expected a uniformity of the policies adopted by the provinces. Conversely, there is a great diversity of regulation and retail models (Benoit & Lévesque 2020, Wesley & Salomons 2019). *Table 4 (Appendix 5)* describes the differences and similarities of the models adopted by the provinces on the basis of eleven indicators¹⁹. Data for each of the indicators is discussed, with particular attention to the three case studies selected.

Managing Authority

The managing authority of each province is responsible for issues related to the production and retail of cannabis. It typically delivers provincial distribution and retail licenses to cannabis companies and oversees the compliance to federal and provincial standards. In all provinces and territories except Quebec, New Brunswick, Prince Edward Island and Yukon, the Cannabis Managing Authority is also responsible for alcohol (sometimes also games and lotteries). In these four provinces and territories, it is an independent subsidiary of the alcohol authority which plays this role. For example, in Quebec, the Société québécoise du cannabis (SQDC) was created by Bill 157, *An act constituting the Société Québec Cannabis Act, enacting the Cannabis Regulation Act and amending various safety provisions road*. Among other things, it ensures the management and regulation of cannabis in Quebec, and acts independently of the Société des alcools du Québec (SAQ).

The managing authority is also sometimes responsible for drafting additional regulations. This is particularly the case in British Columbia and Ontario. This also involves drafting opinions allowing for the concrete implementation of provincial policies. For example, a participant from Ontario noted that The Alcohol and Gaming Commission of Ontario (AGCO) had to clarify the provision of Ontario law dictating that retail stores must be located at least 150 meters from schools²⁰. This provision may seem clear at first, but it should be clarified whether it includes the height of buildings, whether the measurement is to be taken from the ground and so on.

¹⁹ The indicators were selected according to the issues most often discussed in the literature. Several other indicators could also have been relevant.

²⁰ In the first version of the *Cannabis Act* in Ontario, the distance was set at 100 meters. This provision was changed to 150 meters after the change of government shortly before legalization.

Retail and online model

Provinces had the power to decide whether cannabis retail would be managed by a State corporation, the private sector or a combination of both. Thus, the formation of a public, private or hybrid retail model was possible. The provinces could also opt for both in-store and online retail model. Faced with a decision as to the public, private or mixed nature of the retail and private retail of cannabis, nine combinations of provincial retail models were possible²¹. Four were favoured by the provinces:

- 1) Hybrid in-store and public online (British Columbia);
- 2) Private in-store and public online (Alberta, Ontario, Northwest Territories, Yukon);
- 3) Private both in-store and online (Saskatchewan, Manitoba, Newfoundland and Labrador, Nunavut);
- 4) Public both in-store and online (Quebec, New Brunswick, Nova Scotia, Prince Edward Island).

Of the thirteen provinces and territories, eight have opted for a uniform retail model (in-store and online), whether it is public or private. Only five have thus opted for divergent models in-store and online (British Columbia, Alberta, Ontario, Northwest, Yukon). Knowing online retail represents a fairly small proportion of total cannabis retail and a much smaller management challenge than in-store retail, most of our analysis focuses on in-store issues²². Our three case studies represent the three possible retail models: British Columbia opted for a hybrid model, Ontario for a private model, and Quebec for a public model. As we will see in more detail, these choices reflect different visions of legalization and promote the emergence of contrasting regulatory settings. It should be mentioned that both the public health literature (Patenaude & *al.* 2018, Kirst & *al.* 2016, Cox 2018, Crépault 2019) and participants from the public health sector are generally more enthusiastic about a public retail model. Indeed, the public model generally ensures better control over the retail, and theoretically makes it possible to slow down the commercialization of the cannabis industry (Beauchesne 2020).

Number of stores and number of stores per 100,000 inhabitants

The number of stores in each province can be attributed to some early decisions by provincial governments and managing authorities. In the case of provinces like Quebec where a public model is in effect, the number of stores is a direct consequence from the will and resources of the managing authority. For example, the SQDC is responsible for negotiating points of retail with municipalities and overseeing the construction and the installation of stores. Conversely, when the retail model is private as in Ontario, the number of stores depends in principle more on the will of private actors. In the case of a private retail model, provincial regulations in force regarding retail licenses are also to be taken into account when analyzing the pace at which the network of stores unfolds. In the case of a hybrid model, the implications of both public and private models are equally at play. According to Myran, Brown & Tanuseputro (2019), in 2019, provinces where retail was to private or hybrid had 49% more stores per capita than provinces where retail was government-run.

²¹ 1) Public both in-store and online; 2) public in-store, private online; 3) public in-store, hybrid online; 4) private in-store, public online 5) private both in-store and online; 6) private in-store, hybrid online; 7) hybrid in-store, public online; 8) hybrid in-store, private online; 9) hybrid both in-store and online.

²² In this context, the term ‘retail model’ is used only in reference to the in-store retail model unless otherwise stated.

Again in 2020, the number of stores by province or territory varies enormously, from no store in Nunavut to 497 in Alberta. British Columbia and Ontario have respectively 214 and 113 stores so far opened, whereas Quebec has only 43. However, the number of stores is little indicative of the accessibility of cannabis in a given province or territory. As such, two additional measurements were collected i.e. (1) the number of stores per 100,000 inhabitants and (2) the estimated proportion of the population located 10 km or less from a store. Together, these measures allow us to measure the accessibility of cannabis by the population. They are particularly important because accessibility to a cannabis store remains a strong predictor of market transfer from the illegal to the legal market (Canada 2018, Armstrong 2019b).

The measurement of the number of stores per 100,000 inhabitants was obtained using the data available from Statistics Canada²³. The ratio varies greatly across provinces, from 12.5 stores per 100,000 in Yukon to 0.5 per 100,000 in Quebec. British Columbia is slightly below the average of 4.79 with 4.18 stores per 100,000. Ontario is just ahead of the least performing province – Quebec – with 0.77 stores per 100,000. Statistics Canada (2019a) also notes that the total number of stores has increased by 88% between March 2019 and July 2019. The rapid increase shows that the network of stores is still being implemented across provinces. As data show, the situation should progress in the coming years in British Columbia, Ontario and Quebec. In British Columbia, 67 new stores are in process of obtaining their last authorizations. In Ontario, where some participants have confirmed that the current objective is to open 5 new stores per week (objective often exceeded in 2020), more than 509 new stores are in the process of obtaining their last authorizations. Following this data, British Columbia projects to exceed 5.5 stores per 100,000 and Ontario projects to exceed the four stores per 100,000 when permits for pending dispensaries will be obtained. SQDC's *Strategic Plan 2021-2023* (Société québécoise du cannabis 2020a) plans to open 55 additional branches by 2023. Despite the increase in the number of branches by 2023, Quebec plans to remain last on that matter, with just over one store per 100,000. One participant from Quebec defended that the deployment of SQDC's store network should be seen as unprecedented considering that it is a sole business. Although the challenges are obviously greater than when several private actors share the deployment of a store network, comparatively better numbers from other provinces who opted for a public model strongly nuances that observation.

The estimated proportion of the population living within 10 km from a cannabis store allows to assess the proximity of stores without any regard to the population size. Indeed, if the previous measurement can be distorted by a great number of stores in large cities, this measure makes it possible to check whether rural accessibility to cannabis relatively equivalent to urban accessibility. On average, we estimate that 49.5% of Canadians are 10 km or less from a cannabis store. Alberta stands out with 70% and Ontario and Yukon are behind with 33 and 31% of their respective populations living within 10 km of a store. The data was collected through Statistics Canada and is valid for July 2019. The uniform progression of geographical proximity²⁴ with the previous period (March 2019) suggests that the situation has improved in all provinces from July 2019.

Although this measure is interesting, it has an important limitation considering that only data related to proximity is presented (less than 10 km). For a more complete assessment of the situation, it would also be necessary to have access to remoteness data (more than 50 km, for example). In most Canadian provinces and in our three case studies, there is a real disparity between the large centres (Vancouver,

²³ The number of stores (x 100,000) divided by the most recent population estimate.

²⁴ Except in Nunavut, where no retail store has been opened to date.

Toronto, Montreal) and the regions distant. In the case of Quebec, for example, regions very far from centres such as Abitibi-Témiscamingue have only one store in the entire region (SQDC branch of Val-d'Or). However, the region alone covers 65,000 km². Other remote regions of Quebec like Côte-Nord do not have access to any SQDC. As part of a policy that explicitly aims at fighting the illegal market, it is clear that reduced access to the legal market can be a major obstacle. In British Columbia, the situation appears to be less problematic in this regard (Government of British Columbia 2020). It is the same in Ontario, even more so with the second phase of store openings in Ontario (509 stores in process of obtaining authorizations) which seems to favour the spread of the cannabis retail network in the province (Government of Ontario 2020).

Box 1. Retail model and store accessibility

A participant that is an expert on the economic dimension of cannabis legalization submitted the idea that public models favoured geographic spread of store networks. Indeed, a public organization works in principle in the general interest more than in the interest of making a profit, and can thus set up less profitable stores in a desire to increase accessibility to legal cannabis. As such, the participant gave the example of Cannabis NB which so far has done a good job in New Brunswick to develop a network of stores adapted to its population. From this perspective, the participant feared that the announced privatization of the state-owned company (Finance and Treasury Board of New Brunswick 2019) would lead to the closure of geographically remote stores, which is a sound financial decision for a profit-seeking company, but which compromises accessibility. Ultimately, for the participant, privatization could help revitalize the illegal market and some areas. Despite the consistency of this argument with the case of New Brunswick, the case of Quebec shows at opposite that there is not always an adequacy between a public retail model and a sprawl of the store network.

Excise duty

An excise duty equivalent to 10% of the sum of the price is levied on all products of the cannabis in order to finance the costs of legalization. The rate of excise duty was determined by the federal government. This 10% excise duty is then distributed between the federal government and the provinces, with 25% distributed to the federal government (2.5% excise duty) and 75% to the provinces (7.5% excise duty). The distribution of the excise duty is the result of negotiations between federal and provincial governments during rounds of negotiations that took place in November and December 2017. The initial distribution suggested by the federal government was 50/50. Yet, provinces voiced their concerns about the disproportionate costs related to legalization that they would assume (Bird 2019, 23). At the end of the Rounds of negotiations, the federal government gave in to the provincial demand (Prévost 2017).

An additional retail tax has been levied in some provinces, which explains the variation of the total tax payable in the provinces. According to the Department of Finance of Canada (2018): “The retail tax adjustment is applied, subject to certain conditions, in the province or territory that made the request and where the province or territory does not require general retail tax or when its general retail tax rate is lower than the tax rate highest provincial general retail prevailing in Canada”. The additional objective of the retail tax is therefore to balance the proportion of cannabis taxes paid in each province. For example, 16.8% additional taxes are applied in Alberta because the province does not impose a general retail tax on services and goods.

Regulation of cannabis prices

All provinces except Manitoba have some form of legal control over the price of cannabis. In provinces where the retail is public (hence a monopoly), the State corporation responsible for the retail of cannabis is responsible for setting cannabis prices. In provinces where cannabis is sold exclusively by private actors, the most common form of price control is the social reference price, i.e. a minimum price set by the managing authority. Of the thirteen provinces and territories, seven have adopted this political instrument. However, of these seven provinces, three (Alberta, Saskatchewan and Ontario) have not used since legalization, preferring to delegate the price setting to private actors. Finally, in British Columbia, the preferred instrument is the establishment of a lower limit price corresponding to the lowest price between the actual purchase price from the wholesaler and the wholesale price at the time of retail (BC Cannabis Wholesale 2020).

Retail Hours

Apart from the Northwest Territories and Yukon, the government and/or the managing authority has the prerogative to set opening hours for the retail stores. The hours when retail is authorized are very variable from one province to another, and are determined according to equally variable logics. One of the explanations for this variation is certainly the existence of public and private models. Store employees in State corporations are generally unionized, which can also explain better working conditions (wages, work hours, etc.) For example, at the SQDC (Quebec), opening hours are Monday to Friday between 10 a.m. and 9 p.m. and Saturday and Sunday from 10h and 17h²⁵. In British Columbia and Ontario, where private actors can sell cannabis, the management authorities have opted for opening hours between 9 a.m. and 11 p.m. Note, however, that in British Columbia, the opening hours of stores in the State corporation BC Cannabis are reduced, typically running between 10 a.m. and 8 p.m. This difference between Liquor & Cannabis Regulation Branch (LCRB) and its application in public stores can also attest to this difference in treatment between low-level employees in the public sector and those in the private sector.

Consumption in public places

Among the provinces and territories, there are two approaches to consumption in places public. The first approach, adopted by six of the thirteen provinces and territories, is that of reproduction of current tobacco regulations. Generally, these rules imply that users should smoke at a certain distance from closed public places, at a certain distance from children's places (children's parks, schools, etc.) and a certain distance from other places that facilitate the spread of second-hand smoke. This first approach is adopted by the British Columbia (British Columbia Government 2020a) and by Ontario (Ontario Government 2020a). The second approach, adopted by seven provinces and territories, is a prohibitive or almost prohibitive approach to the use of cannabis in public places. This approach is notably adopted by Quebec (Gouvernement du Québec 2020a).

²⁵ This assertion must nevertheless be nuanced with regard to salary conditions. The SQDC offers of \$ 14/hour to its "advisers" (floor employees). Although this hourly rate is above the Quebec minimum wage of \$ 13.10, the compensation is well below the \$ 20.77/hour offered at the Société des alcools (SAQ [The State corporation for alcohol and liquor]). Several considerations can come into play to understand this difference, including the conduct of collective agreement negotiations. Nevertheless, the large deficit in normalization of cannabis *vis-à-vis* alcohol is a key element in understanding the differentiated treatment that SQDC and SAQ advisers undergo when it comes to collective bargaining. However, the function of these advisers is *a priori* equivalent (retail of drugs within a government corporation in Quebec). Moreover, in light of this disparity, a participant that is expert on questions of public policy considered that the decision to separate the SQDC from the SAQ – and consequently their employees – was at least partially the result of financial considerations on the part of the State.

The preferred approach to consumption in public places has a major impact on users, especially the most vulnerable. To our knowledge, all governments of provinces and territories have legally recognized the right of landowners to modify existing leases to include a ban on cannabis use on their property. For several tenants, insofar as the owner imposes such a prohibition and the provincial or territorial government imposes a prohibition on public use, this means that the consumption of dried (smoked) cannabis is prohibited in practice. Considering the ownership of a property distributed along class lines, this constitutes a serious issue of social justice (Benoit & Lévesque 2020). Also, knowing the unequal impact of drug prohibition on visible minorities (Owusu-Bempah, Luscombe & Finlay 2019, Vitale 2018, Khenti 2014), the ban on use in places public has the potential to reproduce this inequality by creating further opportunities for discrimination and racial profiling in cannabis-related arrests. Ultimately, this aspect of regulation reproduces trends that were exacerbated by the War on Drugs, although legalization promised to transform them.

Legal age

Except in Manitoba and Quebec, the legal age is the same to that enforced for alcohol (18 years in Alberta, 19 in other provinces and territories). In Manitoba, where the age of alcohol consumption is set at 18 years, the province has opted instead for 19 years for cannabis. The Manitoba government defends this decision as the result of recommendations from its public consultation with the citizens of Manitoba (Manitoba Government 2020). In Quebec, the legal age for alcohol is also 18 years old, but the age for cannabis has nevertheless been raised from 18 to 21 years old a little more than a year after legalization in October 2018. Knowing that the citizens aged 18 to 24 are the segment of population that use cannabis the most (Rotermann 2020), the choice made regarding legal age can have a crucial impact on the sustainability of the illegal cannabis market.

Personal cultivation

Federal law provides that any person of legal age can grow up to four cannabis plants for personal use on his property. As highlighted in *Table 3 (Appendix 3)*, jurisdictional responsibility for home cultivation is *a priori* shared. As public security and policy implementation is the responsibility of both the provinces and territories and the federal government, it is thus an object of jurisdictional conflict which, as detailed above, is in the process of judicialization. All provinces except Manitoba and Quebec have respected the federal will on that issue. The reasons for this choice can be multiple.

In the case of Quebec, a participant that has fulfilled mandates for the Quebecois government related to cannabis legalization claims that the decision to ban home cultivation is from the Ministry of Public Security. The Ministry considered that personal cultivation has important challenges for public order (and significant associated costs). Since cannabis legalization affects both health and public safety, the participant also affirmed that this decision represented a form of concession from the Ministry of Health and Social Services (MSSS) to the Ministry of Public Security. This concession allowed the MSSS to lead the way on most other issues. Another participant, which is responsible for the implementation of legalization policies, asserts that while the implementation of the ban involves certain challenges²⁶, it remains easier to implement than a permissive policy on that matter.

²⁶ For example, a police officer cannot enter a house without a search warrant to verify whether or not there is personal cultivation.

Regulatory Changes Since Legalization

Several changes were made to the laws regulating cannabis over the past two years. At the federal level, the government had promised the legalization of edibles “no later than 12 months after the entry into force of the [Cannabis Act].” (Health Canada 2018b). Corresponding regulations have indeed been adopted on October 17, 2019 (Department of Justice Canada 2020). However, their late implementation has delayed the retail of edibles. Thus, the first edible products did not appear on the legal market until mid-December 2019. Other changes to cannabis policy have been made in the provinces and territories. The changes that have occurred for our three case studies are detailed here.

British Columbia

In British Columbia, eleven policy directives (PD) have been enforced by the LCRB since legalization²⁷. Most of the changes either contribute to the accuracy of regulations in force or their relaxation. Here is a list of those changes:

- 1) PD 20-22 (August 4, 2020): Authorizes the delivery of cannabis for non-medical purposes from online transactions. Previously, online retail had to be picked up at a retail store.
- 2) PD 20-20 (July 14, 2020): Increases the validity period of background checks for workers in the recreational cannabis industry from 2 to 5 years.
- 3) PD 20-15 (June 18, 2020): Precludes recreational cannabis stores from the requirement to have non-transparent walls. From now on, it is simply necessary that products are not visible from outside the store.
- 4) PD 20-14 (June 18, 2020): Creates a mandatory online training program of three hours for cannabis workers, “*Selling It Right*”²⁸.
- 5) PD 20-04 (March 20, 2020): Allows retail stores to offer reservations of available products to consumers.
- 6) PD 20-01 (February 4, 2020): Changes the policy in force concerning the establishment of minimum selling prices for recreational cannabis. Previously, the minimum price was the purchase price from the wholesaler. Now the threshold is the cheapest amount between the actual price paid to the wholesaler (the LDB) and the price of the product to the wholesaler at the time of retail.
- 7) PD 19-12 (October 18, 2019): Establishes a regulation on the content of retail websites. The regulation allows them to present the products and prices among other things.
- 8) PD 19-11 (September 19, 2019): Clarifies restrictions on the promotion of cannabis in establishments with an alcohol distribution license and at events for which a special license has been distributed.
- 9) PD 19-07 (July 10, 2019): Retail license holders must present at least a poster from LCRB that promotes social responsibility.
- 10) PD 19-06 (July 10, 2019): Allows samples to be presented in jars at retail stores. Cannabis packages opened for this purpose should be kept in a secured storage location.
- 11) PD 19-05 (July 10, 2019): License applicants must report charges and misdemeanours in addition to convictions during security checks.

²⁷ The list of regulatory changes to the LCRB is provided here:

<https://www2.gov.bc.ca/gov/content/employment-business/business/liquor-regulation-licensing/liquor-law-policy/liquor-policy-directives>.

²⁸ The training program can be found here:

<https://www.responsible-service-bc.ca/selling-it-right-course>.

Another key regulatory change has been made in British Columbia, this one by the government. Since July 19, 2019, a marketing license can be obtained from the LCRB²⁹. This license allows for the marketing of cannabis, polling of adults on the issue and the promotion of cannabis during public activities (e.g. being sponsor). Retail license holders should not hold a marketing license, which means that this type of license is rather reserved for cannabis producers and processors to promote their products. Some restrictions are applied to these licenses, including the ban on promoting cannabis to minors and the ban on the distribution of samples (British Columbia Government 2020b).

This element distinguishes British Columbia from the majority of provinces which, like Ontario, have rather strict rules on the marketing of cannabis. In fact, in Ontario, additional rules are applied on cannabis advertising: the promotion of cannabis cannot induce misleading perceptions, cannot associate the consumption of cannabis to success, pleasure or achievement of a goal, it cannot be associated with health, medicine or the pharmaceutical industry, etc. (Alcohol and Gaming Commission of Ontario 2020d).

However, the contrast is greatest with Quebec, whose rules on marketing are more in line with a prohibitive logic. In addition to rules similar to those applied in Ontario, Bill 157 prohibits advertising which “(3) directly or indirectly associates the use of cannabis to a lifestyle; 4° uses certificates or testimonies; 5° uses a slogan; 6° contains a text that refers to people, characters or real or fictitious animals; 7° contains something other than text, with the exception of the illustration of package or wrapper of cannabis, which may not, however, occupy more than 10% of the surface of this advertising material”³⁰. Thus, the marketing possibilities vary a great deal from one province to another. Several participants from industry argued that in the current phase of development of a new economic activity, the marketing of brand image and of products is a key element in the survival of smaller companies. Very strict rules on advertising can thus favour large national actors over local ones.

Ontario

The biggest legislative change in Ontario was made just weeks before legalization. The Liberal government of Kathleen Wynne (June 2014 - June 2018) was still in power at the time of the federal cannabis legalization announcement on April 13th 2017. This government has introduced Ontario’s legalization framework, through Bill 174, *An Act to enact the Cannabis Act, 2017, the Ontario Cannabis Retail Corporation Act, 2017 and the Smoke-Free Ontario Act, 2017, to repeal two Acts and to make amendments to the Highway Traffic Act respecting alcohol, drugs and other matters*. The framework suggested the creation of a State-run cannabis retail monopoly.

The June 2018 election, resulting in the takeover of Doug Ford’s Progressive Conservative party, changes the outcome. In September 2018, a month before legalization, the Ford government introduces Bill 36, *An Act to enact a new Act and make amendments to various other Acts respecting the use and retail of cannabis and vapor products in Ontario*. The new law, which receives Royal sanction on October 17th 2018 (the very day of federal legalization), privatizes the retail model. Ontario Cannabis Stores (OCS), the initial monopoly State corporation, is relegated to online retail only. This change has had a

²⁹ BC. Reg. 202/2019 (July 19), Section 11.

<https://www.bclaws.ca/civix/document/id/complete/statreg/202_2018_pit#pit1>.

³⁰ An Act to establish the Société québécoise du cannabis, to enact the Cannabis Regulation Act and to amend various rules on traffic safety, LQ 2018 (June 12), 1^{re} session, 41th term, c 19, Art. 53 (3, 4, 5, 6, 7). <<http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=5&file=2018C19F.PDF>>.

major impact on legalization stakeholders in Ontario. As an Ontario participant points out, from a model where OCS assumed almost all responsibilities related to the implementation (management, wholesale, distribution, retail), the province moved to a model where AGCO takes on most of the management and implemented in partnership with private actors. This led to major reorganizations in an “incredibly short” timeframe, as one participant puts it. The delay of the Ontario store network compared to other provinces can thus be understood by this rapid privatization of the cannabis retail³¹.

The second major factor explaining this delay is a regulatory decision of December 13th 2018 imposing a temporary limit of 25 retail stores for all Ontario. This limit was subsequently raised to 93 on October 22nd 2019, then repealed as late as March 2nd 2020³². This limit on the number of stores was intended to counter supply problems that existed across Canada in the aftermath of legalization (Armstrong 2019c, Alcohol and Gaming Commission of Ontario 2020a). In order to manage a demand for retail licenses that largely exceeded the maximum number of store that was enforced (Hunt & Williams-Hall 2019), the Ontario government set up a “lottery” to distribute the licenses. All companies that wished to become a cannabis retailer in Ontario could apply. Licenses were then distributed randomly among the applicants. For a participant from Ontario, the lottery helped to speed up the licensing process. This gain in efficiency alone undoubtedly made it possible to counterbalance the negative effects of this system. Nonetheless, one of the negative effects highlighted by most of the Ontario participants was that it potentially favoured unprepared applicants. Participants from industry believe that this system could have favoured random incompetent entrepreneurs to the detriment of those who were ready for legalization. Among participants from public administration, we see an explanatory factor for the delay in the deployment of the stores network: private stakeholders who were indeed not ready had to adapt quickly to regulations, with disappointing results at times. After two successive rounds of this lottery, a more conventional private market approach took place by March 2020.

Apart from the introduction of this store ceiling, several regulatory changes have been brought into Ontario since legalization. In total, no less than thirteen different regulations related to Bill 36 have been enforced. One major take from these changes is the repeated modification of the maximum number of retail licenses for a single retailer. To date, Article 12 of the Cannabis Regulations stipulates that the maximum authorized stores is 10 before September 1st 2020, 30 after September 1st 2020 and 75 after September 1st 2021³³. In other words, between December 13th 2018 and September the 1st 2020, the number of stores will have changed from 0 to 1 (depending on the outcome of the lottery for a given applicant) to 75. This problem has been underlined by both newspapers (Gagnon & *al.* 2020, 1379) and participants. One of them from the cannabis industry indicates that these regular changes constitute a real “headache” for companies, since they do not allow retailers to plan for the long term. Instead of acting strategically within a stable legislative framework, the role of private actors is to adapt constantly to various regulatory changes. These frequent regulatory changes also require them to navigate legislative and administrative provisions, which requires more time and resources, even sometimes the hiring of new qualified personnel. In British Columbia, private retailers face much less uncertainty. Even though the ceiling is today much lower than that of Ontario (maximum of 8

³¹ All this despite the government hinting early on an intent to privatize cannabis retail.

³² Ontario Regulation 468/18 (December 13, 2018 - July 2, 2019 and October 22, 2019 - December 11, 2019).
<<https://www.ontario.ca/laws/regulation/180468>> .

³³ Ontario Regulation 468/18 (March 2, 2020, in force).
<<https://www.ontario.ca/laws/regulation/180468#BK13>>.

cannabis stores per holder of licenses)³⁴, the stability of the regulations since legalization allows for a better long-term forecast from private actors.

Finally, a call for consultations on the possibility of setting up a network of establishments for cannabis use (cannabis cafés) and of licenses for consumption at special events took place from February to March 2020. Following the consideration of consultation results (Ministry of the Attorney General of Ontario 2020), the government recoiled from this possibility. Several public health experts in Ontario have criticized the project, arguing that “more access to cannabis leads to more harm related to consumption” (Rieti 2020, our translation). However, according to a participant who is an expert on issues related to drugs, certain at-risk consumption (use near children, solitary use, etc.) can be reduced by increasing the opportunities for a social use that is well-regulated. From this perspective, cannabis cafés can potentially promote a safer consumption. In addition, the success of cannabis cafés in Vancouver before legalization testifies to the attractiveness of this type of project. In light of the success of the experiment in Vancouver, an industry participant was confident for the future. For him, it is only a matter of time before such laws are adopted across the country.

Quebec

Quebec has undergone two major regulatory changes since legalization. The initial model was introduced by the Liberal government of Philippe Couillard (April 7th 2014 – October 1st 2018) through Bill 157. Several elements differ from other Canadian regulatory frameworks, including the prohibition of cultivation for personal use and the particular focus on public health in the legislation³⁵. The election of François Legault’s Coalition government Avenir Québec (CAQ) on the 1st October 2018 changes the tone of the debate on cannabis in Quebec. As promised during the election campaign by the CAQ³⁶, Bill 2 tightens the regulation of cannabis, in part by raising the legal age from 18 to 21 and by prohibiting consumption of cannabis in all public places³⁷. The special consultations in February 2019 on the bill are of short duration (four sessions) and the number of speakers is limited by the government. The two provisions enforced by Bill 2 substantially modify the legislative framework in place, its scope and its effects.

According to a participant from the field of public health in Quebec, it is above all to respond to an electoral promise from François Legault that Lionel Carmant, Minister Delegate for Health and Social Services and sponsor of the project, maintained the provision raising the age to 21 years. Faced with a relative consensus among stakeholders that this decision did not correspond to the initial public health objectives of the Quebec law, the Minister had to highlight deliberately the facts and data that support the raise of legal age, with no regard to other data. For the participant, the final decision should be analyzed through the lens of this form of “cherry-picking” from the Minister and his entourage.

³⁴ BC Regulation 202/2018, article 6 (3).

<https://www.bclaws.ca/civix/document/id/complete/statreg/202_2018_pit#pit1>.

<https://www.bclaws.ca/civix/document/id/complete/statreg/202_2018#section6>

³⁵ In particular, by setting up the *Fonds des revenus provenant de la vente de cannabis* intended, among other things, to finance harm prevention and control programs.

³⁶ Note that the Bills are numbered according to their order of introduction at the Assemblée Nationale. Perhaps out of desire for coherence with the conservative tone used on the issue (Lévesque & Benoit 2020), the CAQ government has introduced its bill to tighten the regulation of cannabis barely a week after taking power.

³⁷ While Bill 157 was more inclined to reproduce the rules of consumption in public places in force on tobacco.

In addition, a regulation specifying which cannabis products can be sold to the SQDC is adopted in July 2019. In anticipation of the legalization of edible products in fall 2019, the Legault government implemented the following restrictions:

“2. No component, including a cannabinoid, may be added to cannabis for the purpose of potentiate the intoxicating psychological effects. 3. The concentration of THC present in cannabis, excluding cannabis products edible, must not exceed 30% weight by weight (w/w). For the application of the present regulation, “THC” stands for the delta-9-tetrahydrocannabinol component. 4. An edible product cannot be a candy, confectionery, dessert, chocolate or any other product attractive to minors. For the application of the first paragraph, is considered attractive to minors an edible cannabis product which matches one of the following criteria: (a) it is directly marketed for them; (b) there are reasonable grounds to believe that its shape, appearance or any other its sensory properties could be attractive to them. 5. The distinguishable unit portion of an edible cannabis product may not contain an amount of THC greater than 5 milligrams. In addition, regardless of the number of servings distinguishable units included in the same package, the quantity of THC per package cannot be more than 10 milligrams. Despite the first and second paragraphs, any product of edible cannabis in liquid form may not contain an amount of THC greater than 5 milligrams per container. 6. A cannabis extract may not contain any additives or any other substance intended for change its smell, flavor or color.”³⁸

These restrictions on edible products that may be sold in Quebec further establish what is already akin to an exceptionalism of cannabis policies in the province (Lévesque & Benoit 2020). Such severe restrictions on edibles are not applied in any other province or territory. The result of this regulation is the absence of edible products sold at the SQDC other than drinks and THC extracts (Société québécoise du cannabis 2020b). This certainly has an impact on the total number of products that are available in Quebec. As an indication, the SQDC reports that around 200 products are available in branch or online for 2019-2020 (Société québécoise du cannabis 2020c). In Ontario, the OCS instead reports no less than 1,567 items available in the fourth quarter of 2019 (Ontario Cannabis Store 2020).

