

## **Marijuana Consumption Patterns among Frequent Consumers in Montevideo<sup>1</sup>**

**Paper to be presented at the 9th Conference of the International Society for the Study of Drug Policy (ISSDP)**

**Ghent, Belgium. May 19-22, 2015**

Dr. Maria Fernanda Boidi  
Insights Research and Consulting  
Montevideo, Uruguay  
[fboidi@insightsresearchandconsulting.com](mailto:fboidi@insightsresearchandconsulting.com)

Dr. Rosario Queirolo  
Universidad Católica del Uruguay  
Montevideo, Uruguay  
[rosario.queirolo@ucu.edu.uy](mailto:rosario.queirolo@ucu.edu.uy)

Dr. José Miguel Cruz  
Latin American and Caribbean Center, Florida International University  
Miami, Florida, United States  
[jomcruz@fiu.edu](mailto:jomcruz@fiu.edu)

---

<sup>1</sup> The authors wish to express their gratitude to Florida International University, Universidad Católica del Uruguay and the Open Society Foundations whose joint efforts funded data collection for this project, and have led to the creation of the Latin American Marijuana Research Initiative (LAMRI). Special thanks go to Héctor Suárez and Jessica Ramírez, from the Observatorio Uruguayo de Drogas; Gustavo Robaina and the team of Pro-Derechos; Liesl Picard from LACC, Brad Hittle, Beau Kilmer and Peter Reuter. Finally, a huge thanks goes to the Red de Usuarios de Drogas, and especially to Milagros, for opening her house and network to our project. The final responsibility is, of course, solely ours.

## **Abstract**

**Background:** In 2013, Uruguay became the first country in fully regulating the marijuana market that now operates under state control. Marijuana can be legally acquired in three ways: self-cultivation, Cannabis club membership, and purchase in pharmacies (not yet implemented), and users need to enter a confidential registry to gain access.

**Methods:** This article presents the results of a Respondent Driven Sample survey of 294 high-frequency marijuana consumers that live in Montevideo and the metropolitan area.

**Results:** Frequent consumers started experimenting with marijuana long before achieving the legal age to do it, with the mean age of first experience being lower for the youngest. Frequent consumers resort to more than one method for acquiring marijuana, with undisputable predominance of illegal means of access. Marijuana users overwhelmingly support the current regulation, but a big proportion of them are reluctant to register.

**Conclusions:** Some of the attitudes and behaviors of the high-frequency consumers might posit a challenge to the success of the marijuana law. Individuals relying in more than one method of access defy the unique way of access clause that is a prerequisite to legal access. Reluctance to enter the register by a big proportion of high-frequency consumers generates doubts about the law being able to achieve its objectives if it fails to embrace most consumers under the registry.

## Introduction

In 2013, Uruguay became the first country in the world to regulate the possession, growth, and distribution of Cannabis. The initiative of marijuana regulation by the then president José Mujica, was passed by the Uruguayan Congress and signed into Law as 19,172 by the President in December 20, 2013.

Law 19,172 provides three ways to legally obtain Cannabis in Uruguay: through *self-cultivation*, by participating in *Cannabis clubs*, or by directly *purchasing marijuana at a pharmacy*. Individuals must become registered users before the IRCCA, the Instituto de Regulación y Control del Cannabis (or Cannabis Control and Regulation Institute). Currently, the channels of access to marijuana are mutually exclusive: individuals must select only one way to (legally) obtain marijuana. The regulation establishes that a maximum amount of 40 grams of marijuana per month per user will be distributed.

The new marijuana policy is still under implementation. The registry for self-cultivators has been completed and the process for the registration of Cannabis clubs is under way; about 15 clubs are in the process of obtaining approval for IRCCA at the moment (but none has gotten it yet). Sales through pharmacies have been deferred several times, likely due to the complexity of its implementation (which required, among other tasks, an open call for companies interested in cultivating marijuana for this purpose). The IRCCA has not made public its decision regarding how many companies (nor which ones) will be in charge of the cultivation. Many aspects of the marijuana regulation policy implementation and the regulations that come with them are still being drafted.

The innovative drug policy approach in which Uruguay has embarked has been met with great enthusiasm by the civil movements that had long claimed for legal marijuana in Uruguay<sup>2</sup> and that had been a key part of the current policy design (Garat 2015). The regulation of marijuana, however, has been also met with important challenges. According to the AmericasBarometer 2014, over sixty percent of Uruguayan citizens have expressed disagreement with the law (Boidi, Queirolo, and Cruz 2015). Additionally, leaders within the International Narcotics Control Board have expressed opposition to legalization, characterizing the new law as being in direct defiance of the international drug control treaties.<sup>3</sup> As a result, Uruguay faces both domestic and international opposition in pursuing its innovative marijuana regulation model.

In this context, the Latin American Marijuana Research Initiative (LAMRI) is conducting a series of studies about different aspects of the new drug policy environment in Uruguay.<sup>4</sup> This article focuses in one of our most recent studies: a Respondent Driven Sample (RDS) survey of frequent marijuana consumers in Montevideo and the Montevideo metropolitan area. The main aim of this research is to describe the attitudes and behaviors of the recurrent marijuana users, especially in light of the new regulations. Frequent marijuana consumers (those who use marijuana at least once a week) were asked about their first experiences with marijuana, as well as their

---

<sup>2</sup> It is worth mentioning that consumption of marijuana has been legal in Uruguay since 1974, according to Law 14,294. However, the acquisition of the substance remained illegal, which was source of concern for consumers that needed to violate the law to incur in a behavior that was legal. This led to judicial insecurity, with police officers and ultimately judges having great discretion over penalization for users. See Garat 2015 for more details.

