ILLICIT DRUG POLICIES AND SOCIAL OUTCOMES: A CROSS-COUNTRY ANALYSIS

Final report

31st March 2021

CATÓLICA
CATÓLICA PORTO BUSINESS SCHOOL
PORTO

Illicit drug policies and social outcomes: a cross-country analysis

Research project funded by the European Research Area Network on Illicit Drugs (ERANID)

Project team

Principal Investigator (PI) and co-Principal Investigators (co-PI)

Ricardo Gonçalves (PI), Católica Porto Business School, Universidade Católica Portuguesa, Portugal

Pierre Kopp (co-PI), Université Paris I Panthéon-Sorbonne, France

Dirk Korf (co-PI), Faculty of Law, University of Amsterdam, Netherlands

Carla Rossi (co-PI), Consorzio per lo sviluppo delle metodologie e delle innovazioni nelle pubbliche amministrazioni (MIPA), Italy

Research team

France: **Marysia Ogrodnik** (Université Paris I Panthéon-Sorbonne)

Italy: **Alessio Canzonetti**, **Dario Cirillo, Francesca de Marinis**, **Francesco Fabi** and **Fabio Massimo Lanzoni** (MIPA)

Netherlands: **Annemieke Benschop**, **Nienke Liebregts** and **Kostas Skliamis** (University of Amsterdam)

Portugal: **Ana Lourenço** and **Hélia Marreiros** (Católica Porto Business School, Universidade Católica Portuguesa)

Advisors

Cláudia Costa Storti, EMCDDA

Paul de Grauwe, London School of Economics

Mathias Siems, Durham University

Jenny Williams, University of Melbourne

Please cite as:

Gonçalves, R., Kopp, P., Korf, D., Rossi, C., Ogrodnik, M., Canzonetti, A., Cirillo, D., de Marinis, F., Fabi, F., Lanzoni, F. M., Benschop, A., Liebregts, N., Skliamis, K., Lourenço, A. & Marreiros, H. (2021). Illicit drug policies and social outcomes: a cross-country analysis. Final report to ERANID.

DISCLAIMER

Porto, 31st March 2021

Ricardo Gonçalves

TABLE OF CONTENTS

TABLES

FIGURES

1

1. Introduction

1.1. Overview of the research project

1.1.1. Goal and funding

The "Illicit drug policies and social outcomes: a cross country analysis (IDPSO)" project is an international 3-year (2017-2020, with a six-month extension due to the COVID-19 pandemic) research project in the illicit drug field, with the goal of measuring the impact that different drug-related legal frameworks have on society in seven different countries: Portugal, France, Italy, Netherlands, United Kingdom, Canada and Australia. This research project was selected for financing by ERANID (European Research Area Network on Illicit Drugs), following an international call for proposals in 2016.

1.1.2. Research team

Católica Porto Business School (Portugal) is the leading institution in an international research consortium that also includes Université de Paris I (France), University of Amsterdam (Netherlands) and MIPA (Italy), and advisors from the EMCDDA (European Monitoring Centre for Drugs and Drug Addiction), London School of Economics, Durham University and University of Melbourne. The main researchers involved in our research consortium are: Ricardo Gonçalves (PI), Ana Lourenço and Hélia Marreiros, from Católica Porto Business School, Universidade Católica Portuguesa; Pierre Kopp (co-PI) and Marysia Ogrodnik (Paris School of Economics, Université Paris I); Dirk Korf (co-PI), Annemieke Benschop, Nienke Liebregts and Kostas Skliamis (University of Amsterdam); and Carla Rossi (co-PI), Alessio Canzonetti, Dario Cirillo, Francesca de Marinis, Francesco Fabi and Fabio Massimo Lanzoni (MIPA). The project's advisors are Mathias Siems (Durham Law School, Durham University), Cláudia Costa Storti (European Monitoring Centre for Drugs and Drugs Addiction - EMCDDA), Paul de Grauwe (London School of Economics) and Jenny Williams (University of Melbourne). For more information on the project please go to https://www.eranid.eu/projects/idpso/.

1.1.3. Structure of the research project

The objective of this project is to assess how differences in national drug laws and policies related to illicit drug production, distribution and consumption impact on key drug-related social indicators, with a particular focus on cannabis. In a nutshell, in order to achieve this objective, this research projects aims, first, to translate into quantitative indicators the different 'written' policies, typically approved and enacted by law, as well as the perceptions, by stakeholders, of policies 'in action'. Second, this research project aims to measure their impact on key indicators for drug use.