Role of Municipalities

As proximity governments, municipalities were at the forefront of the implementation of provincial regulations. In principle, it is above all them who have had to absorb the impact of the transition from prohibition to regulation, consumption and retail of cannabis. However, participants from the municipal sector underlined very few post-legalization problems. A participant working for an association of provincial municipalities pointed out that within the last year, no municipality member to his knowledge had complained about issues of financial or organizational resources related to cannabis legalization. In others terms, despite some minor skirmishes³⁹, the transition has been fairly easy so far.

³⁸ Regulation determining other categories of cannabis that may be sold by the Société québécoise du cannabis and certain standards relating to the composition and characteristics of cannabis, *Cannabis Regulation Act*. (chapter C-5.3, s. 28 and 44, par. 2 and 3), Official Gazette of Quebec, in 2019 (July 24th) 15th year, No. 30, p. 3053-3054. <<http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=1&file=71073.pdf>>.

³⁹ The issue of financing municipalities was raised as potentially problematic from the start. Municipalities are partly responsible for compliance with laws (police service, municipal court, etc.). So the legalization entailing new costs in this

Despite a rather limited power of action during the legalization process, the municipalities retain some regulatory prerogatives. In British Columbia, the managing authority cannot issue a retail license without a recommendation from the local government (municipality or indigenous community). A process of consultation between the two levels of government is thus established by the law⁴⁰, which allows municipalities to ensure that certain priorities are respected, in terms of zoning for example. A public administration participant in British Columbia indicated that this prerogative also includes the rejection of production projects on the land of a given local government. The same participant stressed that the role of municipalities can represent an obstacle to the achievement of the provincial goals of legalization. Indeed, as described here, regulations in British Columbia are rather flexible with the explicit aim of combating the illegal market using an accessible and competitive legal market. For the participant, since several municipalities are more conservative, the actions of some local governments undermine the uniformity of cannabis policy at the provincial level.

In Ontario, in addition to the traditional powers of municipalities in economic activities (zoning, municipal permits, inspections, etc.), a prohibition clause (*opt-out*) was also offered to municipalities under Bill 36⁴¹. In fact, the municipalities that made it the request until January 22nd 2019 could prohibit retail on their territory. According to available data, 73 of the 415 municipalities surveyed by the AGCO (17.6%) used this prohibition clause (Alcohol and Gaming Commission of Ontario 2020c). In remaining municipalities, no other special prerogative has been granted. According to a participant from the municipal sector in Ontario, a smaller number of municipalities would have chosen the prohibition if they had greater control over certain other dimensions regulations (cultivation for personal purposes, consumption in public places, etc.) Finally, because public health is a municipal jurisdiction in Ontario, the provincial government guarantees funding for municipal implementation. Through the *Cannabis Legalization Implementation Fund*, the Ontario government has provided an aid of at least \$ 36 million. Also, if the excise duty collected by the province exceeds 100 million, 50% of the additional amount is granted to municipalities (Ontario Ministry of Finance 2019b). This amount greatly exceeds the \$ 20 million granted to municipalities by the Quebec provincial government (Ministry of Municipal Affairs and Housing in Quebec 2019). In British Columbia, it seems that no such assistance has yet been granted to local governments. The province defends this choice in light of its income from legalization, which is lower than expected. For the *Union of BC Municipalities*, this does is not a reasonable justification (Union of BC municipalities 2019a, b).

Finally, in Quebec, the most important prerogative granted to municipalities was undoubtedly the possibility of controlling consumption in public places. When Bill 157 was enforced, municipalities had the power to prohibit consumption where the provincial government allowed it (parks, pedestrian streets, etc.). With the coming into force of Bill 2, municipalities can now allow the consumption in certain parks, where provincial law otherwise prohibits it. In order to measure the use of this prerogative, we carried out a summary assessment before the adoption of the Bill 2. Information

sense, which could lead to friction with governments provincial. In both Ontario and Quebec, participants from the municipal sector confirmed to us that the amounts obtained from provincial governments were sufficient. In the context of the interviews, only issues of transition now resolved were emphasized by concerned participants.

⁴⁰ Cannabis Control and Licensing Act, RSLB, 2018 (May 31), c 29, ss 33, 34, 35.

<https://www.bclaws.ca/civix/document/id/complete/statreg/18029#division_d1e2248> .

⁴¹ *An Act to enact a new Act and make amendments to various other Acts respecting the use and retail of cannabis and vapor products in Ontario*, LO, 2018 (October 17), c 12, ss 41. <https://www.ola.org/sites/default/files/node-files/bill/document/pdf/2018/2018-10/b036ra_e.pdf>.

relating to the regulations in force were collected in 151 out of the 1,294 Quebec municipalities⁴². In 125 of these 151 municipalities (82.8%), a regulation prohibiting the consumption of dried cannabis in public places had been adopted. When we removed the ten largest Quebec municipalities from equation⁴³, the proportion reached 92.2%. Without giving an exact indication of the use of this prerogative in each of the provinces, the data presented suggests that the prohibition of consumption is quite frequent in Quebec municipalities. Nevertheless, according to a participant from the Quebec municipal sector, the problem of inconsistency between local regulations was avoided in part because regional associations of municipalities (Regional County Municipalities [MRC]) have sometimes acted in favour of regional normalization of regulations. This regional rather than municipal planning, among other things, facilitates policing in the cases where municipal regulations on cannabis in a given region are the same.

Despite generally low-conflict relations between municipalities and provinces, these few elements reveal significant discrepancies between provincial policies and municipal regulations. It will eventually be interesting to measure the impact of this lack of regulatory uniformity on the success of the implementation of cannabis legalization, especially with regard to access to cannabis or provincial production capacity.

Box 2. Effects of Provincial Zoning Regulations in Municipalities

An interview with an urban planner who worked on the development of cannabis municipal regulations in Quebec has been conducted. Quebec law provides that a branch of the SQDC may not be located 250 meters or less from an educational institution, while no provincial restriction is imposed in British Columbia and that the regulations provide instead 150 meters in Ontario. As mentioned during the interview, municipalities also have an interest in providing for branches to be established in commercial areas. Finally, some physical restrictions are to be expected when implementing an SQDC (space must be large enough for both an identity verification area and a retail area), which limits the choices of areas. In large municipalities where multiple commercial zones are defined and several building rental possibilities are available, these constraints are not always problematic. However, in small municipalities (in terms of geography and/or population) urbanization can be quite challenging. Based on the analysis of a working map from a municipality that was obtained from the participant, areas that are both (1) more than 250 meters from a school, (2) in a commercial area and (3) in a relatively central area of the municipality are scarce. This practical challenge of implementation is completely invisibilized at the federal or provincial level.

Factors Explaining the Adoption of Policies

The overview of cannabis policies presented in Table 4 (*Appendix 5*) shows both similarities and differences in the political choices made across provinces and territories. Several explanatory factors for these choices are at play, some related to structural issues, some to political contingencies and some to the ideas of decisive actors. At the end of this discussion of provincial regulatory models, we provide some elements for an understanding of the policy choices that are presented in the social sciences literature.

⁴² The sample was obtained both by a press review and by a working document obtained from the Union of Quebec municipalities (UMQ). Data collection was carried out in the summer of 2019.

⁴³ Montreal, Quebec, Laval, Gatineau, Longueuil, Sherbrooke, Lévis, Saguenay, Trois-Rivières and Terrebonne.

First, for Train & Snow (2019), despite the diversity of policies, a form of policy coercion has been exercised by the federal government onto the provinces. This coercion is particularly evident in the dissemination of the general objectives of the legalization. Coercion is a form of policy transfer that manifests itself “when a more powerful jurisdiction encourages another jurisdiction to adopt a policy by incentivizing the decision to implement such policy. Coercion can be ‘hard,’ including physical or military force, or ‘soft,’ including hegemonic ideas, policy leadership, and outright incentives (Train & Snow 2019, 551, our translation). In the context of legalization, the public health, safety and harm reduction objectives promoted since the 2016 Task Force have been part of a “soft” political coercion from the federal government. The transfer of these objectives is mainly caused by the central role that the federal government has undertaken in the legalization process (Train & Snow 2019). Moreover, its unilateral approach at several points in the during the process (Benoit & Lévesque 2020) may also have contributed to making him a central actor. In light of these considerations, we can understand why the public health and security discourse has become so hegemonic across the provinces and territories, regardless of the actual approach to legalization that was adopted⁴⁴.

Second, Wesley & Salomons (2019) show that a multiplicity of policymaking models was adopted with the announcement of the federal intention to legalize. This diversity in terms of policymaking is certainly an interesting explanation to understand the policies that were adopted. Some provinces have established ministerial working groups on the issue while others did not. Quebec has opted for initiatives led by the MSSS such as the Expert Forum on the regulation of cannabis in Quebec, the first edition of which was held in June 2017 and the second in September 2019 (Ministry of Health and Social Services of Quebec 2017). This working group aims to hear from experts on the advancement of cannabis knowledge and on recommendations for making better cannabis policies. The proposed Bill 157 also set up a Cannabis Vigilance Committee⁴⁵, formed in particular by experts in public health (Ministry of Health and Social Services of Quebec 2019). The Committee is responsible for evaluating cannabis policy and issuing an annual report.

Other provinces, such as British Columbia and Ontario, have opted for the formation of a special cannabis secretariat, a formal branch of public administration exclusively responsible for the legalization file. According to Wesley & Salomons (2019, 590), the permanent adoption of this model is the most effective for implementing regulatory changes adapted to the evolution of the situation. However, to our knowledge, among the four provinces having adopted this model (British Columbia, Alberta, Ontario, Quebec), only British Columbia has maintained its special secretariat to this day. According to a participant from British Columbia, the secretariat model makes it possible to follow up on certain medium and long term issues of legalization, such as the integration of the illegal market into the legal market. British Columbia’s close monitoring of legalization implementation may explain the relaxation of certain regulations in light of real-time observations. On the contrary, the distance of public administrations from the reality of stakeholders in the cannabis industry may help to understand a certain lack of regulatory coordination in the case of Ontario and a certain regulatory inflexibility in the case of Quebec.

⁴⁴ For example, Quebec is particularly known by participants outside Quebec for its approach focusing on public health. Yet most of participants that are public health experts critiqued several provisions of the Quebec model, including the raising of legal age to 21, the prohibition of consumption in public places and even the ban on personal cultivation. Thus, there may be a significant gap between a government discourse on public health and an approach that truly focuses on public health and harm reduction.

⁴⁵ *An Act to establish the Société québécoise du cannabis, to enact the Cannabis Regulation Act and to amend various rules on traffic safety*, LQ 2018 (June 12), 1st session, 41th term, c 19, Art. 63-66.
<<http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=5&file=2018C19F.PDF>> .

In addition, cultural differences probably played a role in affirming distinct visions of cannabis legalization. Indeed, in light of the importance of its cannabis market in the pre-legalization era (Werb & *al.* 2012), it is not surprising to find that British Columbia has opted for a less restrictive model that is more favourable to the cannabis industry than Ontario or Quebec. The varying degree of normalization of cannabis use between different provinces, both in terms of practices and ideologies, is thus naturally at stake. The issue of normalization, or the idea that the consumption of a substance can acquire a certain social acceptability and that it can be considered as part of a “normal” life (Asbridge & *al.* 2016), is moreover one of the most important issues noted by participants during interviews. For some (especially in British Columbia and Ontario), normalization is an essential component of legalization by which the cannabis consumption from the margins of society to better educate and prevent. For others (especially in Quebec), normalization is synonymous with trivialization of the substance and possible public health problems.

More contingent political differences may also enter the equation. In both Ontario and Quebec, changes of government during the first year of legalization have brought about major changes to the regulatory model. In both cases, those changes are attributable almost exclusively to the outcome of the election, considering that it is unlikely that previous governments would have wished to reformulate their own regulation model as quickly. In the change of government, the ideological differences between parties obviously have a role to play. Particularly in Quebec, the takeover of the CAQ was accompanied by a government speech in tone clearly more paternalistic and moralizing than that promulgated by the Liberal Party (Lévesque & Benoit 2020).

Finally, beyond these different explanatory factors, Line Beauchesne (2020) underlines that the pre-existing tobacco and alcohol models remain the backdrop for understanding the policies that were adopted. A participant from Quebec noted in that sense that tobacco and alcohol are the only two tangible references of legal drug policies, and that it is normal that legislators have turned to them when they were faced with a whole new field of public action. An example of the influence of laws on tobacco is the regulation adopted on consumption in public places. Although the majority (7 out of 13) of provinces completely ban consumption in public places, six provinces and territories have reproduced the tobacco regulations. This decision in itself shows a form of policy transfer, and suggests that the regulations enforced on tobacco have been a key influence in several provinces. Regarding policies on alcohol, an example of their influence is the retail model adopted in each of the provinces. In six provinces, the public, private or mixed nature of the alcohol model was reproduced for cannabis retail. In five others, the model adopted for cannabis is private while the alcohol model has undergone recent partial privatizations.

Therapeutic and Recreational Cannabis

Like many other countries and like the majority of American states, Canada has a regime for the access to cannabis for therapeutic purposes. Regulated not quite like the products pharmaceuticals nor as “natural health” products (Gagnon, Zobel & Chapados 2019, 49), cannabis for therapeutic purposes is in a gray area where it can be authorized by a doctor but is neither prescribed nor codified as a drug (Beauchesne 2020, 26). Since 2018, the regime of access to cannabis for therapeutic purposes coexists with the new recreational cannabis regulations. Faced with a duplication of access routes to cannabis for the Canadian population, this section aims to provide a portrait of the regulation and use of therapeutic cannabis in Canada in order to better understand the context for the implementation of recreational cannabis policies.

Evolution of Regulations, From R. c. Parker to RACFM

The recent progress on access to medicinal cannabis in Canada is mainly attributable to patients and medical access activists. Indeed, the issue was judicialized from the start and almost all of the legislative changes that followed can be understood based on Court rulings on the matter. Following the *R. v. Parker*⁴⁶ from the Ontario Court in 2000, the Canadian legislature adopted a regulated access regime to cannabis for therapeutic purposes.

In order to meet this imperative, the Canadian government introduces the Marijuana Medical Access Regulations (MMAR) in 2001. This policy sets up a regime for access to cannabis for therapeutic purposes. The production and distribution is from then managed by the federal government⁴⁷. It is not until 2013, with the Marijuana for Medical Purposes Regulations (MMPR), that the production and distribution is privatized. Although privatized, the regulations set out guidelines for the industry and its production and distribution thus remains strictly supervised by Health Canada (2016). This change from a public model to a private model is also leading to the emergence of a cannabis industry. The decision *R. v. Smith*⁴⁸ of 2015 contributes to a further development of the industry. In this judgement, the Supreme Court rules in favour of the appellant and allows the diversification of modes of processing and use of cannabis (oils, edibles, etc.).

With the decision in *Allard v. Canada*⁴⁹ in 2016, the Court goes further by ruling in favour of home cultivation for patients or caregivers. The reasoning of the Court is based on the fact that the obligation of patients to obtain cannabis from licensed producers violates the right to liberty and security set out in section 7 of the Canadian Charter of Rights and Freedoms. In order to adapt to this judgment, the Canadian government introduced the Access to Cannabis for Medical Purposes Regulations (ACMPR) to allow access to a cultivation license for medical purposes. This new regulation has been in effect

⁴⁶ *R. v. Parker*, 2000 (July 31) CanLII 5762.

<https://www.canlii.org/fr/on/onca/doc/2000/2000canlii5762/2000canlii5762.html?autocompleteStr=parker&autocompletePos=1>.

⁴⁷ The company *Prairie Plant Systems* (Saskatchewan) was at the time responsible for supplying Health Canada, which is for his part in charge of distribution (Myles 2000).

⁴⁸ *R. v. Smith*, 2015 (June 11) SCC 34 (CanLII), [2015] 2 SCR 602.

<https://www.canlii.org/fr/ca/csc/doc/2015/2015csc34/2015csc34.html?autocompleteStr=R.%20c.%20smith%20C%202021&autocompletePos=1>.

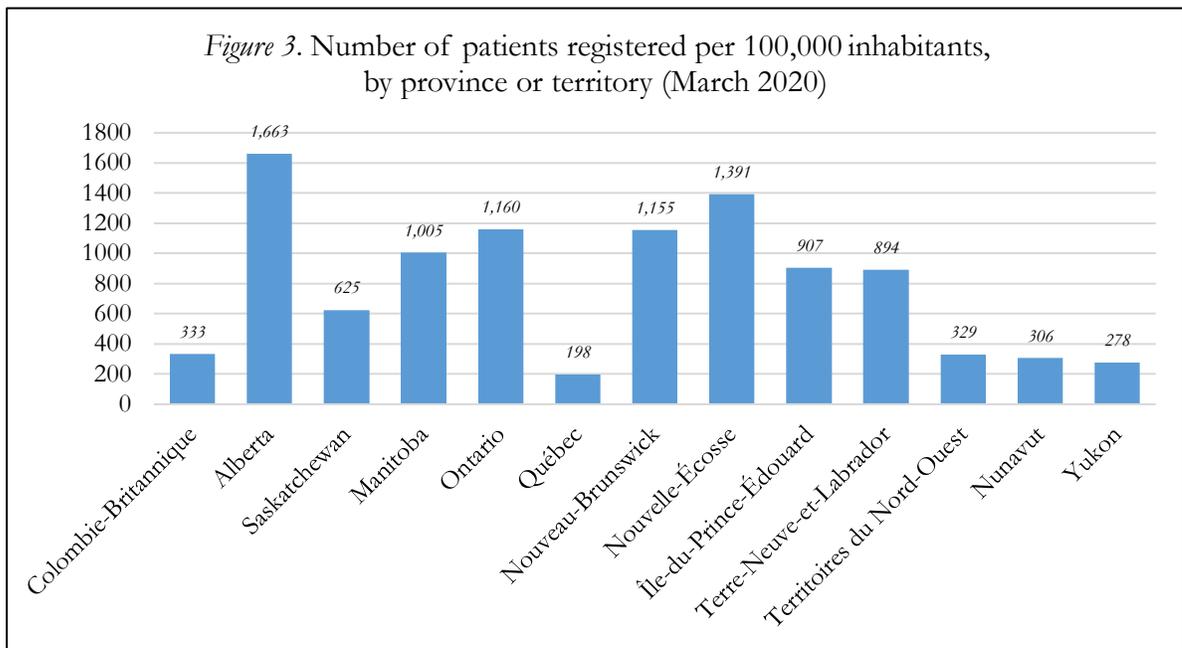
⁴⁹ *Allard v. Canada*, 2016 (February 24) FC 236 (CanLII).

https://www.canlii.org/fr/ca/cfpi/doc/2016/2016cf236/2016cf236.html#_Summary/Overview.

since August 2016 Health Canada (2016). Some changes were also made to the regulations during the legalization of the cannabis for recreational purposes, including lifting of personal cannabis storage limits applied by the federal government (Health Canada 2020e).

Data on Access to Cannabis for Therapeutic Purposes

The number of patients registered under the ACMPR varies substantially depending on the province of residence. All things considered, the program is particularly used in Alberta and in Nova Scotia, and very few in Quebec, British Columbia and the territories. Figure 3 below illustrates the differences between provinces and territories per 100,000 inhabitants for March 2020.

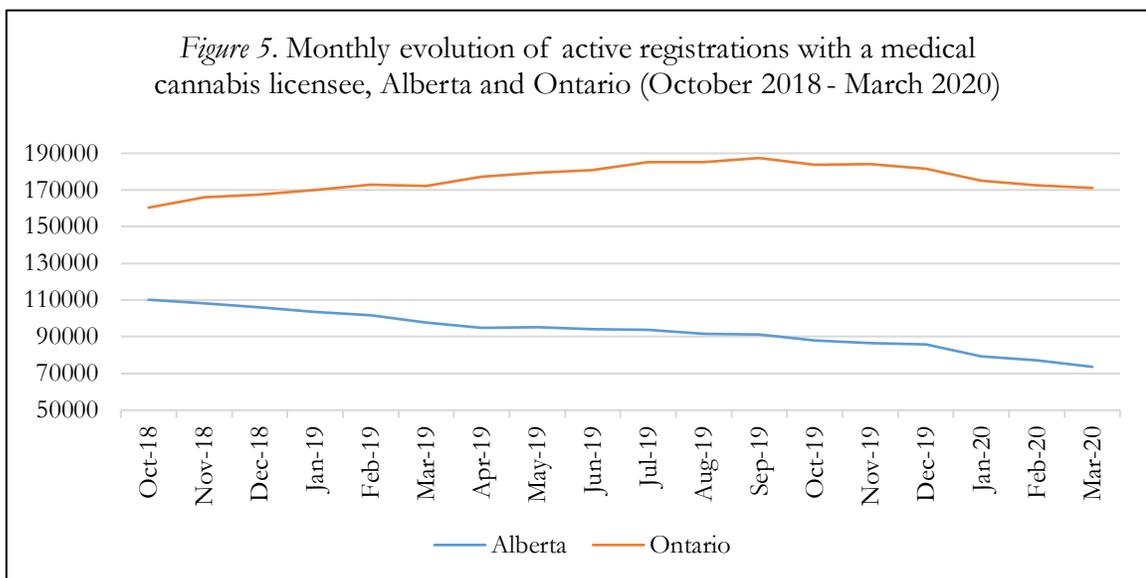
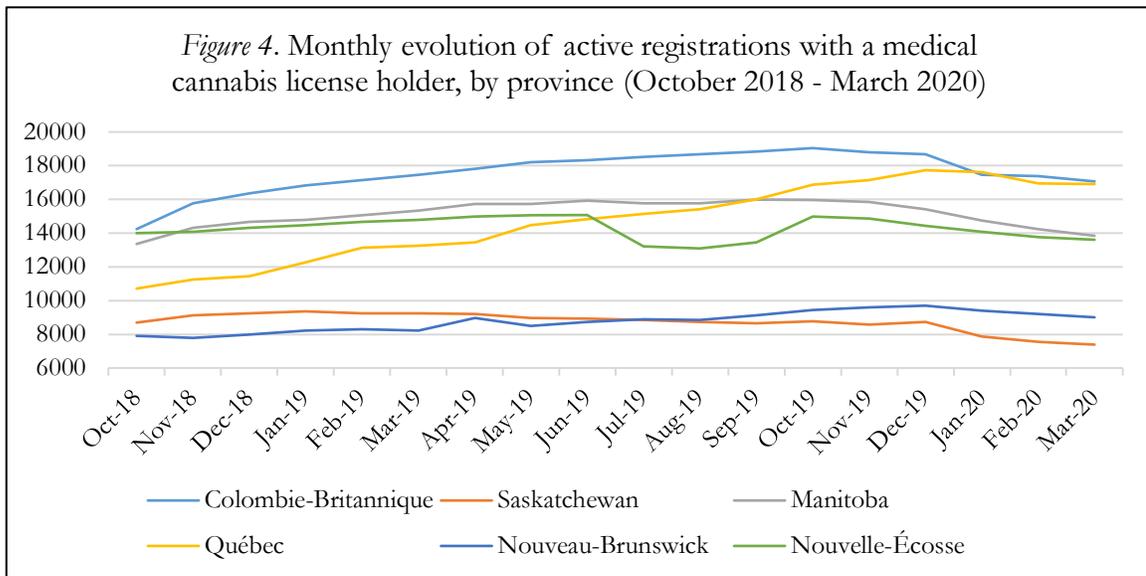


Source: Health Canada (2020e)

Since the legalization of cannabis for recreational purposes, *Figures 4 and 5* (below) show a relative stability of the total number of patients except in Alberta and Quebec. In the case of Alberta, the substantial decrease in the number of patients raises the possibility of a transfer from several medical patients to the recreational market. This can be due to various causes, but the hypothesis that a certain number of patients registered before legalization had obtained medical clearance without any related medical condition certainly cannot be ruled out. In other words, some of them could have used the medical regime of access for recreational purposes. After legalization for recreational purposes, an authorization for medical purposes would have become useless for them.

In the case of Quebec, the opposite trend is observed: a significant increase in the number of authorized patients is observed. Again, several factors can come into play. Certainly, the lack of normalization of the substance in Quebec made clear over the interviews leads us to believe that physicians may be more reluctant to allow cannabis for medical purposes. Even today, data survey of medical students show that the training of Quebec physicians is perceived as highly inadequate when it comes to cannabis (Elkrief & *al.* 2020). An additional hypothesis was made by participant which is

an expert on drug issues. For the latter, the raising of legal age from 18 to 21 has led several young users to turn to medical cannabis to obtain the drug outside the illegal market. The latter hypothesis is certainly interesting, and further research should be carried out in that sense.



Source: Santé Canada (2020c)

The role of medical associations and scientific data

In order to understand the provincial differences in the implementation of the ACMPR, the positions adopted by medical associations are certainly key. Medical associations of all provinces as well as that of Yukon have set out positions on medical cannabis for their members. After reviewing the documents that set out these positions, three categories of positions are observed across the provinces. First, the position that we term as “permissive” suggests that cannabis is a therapy like any other, to be prescribed if the doctor wishes to, given that all necessary information is obtained from the patient. Then the position that we term as “in-between” suggests authorizing cannabis for

therapeutic purposes with great caution and consequently states at least some reservations (e.g. on the patient’s age). Finally, the position that we term as “restrictive” treats cannabis as a therapy of last resort, to be prescribed if all other therapies did not work. *Table 5* shows the distribution of associations between these three positions. It seems rather clear at first glance that the number of patients registered per 100,000 inhabitants (see *Figure 3*) is partly linked to the position of the medical association of a province is in part. Indeed, the permissive position of associations of Alberta, New Brunswick and Nova Scotia is reflected in a high rate of registered patients. Conversely, the restrictive position of Quebec and Saskatchewan is associated to a low rate of registered patients. In light of this finding, it seems likely that physicians generally follow the recommendations of their provincial association regarding cannabis for medical purposes.

<i>Permissive position</i>	<i>In-Between Position</i>	<i>Restrictive position</i>
<ul style="list-style-type: none"> ⇒ College of Physicians and Surgeons of Alberta (College of Physicians & Surgeons of Alberta 2019 [2014]) ; ⇒ College of Physicians and Surgeons of New Brunswick (College of Physicians and Surgeons of New Brunswick 2020) ; ⇒ College of Physicians and Surgeons of Nova Scotia (College of Physicians and Surgeons of Nova Scotia 2020 [2017]) ; ⇒ Yukon Medical Council (Yukon Medical Council 2018 [2015]). 	<ul style="list-style-type: none"> ⇒ College of Physicians and Surgeons of British Columbia (College of Physicians and Surgeons of British Columbia 2020 [2016]) ; ⇒ College of Physicians & Surgeons of Manitoba (College of Physicians & Surgeons of Manitoba 2020) ; ⇒ College of Physicians and Surgeons of Ontario (College of Physicians and Surgeons of Ontario 2019 [2002]). 	<ul style="list-style-type: none"> ⇒ College of Physicians and Surgeons of Saskatchewan (College of Physicians and Surgeons of Saskatchewan 2020) ; ⇒ Collège des médecins du Québec (Collège des médecins du Québec 2018) ; ⇒ College of Physicians and Surgeons of Prince Edward Island (The College of Physicians and Surgeons of Prince Edward Island 2017 [2014]) ; ⇒ College of Physicians and Surgeons of Newfoundland and Labrador (College of Physicians and Surgeons of Newfoundland and Labrador 2014).

The differences between medical associations indicate the political and social nature of interpretation of the data available on the therapeutic use of cannabis. Of the 71 articles considered in the context of the scientific literature review, eleven deal with the challenges of cannabis for medical purposes (Appendino & *al.* 2019, Fitzcharles & *al.* 2020, Gagnon & Guta 2019, Hawley & Gobbo 2019, Ho, Martinusen & Lo 2019, Hoch & *al.* 2019, Elkrief & *al.* 2020, Lim & Kirchhof 2019, Nguyen & Wu 2020, Sheriff & *al.* 2019, Wadsworth, Leos-Toro & Hammond 2020). Most of these articles highlight the therapeutic potential of cannabis to alleviate the symptoms of a number of medical conditions (epilepsy, HIV, cancer, chronic diseases of kidneys, mental health disorders, corneal problems) and in a number of medical specializations (rheumatology, dermatology, psychiatry). All the studies considered underline nevertheless that current research is insufficient to make definitive judgments and that more systematic and clinical studies must be carried out to solidify the state of knowledge. Lim & Kirchhof (2019) also point out that the benefits of cannabis are generally greatly exaggerated by the industry, which can also come into play. As part of their study conducted on the promotion of dermatological benefits, 87% of dispensaries Canadians included in their research make unfounded claims on their websites about the dermatological benefits of cannabis. However, the existing literature

does put forward several potential dermatological benefits of topical cannabis use (Sheriff & *al.* 2019). In any case, in the light of all these studies and the multiples contradictions between stakeholders, it seems difficult to defend that some medical associations base their position only on science while others base theirs only on values. Conversely, the positions adopted appear as the result of an interaction between values and scientific data within distinct political and social environments.

The debate on the coexistence of regimes

Throughout readings and interviews, we identified a debate on the coexistence of ACMPR with cannabis legalization. Within this debate, some suggest that the duplication of ways to access cannabis leads to more harms than benefits. For others, this distinction is essential and the possible disappearance of a clear demarcation between two models could have serious consequences. On either side of the debate, the data necessary to make an informed judgment is non-existent at this point. Although the debate is interesting, the current state of research does not allow us to suggest a way to decide the question in the context of this report. At this point, let's just stress that concerns from both sides seem legitimate and valid. Ultimately, if both positions presented are difficult to reconcile, the proponents of both agree that the coexistence of systems in its current state is dysfunctional.