<sup>3</sup> <http://www.newsweek.com/un-says-us-marijuana-legalization-violates-international-law-283912>

<sup>4</sup> LAMRI was born with the objective of monitoring the regulation process of the Cannabis market in Uruguay, as well as the ongoing debate and developments on the issue that are taking place across the Americas. As indicated by its name, this is an academic endeavor; its ultimate goal is to collect, analyze, and widely distribute data on marijuana policy that was obtained and analyzed following strict quality standards. LAMRI is formed by the Latin American and Caribbean Center (LACC) at Florida International University, Universidad Católica del Uruguay, and Insights Research and Consulting.

current consumption patterns. Ways of accessing marijuana and forms in which marijuana was consumed were explored, as well as their attitudes towards the marijuana regulation law.

The exercise of collecting this information at this early stage in the new marijuana policy implementation is a crucial enterprise because it constitutes the baseline for policy impact evaluation. At the same time, it can inform the policy process as it unfolds. In light of this, the main purpose of this article is to introduce the study of frequent consumers of marijuana as well as to present preliminary findings that might be useful to delineate imminent action in the policy implementation. Henceforth, this is essentially a descriptive piece, with the primary objective of disseminating preliminary findings aiming at starting a scholarly and public discussion about them.

The following section focuses on the data and methods, with special attention to the specifics of the RDS methodology and the description of the sample. Next, first experiences with marijuana are discussed, as well as current consumption patterns, with a special focus on ways of acquiring marijuana. The subsequent section is devoted to the analysis of frequent consumers' attitudes towards the marijuana regulation. The final section recaps in the main findings and its implications for the current efforts in policy implementation.

### **Data and Methods**

Our research team conducted a Respondent Driven Sample (RDS) study of frequent marijuana consumers, residents of Montevideo and the metropolitan area, in Uruguay. The target population was defined as individuals of age 18 or more, who live in the Montevideo metropolitan area and that consume marijuana at least once a week.

One of the requirements of the RDS methodology is for the individuals studied to form a social network and to interact face to face (in order to allow recruitment of new participants). Therefore, the study needed to be geographically circumscribed to allow for this interaction among participants. Montevideo occupies a small area (530 square kilometers) (COMM 2014), but the metropolitan area but hosts more than 1,6 million inhabitants, roughly half the entire population of the country (Instituto Nacional de Estadística 2012). For all those reasons, Montevideo and its area of influence was the location of choice for the investigation.

This is a study of frequent consumers only and therefore not representative of all marijuana consumers. Evidence from various studies points to the fact that frequent consumers account for most of the marijuana consumed (Burns et al. 2013; Looby and Earleywine 2007); they are also the most exposed to risks that might derive from heavy consumption (Looby and Earleywine 2007) . Therefore, they constitute a very important group to explore.

The study surveyed 294 individuals; the data collection took place between November 14 and December 28, 2014, following a lengthy formative stage (August-October 2014) during which the suitability of the RDS was assessed, questions were developed, polished and tested, and initial interviewers were identified.

#### *About the RDS Methodology*

RDS is a method that combines snowball recruitment (where one participant is requested to recruit other participants) with a system of weights that compensates for the non-random nature of the sample. It was originally developed by Douglas

Heckathorn (Heckathorn 1997), and it is regarded as the gold standard sampling method for hard-to-reach populations.

A hard-to-reach or hidden population is one for which there is no sampling frame. The term also refers to a population whose members might resist publicly admitting their belonging to it (Heckathorn 1997). This privacy concern is likely due to the nature of the activities in which they engage, which can be socially questioned or even illegal. RDS has been used to study a varied range of populations who complied with one or the two critical points that define a hidden population, from jazz musicians in the United States (Heckathorn and Jeffri 2001) to drug injectors (McKnight et al. 2006) or sexual workers in several locations in the Americas and elsewhere (Johnston and Corceal 2013).

In the case of marijuana consumption in Uruguay, data on prevalence is available dating back to 2001, when the first National Household Surveys on Drug Consumption was conducted by National Drugs Board.<sup>5</sup> According to the most recent available information –the 2011 survey- high frequency consumers in Uruguay are estimated to be 45,000 (18,700 daily consumers plus 26,300 individuals who declare using marijuana at least once a week) (OUD 2012). Thus, unlike other studies relying on RDS methodology where there is no previous data available, in this case there exists a sampling frame. Additionally, results from public opinion surveys show that individuals are mainly open at the time of talking about declaring at least having experimenting with marijuana: According to the AmericasBarometer 2014 survey, 22,1% of Uruguayans age 18 and more admitted to have tried marijuana at least once in their lifetimes (Boidi et al. 2015).

---

<sup>5</sup> The National Drugs Board, or Junta Nacional de Drogas (JND) is the official institution in charge of drug policy in Uruguay. It is a presidential office, with links and connection in several ministries.

Why, then, an RDS study and not a simple public opinion survey about marijuana users? First, there is the  $n$  problem: even when marijuana consumption has increased markedly (OUD 2012), a very large random sample would have been necessary in order to obtain reliable estimates for the subset of the population who consumes marijuana in at least a weekly basis. Second, and more importantly, even when there seems not to be (major) problems in admitting marijuana consumption, this does not mean there might be resistance to talk about other aspects of its use. Indeed, the research carried out during the formative stage proved there are concerns about going public about certain behaviors.