To do so, this project involves four steps: (i) the use of leximetrics to allow cross-country comparison of national drug policies (measuring 'law in the books'); (ii) a quantitative and qualitative study to assess the perceptions of key actors regarding those policies (capturing perceptions of 'law in books' and 'law in action'); (iii) a careful analysis of key social indicators directly or indirectly related to illicit drug use (e.g., health indicators, such as HIV or hepatitis infection rates; demand indicators, such as illicit drug consumption rates; or justice system indicators, such as number of drug-law offences or imprisonments); and (iv) an in-depth understanding of the relationship between national drug laws and policies (steps (i) and (ii)) and social indicators (step (iii)).

As outlined in our research proposal, each of these steps in our analysis corresponds to a Work Package (WP), led by a consortium member, and ultimately results in a chapter of this final report:

- Chapter 2 (WP2): Cross-country comparison of national drug policies using leximetrics
    - WP leader: Ana Lourenço (Portugal);
    - Objective: to build indices of laws regarding drug production, distribution and use in the countries selected – Portugal, France, Italy, the Netherlands, England, Canada and Australia – and over a time-frame of twenty years (1996-2016)
- Chapter 3 (WP3): Qualitative and quantitative study of drug policy perceptions
    - WP leader: Dirk Korf (Netherlands);
    - Objective: to ascertain the perception of drug policy and its evolution in the selected countries. This involves empirical data gathering (qualitative expert interviews to gather actors' perceptions on legal evolution and its impact on social indicators, and surveys on perceptions of law in action)
- Chapter 4 (WP4): Key social indicators for drug policy analysis
    - WP leader: Pierre Kopp (France);
    - Objective: to review, develop and collect information on key social indicators directly or indirectly related to illicit drug use
- Chapter 5 (WP5): Assessing the impact of drug policies on key social indicators
    - WP leader: Ricardo Gonçalves (Portugal);
    - Objective: to develop a cross-country analysis of drug policies and their impact on social indicators.

1.2. Executive summary

There is worldwide diversity in national drug laws and policies. A brief analysis of the EMCDDA's European Legal Database on Drugs reveals a variety of laws and inherent paradigms, ranging from crime-centred perspectives to health centred ones. Outside Europe, this diversity is even more salient, as countries with a legalisation approach coexist with countries where drug use is severely punished (UK Home Office, 2014). This diversity in national drug policies, as well as their evolution, is somewhat to be expected, insofar as they reflect each country's social, economic and cultural drivers. Nonetheless, given that illicit drugs undoubtedly generate social costs, changes in national drug policies should be followed by a systematic method for measuring their impact on key drug-related indicators.

The relationship between the applicable drug policy framework and key drug indicators is a complex issue. Drug policy (as other policies) has various relevant dimensions: 'written' policy is typically approved and enacted by law; policy 'in action' relates to the practical implementation of 'written policy'; and 'perceived' policy refers to how stakeholders perceive the 'written' policy as well as the policy 'in action'. Each country probably has a unique drug law and policy, resulting from the combination of these three different dimensions, built and/or changed over time depending on its society evolution or ideological position. Such policy should clearly have an impact on illicit drug production, distribution or use.

Therefore, understanding the relationship between drug law and policy and key drug-related indicators is essential to inform the ongoing debate and provide scientific evidence to the discussion surrounding drug policy regimes, especially (but not only) in what concerns cannabis. Such an understanding requires an in-depth cross-country interdisciplinary approach involving stakeholders that would ultimately make a significant and impactful contribution to the field, as well as for future policy discussions. This is the goal of our research project: to assess how differences in national drug laws and policies related to illicit drug production, distribution and consumption impact on key drug-related social indicators, with a particular focus on cannabis.

Our research project looks at seven different countries – Portugal, France, Italy, Netherlands, United Kingdom, Canada and Australia – over a relatively long timeframe (1996-2016). The first step in our analysis proposes to answer the following research questions: how has the illicit drug policy evolved between 1996 and 2016 in each of the seven countries under analysis? And (ii) how can the illicit drug policy be converted into numbers, so as to allow for intertemporal and international comparison?