A coexistence exploited by industry

As one participant from academia underlined, when we talk about the distinction between recreational and therapeutic cannabis, it should not be forgotten that we are talking about the same product. We are also talking about the same industry and consequently the same private interests. Since the privatization of ACMPR in 2013, it is the private actors who are responsible for the production and retail of cannabis. Unlike the pharmaceutical industry, this industry does not need to go through an intermediary (e.g. a drug store) to access customers: registered patients buy directly from one of the 215⁵⁰ companies that have obtained a medical cannabis retail license from Health Canada (2020d).

Therapeutic cannabis industry activities are also more profitable than those related to recreational cannabis. From 2013-2014, many actors from the current recreational cannabis industry (*Aphria, Canopy Growth, Aurora*, etc.) have used the emergence of a therapeutic cannabis industry as a springboard for organizing. On the first day of receipt of applications for licenses by Health Canada, these companies already had the facilities and necessary capital to prepare credible and adequate applications. For the most part, this thus constitutes a duplication of business opportunities. Perhaps taking an example from the biggest businesses in the cannabis industry, almost all recreational cannabis companies to our knowledge also has a permit for cannabis for medical purposes.

Furthermore, the tax exemptions are comparatively substantial for cannabis for therapeutic purposes. In January 2020, the *Order amending the Cannabis Fees Order*⁵¹ introduces an exemption from the fees applied to cannabis production licenses for companies that exclusively produce cannabis for therapeutic purposes. The amount of this exemption can reach tens of thousands of dollars when

⁵⁰ The register of license holders is made public by Health Canada (2020b).

⁵¹ Order Amending the Cannabis Fees Order (exemption - sale for medical purposes), SOR / 2020-8, *The Canada Gazette*, Part II, volume 154, number 2, 2020 (January 22nd). <<http://www.gazette.gc.ca/rp-pr/p2/2020/2020-01-22/html/sor-dors8-eng.html>>.

accumulated over the years. For example, under *the Cannabis Fees Order*⁵², one of the fees affected by this exemption is the annual price of the initial fiscal year of the company holding a license (excluding micro-cultivation licenses) amounting to \$ 23,000. So it seems quite tax-savvy to start a medical cannabis business before entering the recreational market. As a result, it is highly likely that some new licensees take advantage of this regulation to prepare the business on the financial, organizational and infrastructural levels to a less abrupt entry into the market for recreational cannabis⁵³. A participant confirmed this hypothesis for the case of British Columbia, estimating that almost all companies seeking to obtain a production license considered the medical market first.

This distinction between therapeutic and recreational markets also helps to create an almost quasi-legal (often referred to as the “gray” market). The term “quasi-legal market” groups a set of practices where the medical cannabis market is used to sell or distribute cannabis for recreational purposes. These practices include, among others, the illegal retail of cultivation surplus by home growing patients or the illegal prescription of cannabis for therapeutic purposes without medical justification by physicians. Like any illegal practice, its frequency is difficult to estimate. Nevertheless, over the course of the interviews, the existence of this quasi-legal market was a topic discussed rather frequently, which may indicate that this is seen as a problem by many stakeholders. A participant working on the implementation of policies in Quebec emphasizes that this system is not only exploited by individuals, but also by the organized crime.

At the same time, participants with therapeutic production licenses point out that they or some of their competitors use their access to doctors to promote their products⁵⁴. This practice, also adopted by the pharmaceutical industry, constitutes an obvious wrong from a public health point of view (Beauchesne 2020, 33). However, as discussed in the next section, this can be seen as an adaptation strategy of certain industry stakeholders *vis-à-vis* an especially strict regulatory environment. In particular, this constitutes a way for small stakeholders in the industry to publicize their company and their products in a regime that does not allow them otherwise to differentiate themselves from stakeholders known to patients and the general public. Ultimately, the popularity of this practice can be seen as a perverse effect of a system which severely restricts the marketing of cannabis, but which delegates the production, distribution and retail of cannabis to private actors.

In light of these considerations, several stakeholders in legalization suggest that the distinction between models is detrimental. Based on lessons learned from the US experience, Shover & Humphreys (2019) argue that as long as cannabis is not recognized as a drug and that a system equivalent to the pharmaceutical system cannot be imposed for therapeutic cannabis, the coexistence of regimes leads to more harm than benefits. According to the authors, for the industry, medical cannabis access regimes have all the advantages of the pharmaceutical industry (financial, among others) without the legal responsibilities attached to the retail of pharmaceutical products (Shover & Humphreys 2019, 699). For Line Beauchesne (2020, 48-49), the distinction also helps to create a division between legitimate uses of the substance which would be reserved to patients and illegitimate uses that would be reserved for those seeking to “escape from reality” by using drugs. In the end, this would undermine the normalization of recreational use of cannabis in a country where the substance is legal.

⁵² *Cannabis Fees Order*, SOR / 2018-198, Consolidated Regulations under the Cannabis Act, 2018 (October 1st). < <https://laws-lois.justice.gc.ca/eng/reglements/DORS-2018-198/page-1.html> > .

⁵³ Industry regulatory and compliance challenges are discussed in more detail in the next section.

⁵⁴ The euphemism of “educating physicians” is often used by industry participants to describe this practice.

An essential coexistence to preserve the health of patients

In contrast to the first approach presented, a participant from the medical cannabis community in Quebec suggests that an even more pronounced division between the two pathways access to cannabis is necessary. For the latter, the main problem of the coexistence of the two markets is the overpricing of the recreational path to cannabis at the expense of the therapeutic path. This undoubtedly leads to self-medication of users who would have otherwise called their doctor for an authorization. According to the participant, this is translated in Quebec by a large proportion of cannabis users for therapeutic reasons that are not patients registered with ACMPR. These users are turning to the SQDC rather than their doctor for treatment, which undoubtedly results in additional risks.

Box 3. Cannabis from the SQDC for elderly residents

In order to exemplify the problems that may arise from the non-strictly regulated coexistence of the two legal pathways to cannabis, one participant from the medical cannabis community recounted an event that had particularly disturbed him. A private Quebec residence for elderly people reportedly organized a visit to a branch of the SQDC for a number of its clients. While it is prohibited for the recreational cannabis industry to sell products to people whose admitted objective is consumption for therapeutic purposes, clients had no difficulty to obtain cannabis. For the participant, this is an example of negligence which leads to self-medication. Moreover, in a public retail model like that of Quebec where branches are managed almost independently of each other, the participant considers that the management team of a branch has everything to gain by turning a blind eye to this kind of situation for financial reasons. In order to verify if the situation was generalized in Canada, the participant and his team attempted to obtain cannabis in stores in neighbouring provinces of Quebec, specifying that they wanted to relieve their health problems (chronic pain, for example). According to the participant, only in Quebec only could they buy products without being redirected to a doctor by the retail store staff.

For the participant, this practice is particularly dangerous, because there are several counter-indications for cannabis consumption which are still too little known to the general public, including several health conditions and drug-cannabis interactions. The *Compendium of Products and Specialties Pharmaceuticals* (Pharmacists Associations of Canada 2020) now has a section focusing on interactions between cannabis and drugs. However, for the participant, taking into account the stigma that exists around cannabis for therapeutic purposes, the integration of such knowledge in pharmaceutical practices (e.g. adding warnings on labels of the drugs concerned) remains a major challenge, at least in Quebec. The participant also underlines that the absence of a stricter separation of therapeutic and recreational access routes leads to the criminalization of patients registered with the ACMPR. As underlined previously, in a province where consumption is prohibited in public places, a tenant is in a situation of virtual prohibition in front of the ban on smoking cannabis both inside and outside their home. However, since the rules are the same whether cannabis is used as part of therapy or recreation, tenant patients may be found an illegality when using their treatment.

The Cannabis Industry

With 175 companies and over 9,200 employees across Canada (Statistics Canada 2019c), the cannabis production, processing and distribution industry is a crucial actor to better understand the challenges of cannabis legalization in Canada⁵⁵. In this section, we review the major trends that have defined the industry since the legalization. In the systematic review of the literature, only one article specifically examined the industry (Hunt & Williams-Hall 2019). Failing to lean on a sufficient quantity of academic analyzes of the question, the analysis is drawn primarily from the 16 interviews conducted with participants who work in the cannabis industry, who maintain relations with it or who are experts in the economic dimension of legalization. This exploratory work allows us to ask certain questions and formulate certain hypotheses that could be reassessed by subsequent research.

Cannabis Industry and Legalization

As pointed out in the previous section, an already well-organized industry existed for the production and retail of cannabis for therapeutic purposes before legalization for recreational purposes. Thus, although legalization has required adaptations on the part of the industry, it is incorrect to assert that this political change “created” a new industry, like a few participants mentioned. On the contrary, as pointed out by a participant from academia, the current portrait of the industry must be understood as a whole (recreational and therapeutic), rather than separately. Nevertheless, cannabis legalization has brought its own challenges to industry which, for many participants, is still in the process of adjusting to its new reality. According to a participant from academia, the industry has experienced three main phases of development since legalization, i.e. (1) the growth phase pre-legalization, (2) the hardship phase and (3) the rationalization phase. In light of these three major phases, we first retrace the trajectory of the industry using the interview data.

Phase 1: Growth (2017-2018)

According to a participant from industry, in the days following the announcement of the legalization of cannabis, a real license race has emerged. The license was a kind of barrier to entry into the market, and *timing* was key thereafter. Strict Health Canada requirements must be met in order to obtain a license (Health Canada 2020 [2018]), thus this demanded a quick adjustment from industry stakeholders. This quick adjustment was necessary to gain a comparative advantage in the awarding of retail contracts to provincial distributors (Hunt & Williams-Hall 2019). In this race that another participant described as “the *Wild West*”, it is clear that the actors in the therapeutic industry had an organizational, infrastructural and financial advantage (Deleu & Lorida 2019). As stated in the previous section, there is little question as to why these stakeholders are among the most important in the industry today.

⁵⁵ We exclude from the outset the issue of licenses for micro-production and micro-processing from this analysis. The current Health Canada program allows small-scale producers (200 m² and less for cultivation and 600 kg and less per year for processing) to obtain a license (Health Canada 2020 [2018]). Now, like a participant from academia mentioned, the definition of micro-culture is far too narrow in the current context. As soon as we exceed the defined limits, we enter into competition with the big stakeholders and we must subject to the same strict regulations as them. In other words, there is no in-between that would allow small stakeholders to emerge. Also, if we follow the experience of the alcohol market, small craft growers will be slow to really establish themselves on the market. For now, according to the participant, there is no real room these kinds of actors in the market, especially not in the recreational cannabis market.

Along with regulatory issues, companies had to quickly demonstrate a sufficient infrastructural capacity for at least two reasons. First, according to a participant expert in the economic dimension of legalization, it was necessary to offer “concrete” representations of future development to potential investors, especially for those listed on the stock exchange market. With this in mind, the construction of production facilities (indoor or in greenhouses) became essential. Then, it was necessary to quickly demonstrate a large capacity for production in order to obtain contracts from provincial wholesalers. Once again, the companies that already had facilities to produce cannabis for therapeutic purposes were largely advantaged.

In this period of growth, a participant from academia points out that companies were putting all their energies on infrastructural capacity in order to demonstrate seriousness to Health Canada, investors or provincial wholesalers. The other dimensions of production and processing of cannabis (product quality, market studies, research funding, etc.) were set aside. For the biggest actors of the industry, this strategy seems to have worked. Rightly, at the dawn of legalization, stocks of publicly traded companies had experienced a great deal of speculation. For a participant from industry, the high flow of investment suggested that the confidence and expectations towards industry were high.

A few months before the legalization of October 2018, companies having obtained both their license of Health Canada and contracts with provincial wholesalers have concentrated their resources on their production capacities. According to one participant, in the summer of 2018, some large companies have hired up to 1000 new employees to ensure maximum production.

Phase 2: Difficulties (2018-2019)

For a participant from public administration, the development of a new market always requires a period of adaptation. However, like reported by a participant that is an expert on the economic dimension of legalization, in the case of recreational cannabis, the adaptation was particularly abrupt considering the initial expectations which were frankly unachievable. The first months of legalization were marked by significant shortages in the supply of products (Hunt & Williams-Hall 2019). Indeed, according to a participant from academia, it was not until the summer of 2019 that the supply of cannabis caught up with demand across Canada. According to the latter, this shortage is difficult to explain since several factors come into play, including the shortage of stores in some provinces (Ontario and Quebec, among others).

However, on the part of the industry, available data points to another interesting explanation. The shortage would not be attributable to a lack of production capacity, but rather to a lack of processing and distribution capacities. As pointed out, during the first development phase of the industry, the priority of industry stakeholders was to demonstrate infrastructural and production capacities. This behaviour of industry actors induced by regulatory and financial constraints has probably created an imbalance between the ability to produce a raw material and the ability to deliver a finished product to wholesalers. Consequently, in November 2018, approximately 86% of business inventory was not yet processed, and therefore not available for delivery to wholesalers (Armstrong 2019c).

One of the main consequences of this shortage for companies is a substantial drop of their stock market value in the first year of legalization, the impacts of which were felt well beyond (Dufour 2019, The Canadian Press 2019a, b). As pointed out by several participants, one of the parallel causes of this decline in investor confidence is the outbidding of true opportunities in the recreational cannabis market. In front of investors, several industry stakeholders greatly overestimated the share that the

legal market could really corner in the short term (Dufour 2019). With current estimates of the legal market share generally not exceeding 40% of total cannabis consumption⁵⁶, the net income realized undoubtedly disappointed investors. A participant from academia stresses in this regard that as the initial outbid may have led to a rise in prices, companies are now concerned about repaying their investors.

Phase 3: Rationalization (2019-)

In the last year, a phase of rationalization of industry activities seems to have taken place to adjust to the difficulties encountered. In light of known financial problems in the first year of legalization, several industry participants mentioned that a wave of significant layoffs took place. According to a participant working as director of the accounts of a mid-level company in the industry, the payroll of his company has decreased about 50% over the past year. The COVID-19 pandemic also appears to have had an effect on jobs in the industry, forcing a new wave of layoffs. This time, the largest companies would also be affected: *Aurora* would have laid off more than 700 employees and *Canopy Growth*, 500 (Agence France-Presse 2020).

For other stakeholders in the industry, the overestimation of production needs has led to closures of production sites (The Canadian Press 2019). For businesses (especially smaller ones), the main challenge at this point is the lack of capital. Indeed, for many of them, the fall in the cannabis market on the stock market since legalization has drastically diminished the investments. Ultimately, this limits their power of action for the future. According to one participant from the industry, a large part of the small stakeholders must now act conservative manner at the risk of declaring bankruptcy.

In addition to the rationalization of business investments in human resources and materials, some participants mentioned that the industry is also in a period of major restructuring. The big companies are more than ever resorting to the acquisition of smaller ones for the benefit of vertical integration of activities (research, culture, transformation, analytical testing and retail). Faced with a net income far below that of pre-legalization, this strategy allows them, among other things, to achieve economies of scale. At *Canopy Growth*, *Aphria* and *Aurora*, the three biggest names in the industry, dozens of acquisitions (total or partial) have taken place since legalization only: *Canopy Growth* now has 37⁵⁷ (Canopy Growth Corporation 2020b), *Aphria* account 29 (Aphria Inc. 2019) and *Aurora*, 17 (Aurora Cannabis Inc. 2020b).

In addition to this phase of rationalization, the legalization of a second wave of products (edibles in particular) in October 2019 forced the industry to adapt again. According to a participant from the industry, the production of 2.0 products requires new expertise and more significant resources in processing and quality control. However, as indicated by participant from academia, the possibilities of profit margins are higher. Also, based on experience in American states that have legalized cannabis, these products promise to enjoy great popularity among users. Long before the legalization of 2.0 products, then, major companies have invested in research for the development of a competitive supply. According to an industry participant, on the eve of the introduction of second wave of products, several companies withheld part of their cannabis stocks in order to convert them back into 2.0 products. This strategy ensured that they had a sufficient quantity of products from the start. The

⁵⁶ See the next section on “The Economic Effects of Legalization”.

⁵⁷ Not having found the number of acquisitions at Canopy Growth, we calculated it ourselves using the managerial reports published since legalization.

participant also underlines that this may explain the lengthening of supply problems of dried cannabis, considering that companies had an advantage in keeping their inventory rather than selling it to wholesalers.

As in the pre-legalization period, additional human resources were hired to ensure maximum production capacity. A participant from the industry suggested that some businesses were open at all time (24/7) within weeks preceding the legalization of 2.0 products, with a staff rotating between day and the night. For some of them, workers were transferred between provinces in order to concentrate resources in places of transformation.

Tendency to Concentration

In light of the three phases described here, especially phases 2 and 3, the evolution of the cannabis industry in the past two years can be boiled down to a major process of financial and organizational concentration. In the eyes of a Quebec participant who is an expert on legalization, the industry is one at two speeds: the “corporate” speed, that of the big stakeholders, and the “shade speed”, that of small stakeholders shadowed by the big ones. In light of this element often mentioned by participants, we attempt to estimate the financial concentration within the Canadian cannabis market.

Given that there is no government data estimating the total revenue from cannabis production, processing and distribution, a sample of 40 Canadian cannabis companies was selected from the 175 companies recorded by Statistics Canada (2019c)⁵⁸. From this sample, the 25 companies with the highest gross income were selected⁵⁹. The companies were then sorted according to the share of their gross income within the total gross income of the sample⁶⁰. The results of this data collection are presented in *Table 6* below. Knowing that the five last selected companies represent only about 1.38% of the total gross revenues of sample, we believe that the estimate, although summary, is rather representative of the reality. At the end of the data collection, our estimates show that the market is particularly concentrated around the companies *Aphria*, *Canopy Growth* and *Aurora*. Indeed, the three largest stakeholders share around 57% of the market (see *Table 6* and *Figure 6*). As for the first 10 stakeholders, they share about 83% of the market. As an indication, in the international market of beer⁶¹, the three largest companies (*Inbev*, *SAB Miller* and *Anheuser-Busch*) share around 37% of the market. The total is around 66% for the top 10 stakeholders (Jernigan 2009).

⁵⁸ In order to guide our choices of cannabis companies, we consulted a few websites specializing in investments (e.g. Investing News 2020).

⁵⁹ When the financial statements were available for the first quarter of 2020, the gross revenues for this quarter were selected. In some cases, we had to select data from previous quarters.

⁶⁰ We thank a participant from academia for his help and suggestions on how to estimate market concentration.

⁶¹ The comparison with the beer market was chosen arbitrarily. Comparisons with the markets for wine, spirits, tobacco or pharmaceuticals might also be relevant.

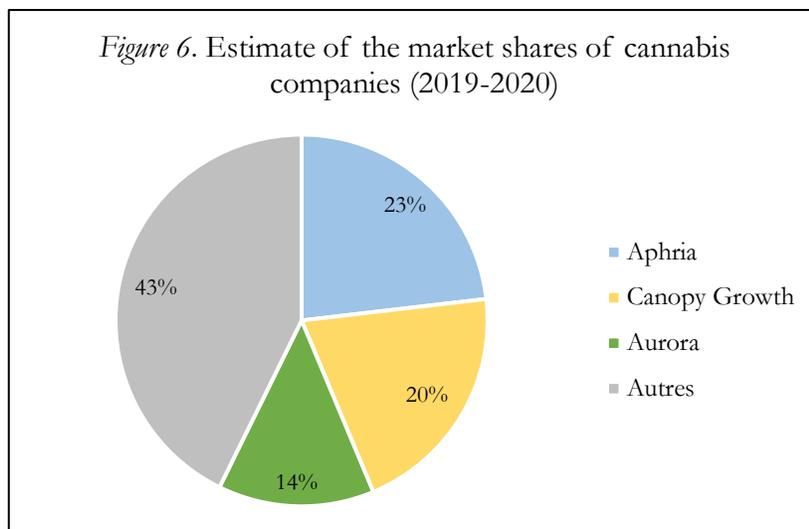
Table 6. Estimated Concentration of the Canadian Cannabis Industry

#	Company	Gross revenue (millions \$)	Share of Sample	Date	Source
1	<i>Aphria</i>	152.73	23.15%	20-02-29	(Aphria Inc. 2020)
2	<i>Canopy Growth</i>	135.55	20.55%	19-12-31	(Canopy Growth Corporation 2020a)
3	<i>Aurora</i>	89.61	13.58%	20-01-31	(Aurora Cannabis Inc. 2020a)
4	<i>Organigram</i>	27.31	4.14%	20-02-29	(Organigram Holdings Inc. 2020)
5	<i>Alcanna</i> ⁶²	25.28	3.83%	19-03-31	(ALCANNA inc. 2020)
6	<i>Neptune</i>	24.44	3.71%	20-03-31	(Neptune Wellness Solutions Inc. 2019)
7	<i>Avicanna</i>	24.02	3.64%	19-12-31	(Avicanna Inc. 2019)
8	<i>HEXO</i>	23.82	3.61%	20-01-31	(HEXO Corp. 2020)
9	<i>Tilray</i>	23.04	3.49%	20-03-31	(Tilray Inc. 2020)
10	<i>Zenabis Global</i>	20.32	3.08%	19-12-31	(Zenabis Global Inc. 2020)
11	<i>CannTrust</i>	18.81	2.85%	20-03-31	(CannTrust Holdings Inc. 2019)
12	<i>Aleafia Health</i>	14.83	2.25%	20-03-31	(Aleafia Health Inc. 2020)
13	<i>WeedMD</i>	13.60	2.06%	20-03-31	(WeedMD inc. 2020)
14	<i>Delta 9</i>	11.75	1.78%	20-03-31	(Delta 9 Cannabis Inc. 2020)
15	<i>Auxly</i>	11.37	1.72%	20-03-31	(Auxly Cannabis Group Inc. 2020)
16	<i>MediPharm</i>	11.09	1.68%	20-03-31	(MediPharm Labs Corp. 2020)
17	<i>Supreme Cannabis</i>	10.33	1.57%	20-03-31	(The Supreme Cannabis Company Inc. 2019)
18	<i>Namaste Technologies</i>	5.46	0.83%	20-02-29	(Namaste Technologies Inc. 2020)
19	<i>Tetra Bio-Pharma</i>	3.85	0.58%	20-02-29	(Tetra Bio-Pharma Inc. 2020)
20	<i>Emerald</i>	3.33	0.51%	20-03-31	(Emerald Health Therapeutics Inc. 2020)
21	<i>Green Organic Dutchman</i>	3.06	0.46%	20-03-31	(The Green Organic Dutchman Holdings Ltd. 2020)
22	<i>GTEC</i>	2.35	0.36%	20-02-29	(GTEC Cannabis Co. 2020)
23	<i>INDIVA</i>	2.27	0.34%	20-01-31	(INDIVA Limited 2020)
24	<i>Flowr</i>	0.78	0.12%	20-03-31	(The Flowr Corporation 2020)
25	<i>48North</i>	0.69	0.10%	20-03-31	(48North Cannabis Corp. 2019)
Total revenue		659.70	100.00%		

Source: Data compiled by the author.

The comparison between the Canadian cannabis market and the international market cannot be systematized since they are situated on two different levels. However, it should be noted that the “Canadian” market for cannabis is currently rather similar to the “global” cannabis market: most major stakeholders in the Canadian industry have a strong international presence over strategic acquisitions in the United States, Europe and elsewhere. As a result, a good number of large international stakeholders are partially or totally acquired by Canadian companies. For example, *Acreage Holdings*, the largest cannabis company in the United States, was acquired by *Canopy Growth* in 2019. At the end of this acquisition process, certain companies such as *Canopy Growth* are present on all continents (Canopy Growth Corporation 2020c). As indicated by a participant that is an expert on the economic dimension of legalization, when other countries legalize cannabis, it could result in a global cannabis oligopoly based in Canada. In light of the international acquisition strategy of the biggest stakeholders Canadians, this hypothesis seems more than plausible.

⁶² 25% of *Alcanna* shares are held by *Aurora* (Aurora Cannabis Inc. 2020c).



Source: Data compiled by the author from company data (see the “Source” column of Table 6).

The Weight of Constraints

Discussions from the interviews suggested that one of the factors explaining the trend towards rapid concentration of industry is the set of regulatory and financial constraints imposed on private actors. Accordingly, we describe here some of these constraints and the perception of their impact among participants from industry. Like the two “speeds” of the industry described by one of the participants, it should be noted from the outset that the discourse actors adopt are very distinct depending on their company’s position in the market. For actors from large companies, the weight of regulatory and financial constraints is reasonable; for actors from smaller ones, constraints are seen as a tangible threat to their viability.

The cost of compliance

As one industry participant pointed out, every “[regulatory] bend” has a cost, and Health Canada “makes [us] bend a lot”. Participants have indeed claimed that some standards imposed on industry actively act as a barrier to their development. As such, a participant working at a small producer estimates that the costs of meeting safety standards (guards, cameras, motion detectors, etc.) alone account for 30 to 40% of his investments. At the same time, it is noted that the federal requirements for producers are complex and nebulous, which creates a context of uncertainties as to their application. For participants, some of Health Canada’s regulations are downright inapplicable in reality.

As an example, a participant explained that excise duty stamps must be affixed by the producer on each of the products. This requirement represents a significant challenge for at least two reasons. First, the producer is responsible for affixing the stamps while the products are often packaged by the processor. In a vertically integrated company, this does not lead to a problem. However, for small and medium-sized producers, processing is often assumed by another company. Added to this is the fact that different excise duty stamps exist in each province. In principle, therefore, the destination of a product must be known before even packaging. In order to circumvent this requirement perceived as inapplicable in fact, participants mentioned at least two strategies. On the one hand, several processors and distributors practice white labeling, that is to say they get along with the producer to pass off the

distributed product as theirs. This avoids the real producer having to intervene only to affix the excise duty stamps. On the other hand, some production and processing companies agree to mutually resell products in order to apply the regulations. In other words, the producer sells to the processor for processing and packaging, then the processor resells the finished product to the producer to affix the excise stamp. Finally, if he prefers to delegate the distribution, the producer resells the product to a distributor, the latter sometimes being the same as the processors. Thus, in some cases, three transactions between the same two companies can take place when only one is technically needed.

Among retailers, the lack of uniformity of provincial policies complicates the regulatory environment. Application processes, number of required authorizations and permits and related costs all differ in each province⁶³. In Colombia-British (BC Liquor and Cannabis Licensing 2020), the application costs for a retail license is \$ 7,500, plus a \$ 1,500 annual fee. Before applying for such a license, retailers must already have facilities. Obtaining the license is also conditional on the recommendation from the local government concerned. In Ontario, retailers must obtain both a retail operating license and a retail store authorization. A non-refundable fee⁶⁴ of \$ 6,000 is required for a license site application (Alcohol and Gaming Commission of Ontario 2020b). Once the business license is obtained, a retail store authorization must be obtained for each new store (Alcohol and Gaming Commission of Ontario 2020e)⁶⁵.

In light of the diversity and complexity of regulations for producers, processors and retailers, a good knowledge of the policies in force and frequent regulatory changes are essential to the success of a given business. Knowing this, an industry participant pointed out that a true ‘consultation industry’ on cannabis policies has emerged as a result of legalization. Experts and lobbyists are hired by companies to ensure their compliance with the rules and influence the regulatory changes to come. Like this participant mentioned, regulatory complexity also allows some stakeholders to stand out by using unclear regulations to their advantage.

Quality assurance

According to a participant from industry, most of the risk in the cannabis market is assumed by companies and not by government agencies. The case of quality assurance testifies to this situation. Unlike other products such as agricultural products, the costs of testing for quality assurance are assumed by the companies themselves. As for the laboratories to carry out such tests, they are held by companies holding an analytical testing license.

Although standards within the analytical testing licenses system (Health Canada 2019b), Health Canada assumes no responsibility for the compliance of licensed laboratories. As a result, laboratories do not certify that their tests are valid and the responsibility for errors is entirely assumed by the producers. Rightly, fifteen companies and subsidiaries have recently seen a legal action be filed against

⁶³ As mentioned in the section on “Cannabis Regulation and Retail Models,” regulatory instability further complicates the task for retailers. Indeed, the lack of routinization of the rules does not allow them to set long-term development goals. For Hunt & Williams-Hall (2019, 74), the uncertainties associated pan-Canadian implementation of legalization is preventing the industry from reaching its full potential.

⁶⁴ A participant from Ontario notes that unlike other retailers (e.g. SQDC), AGCO is not funded by revenues and taxes on cannabis sold. Consequently, it can be inferred that the agency must finance its activities one way or another. The non-refundable application fee for a site license undoubtedly constitute a means of financing.

⁶⁵ We would like to thank a participant from the industry who agreed to share the results of his research with us on provincial regulations.

them in Alberta⁶⁶. In this case, these companies are accused of having sold products whose labeling of THC and CBD levels did not match the actual levels. The compensation requested is \$ 500 million (White 2020). Considering the high potential cost of errors in analytical tests, some companies hire specialized workers in the analysis of products to cross-check the quality of analytical tests performed in licensed laboratories. This further increases the costs of compliance for small and medium-sized enterprises that are not vertically integrated.

Provincial supply monopolies

In all provinces except Saskatchewan⁶⁷, a provincial wholesaler is responsible for being the intermediate between producers and retailers. In British Columbia and Ontario, the wholesaler is also responsible for online retail (BC cannabis and Ontario Cannabis Store [OCS], respectively). In Quebec, the SQDC assumes this responsibility⁶⁸. The wholesaler is particularly important for producers, since it has a monopoly on supply of legal cannabis in their province. Consequently, it is the wholesaler who establishes (1) how many companies supply the province with recreational cannabis, (2) who are the suppliers and (3) what will be the quantity of cannabis purchased from each of them. These decisions have a crucial effect on the cannabis industry in a given province. While participants of British Columbia and Ontario have confirmed that both BC cannabis and OCS source from more than 70 producers each, the SQDC has selected only 14 suppliers for all of Quebec (Société québécoise du cannabis 2020c). According to a participant, this choice is probably guided by a desire to select only the companies that respect the highest standards of quality and safety, which is consistent with the public health framework of Quebec law. The question of the production capacity of suppliers is also at stake.