Marijuana consumption has been legal in Uruguay since 1974, and the market has been fully regulated since 2013. Therefore, admitting to have tried or currently using marijuana does not seem to be a great deal after all. The same does not apply, however, to report having Cannabis plants at home (perhaps not being registered to do so as the law requires, or being registered but having more than the 6 flowered plants allows). Similarly, it is easy to see self-cultivators being reluctant to openly discuss selling their surplus marijuana to their friends, or consumers averse to describe the purchase process from a drug dealer. These types of behaviors are at the core of the research questions that our team wanted to dig in to better understand the high-frequency consumers, and therefore it was crucial for the success of the project to ensure our subjects would talk openly about them. The lengthy formative stage of preliminary research confirmed that there were, indeed, privacy concerns once something more than mere marijuana use was discussed, therefore confirming RDS as the proper method to rely on given the research objectives.



To function properly, RDS requires that the individuals sampled form a social network; that is, they must know each other and interact with each other. The formative stage of research that helped framing the study confirmed that frequent marijuana consumers comprised social networks. The success of the study depends on the ability of the participants to recruit more participants. Therefore, the first set of participants - called “seeds”- needs to be carefully selected. We identified several individuals whose personalities and connectedness, as well as their marijuana consumption habits made them good candidates for the initial recruitment. We started with 5 seeds that guaranteed enough variation in terms of socio-economic background, age, gender and marijuana consumption patterns.<sup>6</sup>

Another defining feature of the RDS method is its incentive structure for participation and recruiting; typically participants are offered primary and secondary incentives (Johnston 2008). In our study, primary incentives were given immediately upon completion of the personal interview, whereas secondary incentives were granted upon successful recruitment of new participants to the study.<sup>7</sup>

The initial five cases were hand-picked by the research team. All subsequent participants in the study were recruited by peers, through a coupon system. Each participant was given three coupons to recruit new participants. Each coupon had a unique code identifier that indicated not only the recruit own code, but also whom the recruiter was, making it possible to track the chains created from each seed. Each coupon had two parts. The top part was given to the new recruit. It indicated the unique

---

<sup>6</sup> Seed 1: Female, low SES, daily consumer, mode of acquisition: self-cultivation and illegal market. Seed 2: Male, mid-high SES, daily consumer, mode of acquisition: self-cultivation only. Seed 3: Male, mid SES, weekly consumer, mode of acquisition: self-cultivation and illegal market. Seed 4: Female, mid SES, daily consumer, mode of acquisition: self-cultivation. Seed 5: Male, mid SES, weekly consumer, mode of acquisition: Cannabis Club.

<sup>7</sup> The incentive offered was a gift card for 500 pesos (around 25 US dollars) for the personal participation and another gift card for 400 pesos (around 20 US dollars) for each successful recruitment.

recruitment number, and a deadline for the contacting the research team. The top part also showed all the different ways for the new participant to contact the project and schedule an interview. The contact channels offered were: phone (call or message), WhatsApp message, e-mail, Facebook page and Skype. The bottom part of each coupon was for the recruiter to keep, in order to later claim the compensation for referring a new participant. Both parts of the coupons had the basics conditions for participation written in the back.

Although all interviewees were given 3 coupons to recruit new subjects, not every participant recruited three new participants, therefore the evolution of recruitment varied depending on the success of each seed. The whole recruitment chain is shown by the recruitment tree (Figure 1).

[FIGURE 1]

We had three very successful seeds, one seed with moderate success, and one with poor performance. The number of cases reached by each seed were: 91, 89, 77, 30 and 7. The survey reached 13 waves for one of the seeds, 10 for other 3, and 3 waves in the case of the seed with the poorest performance. Across these 13 waves, 294 valid cases were completed. The sample of respondents is heterogeneous in terms of gender: 58.8% men and 41.2% women including men (58.8%) and women (41.2%) and age, with individuals ranging from ages 18 to 62 (Table 1).

[TABLE 1]

## *RDS Data Analysis*

In order to obtain reliable estimates derived from RDS, data needs to be weighted by the reported size of each individual's social network, and to take into account the process by which each individual made it to the sample (by the successive waves of recruitment). There is more than one data analysis software package that allows for RDS data analysis. For the data presented in this paper we relied on RDS Analyst Software (Handcock, Fellows, and Gile 2014). And we set the following parameters: we used Giles's estimates, with 1000 iterations, 95% confidence intervals for the estimates, and 500 bootstraps, for a population size of 25,000. Homophily test showed no problems (results not shown here but they are available from the authors upon request).

### **First Experiences with Marijuana**

First experiences with marijuana for frequent consumers occurred at a young age. A great proportion of respondents, 71.2%, started consuming before reaching the minimum legal age for consumption (18 years). Almost a quarter of the high-frequency users of Montevideo had their first experience with marijuana before age turning 15 (24.1%), as shown in Table 2.

[TABLE 2]

The average age for first consumption is 17 years for the whole sample, but it is earlier for the youngest. Thus, for those age 18 at the time of the interview, the average age for their first experience was 14.3. The first experience came, on average, a year later for those aged 19 to 25 years, at 15.6. And the first experience occurred even much

later for those aged between 26 and 35 years: 17.2 (Table 3). This pattern, of younger individuals experimenting with marijuana earlier in life is consistent with findings from other studies in Uruguay (OUD 2012) and elsewhere (Zeisser et al. 2011).