To answer these research questions, a state-of-the-art comparative law technique is used: leximetrics. This is a method of comparative law that relies on a systematic quantitative methodology (Cooter & Ginsburg, 2003), turning the law into numbers and therefore allowing intertemporal and international comparison of legal change. The analysis was carried out in two steps: in a first step, we have identified and collected relevant legislation, court decisions and drug policy documents for each of the 7 countries in the period 1996-2016. This has allowed the construction of detailed drug policy timelines for each country under analysis. In a second step, we have developed a leximetrics coding methodology which, on the basis of each country's drug policy timelines, effectively allows us to 'transform the law into numbers'. In doing so, we have explicitly acknowledged the multidimensional nature of drug policy. Therefore, rather than focus on the construction of a single index for drug policy, we have developed a coding methodology encompassing six different dimensions of drug policy: consumption, possession, traffic (including cultivation, production and distribution), harm reduction, treatment and prevention. In addition, we have also explicitly considered the nature of the drugs: the first three dimensions – consumption, possession and traffic – have a different coding methodology based on the type of drug: cannabis or hard drugs. For each dimension (and for each type of drug), our coding methodology 'classifies' countries for each year in the period 1996-2016. The classification range has as extremes a 'health-oriented/liberal country' and a 'criminal-oriented/prohibitionist country'.

In a nutshell, by looking at each particular country, we identify various turning points in each of the various drug policy dimensions over time. Typically (but not always) these turning points are in the direction of a more health oriented/liberal (or less criminal-

oriented/prohibitionist) approach towards drug policy. Comparisons across countries show that these shifts were not uniform: some countries took larger steps than others in that direction, thus changing their relative position for each dimension of drug policy.

A second step in our analysis is dedicated to answering the following research question: how is drug policy perceived in each of the selected countries? And how has this perception changed over time?

In order to answer these research questions, we have followed an empirical approach: we have implemented surveys on perceptions of law in action and we have carried out qualitative expert interviews to gather actors' perceptions on legal evolution and its impact on social indicators.

Starting with the former, two quantitative surveys were conducted to capture citizens' perceptions regarding the actual operation of drug policies in their country: a general population survey and a survey among current drug users (user survey). The focus of these surveys was on the perceived legal status of cannabis, perceptions of drug policy (perceived approach towards drug users or drug dealers, as well as perceived priorities of drug policy), perceptions of drug law in action and perceptions of drug availability and supply. In addition, the user survey also looked into perceptions of treatment, social norms and self-regulation regarding drug use.

Regarding the latter, we carried out 66 expert interviews across the seven countries which resulted in concise country reports presenting information about changes in drug policy, the law in action and access and barriers to treatment during the years under study (1996-2016); explanations for/interpretations of changes; and perceptions of the reactions of drug producers and suppliers to drug laws/drug law enforcement.

By integrating the main findings from the seven country reports, we concluded that there are similarities regarding interventions to combat the heroin epidemic of the late 1980s and early 1990s. Policy changes then focused on prevention, treatment and harm reduction, mostly following a health rather than a crime approach. In general, the health approach interventions in response to the heroin epidemic had positive results for drug users and for society. However, despite these successes, later steps towards a return to the crime approach were observed when treatment and harm reduction were placed in the spotlight of political debates, and when drug policy was a feature of electoral campaigns, reflecting the conservative reflexes of voters. In the same period that countries were winning the first battles against the heroin epidemic, significant changes in the production and supply of other drugs started to become apparent in drug markets: the experts agree that changes in drug supply methods and the availability of different drugs are associated with the demand for higher quality, greater variety, and lower prices.

Regarding cannabis, experts suggest that despite the changes in the fields of law enforcement, prevention, treatment and harm reduction, cannabis users were never the target of these changes. In general, experts perceive that the laws did not change for them (except in Canada, where cannabis was legalized in 2018), but the opinion and behaviour of the police and the criminal justice system towards cannabis users changed significantly, to a more decriminalized approach. There was no cross-national alignment regarding cannabis policy changes, namely whether a country's drug policy focussed on crime or health. Each country in this project more or less followed its own policy,

although this was not always in the same direction as the other countries and in some cases, the same change in different countries were many years apart.

A third step in our analysis consisted of the review, development and collection of information on key social indicators directly or indirectly related to illicit drug use. Putting together a database of social indicators between 1996 and 2016 for the seven countries proved to be more difficult than initially anticipated because for some variables: (i) there is a large number of missing observations, either over time or across countries; (ii) often (but not always) the large number of missing observations is related to changes in variable definitions (or data collection methodology), which essentially renders impossible the task of collecting data for the same variable throughout the period under analysis; (iii) although EU countries largely follow the data collection methodologies and variable definitions stipulated by the EMCDDA, the same is not true for Canada and Australia – both of which collect statistics on variables that are similar in nature to those collected by the EMCDDA, but which are not exactly the same; and (iv) whilst data collection for EU countries was made comparatively easier by relying on a single data source – the EMCDDA –, data collection for Australia and Canada was typically not possible from a single source, thus increasing comparability problems.