The choice to opt for a limited number of suppliers has significant effects on small producers of Quebec, who are forced to seek to sell in other provinces or outright to drop their plans to obtain a recreational license. For a participant who produces in Quebec for recreational purposes, if the smallest stakeholders do “have their place” in the market cannabis, the SQDC does not consider the issue of supply with the same lens. The selection of companies is made not based on quality and security standards that potential suppliers are able to achieve, but many quality standards that they are already achieving. This necessarily favours the largest companies. In light of these elements, a dilemma arises for small stakeholders: an advantageous contract with a provincial wholesaler helps offset some of the high costs of compliance. However, in Quebec, reaching the highest standards is a prerequisite for obtaining contracts with the SQDC, but the obtainment of such contracts is unsure. For smaller stakeholders facing such barrier to entry, the choice to sell their stocks to medium and large companies

⁶⁶ The companies sued in this case are: *Aurora Cannabis Inc.*, *Aurora Cannabis Enterprises Inc.*, *AuroraCo.*, *Aleafiaco*, *Aleafia Health Inc.*, *Emblem Cannabis Corp.*, *Hexo Corp.*, *HexoCo*, *Cronos Group Inc.*, *Cronosco*, *Tilray Canada Ltd.*, *Organigram Holdings Inc.*, *OrganigramCo*, *MediPharm Labs Corp.* and *MediPharmCo*.

⁶⁷ According to a participant from the industry, *Tweed* (subsidiary of *Canopy Growth*) is the main actor in the distribution in Saskatchewan. Thus, where a wholesale monopoly does not exist, a private quasi-monopoly has emerged.

⁶⁸ According to a participant from Quebec who is an expert in economic issues related to legalization, we note that unlike BC Cannabis and the OCS, the SQDC does not have a general warehouse that distributes to each of its stores. On the contrary, the distribution of products is made directly from the producer to the SQDC branches. For the participant, it diminishes the possibilities for economies of scale in the province. For a participant working for one of the SQDC suppliers, this is also a problem during delivery. The SQDC wants a uniform product offered across all its branches. Thus, when an order for a given product is made by the SQDC, the latter expects delivery on the due date in all its stores. According to the participant, if the delivery is delayed in only one of the stores for one reason or another, the product cannot be sold at the expected date in any of the branches. This problem does not arise when delivery is made to the warehouse of the wholesaler.

with agreements with wholesalers (Health Canada 2020a) – although less financially advantageous – may represent a more conservative bet.

Financial constraints

Apart from the constraints related to the political and regulatory environment, some financial constraints disproportionately impact small companies and ultimately enhance industry concentration. First, most of the major Canadian and American banks do not wish to offer loans to cannabis companies. Indeed, considering that cannabis is not legal for therapeutic or recreational purposes federally in the United States, several participants underline that banks are reluctant to engage with the cannabis industry in fear of tarnishing their reputation on American soil. According to participants, the same problem is encountered with investment funds in Canada such as Investissement Quebec or the Fonds de solidarité FTQ.

As a result, the majority of companies wishing to develop their activities have integrated the stock market to obtain the necessary funding before legalization. Some companies have also benefited from private investments. This is the case of *Canopy Growth* which, in 2016-2017, received an investment by *Constellation Brands* (which owns *Corona* among others) for 38% of its shares (Canopy Growth Corporation 2020c). This early funding worth 5 billion dollars undoubtedly contributed to the fast expansion of the company *vis-à-vis* some of its competitors. In light of the lack of funding sources, some capital firms investments such as *Horizons ETFs*⁶⁹ or *Nesta Co.*⁷⁰ specialize in investments related to the cannabis industry. Under regulatory constraints and in the absence of various sources of funding allowing them to be offset, the industry's profit margins remain very low. One participant from a retailer estimated that in Canada no private cannabis store is profitable at the current moment. Profit margins on retail rarely exceed 30%, considering all the expenses specific to the retail of cannabis (compliance, safety, licenses) which are added to the payroll and high fixed capital investments (real estate, equipment, etc.)

Among producers, the situation is even more worrying. An industry participant indicates that obtaining a production license no longer has any real value in the cannabis market. With good reason, it is not surprising that several big stakeholders are gradually moving away from the production business to focus on processing, analytical testing and distribution. Indeed, as a participant working for a small producer mentions, the large companies now buy quantities of dried cannabis from his company or a comparable one. For big businesses, this is an excellent transaction since it allows to save part of the fixed costs of production and the costs of compliance. Although the transaction is to the advantage of large companies, it is inevitable for many small and medium stakeholders insofar as many do not have access to contracts with provincial wholesalers. Ultimately, the “two-speed” industry now distinguishes not only between big and small stakeholders, but in return enhances devotes a division of labor to the advantage of the bigger players.

⁶⁹ <https://www.horizonsetfs.com/home>.

⁷⁰ <https://nesta.co/>.

Box 4. Unsustainable margins for producers

A participant working as an accounting manager for a medium-sized stakeholder in the industry has shared profit margin estimates with us on some of its products to illustrate just how high the financial constraints of the industry can be. The latter confides that his **most profitable** product manages to make a margin of \$ 6.40 on a selling price of \$ 36.95 at the BC Cannabis Store. On the same product, the LCRB takes a margin of \$ 11.41, the province takes \$ 4.93 in taxes, the Agency of federal income takes \$ 2.52 and Health Canada takes \$ 0.68. After subtracting production costs (payroll, fixed costs, etc.), the company's profit margin is about \$ 0.5. For some of its products, the company has a negative margin. In the end, according to the participant, the governments always take at least 50% of the cost and producers always take a margin of less than 20%.

This idea that “all the good places are taken” in the industry (Deleu & Lorida 2019) is frequently mentioned by participants. For some of them, if the present situation is not corrected to the favour of smaller stakeholders, the medium-term economic impact will be significant: bankruptcies, massive job losses, drop in excise duty revenues, etc.

The Industry and the Goals of Legalization

For several participants from public administration, the development of a cannabis industry is a “necessary evil” of legalization. Especially in Quebec, companies (regardless of their size) are considered a threat to the public health objectives of the legalization. Following this perception, the significant regulatory and financial constraints that the industry knows is seen as a way to prevent the formation of a powerful oligopoly similar to that of the tobacco industry. However, as indicated here, these constraints have a disproportionate effect among small and medium stakeholders in the industry, which favours a significant market concentration.

This impact of regulations could in the long term have a perverse effect on the objectives of public health and safety legalization. With regard to alcohol policies, Canadian cannabis policies are significantly more restrictive as they are also based on certain regulatory provisions applied to the pharmaceutical and tobacco industries (Beauchesne 2020). However, in the eyes of a participant that is an expert on drug policy, cannabis use plays a social role that is more comparable to alcohol consumption than that of pharmaceutical drug use. Therefore, the rules (provincial, in particular) will tend to relax in favour of harmonization with alcohol policies. Indeed, like an industry participant mentioned, one of the next phases of legalization will undoubtedly be the normalization of cannabis consumption and a corresponding relaxation of the rules of consumption (cannabis coffees, consumption in public, etc.)

From this perspective, one of the very real threats of regulatory and financial constraints currently experienced is the artificial acceleration of the trend towards industry concentration. Eventually, when the rules relax (if they relax), it is plausible that a problem similar to that known historically with the tobacco industry will be encountered: in a permissive regulatory environment, a few major stakeholders would have influence and a power of action enabling them to actively undermine the initial objectives of legalization. It should be noted, however, that this threat remains hypothetical insofar as several participants from public administration in British Columbia and Ontario noted that they have seen no true sign of irresponsibility on the part of industry stakeholders so far.

Economic Effects of Legalization

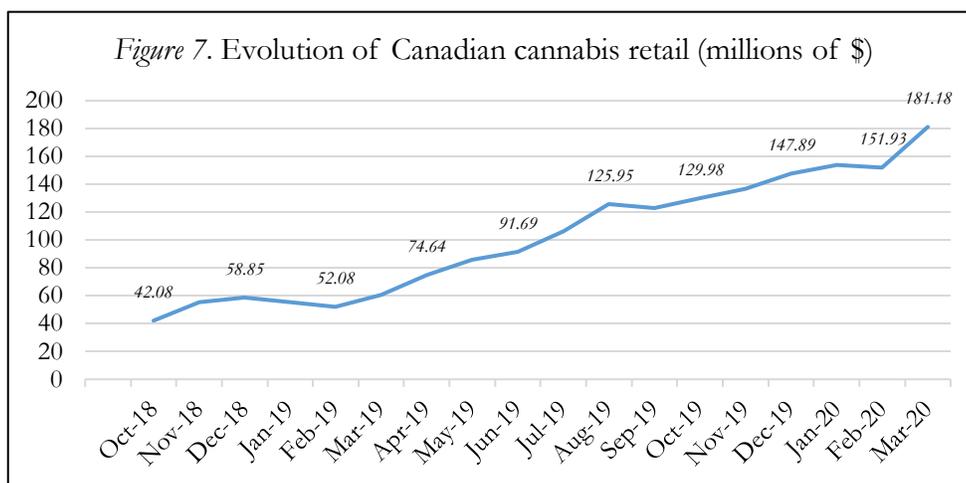
After discussing the particular issues and challenges of the cannabis industry, it is appropriate to broaden our economic analysis to its impacts on federal and provincial governments. One of the stated objectives of legalization at the federal level was the creation of a legal cannabis market and the transition from the illegal market to this new market. Mentioning the establishment of an excise duties system by the federal government, several participants pointed out that another of the implicit objectives of legalization were to enact this political change at a low cost for the State. In light of these and other considerations, this section presents some relevant indicators that allow to assess the economic impacts of legalization.

Economic Indicators of Legalization

The analysis is mainly based on the economic indicators whose data are made available through Health Canada or Statistics Canada. *Table 7 (Appendix 6)* shows the results of our research for four such indicators: (1) retail of cannabis, (2) household consumption expenditure, (3) market share from legal retail and (4) income from excise duties. After commenting the data for each indicator, the main revenues and expenses related to legalization in each of the provinces studied are presented (5). Then, we cover the question of online retail in the studied provinces (6). Finally, the economic impact of cannabis consumption in Canada is discussed (7).

(1) Retail

Since legalization, retail of cannabis in Canada has grown by over 330%, increasing from \$ 42 million in October 2018 to \$ 181 million in March 2020 (Statistics Canada 2020c). As shown in *Figure 7* below, the increase has been constant, which suggests that it is not an ephemeral effect of legalization, but rather a long-term trend.

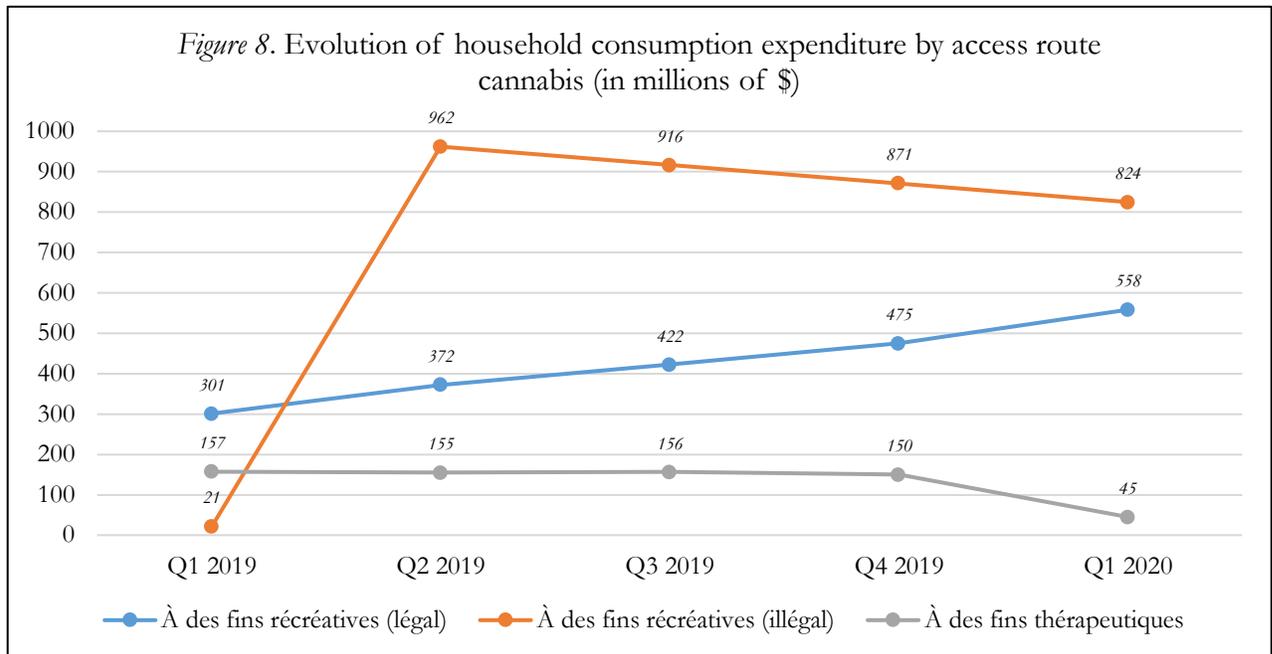


Source: Data presented in *Table 7 (Appendix 6)*

Also note that the amount of sales is not perfectly equivalent to the quantity sold, considering in part the fluctuations in cannabis prices, both on the legal market and the illegal market.

(2) Household consumption expenditure

Just like retail, we have seen a constant quarterly increase in the household consumption expenditure since legalization. Data (Statistics Canada 2020e) is sorted according to the preferred access route, namely (1) the legal market for recreational purposes (blue line), (2) the illegal market for recreational purposes (orange line)⁷¹ and (3) the legal market for therapeutic purposes (grey line). *Figure 8* illustrates the evolution of spending by access route between first quarter of 2019 (January to March 2019) and first quarter of 2020 (January to March 2020).



Source: Data reconciled in Table 7 (Appendix 6)

From second quarter of 2019 (April to June 2019), there is a downward trend in the share of user spending on the illegal market. Conversely, for the entire period, stable growth in user spending in the legal recreational market is noted. As for the market for therapeutic purposes, a slight decrease in expenditure is reported. However, the latter increases from the fourth quarter of 2019 (October to December 2019).

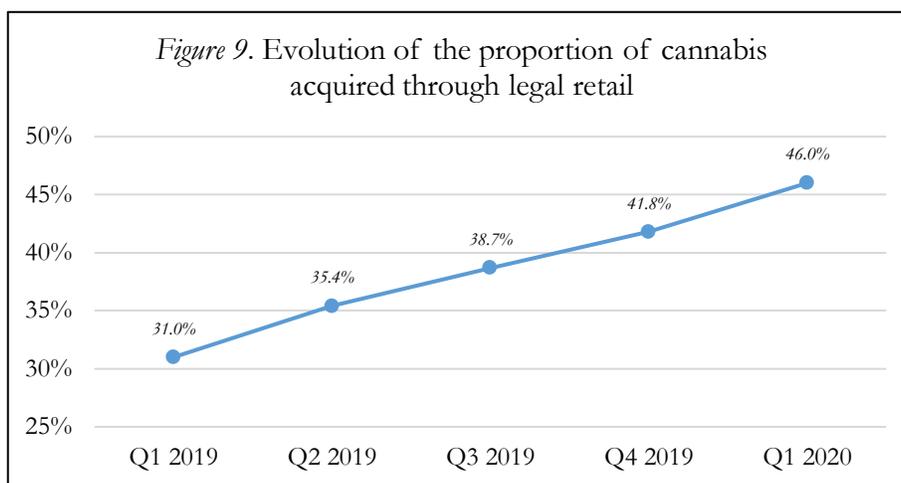
(3) Legal market and illegal market

One of the current cannabis policy challenges for the majority of participants is the transition from the illegal market to the legal market. This is a significant challenge since, as underlined by Mahamad & Hammond (2019) and Sen & Wyonch (2019), a well-organized illegal cannabis market already existed before legalization. The task is thus not only for the legal market to appeal to cannabis users, but also to foster an effective transfer of demand from the illegal market to the legal market.

⁷¹ In our view, the illegal market category should not specify the reason for consumption. Users in the illegal market can be used for both recreational and medical purposes.

One of the determining factors in this transfer is the capacity of the legal market to compete on prices (Amlung & MacKillop 2019, Childs & Stevens 2019). However, according to the available data, prices are significantly lower on the illegal market (Mahamad & *al.* 2020). For a participant from academia, one of the obstacles to reducing prices on the legal market comes from industry. The latter having resorted to financial economics to attract investments that it could not obtain from banks, the industry is now constrained to satisfy its shareholders with great return on investments. For another participant from academia, the main issue lies in the unparalleled flexibility of the illegal market. After legalization, prices on the illegal market have fallen substantially and to levels that the legal market cannot keep up with at the moment. The two arguments are quite plausible and not mutually exclusive. In knowledge of these, more research should be conducted on the specific factors that could explain this difference in price.

Based on available data on household consumption expenditure by access route, the proportion of the cannabis market acquired through legal retail (for recreational and medical) was estimated⁷². The evolution of this share is presented in *Figure 9*. Although according to Armstrong (2019a), legal retail estimates greatly overstate their real share in the cannabis market, the available data nevertheless show a significant and constant increase since legalization.



Source: Data reconciled in Table 7 (Appendix 6)

Certain institutional data make it possible to refine national estimates for the provinces studied. The OCS estimates that approximately 19% of the Ontario cannabis market is from legal source (Ontario Cannabis Store 2020). In Quebec, the SQDC estimates of the legal market share are at over 30% (Société québécoise cannabis 2020c). As for British Columbia, no estimate is produced by the LDB. However, survey data from the *National Cannabis Survey* (NCS) suggests that it is currently the least successful in the transition among the three provinces studied (Statistics Canada 2019b)⁷³.

Beyond adapting prices and increasing the number of stores to competition in the illegal market, certain provincial initiatives have been put in place to promote the transition to the legal market. We present

⁷² For each shift, we added up spending for recreational (legal) purposes and spending for therapeutic purposes, then divided by total household consumption expenditure.

⁷³ Answers to the NCS indeed suggest that for 2019, only 3.1% fewer declared users from British Columbia had access to cannabis illegally than in 2018 (compared to a difference of 12.7% in Ontario and 15.4% in Quebec).

two of them here. On the one hand, in Quebec, in order to compete with the illegal market service, the SQDC has set up a pilot project for same-day delivery in the Montreal metropolitan area. After a bidding period, the contract was awarded on May 19th 2020 to *Metro Supply Chain Group*⁷⁴, a company from Ontario. This pilot project is an example of an illegal market supply competition strategy that one of the participants from British Columbia called “mimicry.” In the logic of mimicry, it is by recognizing the forces of the illegal market (here the faster delivery) and reusing them for retail legal that the legal market can better compete with the illegal one.

On the other hand, in British Columbia, in an opposite logic to that of competition, a contract was awarded to *Community Futures* to promote illegal and quasi-legal market co-optation⁷⁵. As part of the *Cannabis Business Transition Initiative program*, the organization is responsible for helping illegal producers to make their own transition to the formal economy by supporting them financially and organizationally in the start of a company in good standing. The program was set up specifically in the district of Central Kootenay which, according to a participant from British Columbia, has more than 6,000 cannabis workers out of about 59,000 inhabitants (more than 10% of the population, then). The district also counts the highest concentration of medical licenses in the country, with 8% (2000 of 25,000) of licenses distributed by Health Canada for approximately 0.15% of the Canadian population⁷⁶. In the leading province for illegal production (Werb & al. 2012), this strategy could tackle the problem of transition at its source.

(4) *Income from excise duties*

Table 7 (*Appendix 6*) shows the evolution of income from excise duties for each order of government. Like the evolution of both household consumption expenditure and of proportion of legal retail out of total retail, income from excise duties has substantially increased since legalization, from a total of 180 million in fourth quarter of 2018 (October to December 2018) to \$ 256 million in first quarter of 2020 (January to March 2020).

(5) *Provincial legalization revenues and expenses*

There are significant provincial differences in the revenues associated with legalization. In Ontario, excise duty revenue for 2019-2020 is approximately \$ 155 million. Further, OCS (Ontario Ministry of Finance 2020) reports approximately \$ 80 million in net income from cannabis sales. According to Armstrong (2020), profit margins (*markups*) can be as high as 77% on legal cannabis products in Ontario. Accordingly, this has a positive impact on income, but above all a negative impact on competition with the illegal market price. In Quebec, the SQDC brings in more than \$ 93.5 million in tax revenue from retail and excise duty in 2019-2020. At the end of this fiscal year, the State corporation released \$ 26.3 million in dividends (Société québécoise du cannabis 2020c). As stated in

⁷⁴ The contract can be found on the site of the electronic tendering system of the Government of Quebec (reference number: 1322053). < [⁷⁵ <<https://futures.bc.ca/grow-your-business/cannabis/>>.](https://www.seao.ca/Recherche/adjudication.aspx?ItemId=cec8bfc8-449d-4e33-a816-d18d5884f236 & returnto =% 2FOpportunityPublication% 2FConsulterAvis% 2FRecherche% 3FcallingPage = 3% 26ItemId = cec8bfc8-449d-4e33-a816-d18d5884f236% 26COpp = Search% 26p = 4% 26searchId = d78878a1-4533-4a47-a759-ac160096c9e5% 26VPos = 621 & menu = & SubCategoryCode = & callingPage = 3 & searchId = d78878a1-4533-4a47-a759-ac160096c9e5 & Level2 = AdjResults > .</p></div><div data-bbox=)

⁷⁶ Based on population estimates by shift (Statistics Canada 2020b).

Bill 157⁷⁷, the entire amount is invested in the Fonds des revenus provenant de la vente du cannabis. The SQDC's financial results exceed forecasts despite profit margins of only 23% (Armstrong 2020). Finally, in British Columbia, excise duty revenue is only \$ 6 million dollars for 2019-2020 (BC Ministry of Finance 2020). It's a major difference with earlier estimates, surrounding about 50 million (Hager 2019). Net income from retail of cannabis to LDB is not available for 2019-2020. Moreover, in its previous report, the LDB does not differentiate the net income from alcohol and that from cannabis (BC Liquor Distribution Branch 2019). Depending on available data, the profit margin is also impossible to estimate (Armstrong 2020).

Such significant differences also exist in provincial spending related to legalizing the cannabis. For 2019-2020, Quebec is by far the province with the most government investments related to cannabis. The Fonds des revenus provenant de la vente du cannabis spent \$ 56.481 million, of which \$ 25 million was distributed prevention and research initiatives led by the MSSS (Quebec Ministry of Finance 2020). In Ontario, a sum of 40 million for two years has been invested in municipalities for the implementation of legalization through the *Ontario Cannabis Legalization Implementation Fund* (Ontario Ministry of Finance 2019a). In British Columbia, an amount of \$ 6 million has been granted for *Cannabis Safety Initiatives* (BC Ministry of Finance 2020). It will be particularly interesting to observe the links between the evolution of provincial spending on prevention and the comparative public health impact of legalization in each province.

(6) Online retail

For some participants, integrating the online purchase of legal cannabis into the habits of users is a challenge. Concerns about the security of personal data during an online purchase by credit card is a factor that might explain the reluctance of some users⁷⁸. Reflecting these concerns, the data available on online retail in the provinces studied suggest that users still largely favour in-store purchase. In Ontario, the OCS reports online retail of 71 million out of 314 million dollars in total retail (Ontario Cannabis Store 2020). This corresponds to approximately 23% of all legal cannabis purchases made. In Quebec, online retail is even less popular. Out of total retail of 286 million, 25 million was online (Société québécoise du cannabis 2020c), or about 9%. Data for British Columbia is still unavailable since online retail without recovery of items in store was not allowed until August 2020 (CBC News 2020).

(7) Economic costs of cannabis use

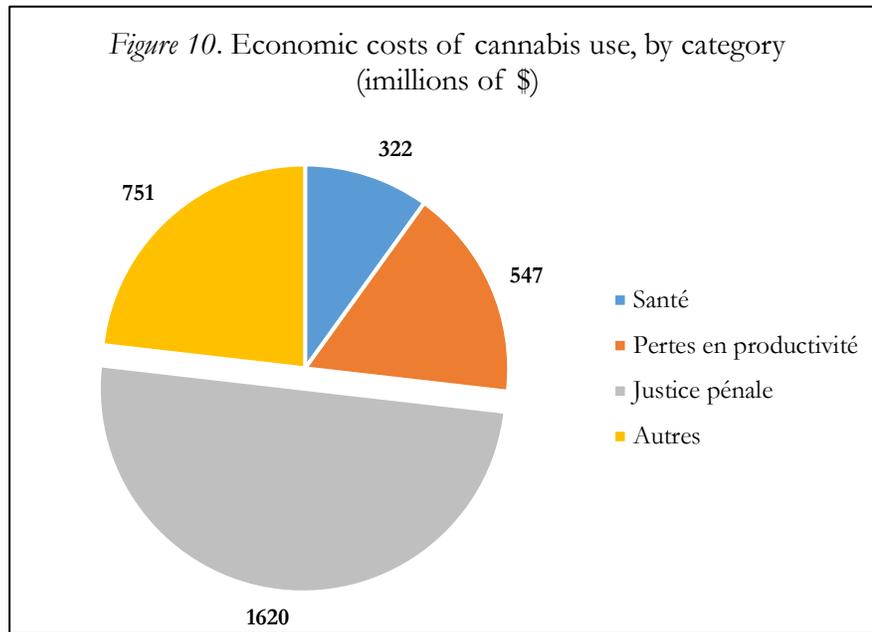
Using data collected between 2015 and 2017, the *Canadian Center on Substance Use and Addiction* has produced an interactive database on the costs and harms of drug use in Canada (Canadian Substance Use Costs and Harms 2020). Based on available data, it is estimated that cannabis consumption costs about \$ 3.24 billion or \$ 88.67 *per capita* annually. Although this economic burden is much lower than that of other drugs⁷⁹, it is no less relevant to use this data as part of an evaluation of the economic dimension of legalization, especially given that cannabis use promises to increase as a result of

⁷⁷ An Act to constitute the Société québécoise du cannabis, to enact the Cannabis Regulation Act and to amend various highway safety-related provisions, LQ 2018 (June 12), 1st session, 41th term, c 19, Art. 23.30.
<<http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=5&file=2018C19F.PDF>> .

⁷⁸ Considering that cannabis remains illegal in most countries (e.g. the United States), some participants pointed out that users fear they will face problems if intelligence agencies have access to these data. This is also true of insurance companies or other actors who may access personal data provided online.

⁷⁹ The annual costs are 16.63 billion (\$ 454.94) for alcohol, 12.28 billion (\$ 336.13) for tobacco and 5.95 billion (\$ 162.83) for opioids.

legalization (see next section). *Figure 10* below shows the distribution of costs for criminal justice, health, lost productivity and other costs. The most interesting question in the context of legalization is undoubtedly that of the costs of justice. Indeed, as shown in *Figure 10*, the legal costs associated with cannabis consumption represent about 50% of the total costs. However, since the consumption, possession and retail of cannabis are now legal, we should see a substantial reduction in these costs. As argued by a participant from academia, this means that legalization in itself makes it possible to reduce half the costs of cannabis use. On the other hand, it is certain that the administrative and public health costs will see some growth in the next few years if it is not already the case. Growing state revenues from cannabis legalization may help offset these new expenses.



Source: Canadian Substance Use Costs and Harms (2020)

Other Economic Challenges of Legalization: The Case of Environmental Impact

Until now, research on the economic dimension of legalization has mainly focused on the issue of prices and competition between legal and illegal sales. Although these elements are among the most important to consider for the future, subsequent research would benefit from focusing on innovative issues and proposing new avenues of research to better understand the multiple economic challenges of legalization.

For example, a participant from academia expert in the political dimension of legalization was the only one to suggest a link between cannabis legalization and environmental issues. According to him, the cannabis industry uses a phenomenal amount of natural resources (water, energy). In some provinces such as Alberta where the main source of energy is non-renewable (oil, in the Albertan case), this can pose a real environmental challenge at a time when the issue of climate change gains political salience. As the participant points out, the majority of producers are large-scale businesses, and Health Canada's permit system has been designed especially for them. Because environmental practices for cannabis production can be more difficult to integrate into a large-scale production than in an artisanal micro-production, the significant impact environmental impact of legalization would therefore be due in part to political and regulatory choices from the federal government.

Aside from the research by Craven & *al.* (2019) on pesticides, we have not identified any scientific article on legalization linked directly or indirectly to the environmental issue. This example of an innovative issue among others can allow us to broaden our perspective on the impact of legalization. This kind of questioning also makes it possible to insert legalization within broader reflections on the way in which the State has seized this new field of public action.

Public Health Effects of Legalization

Shortly before the second anniversary of legalization, studies on its impact on public health are rather rare. Within the scientific literature, the review conducted lists nine (Hammond & *al.* 2020, Karbakhsh, Smith & Pike 2018, Leyton 2019, Windle & *al.* 2019, Bahji & Stephenson 2019, Bedrouni 2018, Fischer & *al.* 2019, Fischer, Lee, & *al.* 2020, Fischer, Bullen, and *al.* 2020). However, most of these studies focus either on the formulation of tools for assessing policies or state an opinion on the impact of policies in place. Ultimately, the scientific literature allows us to ask the right questions rather than finding definitive answers.

Institutionally, public health impact assessments of legalization do not exist yet to our knowledge in British Columbia, Ontario and Quebec. In Quebec, under Bill 157⁸⁰, activity reports of the Vigilance Committee of the MSSS (Ministry of Health and Social Services of Quebec 2019) must be submitted annually to the ministry. According to some Quebec participants, the MSSS Vigilance Committee should look at policy evaluation for public health purposes in the Fall of 2020⁸¹. As stated by Wesley & Salomons (2019, 589), the two other provinces do not seem to have such an institutionalized plan to assess the public health impacts of their respective policies. Policy developments in British Columbia and Ontario are largely driven by regulatory changes of managing authorities (LCRB in British Columbia; ACBO in Ontario). This more decentralized model of political change calls for more informal evaluations within these organizations. Without having entrusted the file of the legalization of cannabis at the health ministry of their province, the health issue might not be perceived to be as crucial as it is in Quebec. Thus, public health assessments in British Columbia and Ontario may not be systematized at the institutional level.

A Cautious Assessment

In light of the lack of analyses on which to ground ours, the limited and sometimes poorly reliable data⁸², as well as the issues related to the lack of temporal hindsight, it seems wise to adopt a cautious stance when assessing the public health impacts of legalization. However, it is worth suggesting some bases for the assessment and discussing some of the available data. To do this, we rely on a series of indicators developed by Fischer & *al.* (2019). Their index of ten indicators assesses the potential impacts of legalization on several dimensions. To measure each of the indicators, the available data have been collected, despite some obvious limitations. The indicators, the nature of the measures collected and the data used for Canada, British Columbia, Ontario and Quebec are shown in *Table 8 (Appendix 7)*. In the present section, we comment on the results of this data collection.