[TABLE 3]

Marijuana has been long considered a social drug (Caulkins et al. 2012; Smith 1970). Depictions of first experiences among high-frequency users in Uruguay also support this notion. More than 8 out of 10 (82.7%) respondents declared to have been accompanied by friends when they first tried marijuana. An additional 7% engaged in this first experience with acquaintances. Only 3.9% declared to have tried marijuana for the first time being alone. The overall evaluation of the first experience with marijuana is positive for 55% of the respondents. About one in six (18.5%) described the first experience as negative, while 25% evaluated their first experiences with marijuana as neither negative or positive.

### **Current Consumption**

To date, self-cultivation and Cannabis club membership are the only legal methods to obtain marijuana in Uruguay. However, a vast majority of high frequency consumers report acquiring marijuana resorting to other methods, which means they obtain marijuana from the illegal market. Our survey requested respondents to report all ways in which they had obtained marijuana during the past 12 months (Table 4, Column A), the method most frequently used during the past 6 months (Column B) and the method used the last time they had acquired marijuana (Column C).

We asked respondents how they obtained the product (direct purchase, purchase by a third party, self-cultivation or gift) but we also asked about the type of product acquired: pressed marijuana or flowers. Pressed marijuana owes its name to the manner in which it is packed and presented to the consumer. It is typically commercialized in small blocks of 25 grams, and it is commonly referred to as “a 25”. A “25” costs around USD 30. Pressed marijuana can also be purchased in smaller quantities, by the gram (which is enough for a joint or two). These smaller packages cost between 1 and 2 dollars and are called “palancas”. Pressed marijuana is imported from Paraguay; hence it is the product of drug trafficking. It is regarded as “dirty” by most users who claim not to have other choice than purchasing it and it is deemed by them as a low quality product with little psychoactive potency.

In addition to the pressed marijuana from Paraguay, individuals reported to also purchase flowers. Flowers are the product of local cultivators. Some of these flowers are traded within close social networks; a recurrent situation is that of consumers who sell their surplus to friends and acquaintances. In other cases, there are individuals who devote themselves to locally growing and selling marijuana, or even stealing marijuana from self-cultivators and Cannabis clubs to later sell it. Flowers are paid much higher prices than pressed marijuana; 25 grams of flowers can easily cost around USD 100. This higher price reflects the perceived higher quality of the product (free of chemicals, for instance) and the reported higher levels of THC.

High-frequency consumers rely on a variety of methods to access marijuana. Responses to the question on methods used to access marijuana in the past 12 months reveal that for most consumers there is not one exclusive way of acquiring it, but rather a combination of several methods, with a clear predominance of illegal activities. In the

past 12 months, 61.8% of high frequency consumers bought pressed marijuana, but also 59.0% declared to have someone else buying pressed marijuana for them, and 73.9% reported to have been given away pressed marijuana. At a smaller rate, 36.7% declared to have purchased flowers, and 37.9% having someone purchasing flowers for them. Self-cultivation was also a method mentioned for many respondents, either performed individually (27.4%) or in groups (14.0). Other, less frequent ways of obtaining marijuana (reported by 5.8%) include finding joints, trading them by other goods or services, and even stealing them, typically from family members (Table 4, Column A).

When the responses about *all* methods of acquisition (Table 4, Column A) are contrasted with the *most frequent* method of acquisition used in the past 6 months (Column B) and the *last acquisition* (Column C), some interesting patterns emerge.

First, the illegally supplied marijuana clearly dominates the market. With 42.8% of high frequency consumers reporting to have mainly relied in the purchased of pressed marijuana directly, plus 18.7% reporting having someone else purchasing for them, the results clearly point to a dominance of international drug trafficking fulfilling the demands of at least 61.5% of the high frequency consumers (Colum B). In addition, the sales of flowers –also illegal, but locally produced- covered the demand of 15.4% of high frequency users (4.6% who bought them directly, plus 10.8% who had a third party purchasing it for them), at least according to what they report regarding the past 6 months. It is interesting to see how those who mainly consume pressed marihuana tend to purchase it directly themselves over requesting someone else to do it, in a proportion almost to 2 to 1, but the relationship reverts for those who purchase flowers, who are much more prone to have someone else obtaining them than purchasing directly

themselves (this is valid for both, most frequent way of acquisition in the past 6 months and for the last acquisition, as shown in columns B and C).

Second, individual self-cultivators do not seem to be successful enough to produce all the marijuana they consume, which is consistent with their narrative in the qualitative interviews held during the formative stage of this project. While 27.4% of respondents mentioned individual self-cultivation as one of the methods used to obtain marijuana during the previous 12 months (Column A), only 6.1% pointed to self-cultivation as the main method of obtaining marijuana during the last 6 months (Column B), and 5.5% relied in self-cultivation for the most recent acquisition (Column C). This means there is a (large) set of high-frequency users that can only partially fulfill their demand for marijuana by legal means (provided they are registered as growers).

Third. Similarly, while 14% declared to have accessed marijuana through group cultivation during the past year, only 0.5% mentioned it as the most frequent way of accessing marijuana during the past 6 months. Thus, this way of access does not seem to be sufficient for the year-round supply for high frequency consumers, either. The individuals who take care of their Cannabis plants might group into Cannabis clubs, so this is potentially another legal way of accessing marijuana. However, just like happened with individual self-cultivators, group cultivation does not meet the current needs of the consumers who engage in it. Interestingly, 4.4% mentioned that the marijuana they acquired the last time came from group cultivation. This might be a hint that recently groups (informal and those institutionalized as Cannabis clubs) could be rapidly becoming more successful in providing marijuana (in larger amounts and regularly) to their members, which is consistent with what speakers from several Cannabis clubs have recently reported (Queirolo, Cruz, and Boidi 2015).

Finally, there is a smaller group of individuals who report receiving marijuana as a gift as their primary source of marijuana during the past 6 months (6% pressed marijuana, 10.6% flowers). It is worth noting that while still high-frequency users, those who have primarily obtained marijuana as a gift from others during the past 6 months show the lower average of weekly use of marijuana. The average respondent of the RDS study uses marijuana 4.2 days a week; this value drops to 2.8 days a week among those who received it as a gift (Table 5).

[TABLE 5]

As Table 5 shows, there is variation in the frequency of use on marijuana that seems to be related to the mode of acquisition of the substance. Reasonably, the lower frequency of use is found among those who have primarily obtained marijuana as a gift from others during the past 6 months. Conversely, among those who purchase their marijuana directly, the average frequency of use is 5.3 days a week.

Frequency of use is also linked to the reported quantities consumed, as found by previous research (Burns et al. 2013; Zeisser et al. 2011). Likewise, among frequent consumers in Montevideo, individuals who use marijuana more days a week, also tend to consume more marijuana per day. Figure 2 shows the average grams consumed per day, according to how many days a week individuals reported to consume marijuana. For instance, among those who declared using marijuana once a week, the average consumption per day is less than one gram (0.9). Conversely, daily users report to use, on average, 2.9 grams each day.

[FIGURE 2]



Daily consumers, however, only account for less than one third of the high-frequency users surveyed (29.1%) as shown by Figure 3, that depicts the distribution of high-frequency consumers according to how many days a week they use marijuana. At the other end of the continuum, those who use marijuana only once a week represent 8.5% of the studied population. The rest of the high-frequency consumers distributes across the other categories. As mentioned above, the average number of days a week individuals reported to use marijuana is 4.2.

[FIGURE 3]

The survey requested respondents to indicate all forms in which they had consumed marijuana during the past year. While marijuana is basically smoked, users are experimenting with new forms of consumptions. For instance, as shown in Table 7 Column A, a bit more than quarter of the high frequency consumers surveyed declared to have tried edibles during the last year (26.4%). These edibles comprise diverse preparations, from the classic brownies and cookies to stews. Drinks (tasted in the last year by 9.4% of the high-frequency consumers surveyed) also cover a wide spectrum that ranges from milkshakes, to daiquiris; they even include the popular Uruguayan mate.<sup>8</sup> A small group of respondents reported to have experimented with tinctures (6.9%) and creams (2.2%), which points to the fact that use of marijuana among high-frequency consumers is essentially recreational, and not medical.

[TABLE 6]

---

<sup>8</sup> Mate is a highly popular infused tea that is drank from a calabash gourd with a straw.

## **Frequent Consumers and the Marijuana Law**

Support for the marijuana regulation law clearly triumphs among frequent consumers: almost 9 out of every 10 either expressed their agreement with the law: 52% said they agreed and 37% reported they agreed a lot with it. This stands in sharp contrast with the mood of the general public, among which approval only reaches 34%, and disagreement with the law is over 60% (Boidi, Queirolo, and Cruz 2015).

The overwhelming support for the regulation among high-frequency marijuana users does not immediately translate into willingness to comply with it, although law-abiding behavior predominates. Asked about their plans regarding the mandatory registration for marijuana consumption, more than half of respondents said they will surely register (31.1%) or probably register (26.9%). However, there is a significant amount of frequent consumers who do not plan to sign up in the registry: 19.6% state that it is not probable that they will register, and another 19.6% said that they are certain that they will not register. Less than 1% of respondents have already registered.

The intention to register is not evenly distributed across the sample. Those who purchase marijuana directly are much more prone to register than others. As Table 7 shows, among those who purchase marijuana directly, 49% said they will surely register, plus 22.1% said will probably do it. Henceforth, more than 7 out of every 10 of these consumers are planning to enter the registry. The proportion drops significantly for those who have someone else purchasing the marijuana they consume, with only 10.1% saying they will surely register plus 35.1% declaring that they will probably register. This probably suggests that some of the individuals who are reluctant to purchase marijuana in the black market –and therefore have someone else doing it- will also be reluctant to purchase directly from pharmacies (or cultivate themselves or join a

Cannabis club), thus their current behavior might be more related so jealousy over their privacy than about avoiding illegal interactions with dealers or hubs.

[TABLE 7]

The intention of register among self-cultivators is the lowest: only a bit more than a third of them plans to register (20.2% surely will register, and 16% will probably register, as reported). However, 9.7% of self-cultivators have already registered. Despite this, the predominant feeling among self-cultivators is to avoid the registry. And their reasons for rejecting the registry are different from the reasons expressed by others. Those who said they will surely or probably not register where asked why. Table 7 shows the responses to the question according to primary mode of access to marijuana. As depicted there, self-cultivators are the most fearful of the registry: 35.8% of them reported they were afraid entering the registry because they simply did not trust it (the proportion of individuals mentioning this reason in the entire sample drops to 20.9%). Fears are essentially linked to confidentiality warranties. Individuals report not trusting the fact that the registry would be fully treated as classified information, and have they reservations about the uses the State can make of them (at the time of screening for jobs, for instance). They are also afraid the files could be hacked, for instance. In addition, when self-cultivators register they need to provide proof of residence (and it becomes mandatory to report any changes of address), which makes them feel once registered they would be more exposed to controls by IRCCA, but also to the Police and Justice system.