1. Prevalence of use

⁸⁰ An Act to constitute the Société québécoise du cannabis, to enact the Cannabis Regulation Act and to amend various highway safety-related provisions, LQ 2018 (June 12), 1st session, 41st term, c 19, Art. 66. <<http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=5&file=2018C19F.PDF>> .

⁸¹ However, one participant mentioned that the file could be postponed until winter due to the COVID pandemic.

⁸² Statistics Canada data on cannabis, especially self-reported data, is often criticized by participants for their unreliability. Fischer, Lee, et *al.* (2020) themselves criticize this source of data. However, these data are often the only ones that allow us to compare the provinces on the same bases and thus avoid other problems related to the comparability of data sources.

In principle, the comparison of the prevalence of consumption between jurisdictions could ultimately allow the identification of political and regulatory decisions regarding cannabis that lead to an increase in consumption (Hammond & *al.* 2020). In the United States, analyses by Goodman & *al.* (2020) allow us to conclude that U.S. states that have legalized cannabis have higher prevalence rates than others, indicating that legalization is actually associated with more consumption. However, researchers indicate that the causal effect of policies is not measured in their study. Other causal variables may come into play (e.g. marketing control). Several of them can however precede legalization⁸³.

For the Canadian case, we measure the prevalence using self-reported data from the National Cannabis Survey (NCS) for 2018 and 2019 (Statistics Canada 2018, 2019b). In all Canada, there was an increase in consumption of 2.7% (21.9 to 24.6)⁸⁴. The same trend is shown in the provinces, with a respective increase in consumption of 3.3%, 1.7% and 2.9% in British Columbia (25.6 to 28.9), Ontario (23.7 to 25.4) and Quebec (15.9 to 18.8). Among young people aged 16 to 19, the increase across Canada is 7.8%, from 36.5 to 44.3%. In Ontario, the increase is 5.2%, from 38 to 43.2%. In Quebec, the prevalence among 16-19 year olds went from 30 to 46%, an increase of 16%. However, this last data seems to be distorted by the fact that the legal age was 18 in Quebec for the year 2019 (compared to 19 in the other two provinces). It will be interesting to see if the trend is overturned for the year 2020 with the raising of the age to 21⁸⁵. In British Columbia, only data for 2019 is available: in the last twelve months, 52.6% of 16-19 year olds respondents had used cannabis. The very weak repression of the illegal market in British Columbia certainly has played a role in the comparatively very high cannabis use among minors.

As for the median age of first cannabis use, it remains at 17 or 18 years between 2018 and 2019 across Canadian provinces⁸⁶. According to O'Loughlin & *al.* (2019), one of the causes of early initiation to cannabis in young people is parental use of the substance. Even though sources of informal cannabis prevention and education generally appear to be preferable among young people (Hathaway 2019), this study warns against too much normalization of the substance at home. However, given the high margins of error for each of the consumption data, it seems imprudent at this stage to declare whether the increase is a constant or only a temporary effect. It should also be noted that there are large disparities in the prevalence of consumption between provinces, from almost 30% in British Columbia to less than 20% in Quebec⁸⁷. Using the data from NCS, Sandhu, Anderson & Busse (2019) show that 18.5% of respondents planned to learn about cannabis or increased their use following legalization. The factors associated with intent to attempt or increase use were (1) a younger age, (2) pre-legalized cannabis use, (3) higher income and (4) poorer condition mental health.

The measurement of the prevalence rate of consumption has a major limitation within a public health assessment. As Fischer & *al.* (2019, 413) states, “use is not a tangible harm in itself.” Despite the

⁸³ This is particularly true in the United States where legalization resulted from a popular initiative, that is all legalizing states except Vermont and Illinois (Benoit & Lévesque 2020). This “bottom-up” type process leads to believe that the legalizing states are also those where consumption is most frequent and/or normalized.

⁸⁴ Consumption is measured by asking respondents to report whether or not they have used cannabis in the last twelve months.

⁸⁵ All of the Quebec participants with whom the subject was discussed believe that raising the age will not substantially effect consumption. The accessibility of the illegal market already enabled young people to obtain supplies easily before legalization and there is no indication that the situation has changed since.

⁸⁶ Note that the median age is rather around 16 in the territories.

⁸⁷ According to several participants, the low self-reported prevalence in Quebec is due in large part to the low normalization of cannabis use in the province. Thus, the differences noted between provinces might not be as large as data shows.

popularity of this measure in studies⁸⁸, the prevalence rate tells us nothing about the actual harms caused by cannabis use. It is the same among young people, for whom only frequent (or even daily) cannabis use is a predictor of the emergence and development of psychotic disorders (Leyton 2019). As Beauchesne (2020, 102, our translation) argues, “several studies limit themselves to measuring whether there has been an increase or not in cannabis use, especially among young people, to judge the benefits or the harms of legalization. If it has increased, it automatically means that legalization is not good, or even that it has very negative effects. However, if we depart from a perspective that sees cannabis use itself as a deviant act and sees abstinence as the ultimate goal, one should then seek to know 1) whether or not there has been an increase in risky use among young people; 2) whether or not it is easier in a context of legalization to help those who have developed a problematic relation to the drug in regard to the situation during prohibition [...] Once again, these statistics, without saying so explicitly, transform consumption itself into a problem and consider these measures as the proof of an increase or reduction of the problem, depoliticizing an issue that would otherwise require political intervention upon certain problematic living conditions.”

2. Consumption trends

Some indicators may be relevant for measuring consumption trends, but the most popular measure in the literature is frequency of use. Several studies show that frequent use of cannabis (daily or almost daily) can cause physical and/or mental health problems, particularly among young people (Girgis & *al.* 2020, Leyton 2019, Zuckermann & *al.* 2019). Thus, the evolution of the proportion of reported users who consume cannabis daily or almost daily⁸⁹ is an essential measure for evaluating policies from a public health perspective.

At the Canadian level and in the provinces that interest us, daily or near-daily use saw stagnation between 2018 and 2019 (an increase or decrease of less than the margin of error). Daily use varies little between the provinces, from 22.2% in Quebec to 25.5% in British Columbia in 2019. Frequency of use by age is only available for 2019 and for 16- to 19-year-olds. For 2019, 9.3% (6.6% to 13.1%) of 16- to 19-year-olds report using cannabis daily (Statistics Canada 2019b, Table 26). Data on near-daily consumption, however, remains unavailable. The same goes for the data on age according to the province of residence.

3. Modes of consumption

Between 2018 and 2019, the general trend across Canada and in the three provinces studied is a slight decrease in the consumption of smoked cannabis and an increase in other modes of consumption. In *Table 8 (Appendix 7)*, we have selected the two modes of consumption that are the most widely discussed in the literature, namely edibles and e-cigarettes. Despite variations in the same direction of consumption patterns, a major disparity exists between Quebec and the other two provinces. Indeed, in both British Columbia and Ontario, the popularity of alternative modes of consumption greatly exceeds that of Quebec. First, while 32.8% of reported users in British Columbia and 28.8% of reported users in Ontario used portable vaporizers in 2019, only 17% used it in Quebec. On the other hand, while edibles have been used by 49.3% and 52.6% of users in British Columbia and Ontario respectively, the proportion stood at 27.4% in Quebec in 2019.

⁸⁸ Perhaps this is simply a bias due to the accessibility of this statistical measure *vis-à-vis* other more precise measures such as consumption trends.

⁸⁹ 5 or more times per week.

We have not found a precise explanation for these disparities in the literature or over the years in interviews. However, between 2018 and 2019, alternative consumption patterns experienced a dazzling increase in Quebec compared to the other two provinces. For e-cigarettes, the increase was 8.1% compared to a decrease of 2.6% in British Columbia and an increase 2.8% in Ontario; for edibles, the increase reached 9.3% against respective increases of 1.4% and 3.9% in British Columbia and Ontario. In the light of a comparatively low consumption of non-smoked cannabis, but considering the significantly higher increase in the last two years, it is likely that alternative modes of consumption were less well known in Quebec than elsewhere in Canada before the legalization, which may have resulted in a form of “catching up” on the part of the province. Also, the data presented only prevalence of use of these modes of consumption and not frequency. In this sense, we cannot measure the actual consumption of cannabis by alternative means. Almost a year after legalization of edible products, it will be interesting to compare the retail of the latter between the different provinces. However, considering the substantial differences in the supply of edible products between provinces⁹⁰ this data will not allow us to actually assess the consumption of these products, but only their legal consumption.

There is no scientific consensus on the safest mode of consumption and too little data is available (Russell & *al.* 2018). However, in light of existing studies, the consumption of edible products or sprays subject to strict regulations such as portion regulations, limits on THC content, high standards of quality, clear and informative labeling or even child-safe packaging seems better than consuming dried cannabis in a public health perspective. Indeed, insofar as the effects of cannabis smoke are known and definitely harmful to both smokers and those who inhale second-hand smoke (McKee & *al.* 2018), well-regulated alternative products whose use is made by an informed user should be privileged. In this sense, the variations of consumption patterns observed using this type of product should generally be viewed favourably.

During the interviews, several participants – all from Quebec – showed reluctance to the selling and use of alternative cannabis products, edible products in particular. This reluctance is based on recurring concerns which, although legitimate, may be avoided through effective prevention and education. Among these concerns, we note the possible problems of THC dosage of edible products or the unknown time between their ingestion and their effects. Faced with these very real challenges for public health, legalization and the regulated market for these products allows more effective risk communication and dissemination of information for informed consumption. This argument is reiterated by Hammond (2019), who emphasizes the importance of easy-to-read and informative packaging to avoid the preventable harms of cannabis use. Faced with an increase in the use of alternative consumption, additional attention must therefore be paid to labeling.

Participants who are reluctant to alternative consumption means also point out that these have greater marketing potential than dried cannabis. The scientific literature corroborates this concern, edible products having greater attractiveness than smoked products, especially among young people (Goodman, Leos-Toro & Hammond 2019; Fataar & Hammond 2019). However, it remains to be shown that the ban reduces the attractiveness of such products. The increase in the prevalence of use between 2018 and 2019 – a period when edible products were still prohibited – does not seem to confirm this hypothesis. Knowing this, the real public health issue lies rather in the nature of the edible products used. As indicated by Grewal & Loh (2020), edibles prepared at home (by extension, those

⁹⁰ As discussed in the section on modes of regulation, British Columbia and Ontario restrict a little or not at all the nature of the edible products sold on the legal market. Conversely, most edibles cannot be sold at the SQDC.

that are available on the black market) result in considerably more risk since the distribution of THC within the same item (e.g. cake) is random. The dosage can vary just as randomly between two different products in the absence of regulations. These potential harms can be avoided completely under factory-prepared products that must meet the standards set by Health Canada. In definitive, based on available knowledge, it is likely that product restrictions on edibles increase the likelihood of poisonings associated with edible products as they will become normalized and, if we follow the current trend, used increasingly. The dangers of illegal use of these products far exceed its regulated use, its use in itself is less harmful than smoked cannabis and, as the history of the drug prohibition has shown so far, use cannot really be thwarted by prohibition.

Apart from the arguments related to the potential harms of edible products use, a final concern of participants is the possibility of their ingestion by children. In light of the available data, this concern seems largely unfounded. Between 2000 and 2013, less than 0.6 cases per 100,000 inhabitants are reported in the United States (Russell & *al.* 2018, 92). To paraphrase a participant, accidents can certainly happen, but if parents can keep bleach away from their children, they are able to do the same with edible cannabis products. The likelihood of this type of accidents can also be avoided at least partially through prevention.

In light of all these considerations, it seems that a transition from smoked consumption to regulated alternative consumption patterns be desirable. However, as noted by an expert participant in public health, there is no evidence yet of a real transfer from one mode of consumption to another. According to the participant, for the moment, a duplication of consumption is more likely. Thus, the evaluation of the impact of the retail of alternative cannabis use could be made through the interaction of three measures, namely (1) the prevalence of dried cannabis use, (2) the number of cannabis-related hospitalizations and (3) the frequency of cannabis use. A decline in the first two categories would suggest both a transfer to the alternative consumption means and an environment that promotes responsible consumption for this type of products. Changes in daily or near-daily consumption could indicate the impact of consumption alternatives on the development of problematic consumption habits.

4. *THC level of products*

The exact rate of THC in the products is *a priori* a difficult measure to collect in a survey. In the context of the NCS, a qualitative measurement of the THC used was favoured, while the respondents were asked to specify whether they opted for products containing more THC, more CBD or a balance between the two. Currently, data is only available for 2019 and across Canada. For now, products with more THC are prioritized at 36.5% against 13.4% for products stronger in CBD and 16% for balanced products. The proportion is even higher among young people aged 16 to 19, who opt for 40.4% for THC-dominant products. A proportion of 35.4% of them also opt for balanced products, while only 14.8% prefer products stronger in CBD. Especially among young people, this data can be worrying from a public health point of view. Indeed, THC is known to increase the likelihood of health problems, especially among young people (Girgis & *al.* 2020, Leyton 2019, Zuckermann & *al.* 2019). In that sense, it will be interesting to follow the evolution of the distribution of preferences between the three categories of products. On the other hand, the preferred type of product does not give us any indication of the rate of THC used. As such, the share of retail captured by the legal market – in which THC limits are set and clearly communicated to users – remains the most relevant measure in our view.

According to two participants working on the implementation of legalization, despite its impact on health, we might need to offer legal products with higher THC levels if we wish to make a successful transition from the illegal market to the legal market. For one of the participants, a minority of cannabis users consume the majority of cannabis⁹¹, and this minority of frequent and experienced users use products with a high THC concentration. Considering that they represent an important part of the demand, the legal market will one day have to adapt to their reality in order to integrate them. For these two participants, it is nevertheless perfectly understandable that less concentrated products are sold in the early days of implementation.

5. Source of products used

For a majority of participants working on the implementation of policies on cannabis, particularly those in British Columbia and Ontario, the legal market share of cannabis is one of the main concerns from a public health perspective. The knowledge of the source and the nature of the product, the control of its quality and the bond of trust conducive to education that can be nurtured between retailers and users are often referred to as the advantages of the legal market over the illegal market. A participant from government in British Columbia believed that all policies in place were to serve the objective of transitioning from the illegal market to the legal market. This predominantly economic stance in face of public health challenges seems to be shared equally by several Ontario participants. Conversely, in Quebec (except for industry participants), although the issue of the illegal market was addressed, several other concerns surrounding the potential harms of cannabis were brought to the forefront.

In order to measure this indicator, we use NCS data for several sources of products: access through legal means, access through illegal means and access through personal cultivation (by oneself or someone else). Considering that cannabis was legalized in late 2018, data for legal access is only relevant for 2019⁹². On the first year of legalization, 52% of reported users used the legal market across Canada. This is true of 36.6%, 47.3% and 58% of declared users of British Columbia, Ontario and Quebec, respectively. For purchase through the illegal market between 2018 and 2019, a substantial drop was noted across Canada (11.6%, or from 51.7% to 40.1%). A similar trend is observed in Ontario (decrease of 12.7%, 50.6% at 37.9%) and in Quebec (decrease of 15.4%, from 55.5% to 40.1%). In British Columbia, the decline reported use of the illegal market is only 3.1% (from 54.5% to 51.4%).

In order to measure more specifically the transition from the illegal market to the legal market, *Table 8 (Appendix 7)* also presents data on access to cannabis only by legal means. In the long term, this measure seems the most reliable for evaluating the success of the legal alternative and the real transition to the latter. Ideally, an accessible and competitive legal stores network would not only attract the users out of curiosity, but would also know how to retain them. From a public health perspective, this transition of users from one market to another also ensures the quality and safety of all cannabis

⁹¹ Indeed, for the participant, just as would be corroborated by the 80/20 principle of economist Vilfredo Pareto, a low proportion of users (e.g. 20%) consume the vast majority of cannabis products in Canada (e.g. 80%).

⁹² Statistics Canada (2019a, 17) notes that a greater than expected proportion of respondents indicate having used cannabis legally in 2018 (22.7%), even though cannabis was illegal. This may indicate that a significant proportion of declared users were not able to distinguish between the legal market and the illegal market. Some of the participants from British Columbia and Ontario noted that differentiating between the two is still a challenge in their province as some traders establish illegal stores which look just like a private legal store. Faced with this situation, it becomes undoubtedly more difficult for users to differentiate between the legal and illegal markets.

products that are used. However, for a drug expert participant, such a transition could be long. Knowing the importance of ingrained habits for understanding consumption, the most important transition will probably be made within the first cohorts not having experienced the prohibition of cannabis. Canada-wide, 29.4% of respondents indicated that they obtained cannabis only through legal means in 2019. Data is similar in Ontario (27.6%) and Quebec (34.3%). In British Columbia, the proportion is significantly lower (16.8%). Faced with this important disparity, research should be conducted in British Columbia to identify the factors that hamper the implementation of the legal market more than in other provinces.

Finally, we collected data on the supply of cannabis through cultivation of cannabis for personal use (by oneself or by someone else). For 2018, the three provinces are representative of the Canadian average (8.8%), with between 8.6% (Colombia-British) and 10.9% (Quebec) of users who have used cannabis cultivated for personal purposes. Data for 2019 show relative stagnation (increase below the margin of error) both in Canada, British Columbia and Ontario. For the case of Quebec, a drop of nearly 50% is noted (from nearly 10.9% to 5.5%). With all reservations, we believe that the drop is distorted or at least significantly inflated by respondents. In the presence of new regulation which explicitly prohibits cannabis cultivation for personal purposes⁹³, the perception of the risk linked to an admission of having cultivated cannabis must have increased in the people concerned. Conversely, it seems very unlikely that 5.4% of users suddenly stopped cultivating cannabis within a year of legalization.

6. Driving under the influence of cannabis and related accidents

Trends in driving under the influence of cannabis provide a measure of whether legalization leads to an increase or a decrease in behaviours that endanger users. According to Fischer & *al.* (2019, 414), this measure seems to be considered in the literature as one of the main harm burdens associated with cannabis use. A significant increase could indicate that effective education is needed to change behaviour. For the moment, except in British Columbia, NCS data shows a decrease of between 0.8% and 1% of driving while under the influence of cannabis. Conversely, in British Columbia, there is 3.3% increase. Across Canada and in the three provinces studied, there is a slight decrease (between 0.2% and 2.2%) of respondents having been passengers in a vehicle whose driver had used cannabis.

Number of impaired driving arrests are only available for 2018 (Statistics Canada 2020d). Data available for British Columbia (14.44 per 100,000 inhabitants) and Quebec (13.4 per 100,000 inhabitants) is representative of the Canadian average (12.63 per 100,000 population). In Ontario, the arrest rate is much lower (6.8 per 100,000 inhabitants) However, the proportion of Ontario NCS respondents who drove under the effect of cannabis is not significantly lower than in the other provinces (12.4% in 2019 compared to 15.1% in British Columbia and 13.7% in Quebec). In this context, others hypotheses should be explored in future research.

7. Hospitalizations (including poisonings)

Cannabis use hospitalization rates (primary diagnosis) were not collected nationally or provincially since 2017. According to this data, the Canadian average of hospitalizations directly related to cannabis is 16.69 per 100,000 inhabitants. In British Columbia, the rate is 32.04, in Ontario 13.4 and in Quebec

⁹³ An Act to constitute the Société québécoise du cannabis, to enact the Cannabis Regulation Act and to amend various highway safety-related provisions, LQ 2018, 1st session, 41th term, c 19, Art. 66.
<<http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=5&file=2018C19F.PDF>> .

8.8 (Canadian Substance Use Costs and Harms 2020, Institut national de santé publique du Québec (INSPQ) 2020a). The current data does not allow us to assess the impact of legalization, but this indicator should be closely monitored given the trend has increased since at least 2011 (Fischer & *al.* 2019, 415).

According to Hammond (2019), information communicated to users through packaging have a crucial impact on possible cannabis poisonings. For the latter, some information on current regulatory packaging is still insufficient to minimize the risks. For example, the information on THC in cannabis oils is given per milliliter (e.g. 25 mg of THC / ml). However, the conversion for other quantities (0.2 ml, 0.5 ml or 5 ml) is not given, which means that the user must calculate the quantities. For Hammond (2019, 3), since it is well established that a high number users do not have the mathematical skills necessary to perform these conversions, the lack of details on packages can possibly lead to higher risks of poisoning. This is all truer since the legalization of edible products in October 2019.

8. Cannabis addictions

For Fischer & *al.* (2019), the evolution of data on cannabis addiction is crucial to understanding the impact of legalization. However, as the latter indicates, there is no recent national data on this matter⁹⁴. We do know, however, that cannabis addiction disorders are an important health issue in Canada (Jutras-Aswad & *al.* 2019). Academic and/or institutional research should therefore address this question important in the years to come.

9. Other psychoactive substances used

For Fischer & *al.* (2019, 415), the evaluation of the interaction between cannabis and other is of a dual nature from a public health point of view. On the one hand, the combination of cannabis use with other drugs should be closely monitored. For this purpose, we have collected measurements of combination of alcohol⁹⁵ and cannabis as part of the NCS. Only the National data for 2019 is available. It is reported that 27.6% of respondents say they never combine both substances, while 14.7% of them say they combine them often or always. Comparative data both between provinces that between years will be needed to identify trends.

On the other hand, Fischer & *al.* (2019, 415) indicate that the interaction between access to cannabis and opioid consumption should be measured. Some researchers believe that the accessibility of cannabis reduces the harms associated with opioids. Cannabis legalization can thus be part of the solutions to the current opioid crisis in North America (Minhee & Calandrillo 2019, Valleriani & *al.* 2020). In this perspective, despite its potential harm to public health, legalization can also help to improve the health of a vulnerable part of the population. Comparative data on mortality and hospitalizations related to opioid use were collected from Health Canada (2020f) for 2018 and 2019 nationally and in the provinces studied. For mortality, a decrease is observed with 575 cases nationally (4398 to 3823) and 566 in British Columbia (1561 to 995). On the other hand, an increase of 62 cases in Ontario (1473 to 1535) and of 227 cases in Quebec (187 to 414) is noted. For hospitalizations directly attributable to opioid use, we observed a decrease of 617 cases across Canada (5052 to 4435), from 272 cases in British Columbia (1418-1146) and 118 cases in Ontario (2095-1977). In Quebec, an

⁹⁴ The latest data available at the national level and by province actually dates back to 2014.

⁹⁵ Alcohol was chosen arbitrarily since it is both the most widely used drug and the most likely to be combined with cannabis.

increase of 56 case was observed (1183 to 1239) (Institut national de santé publique du Québec (INSPQ) 2020b).

For now, it is unwise to comment on the impact of cannabis legalization on the evolution of these trends, as it may be due to multiple factors. However, given the studies linking cannabis legalization to a drop in opioid overdoses in the United States (Fischer & *al.* 2019, Valleriani & *al.* 2020), research in this direction should be carried out in Canada to see if easier access to cannabis has actually reduced opioid-related harms. Based on interviews with opioid users accessing a free cannabis distribution program in Vancouver, a study by Valleriani & *al.* (2020) shows that such a program allows its beneficiaries to reduce their opioid consumption or sometimes even completely substitute it. Knowing this, research could be carried out on the possibility of this transfer from one substance to another, and pilot projects should be considered in communities particularly affected by the opioid crisis.

10. Harm to others

Harm to others can be measured in several ways (e.g. injury, ingestion by children, impact on infants of consumption during pregnancy, etc.) according to Fischer & *al.* (2019, 416). However, as these researchers indicate, the data to measure this indicator are usually unavailable. Currently, NCS data from 2018 and 2019 do not allow us to measure this indicator adequately. This indicator should therefore be undertaken by further studies.

Discussion

Let us underline three important limitations to this evaluation of the public health impacts of legalization. On the one hand, at this stage of implementation, a full assessment is premature. This view is shared both in the literature (Fischer, Lee, & *al.* 2020) and by participants from academia or public health. Trends will change and stabilize through the years, which leads us to reiterate the importance of prudence in the analysis of results. Nevertheless, the assessment tool used to paint a picture here can provide indications on (1) which indicators are important for public health and on (2) which sources of data and what measures allow these indicators to be adequately assessed.

On the other hand, it should be noted that one of the reasons why the evaluation remains premature at this stage is the lack of research on the health impacts of various patterns of use (frequency, age, mode of consumption, etc.) Since legalization, the Canadian government announced several grant programs for medical and public health research as part of the Integrated Cannabis Research Strategy (Canadian Institutes of Health Research 2020). A total of 53 studies were funded for a total of over \$ 16 million (not including external funding). These occasions of public funding can lead to independent, quality studies. Like Shover & Humphreys (2019), the strict separation between scientific research in health and the cannabis industry is essential to avoid overflows, and substantial public funding is certainly beneficial for this purpose. In light of the projects funded since 2018 (see *Table 9 [Appendix 8]*), some of the gaps in the literature could well be filled in the next years.

Finally, as Beauchesne (2020, 64) argues, it is important to assess the consumption of drugs at the intersection of three components: “the products themselves (concentration, quantity, quality, mode of use), the role they play in people’s lives (positive or negative expectations, personality, mental and emotional state, motivations of use) and various environmental parameters surrounding use (legal context, conditions of life, cultural environment, immediate environment) the product, the user and the environment.” In short, the assessment of the actual harms caused by cannabis legalization goes

well beyond the potential understanding offered by survey data and other available statistics. To this end, a participant expert on drug issues noted that the quantitative assessments of public health impacts often have significant limitations. We know that the harms of consumption are not evenly distributed within the population and depend on a multiplicity of factors. Thus, a qualitative understanding of the interaction between the product, people and the environment, as done in the study by Valleriani & *al.* (2020), seems to be equally if not more important.

From assessment to prevention

The concern raised about the limits of quantitative analyses in public health must also translate into prevention which, instead of tackling potential harms of legalization in a universalistic manner, targets populations at risk in their environment to better intervene (Fallu & *al.* 2019). In light of their study of young people in schools, Zuckermann & *al.* (2020) reiterate the importance of targeted prevention, especially in schools. Hathaway (2019) also highlights the effectiveness of informal means of prevention (by peers, among others), whose potential is maximized when substance use is no longer stigmatized and when sharing information about it becomes acceptable.

In Quebec, a participant working on the implementation of legalization indicated that the vulnerable category of population that is mainly considered by the current government is young people (the people with a history of mental health and in a disadvantaged situation were also considered). Ministerial prevention clearly reflects this concern by targeting almost only young people in their advertising (Gouvernement du Québec 2020b, Ministère de la Santé & des Services sociaux du Québec 2020). According to our observations, the populations targeted by the Canadian government are more diverse (Health Canada 2020g). In the other two provinces, the main vulnerable populations were not clearly identified by the participants. Also, according to our observations, news websites in British Columbia and Ontario often refer users to Health Canada resources (British Columbia Government 2020a, Ontario Government 2020b), which is not the case for the websites of the Quebecois government.

Effects of Legalization on Crime

One of the main arguments for legalizing cannabis is that the possession and use of the drug should not be a crime but rather a choice (Nolin & Kenny 2002a). Along with this moral issue, there is also the issue of the burden borne by the legal system under prohibition. Research has long suggested that prohibition generates disproportionate costs *vis-à-vis* the harms caused by use (Le Dain 1972). Accordingly, we saw in the section “Economic Effects of Legalization” that about half the costs of cannabis consumption in Canada between 2015 and 2017 were attributable to justice costs (Canadian Substance Use Costs and Harms 2020). In this sense, for the purpose of this report, it is necessary to draw up a brief portrait of the impact of legalization on crime and police repression.

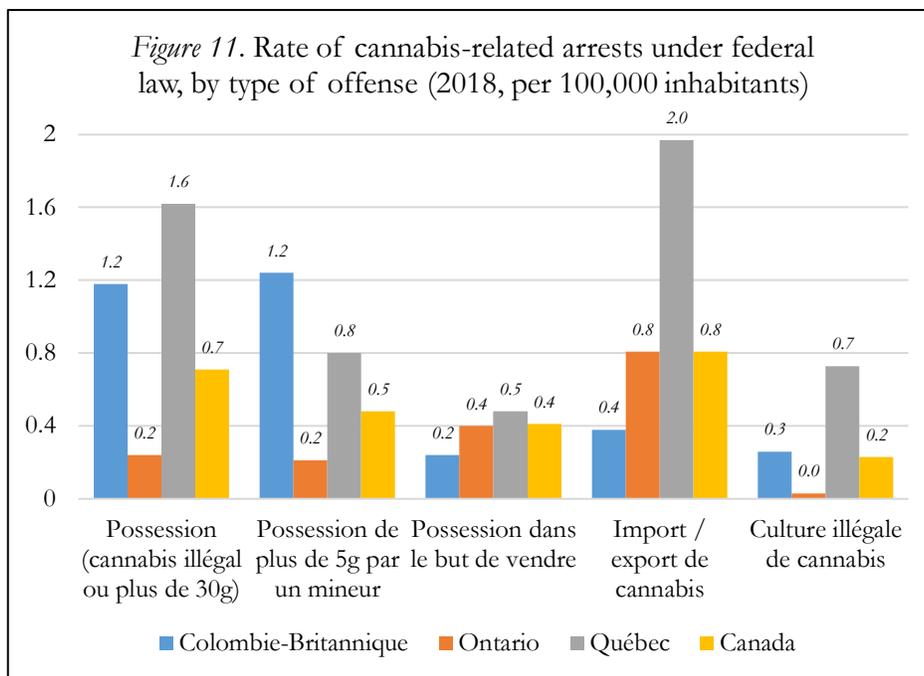
Data on Arrests

Statistics Canada compiles annual arrest data for Canada and for each of the provinces and territories. In order to measure the intensity of police repression before legalization, we compiled arrest rates for possession of cannabis for the last years before legalization (2014–2017). The data is reconciled presented in *Table 10 (Appendix 9)*. Between 2014 and 2017, the Canadian arrest rate drops from 163.33 percent to 106.13 per 100,000, a decrease of 35%. Except in New Brunswick and Prince Edward Island (where slight increases are noted), a similar downward trend is observed in the provinces and territories. In British Columbia, a drop of almost 40% is observed (from 317.67 to 191.32). Nevertheless, it remains the province with the highest concentration offenses. In Ontario, a drop of 40% is also observed (126.92 to 75.61). In Quebec, the decrease is rather of the order of 19% (148.06 to 120.29). Across Canada, offenses for cannabis possession accounted for between 1.76% and 2.8% of all offenses for the period 2014–2017 (Statistics Canada 2020d).