In contrast, consumers who do not rely primarily in self-cultivation for accessing marijuana mentioned not gaining anything by entering the registry as the primary reason

for intending to avoid it: 36.2% of those who purchase marijuana directly, 44.4% of those who have someone else acquiring it for them, and 28.2% of those who receive it as a gift reported the absence of gains of registering and the main explanation for them not wanting to do it.

[TABLE 8 ]

Opposition to the registry is also related to normative concerns. Among the high-frequency consumers, 18.8 % reject it because they oppose the existence of such a registry on normative grounds: they do not believe such a registry is fair to those who engage in a behavior that has been legal for decades. The resistance to the registry on this normative ground is greater among self-cultivators and among those who receive marijuana from others (25.3% among each of these group pointed to the rejection to the idea of the registry as the main reason for rejecting it).

Among those who said they will surely or probably register, the preferred method of accessing marijuana is through pharmacies (55.9%), followed by self-cultivation (30.1%) and Cannabis Clubs (12.8%).

### **Concluding Remarks**

With the marijuana regulation law Uruguay embarked in an ambitious drug policy shift. By enacting the state regulation of the entire productive chain of Cannabis, this law sought to tackle both, public health and public security problems, while offering long-demanded (by some groups, at least) warranties in terms of individual rights and judicial security. The unprecedented nature of this approach turns its implementation a complex task, forcing the authorities to make macro and micro policy

decisions in many cases under great uncertainty. The RDS study of high-frequency consumers in Montevideo sheds light upon some of those uncertainties.

The current behavior of marijuana frequent consumers posits some challenges to the implementation of the law as it has been originally conceived. First, the current regulation requires all marijuana users to register before the IRCCA, and to do so they need to select only one method of access. Actually, to date the registry is only open to self-cultivators and club members (those who plan to purchase marijuana in pharmacies would have to register at a later stage, closer in time to the launching of the sales through pharmacies). What high-frequency consumers report, however, is that they rely in more than one method to access marijuana: users are unambiguous in their narratives about wanting to grow their own plants, but also being able to purchase marijuana if their supply is not enough. With the current provisions, this type of behavior will not be (legally) possible, as the methods of access are conceived as mutually exclusive by the law. This means that marijuana users would need to change their behavior to fully comply with the regulation, or to ignore the regulation, either completely (by continue acquiring marijuana in the black market and/or cultivating without a permit), or partially (by registering under one of the methods of access, but continue relying in more than one form of obtaining marijuana).

Second, while high-frequency consumers are fully supportive of the regulation, they are not equally enthusiastic about complying with it. From the policy implementation perspective, the glass half-full is that 60% of the high-frequency consumers surveyed declared their intention to register. The glass half-empty, though, is that 4 out of 10 do not plan to register. Rejection to the registry obeys to different reasons, some more difficult to tackle than others. For instance, those who oppose the

existence of a registry on normative grounds are probably a hardcore of users that will be very difficult to convince, as their stand is based on philosophical views on consumption and individual rights. Those who fear the registry would fail in ensuring the confidentiality warranties, and those who feel there is no gain in entering the registry, represent a different target that might be more susceptible to change their minds with the proper strategy aiming at it.

Some of these challenges might become a huge hurdle for the success of the policy. If a great proportion of the high-frequency consumer choose not to enter the registry, then the titanic efforts in terms of institution building, interinstitutional articulation, and control implementation that the marijuana law demands would be futile. However, if the policy officials find the way to convince these users (either by means of communication campaigns, or by means of concrete actions –sanctioning those who are not registered, for instance and therefore sending a clear message that there is no free ride in avoiding the registry), then the outlook for the success of the law in terms of its coverage might be more promising.

## References

- Boidi, María Fernanda, José Miguel Cruz, Rosario Queirolo, and Emily Bello-Pardo. 2015. *Marijuana Legalization in Uruguay and Beyond*.
- Boidi, María Fernanda, Rosario Queirolo, and José Miguel Cruz. 2015. "Uruguayans are Skeptical as the Country becomes the First to Regulate the Marijuana Market," *AmericasBarometer Insight Series - Topical Brief*. <http://www.vanderbilt.edu/lapop/insights/ITB020en.pdf>.
- Burns, Rachel M, Jonathan P. Caulkins, Susan S. Everingham, and Beau Kilmer. 2013. Statistics on Cannabis Users Skew Perceptions of Cannabis Use. *Frontiers in Psychiatry* 4.
- Caulkins, Jonathan P., Angela Hawken, Beau Kilmer, and Mark Kleiman. 2012. *Marijuana Legalization. What Everyone Needs to Know*. Oxford University Press.
- COMM, Montevideo. 2014. "Enciclopedia Geográfica del Uruguay " In.
- Garat, Guillermo. 2015. *El camino. Cómo se regula el Cannabis en Uruguay según sus actores políticos y sociales*. Junta Nacional de Drogas - Friedrich Ebert Stiftung.

- Handcock, Mark S., Ian E. Fellows, and Krista J. Gile. 2014. "RDS Analyst: Software for the Analysis of Respondent-Driven Sampling Data. Version 0.42." In.
- Heckathorn, Douglas. 1997. Respondent Driven Sampling: A New Approach to the Study of Hidden Populations. *Social Problems* 44 (2).
- Heckathorn, Douglas, and Joan Jeffri. 2001. Finding the beat: Using respondent-driven sampling to study jazz musicians. *Poetics* 28.
- Instituto Nacional de Estadística, INE. 2012. *Resultados del Censo de Población 2011: población, crecimiento y estructura por sexo y edad*.
- Johnston, Lisa. 2008. *Introduction to Respondent Driven Sampling. Behavior Surveillance. Participant Manual*.
- Johnston, Lisa, and S. Corceal. 2013. Unexpectedly high HIV and Hepatitis C prevalence among female sex workers in the Republic of Mauritius: Strong association with injecting drug use. *AIDS and Behavior* 12 (2).
- Looby, A., and M. Earleywine. 2007. Negative consequences associated with dependence in daily Cannabis users. *Substance Abuse Treatment, Prevention and Policy* 2 (3).
- McKnight, Don Des Jarlais, Heidi Bramson, Lisa Tower, Abu S. Abdul-Quader, Chris Nemeth, and Douglas Heckathorn. 2006. Respondent-Driven Sampling in a Study of Drug Users in New York City: Notes from the Field. *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 83 (7).
- ODU, Observatorio Uruguayo de Drogas. 2012. *Informe de Investigación. Quinta Encuesta Nacional en Hogares sobre Consumo de Drogas*.
- Queirolo, Rosario, José Miguel Cruz, and María Fernanda Boidi. 2015. "Cannabis Clubs in Uruguay " Presented at the ISSDP 9th Conference., Ghent.
- Smith, David E. 1970. *The new social drug: Cultural, medical, and legal perspectives on marijuana*.. Oxford: Prentice-Hall.
- Zeisser, C., K. Thompson, T. Stockwell, C. Duff, C. Chow, K. Vallance, A. Ivsins, W. Michelow, D. Marsh, and P. Lucas. 2011. A Standard Joint? The Role of Quantity in Predicting Cannabis Problems. *Addiction Research and Theory* 1 (11).

## Tables and Figures

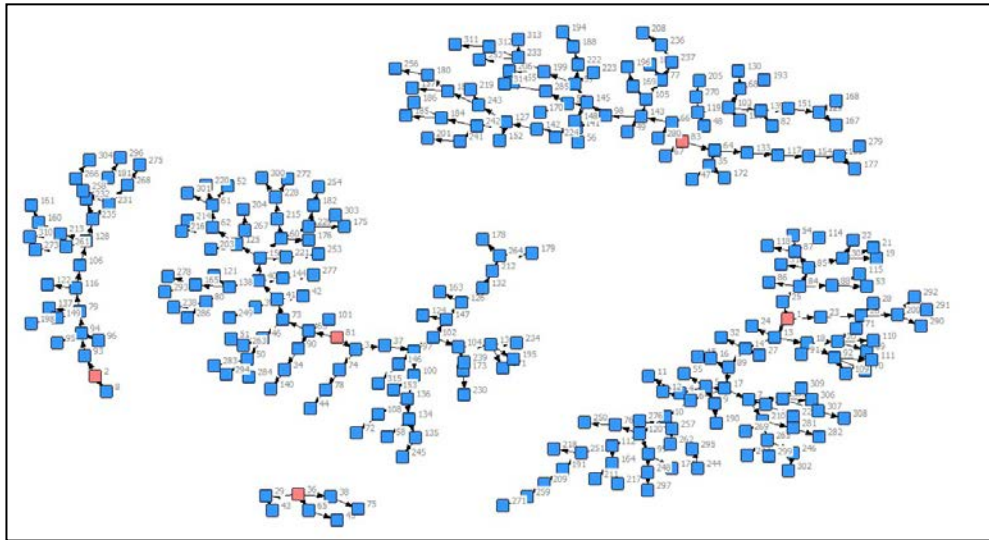


Figure 1. Recruitment tree

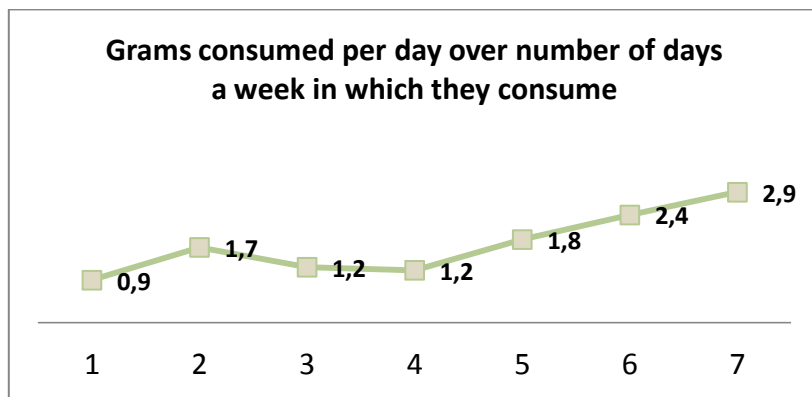
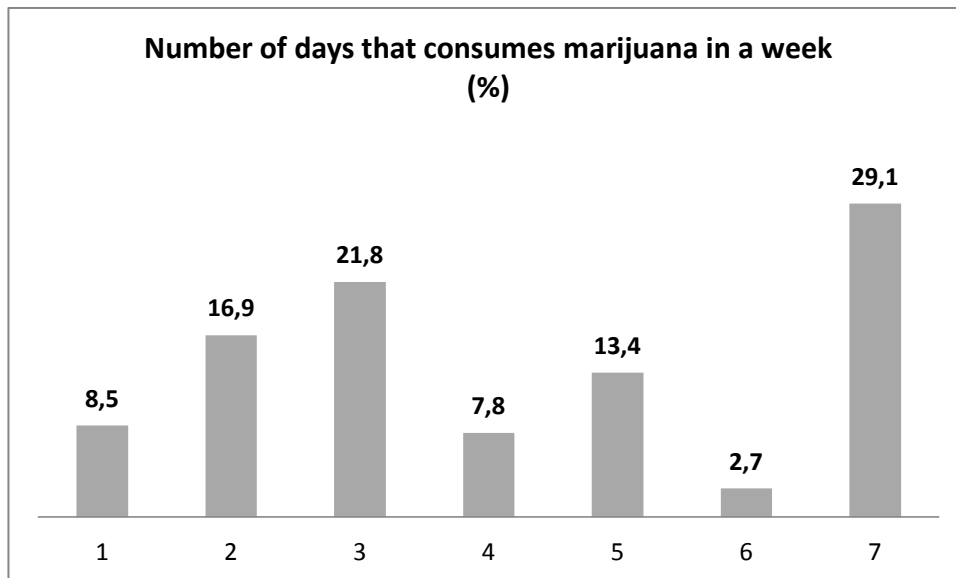