Cannabis legalization has substantially altered the intensity of the repression against cannabis offenses. For several categories of offenses (possession of illegal cannabis or more than 30g of dried cannabis, possession of more than 5g by a minor, possession for the purpose of selling, importing / exporting cannabis and illegally cultivating cannabis), we have collected the latest data available on federal offenses (Statistics Canada 2020a). Data for all provinces is presented in *Table 11 (Appendix 9)*. *Figure 11* below shows the arrest rate per 100 000 inhabitants for across Canada as well as for the three provinces studied. For possession of illegal cannabis or more than 30g of dried cannabis, an arrest rate of 0.71 per 100,000 is reported in Canada. The rate is respectively 1.18 in British Columbia, 0.24 in Ontario and 1.62 in Quebec. Although there are interprovincial disparities, the arrest rates are in all cases significantly lower than those reported before legalization. At the Canadian level, the drop in the number of arrests for possession is around 99.6%. As such, the hypothesis of a virtual nullification of the legal costs of cannabis consumption seems to hold up⁹⁶.

In light of provincial regulations, another interesting category is that of offenses for illegal cultivation of cannabis. In Quebec, where culture for personal purposes is prohibited, there is indeed a higher rate than in the other provinces (0.73 against 0.24 across Canada). However, in Manitoba, the rate is significantly below the Canadian rate, with only 0.07 arrests per 100,000. This may indicate that the arrests are not necessarily a reflection of the regulations, but that other factors may come into account. Among these, it would be interesting to assess the impact of the priorities of the provincial police forces on repression of this or that activity.

⁹⁶ See the section on “The Economic Effects of Legalization”.



Source: Statistics Canada (2020a)

Police practices

Since legalization, provincial police departments have had to adapt to new requirements in terms of maintaining order. According to a participant from a police force, legalization has forced a particularly quick adaptation to different federal, provincial and municipal regulations. In light of this observation, we take a look at some of the issues related to police practices.

Training

Among the challenges of legalization for police services, the need to train police officers in the implementation of laws is one of the most demanding. In order to meet this new need, the *Ontario Provincial Police* (OPP) has trained over 7,000⁹⁷ of its employees (out of 8,284 in 2019) using an online course (Ontario Provincial Police 2019). In Quebec, more than 80% of the 5,529 police officers of the *Sûreté du Québec* (SQ) completed the online training to this effect (Sûreté du Québec 2019). In British Columbia, like most Canadian provinces, it is the *Gendarmerie Royal Canadian Mounted Police* (RCMP) which assumes the function of provincial policing. Although the RCMP has a training program to meet the new requirements of legalization (Royal Canadian Mounted Police 2018), we were unable to find the data on the extent of training in British Columbia.

Screening

The integration of new screening technologies is also a challenge of legalization. One of the reasons given for this challenge is that cannabis detection devices are still in full swing development, and that reliability issues may arise (Stilman 2019). The other issue is that of financing the acquisition of these technologies considering that they are expensive. According to a participant from a police force, new

⁹⁷

resources have not been necessarily invested in the repression of cannabis users following legalization. Thus, a participant from the implementation of policies in Quebec indicated that to his knowledge, the Quebec police services were not yet equipped. In Ontario, a participant from the municipal sector conversely told us that some police forces had started the acquisition of detection devices. In British Columbia, we did not access this information.

Production, distribution and traffic

Before and after legalization, a participant from a police force specified that the priority in law enforcement related to cannabis is the seizure of illegal productions and the dismantlement of traffic networks rather than compliance with possession and consumption rules (legal age, public consumption, etc.) Illegal online retail would also constitute an increasing priority. To this end, we have identified a provincial program addressing this type of crimes in Ontario and Quebec, respectively the *OPP Cannabis Strategy* (Ontario Provincial Police 2019, 40) and the *Accès-cannabis* program (Sûreté du Québec 2020).

In British Columbia, the absence of a provincial police corps forced us to estimate the practices from municipal bodies. We have selected the three largest police services municipalities based on the population of the city served, i.e. the *Vancouver Police Department*, the *Victoria/Esquimalt Police Department* and the *Abbotsford Police Department*⁹⁸. In the annual reports of each of these police services we find no mention of a specific program related to cannabis (Vancouver Police Department 2019, Victoria/Esquimalt Police Department 2019, Abbotsford Police Department 2019). Consequently, our hypothesis is that the British Columbia is implementing a sort of *laissez-faire* approach to offenses related to cannabis.

Two participants from British Columbia corroborate this hypothesis. One of them specifies that the provincial public administration does not maintain repressive relations with retailers. In fact, for the participant, it is assumed rather that the industry wishes to conform by itself and act accordingly. The other participant suggests that the same attitude is adopted by police forces with regard to illegal production. According to him, there is at the moment very little police repression of producers in a logic of respect for the transition from an illegal market to a legal market. Ultimately, we note a major difference in the implementation of the laws in force in British Columbia *vis-à-vis* the other two provinces studied. It will be interesting to measure the effect of this difference in implementation on the economic and public health dimensions of long-term legalization.

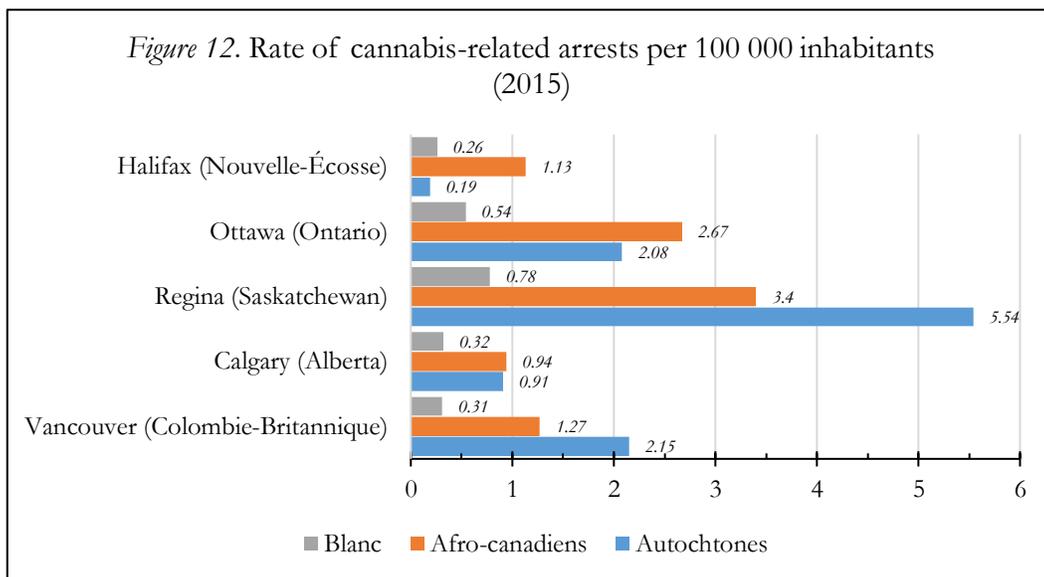
⁹⁸ Based on Statistics Canada census data (2016).

Disparities in Implementation

In Canada as elsewhere, drug prohibition is criticized not only for its inefficiency and its high costs, but also for its disproportionate impact on marginalized communities (Vitale 2018, Crosby 2019, Owusu-Bempah, Luscombe & Finlay 2019, Valleriani, Lavalley & McNeil 2018, Khenti 2014, Gordon 2006, Howeversmith 2016, Jensen & Gerber 1993, Bonnie & Whitebread 1974, Dufton 2017, Belenko 2000). The abundant literature in sociology and history on this question systematically arrives at the same observation: The War on Drugs produces and reproduces economic, social and judicial systemic inequalities. In recent history, as a certain tolerance of possession of drugs was enforced in several major Canadian cities, the criminalization of drugs meant above all the criminalization of visible minorities and indigenous peoples (Khenti 2014, Guay 2020, Owusu-Bempah, Luscombe & Finlay 2019). In light of these findings, this section examines the role of these disparities in cannabis legalization in Canada.

Racial Injustices and Discrimination

One of the major issues related to injustices in cannabis policies is the lack of available data. In the previous section, we saw that data on the arrests in each of the provinces are made public by Statistics Canada. Finding this type of data measured against variables such the ethnic group is a more difficult task. Based on data collected in several major Canadian cities for the year 2015, Owusu-Bempah, Luscombe & Finlay (2019) estimate the extent of the over-representation of Indigenous and African Canadians in cannabis arrests. *Table 12 (Appendix 9)* reproduces the results of their research. *Figure 12* below shows the differences in the rate of cannabis-related arrests (per 100,000 inhabitants) in the cities studied by the researchers. The observation is unequivocal: all things considered, the minorities studied are arrested much more frequently than the white majority.



Source: Owusu-Bempah, Luscombe & Finlay (2019)

Social science research has often attempted to find sociological explanations for data like this. By extending the questioning to all interactions between police and visible minorities, Fitzgerald & Carrington (2011) tested two of the most commonly explanations put forward to understand the

overrepresentation of minorities in arrests, or “1) the hypothesis of participation in criminal activities (according to which young people belonging to the [...] racialized minorities concerned would, according to available statistics, have higher risks of being engaged in criminal activities, which would explain greater police oversight) [and] 2) the risk factors hypothesis (according to which these same young people are over-represented in several categories and environments considered by the police to be criminogenic factors, for example, precarious socio-economic situation, poor parental supervision, living in a neighbourhood characterized by a high rate of poverty and numerous social disorders, etc.)” (Guay 2020, 228). Using self-reported data obtained from Canadians aged 12 to 17, researchers have developed logistic regression models to test these hypotheses. In both cases, the models developed were not able to validate them. Therefore, according to Fitzgerald & Carrington (2011), the alternative explanation is the existence of discriminatory police practices in Canada, without other factors having to come into play. For cannabis arrests, there is not enough data to conclude definitely in favour of the hypothesis of discriminatory practices. However, in the light of multiple historical works that support it for both the American and Canadian cases (Vitale 2018, Khenti 2014, Booth 2003, Bonnie & Whitebread 1974), the latter seems more than plausible.

According to the discriminatory practices hypothesis, minor crimes such as simple possession of cannabis would be an opportunity to produce and reproduce differentiated policing practices depending on the ethnic group. As a result, cannabis legalization in itself could make it possible to reduce the occurrence of such practices. Right now, although data from US states that have legalized show a drop in arrests linked to cannabis for all ethnic groups, the decline is slower among African Americans than among whites. For example, in Colorado, the drop in arrests observed among whites between 2012 and 2014 was 51% and only 33% among African Americans (Owusu-Bempah, Luscombe & Finlay 2019, 124). It will be interesting to compare these results with the data in Canada when it becomes available.

Criminalization and Vulnerabilities

One of the challenges of drug policy is the criminalization of individuals in a situation of vulnerability both in terms of drug use and in terms of socio-economic conditions. As part of the systematic review of the literature, the study conducted by Reddon & *al.* (2019) seems particularly interesting to illustrate the concerns related to the criminalization of the most vulnerable. Using three cohort studies (2005-2015) among 3,258 individuals at risk in Vancouver (British Columbia) including 10.1% that were illegal cannabis sellers, researchers were able to identify some of the factors linked to the illegal retail of cannabis through logistic regressions. The following factors have been identified among others: selling other drugs, being a victim of violence, using opioids without a prescription and/or using crack, having been arrested before, being homeless or being a sex worker. For the researchers, these results show that involvement in illegal activities such as the retail of cannabis is often used by individuals as a strategy to ensure their own survival.

This study also raises the question of the root of certain social problems and economic underlying use in cannabis-related crimes. In other words, after the legalization of cannabis, what will be the survival strategy of former illegal sellers? So far, cannabis legalization has nothing planned for them. As pointed out by Shover & Humphreys (2019) and Valleriani, Lavalley & McNeil (2018), if legalization presented an opportunity to right some of the wrongs caused by the War on Drugs, governments have been largely silent in this regard. The challenge of “reparations,” if historically important to proponents of

cannabis legalization (Dufton 2017), was not salient in the legislative process. At the implementation stage, this issue still seems relegated to the background.

Box 5. Injustices under the participants' radar

Over the course of the 30 interviews, the issue of injustices was explicitly addressed with four participants who were directly or indirectly affected by the question. In each case, the absence or virtual absence of the stake among the considerations of the decision makers was pointed out. A participant working on the implementation of cannabis policies in Quebec specified in this regard that the issue of racial injustices “was never in the discussion” during legalization. According to him, the question of health has taken over all other dimensions of the problem. This exchange with the participant leads to postulate that certain elements of more universalistic considerations such as public health could contribute to making particular considerations such as the racial issue invisible. In several of the 26 others interviews, we approached the issue of injustices in a subtler way, for example by asking a broad question on “vulnerable populations”. Only two participants mentioned this issue on their own. Without indicating that the participants are insensitive to this question, their silence may be more indicative of the invisibilisation of this question in the public space. This could explain in part why participants do not instinctively associate the issue of cannabis policies with that of inequalities, including racial inequalities.

Moreover, according to McAleese (2019), the Liberal Party of Canada’s promise to strike out all criminal records related to simple possession of cannabis has been watered down in favour of a simple suspension of cases. Instead of removing all criminal records, the policy adopted simply ensures that the files will no longer be caught up in subsequent legal proceedings. However, traces are kept, the policy does not guarantee the right of entry into other countries and the suspension may be revoked under certain conditions (Government of Canada 2019). While expungement is in principle an automatic process, the suspension of files rather requires that a process be carried out by recognized persons guilty of cannabis offenses. Before changing this aspect of the program in 2019 in favour of its gratuity, a fee of \$ 631 was required from the applicant. As a result, it is hardly surprising that the program has had such a low impact: since legalization, a little more than 250 requests have been recorded while it is estimated that nearly 10 000 people would be eligible (Harris 2020).

Issues for Indigenous Peoples

Beyond the perceived injustices associated with the criminalization of the most vulnerable, the *Cannabis Act* reproduces injustices towards indigenous peoples, from its formulation to its implementation. As Crosby (2019) and Wesley (2019b) point out, cannabis legalization is another recent example of settler colonialism by the federal government towards indigenous peoples. From the 2016 Task Force on Cannabis Legalization and Regulation, the Canadian government excluded indigenous peoples from the making of policies (Crosby 2019). Ultimately, none of the 85 recommendations of the Task Force report are concerned with governance in indigenous communities (Task Force on Cannabis Legalization and Regulation 2016). In this regard, it is little wonder that current regulations of Health Canada on production do not take into account the specificities of the indigenous communities nor have they been the subject to negotiations between peoples. Federal regulations apply as such in indigenous land, with no regard to the right of self-determination of the communities that reside there.

Cannabis policies

There are at least 634 indigenous communities in Canada (Assembly of First Nations 2020), which all produce unique local and autonomous regulations. Considering the number of jurisdictions to be considered, the scope of this report does not allow us to analyze the policies implemented in each of

them⁹⁹. It is nevertheless worth briefly discussing some issues in the making of cannabis policies in the communities. The scientific literature on the subject is restricted to only one article (Crosby 2019) and one chapter (Wesley 2019b), both discussing issues related to the legalization process. There is no analysis allowing us to better understand the post-legalization issues in these communities. In order to explore this question, we conducted an interview with a pair of participants who are both elected in an indigenous community whose territory is located in one of the three provinces studied¹⁰⁰. From a discussion with these two participants, two specific challenges of legalization *a priori* generalizable to a good part of the others communities have been identified.

First, the participants highlight the issue of a lack of financial resources and organizational structures to set up an adequate regulatory framework in the communities. The issue of funding in indigenous communities goes far beyond cannabis legalization and is a constant challenge. However, in the case that interests us, this issue is crucial to the extent that the sharing of revenues from legalization (retail taxes, excise duties) excludes indigenous peoples. In other words, as governments at the federal level and provinces and territories have fiscal means to at least partially absorb the costs of legalization, indigenous communities have no such means. In the community belonging to the participants, this challenge explains why the step of policymaking is not yet completed nearly two years after legalization. According to participants, after a regulatory framework has been adopted, the challenge of resources will also arise in several communities during the implementation stage.

Second, since the federal regulatory framework touched on the issue of self-determination, the issue of legalizing and regulating cannabis quickly took on a political character in some communities. Three options for regulatory frameworks were generally debated: the maintenance of prohibition¹⁰¹, regulation in harmony with the regulations of Health Canada, or the creation of a model specific to the community. According to a participant from academia, several communities have set up their own regulatory model in a desire to reaffirm their territorial and political autonomy. Now, the third option enshrines the illegality of production and retail of cannabis under federal and provincial laws, which can lead to several harms in the communities, including increased repression of police forces. With this in mind, the second option (regulation according to Health Canada standards) is adopted by many communities as a “middle ground” between the imposition of a strict framework and the pursuit of economic activities related to cannabis.

At the same time, given that the public health problems linked to drug use in indigenous communities long precede legalization, communities are faced with a dilemma that surpasses that of the provinces in the selection of one or another of the options. According to both participants, it was necessary to constantly try to balance the will of safety and health of the population as well as the desire to contribute to the economic vitality of the community. In addition, there are the interactions between these two dimensions. For example, if we rely solely on health and safety, funding to implement policies promoting safety and health could be lacking. On the other hand, if we only bet on an economic approach, the health costs may exceed the potential benefits retail.

⁹⁹ We strongly encourage other researchers to take an interest in this very promising avenue of research.

¹⁰⁰ We contacted four other communities. Given the general state of relations between colonizers and natives and the specific issues of the issue of cannabis legalization, there is little surprise that only one of the five communities agreed to speak with us.

¹⁰¹ In the case of alcohol, several communities choose to adopt a framework prohibiting alcohol on their territory in order to minimize the harm of consumption. The adoption of this model of dry community has been discussed in several cases for the issue of cannabis. Some communities have chosen this option.

Among the communities that selected the second option, additional considerations are needed. First of all, we need to position ourselves *vis-à-vis* industry stakeholders. According to the information gathered, several communities were approached by large companies like *Canopy Growth* to handle the production and retail of cannabis. This type of agreement between industry and community certainly promises to reduce the costs associated with legalization in a context where resources are limited. However, since the company does not belong to members of the community, the potential economic benefits of production and retail are limited. Then, participants mentioned that geographic and natural resource considerations are added to those of the provinces. Unlike municipalities, indigenous communities have no regulations regarding zoning¹⁰². Consequently, the question of the location of cannabis stores requires a longer thought process. Also, the water supply is not always public as it is uniformly across the provinces. Applicants for production licenses within communities must therefore sometimes include a means of getting water supply before obtaining community approval.

Indigenous economic activities and criminalization

In the previous section on “The Effects of Legalization on Crime”, it was put forward that the police attitude towards cannabis-related crimes had eased following the legalization. Particularly in British Columbia, a kind of *laissez-faire* has taken hold in order to respect the process of transition from the illegal market to the legal market. However, according to a participant from academia, repression is differentiated when it comes to indigenous communities. In view of the autonomy they claim on this issue, some communities tolerate (without necessarily condoning) cannabis stores that do not meet Health Canada standards and is managed by members of the community. Of the 170 indigenous cannabis stores in Canada, it is estimated that only 24 hold a provincial retail license (Author unknown 2020). Located on reserve lands, these stores do not compete directly with the legal market in Canadian cities. However, a significant number of searches were carried out by federal and provincial police forces since legalization (see Carruthers 2020, Kilawna 2020b, for recent examples). According to one participant, these searches are most often the result of a government's will rather than the will of the police forces themselves. In all cases, for another participant, this way of enforcing the Canadian legal framework in communities when they were not consulted testifies to a form of renewed settler colonialism.

¹⁰² According to participants, zoning is viewed negatively in communities since it implies ownership and/or sovereignty over a part of land. However, in indigenous political traditions, the land does not “belong” to anyone.

Conclusion: Lessons Learned from Implementation

“More research is needed” has become a tired academic cliché,
but it’s nonetheless applicable to cannabis legalization.
- Shover & Humphreys (2019, 702)

More research on cannabis legalization in Canada is still needed, for at least three reasons. First, after less than two years of implementation, the scientific literature in all fields relating to legalization is still too scarce and available statistics on the impact of legalization should still be viewed with caution. Since these two essential sources of data are still to be developed, it is still difficult to establish the good questions, and even more to get the right answers. There are also significant institutional barriers to research. Indeed, as pointed out by Meisel, Watson & Wesley (2019), important limits to partnerships between universities and any activity related to the cannabis industry still exist. A participant from academia told us that he completely abandoned his research on the question after a series of bad experiences in its attempts to collaborate with industry. Finally, faced with an almost generalized absence of provincial will to assess their cannabis legalization policies (Wesley & Salomons 2019), the next few years promise to be as tough as the first two for anyone wishing to explore questions related to the new policies in place. However, as Shover & Humphreys (2019, 702) point out, there is no doubt that there is insufficient research to draw satisfactory conclusions on the impacts of legalization. In the wait for more reliable data, for work covering a wider range of issues and for the necessary hindsight to better assess policies, we conclude this report by presenting some lessons from the legalization in British Columbia, Ontario and Quebec. These few conclusions are rooted in the dynamics observed during the interviews.

Policies for the Big Actors of Industry

The differentiated effect of regulatory and financial constraints in the cannabis industry deserves special attention. Consistency in the application of rules regardless of the size of the companies and the high cost of compliance with the rules favour rapid market concentration. In the last two years, the three biggest stakeholders (*Aphria*, *Canopy Growth* and *Aurora*) have acquired dozens of other cannabis companies, and are now taking over about 60% of gross market income. An oligopoly for the selling of a product like this one is not good news for any stakeholder in legalization, whether it is the other companies, regulatory agencies, public health experts or users. Thus, governments should resort to mechanisms favouring the smallest producers. These mechanisms should in particular cover the accompaniment of small stakeholders (including illegal market actors), the valuation of their products and the fiscal means to redistribute capital within the market.

Resilience of the Illegal Market

Like a government participant mentioned, the illegal market is a market in itself and must be understood as such. The factors that contribute to the success of the illegal market must to be better understood and used within the legal market. To this end, the co-optation projects of the illegal market such as the one identified in British Columbia or projects that mimic its strengths, as we have identified in Quebec, are promising for the future. In light of the moderate impact of legalization on public health, the relevance of certain regulations impeding the transfer from the illegal to the legal market should also be reassessed.

The need for self-criticism: the case of Quebec

The majority of Quebec participants agree that Quebec's regulatory model is the best in Canada. Some support their position in particular upon the greater consideration of public health and prevention in the province, which is obviously grounded in reality. The Quebec participants interviewed also consider that the Quebec model was thought through more extensively than that of other provinces, which is also true. For others participants, the Quebec model was the best because the others were "problematic". However, two years after legalization, despite its emphasis on health concerns, Quebec generally does neither better nor worse than the other provinces.

When we go beyond public health considerations and take an interest in others dimensions of legalization (economy, justice, etc.), the Quebec model includes several important problems, starting with the lack of coherence of rather repressive policies of consumption with a preventive approach. A second important problem concerns the role assumed by the SQDC. In other provinces, many participants from the public administration consider that retailing is a privileged means of access to users to support them in their consumption. Correspondingly, the development of an extensive network of stores and the offering a wide variety of products addresses the desire for a constant transfer of demand from the illegal market to the legal market. In Quebec, the SQDC plans to remain last in number of branches per 100,000 inhabitants and to offer significantly fewer products to users.

This gap between the positive perception of the Quebec model and its real impacts is at least enigmatic. In light of the interviews, it appears that the lack of criticism that participants from Quebec demonstrate can offer an explanation.¹⁰³ To the questions "what are the perverse effects of the model Quebecer?" or "what are the specific challenges of the Quebec model?", It is not uncommon to hear that the Quebec model has no perverse effects or that the model is a success on every level. In British Columbia and Ontario, participants were more nuanced about their own models, and generally have no difficulty identifying the challenges to be met in the future. In addition, over the course of the interviews, we note a conviction of several participants in the effect that the Quebec model stems from a different "culture" around cannabis, and that this culture is simply translated into law. When the possibility of reverse causality (it may well be the regulatory frame that induces a culture rather than the culture that induces a regulatory frame) is submitted to the participants, the idea is relegated to the background or simply rejected. In this perspective, certain assertions whose credibility can be questioned are made. Along these, let us note the assertion that the restrictions on edible products sold at the SQDC is a response to a lower demand for these products than in the other provinces. Despite some data partially support this assertion (National Institute of Public Health of Quebec (INSPQ) 2020a)¹⁰⁴, it seems obvious that the restrictions on edible products contributes to a lower legal

¹⁰³ Note that there was a sometimes significant gap between the way in which the actors of the implementation and the experts discussed the Quebec model. As such, the lack of criticism noted is mainly attributable to the actors of implementation, while the experts were most often critical of the regulations and the implementation of legalization in Quebec.

¹⁰⁴ The Quebec Cannabis Survey reveals that in 2019, 91.9% of Quebec users smoked cannabis whereas 30% used edibles. In the Canadian population, the 2019 NCS (Statistics Canada 2019b) suggests that the proportion is respectively 84% for smoked cannabis and 46% for edible products. Thus, there does seem to be a gap between consumption habits in Canada and in Quebec. However, according to Canadian data, Quebec is not the province where edible products are the least popular, which immediately rules out the hypothesis of a Quebec exceptionalism on that matter. Also, the Canadian comparison does not rule out the fact that nearly a third of users consume edible products, a worrying proportion knowing that none of these products are sold at the SQDC.

consumption of these products (Borodovsky & Budney 2017). In the end, it seems that a lack of normalization of cannabis consumption in Quebec acts as a barrier to criticism of a model whose perverse effects promise to exceed its positive impacts.

The Importance of Interdisciplinarity and Comparison

Most – if not all – studies on cannabis legalization are anchored only in one or another of the dimensions covered in this report (public policies, economy, public health, etc.) The angle of analysis proposed by researchers is often linked to their own area of academic specialization or practice. All relevant disciplines offer data and analysis that are essential for understanding the challenges of implementing cannabis policies. However, for the moment, the knowledge produced at the intersection of disciplines is rare.

Contrary to this trend, we hope to have shown the importance of interdisciplinarity to understand the problems surrounding legalization. It was indeed emphasized on several occasions that certain political decisions can produce economic outcomes; that certain economic phenomena can have public health impacts; and that certain public health decisions may produce new political and economic problems. In this regard, the development of cannabis policies in Canada should be evaluated in an interdisciplinary manner, promoting the interaction between complementary data.

Further, a large number of studies on cannabis legalization in Canada have focused on its effects at the federal level. Consequently, these studies rarely take into account the provincial regulatory models as independent variables. Sometimes, it has been emphasized how certain political decisions in British Columbia, Ontario and Quebec can produce differentiated economic and health effects public. As such, future research should be led to assess the impacts of comparative legalization, highlighting the strengths and weaknesses of each model.

The synthesis of knowledge carried out within the framework of this exercise makes it possible to lay the foundations for other research on cannabis legalization in Canada. The data and analysis that are presented, however, have several blind spots that should be addressed in subsequent research. May these reflections fill the gaps in this report by specifying some of the elements discussed or addressing one of the many questions left in suspense.