Figure 2. Marijuana consumption per day, over number of days a week in which marijuana is consumed





**Figure 3. Marijuana consumption per day**

**Table 1. RDS Study Sample Features**

<b>Gender</b>		
	n	%
Male	173	58.8
Female	121	41.2
<b>Age</b>		
	n	%
18	21	7,1
19-25	110	37
26-35	127	43,2
36-45	25	8,5
46-55	6	2
56+	5	1,7
<b>Total</b>	<b>294</b>	<b>100.0</b>

**Table 2. Age of first experience with Marijuana**

<b>Age</b>	<b>%</b>
10 years old or younger	2.0
11	0.4
12	5.0
13	5.1
14	11.7
15	16.8
16	19.8
17	10.6
18	4.3
19	10.6
20	4.3
21	0.1
22	4.4
23	1.6
24 years old or older	4.1
<b>Total</b>	<b>100.0</b>

**Table 3. Age of first experience with Marijuana by age**

<b>Age</b>	<b>Average age of first experience</b>
18	14.3
19-25	15.6
26-35	17.2
36-45	16.7
46-55	38.3
56+	20
<b>All</b>	<b>17.0</b>

**Table 4. Methods used to acquire marijuana**

	<b>A All methods used in past 12 months</b>	<b>B Most frequent in past 6 months</b>	<b>C Last acquisition</b>
Bought pressed marijuana directly	61.8	42.8	40.6
Bought flowers directly	36.7	4.6	3.6
Someone bought pressed marijuana for them	59.0	18.7	20.9
Someone bought flowers for them	37.9	10.8	7.6
Self-grow (individual)	27.4	6.1	5.5
Self-grow (group)	14.0	0.5	4.4
Gifted pressed mj	73.9	6.0	10.3
Gifted flowers	81.2	10.6	6.9
Other ways	5.8	0.0	0.1
Don't know	--	--	0.1

**Table 5. Frequency of use (average # of days of week) by mode of acquisition**

<b>Mode of acquisition</b>	<b>Average # of days a week in which uses marijuana</b>
Purchased directly	5.3
Someone else purchased for them	3.1
Self-cultivation	4.9
Gifted	2.8
<b>All</b>	<b>4.2</b>

**Table 6. Forms in which marijuana is consumed, all forms in last 12 months and most frequent method**

	<b>A All forms in last 12 months</b>	<b>B Most frequent form</b>
Joint (prepared by themselves)	92.5	67.2
Joint (prepared by others)	84.5	26.3
Pipe	39.9	5.5
Edibles	26.4	0.0
Vaporizers	15.7	0.3
Drinks	9.4	0.0
Tinctures	6.9	0.7
Creams or lotions	2.2	0.0

**Table 7. Intention to register by primary method of obtaining marijuana**

<i>Method of obtaining marijuana</i>	<i>Intention to register</i>						<b>Total</b>
	<b>Surely yes</b>	<b>Probably yes</b>	<b>Probably not</b>	<b>Surely not</b>	<b>Already registered</b>	<b>Doesn't know</b>	
Purchases directly	49.0	22.1	7.8	18.3	0.0	2.9	100.0
Someone else purchases for them	10.2	35.1	35.1	18.9	0.0	0.7	100.0
Self cultivation	20.2	16.0	25.1	26.2	9.7	2.7	100.0
Receives as a gift	20.8	30.3	23.5	23.0	0.0	2.4	100.0
<b>All</b>	<b>31.1</b>	<b>26.9</b>	<b>19.6</b>	<b>19.6</b>	<b>0.6</b>	<b>2.1</b>	<b>100.0</b>

**Table 8. Motives of rejection to registry by primary method of obtaining marijuana**

	<b>Lack of trust in the registry</b>	<b>Rejection to the idea of registry</b>	<b>Don't see any gains in being registered</b>	<b>Don't want to limit ways of access</b>	<b>Other reasons</b>	<b>DK</b>	<b>Total</b>
Purchases directly	28.7	18.4	36.2	0.0	14.6	2.14	100.0
Someone else purchases for them	12.3	13.5	44.4	0.0	29.7	0.0	100.0
Self cultivation	35.8	25.3	24.0	0.0	14.8	0.0	100.0
Receives a a gift	19.4	25.3	28.2	0.7	25.8	0.0	100.0
<b>All</b>	<b>20.9</b>	<b>18.8</b>	<b>36.6</b>	<b>0.1</b>	<b>22.9</b>	<b>0.7</b>	<b>100.0</b>