Appendix 1: Results of the Systematic Literature Review

Table 1. Results of the Systematic Literature Review on Cannabis Legalization (2018-2020)

#	Reference	Discipline	Issue(s)
1	Amlung, M. & MacKillop, J. (2019). Availability of legalized cannabis reduces demand for illegal cannabis among Canadian cannabis users: evidence from a behavioural economic substitution paradigm. <i>Can J Public Health</i> , 110(2), 216-221.	Économie	Prix ; Marché illégal
2	Andrade, A. K., Renda, B. & Murray, J. E. (2019). Cannabinoids, interoception, and anxiety. <i>Pharmacol Biochem Behav</i> , 180, 60-73.	Sciences médicales	Troubles de l'humeur et de l'anxiété (Revue de littérature)
3	Appendino, J. P., Boelman, C., Brna, P. M., Burneo, J. G., Claassen, C. S., Connolly, M. B., . . Zak, M. M. (2019). Position Statement on the Use of Medical Cannabis for the Treatment of Epilepsy in Canada. <i>Can J Neurol Sci</i> , 46(6), 645-652.	Sciences médicales	Cannabis médical et épilepsie ; Modèles de régulation
4	Bahji, A. & Stephenson, C. (2019). International Perspectives on the Implications of Cannabis Legalization: A Systematic Review & Thematic Analysis. <i>Int J Environ Res Public Health</i> , 16(17).	Santé publique	Impacts de la légalisation (Revue de littérature)
5	Bajaj, H. S., Barnes, T., Nagpal, S., Tricco, A. C., Rios, P., Porr, C., . . Huot, C. (2019). Diabetes Canada Position Statement on Recreational Cannabis Use in Adults and Adolescents With Type 1 and Type 2 Diabetes. <i>Can J Diabetes</i> , 43(6), 372-376.	Sciences médicales	Conditions médicales ; Diabète
6	Bedrouni, W. (2018). On the use of digital technologies to reduce the public health impacts of cannabis legalization in Canada. <i>Can J Public Health</i> , 109(5-6), 748-751.	Santé publique	Prévention ; Impacts de la légalisation
7	Bird, M. G., Dutil, P. & Stoney, C. (2019). Taxing the tempted: Personal addictions, sustainable revenues and the public good. <i>Canadian Public Administration / Administration publique du Canada</i> , 62(4), 674-696.	Économie	Prix
8	Botsford, S. L., Yang, S. & George, T. P. (2020). Cannabis and Cannabinoids in Mood and Anxiety Disorders: Impact on Illness Onset and Course, and Assessment of Therapeutic Potential. <i>Am J Addict</i> , 29(1), 9-26.	Sciences médicales	Troubles de l'humeur et de l'anxiété (Revue de littérature)
9	Campany, E., Lopez-Pelayo, H., Nutt, D., Blithikioti, C., Oliveras, C., Nuno, L., . . Gual, A. (2020). The blind men and the elephant: Systematic review of systematic reviews of cannabis use related health harms. <i>Eur Neuropsychopharmacol</i> , 33, 1-35.	Sciences médicales	Risques du cannabis (Revue de littérature)
10	Caulkins, J. P. & Kilborn, M. L. (2019). Cannabis legalization, regulation & control: a review of key challenges for local, state, and provincial officials. <i>Am J Drug Alcohol Abuse</i> , 45(6), 689-697.	Politiques publiques et gestion publique	Modèles de régulation
11	Childs, J. & Stevens, J. (2019). The state must compete: Optimal pricing of legal cannabis. <i>Canadian Public Administration / Administration publique du Canada</i> , 62(4), 656-673.	Économie	Prix ; Marché illégal
12	Cox, C. (2018). The Canadian Cannabis Act legalizes and regulates recreational cannabis use in 2018. <i>Health Policy</i> , 122(3), 205-209.	Politiques publiques et gestion publique	Modèles de régulation
13	Craven, C. B., Wawryk, N., Jiang, P., Liu, Z. & Li, X. F. (2019). Pesticides and trace elements in cannabis: Analytical and environmental challenges and opportunities. <i>J Environ Sci (China)</i> , 85, 82-93.	Santé publique	Contaminants ; Pesticides
14	Crepault, J. F. (2018). Cannabis Legalization in Canada: Reflections on Public Health and the Governance of Legal Psychoactive Substances. <i>Front Public Health</i> , 6, 220.	Santé publique	Modèles de régulation
15	Crosby, A. (2019). Contesting cannabis: Indigenous jurisdiction and legalization. <i>Canadian Public Administration / Administration publique du Canada</i> , 62(4), 634-655.	Politiques publiques et gestion publique	Enjeux autochtones

16	Cunningham, J. A. (2020). Beliefs about cannabis at the time of legalization in Canada: results from a general population survey. <i>Harm Reduct J</i> , 17(1), 2.	Sociologie et autres sciences sociales	Opinion publique
17	Davis, E., Lee, T., Weber, J. T. & Bugden, S. (2020). Cannabis use in pregnancy and breastfeeding: The pharmacist's role. <i>Can Pharm J (Ott)</i> , 153(2), 95-100.	Sciences médicales	Grossesse et allaitement (Revue de littérature)
18	Elkrief, L., Belliveau, J., D'Ignazio, T., Simard, P. & Jutras-Aswad, D. (2020). Assessing the current state of medical education on cannabis in Canada: Preliminary findings from Quebec. <i>Paediatr Child Health</i> , 25(Suppl 1), S29-S33.	Santé publique	Cannabis médical et étudiants en médecine
19	Fataar, F. & Hammond, D. (2019). The Prevalence of Vaping and Smoking as Modes of Delivery for Nicotine and Cannabis among Youth in Canada, England and the United States. <i>Int J Environ Res Public Health</i> , 16(21).	Sciences médicales	Modes de consommation ; Jeunes
20	Fischer, B., Bullen, C., Elder, H. & Fidalgo, T. M. (2020). Considering the health and social welfare impacts of non-medical cannabis legalization. <i>World Psychiatry</i> , 19(2), 187-188.	Santé publique	Impacts de la légalisation
21	Fischer, B., Lee, A., O'Keefe-Markman, C. & Hall, W. (2020). Initial indicators of the public health impacts of non-medical cannabis legalization in Canada. <i>EClinicalMedicine</i> , 20, 100294.	Santé publique	Impacts de la légalisation
22	Fischer, B., Russell, C., Rehm, J. & Leece, P. (2019). Assessing the public health impact of cannabis legalization in Canada: core outcome indicators towards an 'index' for monitoring and evaluation. <i>J Public Health (Oxf)</i> , 41(2), 412-421.	Santé publique	Impacts de la légalisation
23	Fitzcharles, M. A., Rampakakis, E., Sampalis, J., Shir, Y., Cohen, M., Starr, M. & Hauser, W. (2020). Medical Cannabis Use by Rheumatology Patients Following Recreational Legalization: A Prospective Observational Study of 1000 Patients in Canada. <i>ACR Open Rheumatol</i> , 2(5), 286-293.	Sciences médicales	Cannabis médical et rhumatologie
24	Freels, T. G., Baxter-Potter, L. N., Lugo, J. M., Glodosky, N. C., Wright, H. R., Baglot, S. L., . . . McLaughlin, R. J. (2020). Vaporized Cannabis Extracts Have Reinforcing Properties and Support Conditioned Drug-Seeking Behavior in Rats. <i>J Neurosci</i> , 40(9), 1897-1908.	Sciences médicales	Modes de consommation
25	Gagnon, M., Gudino, D., Guta, A. & Strike, C. (2020). What Can we Learn from the English-Language Media Coverage of Cannabis Legalization in Canada? <i>Subst Use Misuse</i> , 55(8), 1378-1381.	Sociologie et autres sciences sociales	Médias
26	Gagnon, M. & Guta, A. (2019). Cannabis legalization in Canada: What are the potential implications and barriers for people living with HIV? <i>Int J Drug Policy</i> , 74, 191-192.	Sciences médicales	Cannabis médical et VIH
27	Girgis, J., Pringsheim, T., Williams, J., Shafiq, S. & Patten, S. (2020). Cannabis Use and Internalizing/Externalizing Symptoms in Youth: A Canadian Population-Based Study. <i>J Adolesc Health</i> , 67(1), 26-32.	Sciences médicales	Santé mentale ; Troubles de l'humeur et de l'anxiété
28	Goodman, S., Leos-Toro, C. & Hammond, D. (2019). The impact of plain packaging and health warnings on consumer appeal of cannabis products. <i>Drug Alcohol Depend</i> , 205, 107633.	Santé publique	Emballage ; Produits comestibles
29	Goodman, S., Wadsworth, E., Leos-Toro, C., Hammond, D. & International Cannabis Policy Study, t. (2020). Prevalence and forms of cannabis use in legal vs. illegal recreational cannabis markets. <i>Int J Drug Policy</i> , 76, 102658.	Santé publique	Tendances de consommation
30	Greaves, L. & Hemsing, N. (2020). Sex and Gender Interactions on the Use and Impact of Recreational Cannabis. <i>Int J Environ Res Public Health</i> , 17(2).	Santé publique	Tendances de consommation ; Genre (Revue de littérature)
31	Grewal, J. K. & Loh, L. C. (2020). Health considerations of the legalization of cannabis edibles. <i>CMAJ</i> , 192(1), E1-E2.	Sciences médicales	Modes de consommation
32	Hammond, D. (2019). Communicating THC levels and 'dose' to consumers: Implications for product labelling and packaging of	Santé publique	Emballage ; Modes de consommation

	cannabis products in regulated markets. <i>Int J Drug Policy</i> , 102509.		
33	Hammond, D., Goodman, S., Wadsworth, E., Rynard, V., Boudreau, C. & Hall, W. (2020). Evaluating the impacts of cannabis legalization: The International Cannabis Policy Study. <i>Int J Drug Policy</i> , 77, 102698.	Santé publique	Impacts de la légalisation
34	Hathaway, A. (2019). Evidence-based policy development for cannabis? Insights on preventing use by youth. <i>Canadian Public Administration / Administration publique du Canada</i> , 62(4), 593-611.	Santé publique	Prévention ; Jeunes
35	Hawley, P. & Gobbo, M. (2019). Cannabis use in cancer: a survey of the current state at BC Cancer before recreational legalization in Canada. <i>Curr Oncol</i> , 26(4), e425-e432.	Sciences médicales	Cannabis médical et cancers
36	Hemsing, N. & Greaves, L. (2020). Gender Norms, Roles and Relations and Cannabis-Use Patterns: A Scoping Review. <i>Int J Environ Res Public Health</i> , 17(3).	Santé publique	Tendances de consommation ; Genre (Revue de littérature)
37	Ho, C., Martinusen, D. & Lo, C. (2019). A Review of Cannabis in Chronic Kidney Disease Symptom Management. <i>Canadian Journal of Kidney Health and Disease</i> , 6, 1-14.	Sciences médicales	Cannabis médical et maladies chroniques des reins (Revue de littérature)
38	Hoch, E., Niemann, D., von Keller, R., Schneider, M., Friemel, C. M., Preuss, U. W., . . Pogarell, O. (2019). How effective and safe is medical cannabis as a treatment of mental disorders? A systematic review. <i>Eur Arch Psychiatry Clin Neurosci</i> , 269(1), 87-105.	Sciences médicales	Cannabis médical et santé mentale (Revue de littérature)
39	Hunt, D. & Williams-Hall, V. (2019). A Tale of Two Countries: Does Canada's Legalization of Cannabis Give It the First Mover Advantage in Franchising? <i>Franchise Law Journal</i> , 39(1), 55-80.	Économie	Magasins
40	Jutras-Aswad, D., Le Foll, B., Bruneau, J., Wild, T. C., Wood, E. & Fischer, B. (2019). Thinking Beyond Legalization: The Case for Expanding Evidence-Based Options for Cannabis Use Disorder Treatment in Canada. <i>Can J Psychiatry</i> , 64(2), 82-87.	Sciences médicales	Dépendance au cannabis
41	Karbakhsh, M., Smith, J. & Pike, I. (2018). "Where does the high road lead?" Potential implications of cannabis legalization for pediatric injuries in Canada. <i>Can J Public Health</i> , 109(5-6), 752-755.	Santé publique	Impacts de la légalisation ; Jeunes
42	Lancione, S., Wade, K., Windle, S. B., Filion, K. B., Thombs, B. D. & Eisenberg, M. J. (2020). Non-medical cannabis in North America: an overview of regulatory approaches. <i>Public Health</i> , 178, 7-14.	Santé publique	Modèles de régulation
43	Leos-Toro, C., Fong, G. T., Meyer, S. B. & Hammond, D. (2019). Perceptions of effectiveness and believability of pictorial and text-only health warning labels for cannabis products among Canadian youth. <i>Int J Drug Policy</i> , 73, 24-31.	Santé publique	Emballage
44	Leyton, M. (2019). Cannabis legalization: Did we make a mistake? Update 2019. <i>J Psychiatry Neurosci</i> , 44(5), 291-293.	Santé publique	Impacts de la légalisation
45	Lim, M. & Kirchhof, M. G. (2019). Dermatology-Related Uses of Medical Cannabis Promoted by Dispensaries in Canada, Europe, and the United States. <i>Journal of Cutaneous Medicine and Surgery</i> , 23(2), 178-184.	Sciences médicales	Cannabis médical et dermatologie
46	Mahamad, S. & Hammond, D. (2019). Retail price and availability of illicit cannabis in Canada. <i>Addict Behav</i> , 90, 402-408.	Économie	Prix ; Marché illégal
47	Mahamad, S., Wadsworth, E., Rynard, V., Goodman, S. & Hammond, D. (2020). Availability, retail price and potency of legal and illegal cannabis in Canada after recreational cannabis legalisation. <i>Drug Alcohol Rev</i> , 39(4), 337-346.	Économie	Marché illégal
48	McAleese, S. (2019). Suspension, not expungement: Rationalizing misguided policy decisions around cannabis amnesty in Canada. <i>Canadian Public Administration / Administration publique du Canada</i> , 62(4), 612-633.	Politiques publiques et gestion publique	Criminalité ; Injustices sociales

49	McKee, G., McClure, S., Fyfe, M. & Stanwick, R. (2018). Protecting the public from exposure to secondhand cannabis smoke and vapour following legalization. <i>Can J Public Health</i> , 109(2), 223-226.	Sciences médicales	Fumée secondaire
50	Myran, D. T., Brown, C. R. L. & Tanuseputro, P. (2019). Access to cannabis retail stores across Canada 6 months following legalization: a descriptive study. <i>CMAJ Open</i> , 7(3), E454-E461.	Économie	Magasins
51	Nguyen, A. X. & Wu, A. Y. (2020). Cannabis and the Cornea. <i>Ocul Immunol Inflamm</i> , 1-6.	Sciences médicales	Cannabis médical et cornée (Revue de littérature)
52	O'Loughlin, J. L., Dugas, E. N., O'Loughlin, E. K., Winickoff, J. P., Montreuil, A., Wellman, R. J., . . Hanusaik, N. (2019). Parental Cannabis Use Is Associated with Cannabis Initiation and Use in Offspring. <i>J Pediatr</i> , 206, 142-147 e141.	Sciences médicales	Tendances de consommation ; usage parental de cannabis
53	Patenaude, C., Brochu, S., Fallu, J. S., Jutras-Aswad, D. & D'Arcy, L. (2018). Le marché légal du cannabis suite a sa legalisation au Canada : pistes de reflexion pour un encadrement efficace. <i>Can J Public Health</i> , 109(2), 215-218.	Santé publique	Modèles de régulation
54	Reddon, H., Fast, D., DeBeck, K., Werb, D., Hayashi, K., Wood, E. & Milloy, M. J. (2019). Prevalence and correlates of selling illicit cannabis among people who use drugs in Vancouver, Canada: A ten-year prospective cohort study. <i>International Journal of Drug Policy</i> , 69, 16-23.	Économie	Marché illégal
55	Russell, C., Rueda, S., Room, R., Tyndall, M. & Fischer, B. (2018). Routes of administration for cannabis use - basic prevalence and related health outcomes: A scoping review and synthesis. <i>Int J Drug Policy</i> , 52, 87-96.	Sciences médicales	Modes de consommation (revue de littérature)
56	Sandhu, H. S., Anderson, L. N. & Busse, J. W. (2019). Characteristics of Canadians likely to try or increase cannabis use following legalization for nonmedical purposes: a cross-sectional study. <i>CMAJ Open</i> , 7(2), E399-E404.	Sciences médicales	Tendances de consommation
57	Shanahan, M. & Cyrenne, P. (2019). Cannabis policies in Canada: How will we know which is best? <i>Int J Drug Policy</i> , 102556.	Politiques publiques et gestion publique	Modèles de régulation
58	Sheriff, T., Lin, M. J., Dubin, D. & Khorasani, H. (2019). The potential role of cannabinoids in dermatology. <i>J Dermatolog Treat</i> , 1-7.	Sciences médicales	Cannabis médical et dermatologie (revue de littérature)
59	Shover, C. L. & Humphreys, K. (2019). Six policy lessons relevant to cannabis legalization. <i>Am J Drug Alcohol Abuse</i> , 45(6), 698-706.	Santé publique	Modèles de régulation (Revue de littérature)
60	Singh, S. M., Koh, M., Fang, J. & Ko, D. T. (2019). The Risk of Cardiovascular Events on Cannabis' Highest Day. <i>Can J Cardiol</i> , 35(11), 1589-1591.	Sciences médicales	Risques du cannabis ; Risques cardiovasculaires
61	Train, A. & Snow, D. (2019). Cannabis policy diffusion in Ontario and New Brunswick: Coercion, learning, and replication. <i>Canadian Public Administration / Administration publique du Canada</i> , 62(4), 549-572.	Politiques publiques et gestion publique	Modèles de régulation
62	Valleriani, J., Haines-Saah, R., Capler, R., Bluthenthal, R., Socias, M. E., Milloy, M. J., . . McNeil, R. (2020). The emergence of innovative cannabis distribution projects in the downtown eastside of Vancouver, Canada. <i>Int J Drug Policy</i> , 79, 102737.	Santé publique	Cannabis et opioïdes ; Populations vulnérables
63	Valleriani, J., Lavalley, J. & McNeil, R. (2018). A missed opportunity? Cannabis legalization and reparations in Canada. <i>Can J Public Health</i> , 109(5-6), 745-747.	Sociologie et autres sciences sociales	Injustices sociales
64	Wadsworth, E., Leos-Toro, C. & Hammond, D. (2020). Mental Health and Medical Cannabis Use among Youth and Young Adults in Canada. <i>Subst Use Misuse</i> , 55(4), 582-589.	Santé publique	Cannabis médical et santé mentale
65	Watson, T. M., Hyshka, E., Bonato, S. & Rueda, S. (2019). Early-Stage Cannabis Regulatory Policy Planning Across Canada's Four Largest Provinces: A Descriptive Overview. <i>Subst Use Misuse</i> , 54(10), 1691-1704.	Santé publique	Modèles de régulation

66	Watson, T. M., Valleriani, J., Hyshka, E. & Rueda, S. (2019). Cannabis legalization in the provinces and territories: missing opportunities to effectively educate youth? <i>Can J Public Health</i> , 110(4), 472-475.	Santé publique	Prévention ; Jeunes
67	Wesley, J. J. (2019). Beyond prohibition: The legalization of cannabis in Canada. <i>Canadian Public Administration / Administration publique du Canada</i> , 62(4), 533-548.	Politiques publiques et gestion publique	Modèles de régulation
68	Wesley, J. J. & Salomons, G. (2019). Cannabis legalization and the machinery of government. <i>Canadian Public Administration / Administration publique du Canada</i> , 62(4), 573-592.	Politiques publiques et gestion publique	Modèles de régulation
69	Windle, S. B., Wade, K., Filion, K. B., Kimmelman, J., Thombs, B. D. & Eisenberg, M. J. (2019). Potential harms from legalization of recreational cannabis use in Canada. <i>Can J Public Health</i> , 110(2), 222-226. doi:10.17269/s41997-018-00173-1	Santé publique	Impacts de la légalisation
70	Zuckermann, A. M., Gohari, M. R., de Groh, M., Jiang, Y. & Leatherdale, S. T. (2020). Cannabis cessation among youth: rates, patterns and academic outcomes in a large prospective cohort of Canadian high school students. <i>Health Promot Chronic Dis Prev Can</i> , 40(4), 95-103.	Santé publique	Tendances de consommation ; Jeunes ; Modes de consommation
71	Zuckermann, A. M. E., Gohari, M. R., de Groh, M., Jiang, Y. & Leatherdale, S. T. (2019). Factors associated with cannabis use change in youth: Evidence from the COMPASS study. <i>Addict Behav</i> , 90, 158-163.	Santé publique	Tendances de consommation ; Jeunes ; Prévention

Source: Original data compiled by the author

Appendix 2: Federal and Provincial Online Resources

<i>Table 2. Federal and Provincial Online Resources on Cannabis Legalization</i>	
Canada	
Informations générales	https://www.canada.ca/fr/services/sante/campagnes/cannabis.html
Cannabis Act	https://laws-lois.justice.gc.ca/eng/acts/C-24.5/
« Ce qui est légal à partir du 17 octobre 2018 »	https://www.justice.gc.ca/fra/jp-cj/cannabis/
Lignes directrices et exigences pour l'industrie du cannabis	https://www.canada.ca/en/health-canada/services/cannabis-regulations-licensed-producers.html
Taux du droit d'accise sur le cannabis dans les provinces et les territoires	https://www.canada.ca/fr/ministere-finances/nouvelles/2018/09/taux-du-droit-daccise-sur-le-cannabis-dans-les-provinces-et-les-territoires.html
Estimations de population	https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000901
Colombie-Britannique	
Informations générales	https://cannabis.gov.bc.ca/
Cannabis Distribution Act	http://www.bclaws.ca/civix/document/id/complete/statreg/18028
Cannabis Control and Licensing Act	http://www.bclaws.ca/civix/document/id/complete/statreg/18029
BC Liquor Distribution Branch	http://www.bcldb.com/
BC Cannabis Stores	https://www.bccannabisstores.com/
Schéma de la chaîne d'approvisionnement du cannabis	http://www.bcldb.com/cannabis
Processus d'obtention d'une licence et infographie d'accompagnement	https://www2.gov.bc.ca/gov/content/employment-business/economic-development/support-business-community/sector/cannabis/how
Alberta	
Informations générales	https://www.alberta.ca/cannabis-legalization.aspx
An Act to Control and Regulate Cannabis	https://docs.assembly.ab.ca/LADDAR_files/docs/bills/bill/legislature_29/session_3/20170302_bill-026.pdf
An Act to Reduce Cannabis and Alcohol Impaired Driving	https://docs.assembly.ab.ca/LADDAR_files/docs/bills/bill/legislature_29/session_3/20170302_bill-029.pdf
Alberta Gaming & Liquor Commission (AGLC)	https://aglc.ca/
Alberta Cannabis	https://www.albertacannabis.org/
Saskatchewan	
Informations générales	https://www.saskatchewan.ca/government/cannabis-in-saskatchewan
The Cannabis Control Act	https://www.saskatchewan.ca/government/cannabis-in-saskatchewan
The Cannabis Control Regulations	https://www.saskatchewan.ca/government/cannabis-in-saskatchewan
Saskatchewan Gaming and Liquor Authority (SLGA)	https://www.slga.com/permits-and-licences/cannabis-permits
Manitoba	
Informations générales	https://gov.mb.ca/cannabis/index.html
The Safe and Responsible Retailing of Cannabis Act (Liquor and Gaming Control Act and Manitoba Liquor and Lotteries Corporation Act Amended)	https://web2.gov.mb.ca/bills/41-3/pdf/b011.pdf
Liquor, Gaming & Cannabis Authority of Manitoba	https://lgcamb.ca/

Ontario	
Informations générales	https://www.ontario.ca/page/cannabis
An Act to enact a new Act and make amendments to various other Acts respecting the use and sale of cannabis and vapour products in Ontario	https://www.ola.org/sites/default/files/node-files/bill/document/pdf/2018/2018-10/b036ra_e.pdf
An Act to enact the Cannabis Act, 2017, the Ontario Cannabis Retail Corporation Act, 2017 and the Smoke-Free Ontario Act, 2017, to repeal two Acts and to make amendments to the Highway Traffic Act respecting alcohol, drugs and other matters	https://www.ola.org/sites/default/files/node-files/bill/document/pdf/2017/2017-12/bill---text-41-2-cn-b174ra_e.pdf
Alcohol and Gaming Commission of Ontario	https://www.agco.ca/what-we-do-cannabis
Ontario Cannabis Store	https://ocs.ca/
Québec	
Informations générales	https://encadrementcannabis.gouv.qc.ca/
Loi constituant la Société québécoise du cannabis, édictant la Loi encadrant le cannabis et modifiant diverses dispositions en matière de sécurité routière	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=5&file=2018C19F.PDF
Loi resserrant l'encadrement du cannabis	http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=5&file=2019C21F.PDF
Société québécoise du cannabis (SQDC)	https://www.sqdc.ca/fr-CA/
Nouveau-Brunswick	
Informations générales	
Cannabis Control Act	https://www.gnb.ca/legis/bill/FILE/58/4/Bill-16-e.htm
Cannabis Management Corporation Act	https://www.gnb.ca/legis/bill/FILE/58/4/Bill-17-e.htm
Cannabis NB	https://www.cannabis-nb.com/
Nouvelle-Écosse	
Informations générales	https://novascotia.ca/cannabis/
An Act to Provide for the Regulation and Sale of Cannabis	https://nslegislature.ca/legc/bills/63rd_1st/1st_read/b108.htm
Nova Scotia Liquor Corporation (NSLC)	https://www.mynslc.com/en/About-NSLC/Company/Meet-the-NSLC
Île du Prince Édouard	
Informations générales	https://www.princeedwardisland.ca/en/topic/cannabis
Cannabis Control Act	https://www.princeedwardisland.ca/sites/default/files/legislation/c-01-2-cannabis_control_act.pdf
Cannabis Management Corporation Act	https://www.princeedwardisland.ca/sites/default/files/legislation/c-01-3-cannabis_management_corporation_act.pdf
Cannabis Management Corporation Regulations	https://www.princeedwardisland.ca/sites/default/files/legislation/c01-3-1-cannabis_management_corporation_regulations.pdf
Cannabis Management Corporation	https://peicannabiscorp.com/
Terre-Neuve-et-Labrador	
Informations générales	https://www.gov.nl.ca/cannabis/fr/le-cannabis-a-terre-neuve-et-labrador/
An Act Respecting the Control and Sale of Cannabis	https://assembly.nl.ca/HouseBusiness/Bills/ga48session3/bill1820.htm
Newfoundland and Labrador Liquor Corporation (NLC)	https://nlliquorcorp.com/about-newfoundland-labrador-liquor-corporation/our-vision-mission-values
Nunavut	

Informations générales	https://gov.nu.ca/finance/information/cannabis
Cannabis Act	https://gov.nu.ca/sites/default/files/consnu2018c7.pdf
Cannabis Statutes Amendment Act	https://assembly.nu.ca/sites/default/files/Bill-3-Cannabis-Statutes-Amendment-Act-EN-FR.pdf
An Act to Amend the Cannabis Act	https://assembly.nu.ca/sites/default/files/Bill-42-Cannabis-Act-Amendment-EN-FR.pdf
An Act to Amend the Cannabis Act Respecting Consultation Periods	https://assembly.nu.ca/sites/default/files/Bill-43-AATA-Cannabis-Act-EN-FR.pdf
Nunavut Liquor and Cannabis Commission	https://www.nulc.ca/cannabis/
Territoires du Nord-Ouest	
Informations générales	https://www.eia.gov.nt.ca/en/cannabis
Cannabis Products Act	https://www.justice.gov.nt.ca/en/files/legislation/cannabis-products/cannabis-products.a.pdf
Cannabis Smoking Control Act	https://www.justice.gov.nt.ca/en/files/legislation/cannabis-smoking-control/cannabis-smoking-control.a.pdf
Northwest Territories Liquor and Cannabis Commission	https://www.ntlcc.ca/en/cannabis
Yukon	
Informations générales	https://yukon.ca/cannabis#cannabis-legalization-in-yukon
Cannabis Control and Regulation Act	http://www.gov.yk.ca/legislation/acts/cacore_c.pdf
Yukon Liquor Corporation	http://www.ylc.yk.ca/cannabis.html
Cannabis Yukon, division de Yukon Liquor Corporation	https://cannabisyukon.org/

Source: Original data compiled by the author

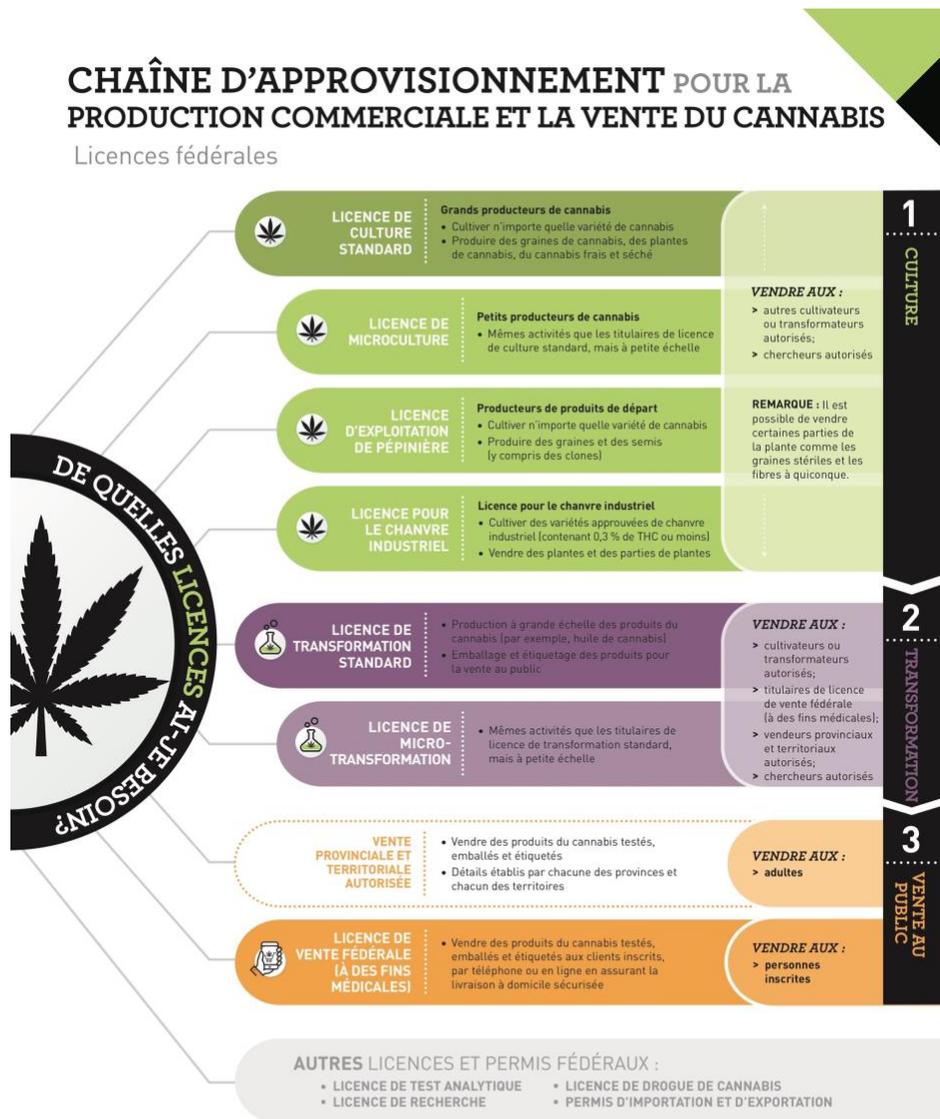
Appendix 3: Jurisdictional Distribution of Powers Regarding Cannabis Legalization

<i>Table 3. Jurisdictional Distribution of Powers Regarding Cannabis Legalization</i>			
Power	Jurisdictional Responsibility		
	Federal	Provincial	Municipal
Production			
Culture à des fins commerciales	X		
Transformation	X		
Emballage / Étiquetage	X		
Traçabilité	X		
Culture à des fins personnelles	X	X	
Occupation des terres / Zonage			X
Distribution			
Trafic	X		
Distribution		X	
Vente en gros		X	
Vente			
Cannabis à des fins thérapeutiques	X		
Modèle de vente		X	
Publicité		X	
Points de vente		X	X
Taxation	X	X	X
Zonage			X
Possession			
Quantités	X	X	
Âge légal	X	X	
Consommation			
Conduite avec facultés affaiblies	X	X	
Santé publique	X	X	

Éducation et prévention	X	X	
Santé occupationnelle		X	
Consommation dans les lieux publics		X	X

Source: Adapted from Government of Alberta (2017, 3), Wesley (2019a, 540)

Appendix 4: Infographics from Health Canada



REMARQUES SUPPLÉMENTAIRES :

Tous les titulaires de licence fédérale peuvent mener des **activités connexes** comme : la possession, le transport, l'entreposage, la destruction et la recherche et le développement. Les personnes ou les organisations peuvent détenir **une ou plusieurs catégories** de licences, sauf certaines exceptions

Une licence fédérale est nécessaire pour obtenir un **permis d'importation ou d'exportation** (à des fins scientifiques ou médicales, ou pour le chanvre industriel)

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Source: Santé Canada (2018a)

Appendix 5: Regulation and Retail Models

Tableau 4. Regulation and Retail Models. by Province or Territory¹⁰⁵

Province	Managing Authority	Retail Model	Online Retail Model	Number of opened stores	Number of store by 100.000 inhabitants	Population 10 km or less from a store (%) (Statistique Canada 2019a)	Excise duty ¹⁰⁶	Price regulation	Opening hours	Public consumption	Legal age	Culture à domicile
Colombie-Britannique	BC Liquor Distribution Branch	Hybride (BC cannabis et privé)	Public	214 ¹⁰⁷	4.18	46	0% (+ 7.5 %)	Prix du grossiste	9h-23h	Comme tabac	19 ans	4 plants
Alberta	Alberta Gaming & Liquor Commission (AGLC)	Privé	Public (Alberta Cannabis)	497	11.22	70	16.8% (+ 7.5 %)	Prix de référence sociale (non appliqué pour l'instant)	10h-2h	Comme tabac	18 ans	4 plants
Saskatchewan	Saskatchewan Gaming and Liquor Authority (SLGA)	Privé	Privé	44	3.72	48	6.45% (+ 7.5 %)	Prix de référence sociale (non appliqué pour l'instant)	8h-3h	Prohibé	19 ans	4 plants
Manitoba	Liquor, Gaming & Cannabis Authority of Manitoba	Privé	Privé	31	2.25	54	2.5% (+ 7.5 %)	Non	Aucun pour l'instant (les heures peuvent être limitées par la loi).	Prohibé	19 ans	Prohibé
Ontario	Alcohol and Gaming Commission of Ontario	Privé	Public (Ontario Cannabis)	113 ¹⁰⁸	0.77	33	3.9% (+ 7.5 %)	Prix de référence sociale (non appliqué pour l'instant)	9h-23h	Comme tabac	19 ans	4 plants
Québec	Société québécoise du cannabis (SQDC)	Public (Société québécoise du cannabis (SQDC))	Public (Société québécoise du cannabis (SQDC))	43	0.50	48	0% (+ 7.5 %)	Société d'État	Lundi au vendredi 10h-21h, samedi et dimanche 10h-17h	Prohibé	21 ans	Prohibé

¹⁰⁵ Unless otherwise specified, information can be found on government websites about cannabis, on pages of managing authorities or in applicable laws (see Appendix 2 for a list of resources). The data was updated July 22, 2020.

¹⁰⁶ In addition to the provincial amount agreed between the province and the federal government, 7.5% is granted to federal. The Canada Revenue Agency is responsible for the application of this measure.

¹⁰⁷ 67 in process of obtaining their licence (Government of British Columbia 2020).

¹⁰⁸ 509 in process of obtaining their licence (total of 622 projected) (Alcohol and Gaming Commission of Ontario 2020d).

Nouveau-Brunswick	Cannabis NB	Public (Cannabis NB) ¹⁰⁹	Public (Cannabis NB)	20	2.56	51	0% (+ 7.5 %)	Société d'État	Lundi au samedi 10h à 21. dimanche 12h à 17h	Comme tabac	19 ans	4 plants
Nouvelle-Écosse	Nova Scotia Liquor Corporation (NSCL)	Public (Nova Scotia Liquor Corporation (NSCL))	Public (Nova Scotia Liquor Corporation (NSCL))	12	1.23	48	0% (+ 7.5 %)	Société d'État	7h-Minuit	Comme tabac	19 ans	4 plants
Île-du-Prince-Édouard	PEI Cannabis Management Corporation	Public (PEI Cannabis Management Corporation)	Public (PEI Cannabis Management Corporation)	4	2.52	49	0% (+ 7.5 %)	Société d'État	9h-23h	Prohibé	19 ans	4 plants
Terre-Neuve-et-Labrador	Newfoundland and Labrador Liquor Corporation (NLC)	Privé	Privé	25	4.80	55	0% (+ 7.5 %)	Prix de référence sociale	9h-2h	Prohibé	19 ans	4 plants
Nunavut	Nunavut Liquor and Cannabis Commission	Privé. pas encore mis en œuvre	Privé	0	-	Inapplicable	19.3% (+ 7.5 %)	Prix de référence sociale	8h-22h	Prohibé	19 ans	4 plants
Territoires du Nord-Ouest	Northwest Territories Liquor and Cannabis Commission	Privé (au sein de <i>Liquor Stores</i> existants)	Public (Northwest Territories Liquor and Cannabis Commission)	5	11.12	62	0% (+ 7.5 %)	Prix de référence sociale	Déterminé par les gouvernements des communautés	Comme tabac	19 ans	4 plants
Yukon	Cannabis Yukon. division de Yukon Liquor Corporation	Privé	Public (Cannabis Yukon)	5	12.66	31	0% (+ 7.5 %)	Prix de référence sociale	Déterminé par les gouvernements des communautés	Prohibé	19 ans	4 plants

¹⁰⁹ Retail is in process of privatization.

Appendix 6: Economic Indicators of Cannabis Legalization

<i>Table 7. Economic Indicators of Cannabis Legalization</i>										
Quarter	Month	Retail sales (millions \$)	Household consumption expenditure (millions \$)				Share of legal retail	Revenus from excise duties (millions \$)		
			Recreational (legal)	Recreational (illegal)	Therapeutic (legal)	Total		Federal	Provincial or Territorial	Total
Q4 2018	oct-18	42.084								
	nov-18	55.396	-	-	-	-	-	36	144	180
	déc-18	58.848								
Q1 2019	janv-19	55.451								
	févr-19	52.082	301	1021	157	1479	31.0%	36	160	196
	mars-19	60.764								
Q2 2019	avr-19	74.636								
	mai-19	85.946	372	962	155	1489	35.4%	36	188	224
	juin-19	91.692								

Q3 2019	juil-19	106.064	422	916	156	1494	38.7%	48	168	216
	août-19	125.954								
	sept-19	122.927								
Q4 2019	oct-19	129.98	475	871	150	1496	41.8%	44	180	224
	nov-19	136.775								
	déc-19	147.885								
Q1 2020	janv-20	154.077	558	824	145	1527	46.0%	48	208	256
	févr-20	151.93								
	mars-20	181.18								

Sources: Statistique Canada (2020c) for retail, Statistique Canada (2020e) for household consumption expenditure, Statistique Canada (2020f) for excise duties revenue. Legal market proportion estimates were calculated by the author.

Annexe 7: Indicators and Measures of the Public Health Impact of Cannabis Legalization

<i>Table 8. Indicators and Measures of the Public Health Impact of Cannabis Legalization</i>						
Indicators (Fischer et al. 2019)	Measures		Canada	British Columbia	Ontario	Québec
1. Prevalence of use	Use, last 12 months (%)	2018	21.9 (21.1-22.6)	25.6 (23.5-27.9)	23.7 (22.3-25.1)	15.9 (14.5-17.3)
		2019	24.6 (23.7-25.4)	28.9 (26.8-31.0)	25.4 (24.0-26.8)	18.8 (17.1-20.5)
		<i>Variation</i>	2.7	3.3	1.7	2.9
	Use, last 12 months, 16-19 years old (%)	2018	36.5 (32.1-41.1)	-	38.0 (30.4-46.3)	30.0 (22.3-39.0)
		2019	44.3 (40.7-48.0)	52.6 (43.7-61.3)	43.2 (36.8-49.7)	46.0 (39.2-52.9)
		<i>Variation</i>	7.8	-	5.2	16
	Median age of first use	2018	17.0 (16.9-17.1)	17.0 (16.7-17.3)	17.0 (16.9-17.1)	17.0 (16.7-17.3)
		2019	17.0 (16.9-17.1)	17.0 (16.7-17.3)	18.0 (17.9-18.1)	17.0 (16.6-17.4)
		<i>Variation</i>	0	0	1	0
2. Patterns of consumption	Daily or near-daily use, last 12 months (%)	2018	24.9 (23.2-26.7)	23.7 (19.7-28.2)	25.9 (23.1-28.9)	23.5 (19.7-27.8)
		2019	23.9 (22.3-25.5)	25.5 (22.3-31.0)	22.8 (20.2-25.6)	22.2 (18.4-26.6)
		<i>Variation</i>	-1	1.8	-3.1	-1.3
		2018	88.6 (87.3-89.8)	87.7 (84.1-90.6)	86.4 (84.0-88.5)	95.2 (92.7-96.8)

3. Modes of consumption	Dried cannabis, last 12 months (%)	2019	84.0 (82.5-85.4)	80.9 (77.7-84.1)	81.1 (78.3-83.6)	92.0 (88.8-94.4)
		<i>Variation</i>	-4.6	-6.8	-5.3	-3.2
	Vaporizers, last 12 months (%)	2018	25.5 (23.8-27.3)	35.4 (30.7-40.4)	26.0 (23.1-29.0)	8.9 (6.7-11.8)
		2019	27.2 (25.6-28.8)	32.8 (28.9-36.9)	28.8 (26.0-31.8)	17.0 (14.0-20.5)
		<i>Variation</i>	1.7	-2.6	2.8	8.1
	Edibles, last 12 months (%)	2018	41.7 (39.7-43.7)	47.9 (42.9-52.9)	48.7 (45.3-52.1)	18.1 (13.7-22.0)
		2019	46.1 (44.3-48.0)	49.3 (45.0-53.6)	52.6 (49.4-55.9)	27.4 (23.5-31.7)
		<i>Variation</i>	4.4	1.4	3.9	9.3
	4. THC levels	High THC content, low CBD content, last 12 months	2019	36.5 (34.8-38.4)	-	-
High CBD content, low THC content, last 12 months		2019	13.4 (12.2-14.8)	-	-	-
Balanced products, last 12 months		2019	16.0 (14.7-17.4)	-	-	-
High THC content, low CBD content, last 12 months among 16-19 year olds		2019	40.4 (35.2-46.0)	-	-	-
High CBD content, low THC content, last 12 months among 16-19 year olds		2019	14.8 (11.2-19.2)	-	-	-
Balanced products, last 12 months among 16-19 year olds		2019	35.4 (30.2-41.0)	-	-	-

5. Source of products	Legal access, last 12 months (2019)	2019	52.0 (49.4-54.7)	36.6 (30.9-42.6)	47.3 (42.3-52.3)	58.0 (51.6-64.1)
	Illegal access, last 12 months (%)	2018	51.7 (48.6-54.8)	54.5 (47.3-61.5)	50.6 (44.8-56.3)	55.5 (47.3-63.4)
		2019	40.1 (37.6-42.7)	51.4 (45.2-57.6)	37.9 (33.0-43.0)	40.1 (33.9-46.6)
		<i>Variation</i>	-11.6	-3.1	-12.7	-15.4
	Legal access only, last 12 months (%)	2019	29.4 (27.1-31.9)	16.8 (12.7-21.9)	27.6 (23.4-32.2)	34.3 (28.3-41.0)
	Access by personal cultivation, last 12 months (%)	2018	8.8 (7.3-10.7)	8.6 (5.7-12.7)	9.6 (6.7-13.5)	10.9 (7.2-16.1)
		2019	9.9 (8.4-11.7)	12.5 (9.3-16.7)	12.5 (9.6-16.3)	5.5 (2.9-10.0)
		<i>Variation</i>	1.1	3.9	2.9	-5.4
	6. Driving under influence	Driving within two hours of using cannabis, in the past three months (%)	2018	14.2 (12.1-16.6)	11.8 (8.1-16.8)	13.2 (9.4-18.2)
2019			13.2 (11.4-15.3)	15.1 (11.0-20.4)	12.4 (9.2-16.4)	13.7 (9.9-18.7)
<i>Variation</i>			-1	-3.3	-0.8	-0.8
Passenger in a car whose driver had used cannabis within two hours, last 12 months (2018)		2018	5.3 (4.6-6.1)	4.6 (3.2-6.5)	5.9 (4.5-7.6)	4.0 (3.0-5.5)
		2019	4.2 (3.7-4.6)	5.5 (4.3-7.0)	3.7 (3.0-4.7)	3.8 (3.0-4.7)
		<i>Variation</i>	-1.1	-0.9	-2.2	-0.2
Arrest rate for driving under influence (for 100,000 inhabitants)	2018	12.63	14.44	6.8	13.4	

7. Hospitalizations (including poisonings)	Hospitalisations liées à l'usage du cannabis, diagnostic principal, (pour 100 000 habitants)	2017	16.69	32.04	13.4	8.8
9. Other psychoactive substances used	Never combined cannabis and alcohol, last 12 months	2019	27.6 (25.9-29.3)	-	-	-
	Often or always combined cannabis and alcohol, last 12 months	2019	14.7 (13-16.6)	-	-	-
	Number of opioid-related deaths	2018	4398	1561	1473	187
		2019	3823	995	1535	414
		<i>Variation</i>	-575	-566	62	227
	Number of opioid-related hospitalizations	2018	5052	1418	2095	1183
		2019	4435	1146	1977	1239
		<i>Variation</i>	-617	-272	-118	56

Sources : Statistique Canada (2018) and Statistique Canada (2019b) for survey data, Canadian Substance Use Costs and Harms (2020) and Institut national de santé publique du Québec (INSPQ) (2020a) for hospitalizations, Santé Canada (2020f) and Institut national de santé publique du Québec (INSPQ) (2020b) for other substances data.

Appendix 8: Federal Funding for Cannabis Research

<i>Tableau 9. Federal funding for cannabis research under the Integrated Cannabis Research Strategy (Health Canada), 2018-2019</i>			
Funding opportunities	Funded projects	Authors and institutional affiliation	Funds granted ¹¹⁰
<i>2019</i>			
<u>Subvention d'équipe : partenariats pour l'évaluation des politiques sur le cannabis</u>	The impact of provincial cannabis policy on impaired driving	Brubacher, Jeffrey R ; Byrne, Patrick A - University of British Columbia	- \$
	An Integrated Process and Outcomes Evaluation of Cannabis Legalization Policies in Newfoundland and Labrador to Examine Public Health and Safety Impacts of Sales, Consumption and Enforcement Regulations	Donnan, Jennifer R ; Tucker, Alison L ; Bishop, Lisa D ; Najafizada, Said Ahmad Maisam - Memorial University of Newfoundland	- \$
	Triangulating Evidence to Evaluate the Impact of Cannabis Policy in Ontario	Elton-Marshall Tara E ; Pisko, Laura A ; Schwartz, Robert - Centre de toxicomanie et de santé mentale	- \$
	Evaluating the impact of local, provincial, and national cannabis policies among youth in the COMPASS system	Leatherdale Scott ; De Groh, Margaret ; Laxer, Rachel E - University of Waterloo (Ontario)	- \$
<u>Subvention d'équipe : Recherche sur le cannabis dans des domaines prioritaires</u>	Systematic preclinical evaluation of cannabinoid influences on sleep and breathing	Pagliardini Silvia - University of Alberta	1 150 000.00 \$
Subvention d'équipe : Recherche sur le cannabis dans des domaines prioritaires - Cancer	Cannabis for symptom management in children with cancer: a demonstration project by the Canadian Childhood Cannabinoid Clinical Trials (C4T) platform	Kelly Lauren ; Moore Hepburn, Charlotte ; 'T Jong, Geert W ; Alcorn, Mary-Jane ; Finkelstein, Yaron ; Huntsman, Richard J ; Lacaze-Masmonteil, Thierry ; Oberlander, Timothy F ; Rassekh, Shahrad R ; Tsang, Vivian W - University of Manitoba	999 000.00 \$
Subvention d'équipe : Recherche sur le cannabis dans des domaines prioritaires - Santé cardiorespiratoire/Sommeil	Canadian Users of Cannabis Smoke Study (CANUCKs): Impact on Lung Health via Clinical, Imaging, and Biologic Measures	Leung Janice ; Sin, Donald - University of British Columbia	1 499 546.00 \$

¹¹⁰ Excluant les financements d'autres partenaires comme le *Canadian Centre on Substance Abuse*.

Subvention d'équipe : Recherche sur le cannabis dans des domaines prioritaires - Neurodéveloppement	Pan-Canadian network to investigate cannabis use in pregnancy and neurodevelopmental outcomes in children	Corsi Daniel J ; Janus, Magdalena - Institut recherche Centre hospitalier pour enfants de l'est de l'Ontario	1 495 716.00 \$
	Maternal-infant dyad health outcomes: infant neurodevelopment in the context of maternal cannabis use - a prospective cohort study	Hicks Matthew S ; Sikora, Christopher ; Hicks, Elizabeth A - University of Alberta	1 499 915.00 \$
Subvention d'équipe : Recherche sur le cannabis dans des domaines prioritaires - Santé autochtone	Impact of Cannabis Use on Indigenous Peoples' Oral Health	Lawrence Herenia P ; Singhal, Sonica ; Cioffi, Iacopo ; Gong, Siew-Ging ; Levesque, Celine M ; Magalhaes, Marco A ; Mashford-Pringle, Angela - University of Toronto	1 499 981.00 \$
Subvention d'équipe : Recherche sur le cannabis dans des domaines prioritaires - Douleur - IALA	A prospective translational model of the therapeutic potential of cannabidiol in reducing acute pain symptoms and opioid usage following traumatic injury	De Beaumont Louis ; Arbour, Caroline Bernard, Francis ; De Koninck, Yves ; Gendron, Louis ; Lavigne, Gilles J ; Near, Jamie ; Pinard, Anne-Marie ; Rouleau, Dominique ; Williamson, David - CIUSSS du Nord-de-l'Ile-de Montréal - Hôpital Sacré Coeur	1 499 925.00 \$
Subvention d'équipe : Recherche sur le cannabis dans des domaines prioritaires - Douleur arthritique	Cannabis-based precision medicine for osteoarthritis therapy	Clarke Hance A ; Leroux, Timothy ; Kapoor, Mohit ; Kotra, Lakshmi P - University Health Network (Toronto)	750 000.00 \$
Subvention d'équipe : Recherche sur le cannabis dans des domaines prioritaires - Santé mentale	Canadian Cannabis and Psychosis Research Team (CCPRT)	Conrod Patricia ; Amirali, Evangelia L ; Bourque, Josiane ; Crocker, Candice E ; Flores, Cecilia ; Paus, Tomas ; Potvin, Stéphane ; Tibbo, Philip G - Centre hospitalier universitaire Sainte-Justine (Montréal, Québec)	629 668.00 \$
	Adolescent Cannabis Exposure, Brain Development and Cognitive-Emotional Outcomes	Hill Matthew N - University of Calgary	631 667.00 \$
	The impact of cannabis legalization on the forensic mental health patient population in Ontario	Penney Stephanie R ; Schneider, Richard ; Jones, Roland M ; Simpson, Alexander I - Centre de toxicomanie et de santé mentale	- \$
	Pharmacotherapeutic effects of cannabidiol (CBD) in autism spectrum disorder (ASD)	Sonenberg Nahum ; Aguilar Valles, Argel - Université McGill	631 667.00 \$
Subvention d'équipe : Recherche sur le cannabis dans des domaines prioritaires - Sclérose en plaques	Is cannabis a useful adjunct in the treatment of symptoms of persons with multiple sclerosis? A formal trial of CBD and THC for the control of spasticity and other symptoms: assessing the clinical effects and the basic mechanisms.	Duquette Pierre ; Arbour, Nathalie ; Jutras-Aswad, Didier - Centre hospitalier de l'Université de Montréal (CHUM)	750 000.00 \$

Subvention d'équipe : Recherche sur le cannabis domaines prioritaires - Santé des anciens combattants	Guideline for cannabis use in chronic pain	Busse Jason W - McMaster University	- \$
2018			
Subvention catalyseur: Recherche sur le cannabis - domaines prioritaires urgents	Cannabis for the Prophylactic Treatment of Migraine: a randomized double-blind placebo-controlled clinical trial	Amoozegar Farnaz - University of Calgary	125 000.00 \$
	Cannabinoid Hyperemesis Syndrome: Evaluation of Health Burden and Treatment Strategies	Andrews Christopher N - University of Calgary	120 800.00 \$
	A pilot prospective cohort study to examine the prenatal cannabis exposure and early developmental outcomes	Bayrampour Hamideh - University of British Columbia	125 000.00 \$
	Double Jeopardy: Effects of Prenatal Cannabis and Ethanol Exposure on hippocampus structure and function.	Christie Brian R - University of Victoria (British Columbia)	125 000.00 \$
	Studying the Impact of Legal Cannabis Access on Use of Opiate Prescriptions in Patients with Chronic Pain: Cross Jurisdictional Analysis	Eurich Dean - University of Alberta	- \$
	Developing Cannabis Education and Harm Reduction Messages with Youth: A qualitative youth engagement research project (TRACE V)	Haines-Saah Rebecca J ; Ponc, Pamela L ; Jenkins, Emily K - University of Calgary	124 747.00 \$
	Examining the Effects of Perinatal Cannabinoid Exposure on Long-term Cognition and Memory	Hardy Daniel B - University of Western Ontario	125 000.00 \$
	Friend or foe: cannabis and the brain - from safety analysis to medical applications	Kovalchuk Olga - University of Lethbridge (Alberta)	100 000.00 \$
	Investigating cannabis as harm reduction during a community-wide overdose crisis	Milloy Michael-John S ; Walsh, Zach - University of British Columbia	125 000.00 \$
	Assessing the potential for using cannabidiol as a management option for anxiety in Alzheimer-dementia patients.	Mousseau Darrell D ; Adams, Gheorghita C - University of Saskatchewan	100 031.00 \$
	Managed Alcohol Programs and Cannabis Substitution: Feasibility and Pilot Study	Pauly Bernadette M ; Sutherland, Christy ; Stockwell, Timothy R - University of Victoria (British Columbia)	- \$
	Chronic cannabis exposure in adolescent vervet monkeys	Ptito Maurice ; Bouchard, Jean-Francois - Université de Montréal	125 000.00 \$
	Cannabis and Workplace Fatalities: Establishing a Baseline in Ontario	Smith Peter M ; Rajaram, Nikhil - Institute for Work & Health (Toronto)	124 524.00 \$
	New metabolomics technologies to characterize Cannabis safety and potency	Wishart David S - University of Alberta	- \$

Subvention catalyseur : Recherche sur le cannabis - Cannabis et santé mentale	Examining the pharmacological and non-pharmacological influences of cannabidiol (CBD) on stress responsivity in healthy men and women	Barrett Sean P - Dalhousie University (Nova Scotia)	84 220.00 \$
	Cannabidiol as a potential therapeutic target for mild traumatic brain injury recovery in female rats	De Beaumont Louis ; Gendron, Louis ; Lepage, Martin - CIUSSS du Nord-de-l'Île-de Montréal - Hôpital Sacré Coeur	- \$
	A proof-of-concept, double-blind, randomized, placebo-controlled trial evaluating the efficacy and safety of cannabis-infused MCT oil for treatment of insomnia in major depression	Frey Benicio N - McMaster University	- \$
	Effects of access to regulated cannabis on a vulnerable population	Honer William G - University of British Columbia	125 000.00 \$
	A Scoping Review to Assess the Effects of Medical and Non-Medical Cannabis Use in Older Adults	Hutton Brian E ; Conn, David K ; Willows, Melanie ; Corace, Kimberly M - Institut de recherche de l'Hôpital d'Ottawa	- \$
	Impact of chronic cannabis oil self-administration on neural circuitry in human obesity: a fMRI study	Le Foll Bernard - Centre de toxicomanie et de santé mentale	125 000.00 \$
Subvention catalyseur : Recherche sur le cannabis - Cannabis et gestion de la douleur	The effect of cannabidiol vs. placebo on persistent post-surgical pain following total knee arthroplasty: A multicenter, randomized pilot trial	Busse Jason W ; Adili, Anthony - McMaster University	123 377.00 \$
	Medical cannabis against chronic musculoskeletal pain - a mixed methods study to describe use and to identify its facilitators and barriers among Canadian patients and doctors.	Kroger Edeltraut ; Dionne, Clermont - Université Laval	124 954.00 \$
Subvention catalyseur : Recherche sur le cannabis - Cannabis et consommation d'autres substances	Assessing the impacts of the Cannabis Act on patterns of motor vehicle collision injuries among youth and young adults in emergency departments across Canada	Callaghan Russell C - University of Northern British Columbia	124 628.00 \$
	Shared and specific risk factors for early onset cannabis and other substance use and later substance use disorders: can we predict who will initiate cannabis use early and who will develop future substance use problems?	Castellanos Ryan Natalie - Centre hospitalier universitaire Sainte-Justine (Montréal, Québec)	- \$
	Parental cannabis use in the perinatal period and child outcomes: capturing changes with legalization in the Ontario Birth Study	Knight Julia A - Sinai Health System (Toronto)	120 087.00 \$
	Secondary prevention of cannabis-related harms among youth and young adults: A pilot RCT	Yakovenko Igor - Dalhousie University (Nova Scotia)	124 805.00 \$
Subvention catalyseur : Recherche interventionnelle en santé des populations liée à la légalisation du cannabis	Targeted cannabis prevention for youth at high risk for psychosis	Conrod Patricia - Centre hospitalier universitaire Sainte-Justine (Montréal, Québec)	100 000.00 \$
	Legalization of Recreational Cannabis Use in Canada: A Knowledge Synthesis	Eisenberg Mark J ; Abramovici, Hanan - CIUSSS de Centre-Ouest-de-l'Île-de-Montréal-Hôpital juif	99 998.00 \$

	Influence of cannabis exposure in pregnancy on offspring perinatal and childhood health outcomes: a population-based birth cohort	El-Chaar Darine ; Corsi, Daniel J - Institut de recherche de l'Hôpital d'Ottawa	94 691.00 \$
	Les conducteurs automobiles sous l'effet du cannabis : perceptions et caractéristiques individuelles, relationnelles et sociales	Huynh Christophe ; Jacques, Alain - CIUSSS du Centre-Sud-de-l'Île-de-Montréal - Gériatrie (IUGM)	97 995.00 \$
	Enabling the monitoring and advancement of knowledge on exposure to cannabis use.	Kaufman Pamela E - University of Toronto	100 000.00 \$
	Trajectories of marijuana use across a decade: Their predictors in adolescence and impact on health, academic, social, and economic outcomes in young adulthood.	Leadbeater Bonnie J ; Fyfe, Murray W - University of Victoria (British Columbia)	99 974.00 \$
	Towards monitoring of driving while impaired by cannabis and/or other drugs	Ouimet Marie Claude - Université de Sherbrooke	100 000.00 \$
	Cannabis Legalization and Mental health Outcomes Monitoring System	Perlman Christopher M ; Hall, Bridget ; Porath, Amy J - University of Waterloo (Ontario)	99 985.00 \$
	Impact of cannabis legalization on cannabis use and outcomes in patients with opioid use disorder: a Canadian prospective cohort study	Samaan Zainab ; Rosic, Tea - McMaster University	100 000.00 \$
Total	53	-	16 201 901.00 \$

Source: Instituts de recherche en santé du Canada (2020)

Appendix 9: Data on Pre-legalization and Post-legalization Arrests

<i>Table 10. Federal Cannabis Possession Offense, Per 100,000 Population (2014-2017)</i>				
Province	2014	2015	2016	2017
Colombie-Britannique	317.67	263.02	230.82	191.32
Alberta	159.12	138.83	106.62	88.31
Saskatchewan	181.14	144.87	122.62	97.41
Manitoba	93.04	80.64	67.57	57.44
Ontario	126.92	108.64	91.59	75.61
Québec	148.06	129.99	132.59	120.29
Nouveau-Brunswick	111.2	102.79	114.36	120.49
Nouvelle-Écosse	189.55	163.48	154.65	136.64
Île-du-Prince-Édouard	67.92	67.8	82.33	75.71
Terre-Neuve-et-Labrador	129.13	107.93	100.11	96.68
Territoires du Nord-Ouest	540.06	515.41	369.55	295.98
Nunavut	322.48	386.43	265.04	173.09
Yukon	312.36	265.32	225.7	148.88
Canada	163.33	139.9	124.4	106.13

<i>Table 11. Federal Cannabis Offense, Per 100,000 Population (2018)</i>					
Province	Possession (illegal cannabis or more than 30g)	Possession of more than 5g by a minor	Possession for the purpose of selling	Import or export of cannabis	Illegal Growing of Cannabis
Colombie-Britannique	1.18	1.24	0.24	0.38	0.26
Alberta	0.21	0.14	0.14	0	0.02
Saskatchewan	0.43	0.09	0.69	0.09	0.17
Manitoba	0.22	0.15	0.67	0.07	0.07
Ontario	0.24	0.21	0.4	0.81	0.03
Québec	1.62	0.8	0.48	1.97	0.73
Nouveau-Brunswick	0.65	0.13	0.78	0	0.39
Nouvelle-Écosse	0.73	0.52	0.21	0	0.1
Île-du-Prince-Édouard	0.65	0	0.65	0	0
Terre-Neuve-et-Labrador	0.38	0.38	0.57	0	0
Territoires du Nord-Ouest	4.49	0	2.25	0	0
Nunavut	2.6	0	10.42	0	0
Yukon	0	2.47	4.94	0	0
<i>Canada</i>	<i>0.71</i>	<i>0.48</i>	<i>0.41</i>	<i>0.81</i>	<i>0.23</i>

Source: Statistique Canada (2020d)

Table 12. Racial Disparities in Cannabis Arrests in Several Canadian Cities (2015)

City	Total arrests	Total by ethnic group (% of total)			Proportion out of total population			Rate for 100,000 inhabitants		
		Autochtones	Afro-canadiens	Blanc	Autochtones	Afro-canadiens	Blanc	Autochtones	Afro-canadiens	Blanc
Vancouver (British Columbia)	839	132 (15.7)	38 (4.5)	370 (44.1)	61 455 (2.5)	29 830 (1.2)	1 179 100 (48.6)	2.15	1.27	0.31
Calgary (Alberta)	454	39 (8.6)	51 (11.2)	274 (60.4)	42 645 (3)	54 190 (3.9)	869 555 (63.3)	0.91	0.94	0.32
Regina (Saskatchewan)	383	120 (31.3)	22 (5.7)	133 (34.7)	21 650 (9.3)	6 470 (2.8)	169 735 (73)	5.54	3.4	0.78
Ottawa (Ontario)	771	52 (6.7)	163 (21.1)	383 (48.7)	25 035 (2.6)	60 975 (6.3)	705 190 (72.5)	2.08	2.67	0.54
Halifax (Nova Scotia)	110	3 (2.7)	17 (15.5)	88 (80)	15 815 (4)	15 090 (3.8)	336 525 (84.6)	0.19	1.13	0.26

Source: Replicated from de Onvusu-Bempah, Luscombe & Finlay (2019, 122)

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