Despite this, we have constructed a database, for the seven countries under analysis and for the 1996-2016 period, which includes variables on the prevalence of drug use, overdose deaths, infectious diseases, treatment demand, problem drug use, seizures of drugs, price, purity and potency, drug law offenses and health and social responses.

In the fourth and final step of our analysis, we have focused on the following research question: for the countries under analysis, in the period 1996-2016, what is the impact of each dimension of drug policy on prevalence rates of the overall population and 15-24 years old for (i) cannabis, (ii) cocaine and (iii) ecstasy? Despite their methodological limitations, prevalence rates are a sort of 'gold standard' in the illicit drug field, making them an obvious candidate over which to assess drug policy implications. Understanding the effect of national drug policies on social indicators is a central question for policymakers. Assessing this effect in the long run requires an evaluation of social indicators before and after drug policy changes. However, this is a complex issue, as changes in drug policies may have an impact in more than one indicator. Notwithstanding, studies on the impact of drug policies changes are not uncommon. Ritter et al. (2016) provide a broad overview of the literature on comparative policy analysis in the field of alcohol and drugs. Our work differs from previous literature in three somewhat interrelated dimensions. First, ours is a cross-country study focusing on social outcomes associated with illicit drug use at an aggregate (national) level. Second, we use a new approach to specify drug policies, based on leximetrics. Third, we use separate indexes to 'measure' different drug policy dimensions over time and across countries.

We follow an econometric approach and obtain results that are both interesting and intriguing. In the case of cannabis, we find that drug policy changes in the direction of a less criminally-oriented approach towards consumption and possession contribute to a *decrease* in prevalence rates – both for the overall population, as well as for 15-24 years old. This is a very interesting result which contradicts those of Simons-Morton et al. (2010), Kotlaja and Carson (2018), Grucza et al. (2018) and Stevens (2019), who all find there to be no evidence of a causal association between cannabis drug policy and adolescent cannabis use. We also find that a less criminally-oriented approach towards

the traffic of cannabis is associated with increases in prevalence rates. We further find that a more health-oriented approach towards harm reduction and treatment (in this case, only for the overall population) also leads to a reduction in prevalence rates.

Our results for cocaine suggest that drug policy changes in the direction of a less criminally-oriented approach towards consumption *decrease* prevalence rates, but the *opposite* is true for possession. In what concerns possession, our results for cocaine are in stark contrast to those obtained for cannabis and suggest differential impacts on prevalence rates for (otherwise similar in nature) drug policy changes. In addition, our results contradict those of Vuolo (2013). We also find that (similarly to cannabis) increased harm reduction efforts induce reductions in prevalence rates – a result which is in line with that of Vuolo (2013). Unlike cannabis, however, we find no effect of increased treatment efforts on cocaine prevalence rates.

Finally, in what concerns ecstasy, we did not find evidence of a relationship between a country's drug policy dimensions and the ecstasy prevalence rates.

It is our hope that our work contributes towards the opening of new research avenues into this topic. For instance, extending this work using indicators other than prevalence rates is clearly an interesting research topic. In addition, analysing this issue using other approaches (e.g., qualitative or mixed methods approaches) would almost certainly ultimately contribute to a more comprehensive view of how drug policy impacts on illicit drug use.

2

2. Cross-country comparison of national drug policies using leximetrics

2.1. Introduction

This chapter contains the work developed in Work Package 2 (WP2 - Cross-country comparison of national drug policies using leximetrics). The objective of WP2 is to build indices of laws (leximetrics) regarding drug production, distribution and use in the countries selected – Portugal, France, Italy, Netherlands, United Kingdom, Canada and Australia – over a time-frame of twenty years (1996-2016). We have named this the **CATÓLICA Illicit Drug Policy Index** ('CATÓLICA-IDPI').

The regulation of psychoactive substances has been a controversial subject-matter for several decades, most notably since the International Opium Convention was signed, in 1912, and especially since the adoption of the UN Single Convention on Narcotic Drugs, in 1961. The latter replaced the existing multilateral treaties in the field, reduced the number of international treaty organs exclusively concerned with the control of narcotic drugs, and made provision for the control of the production of raw materials of those drugs, thus establishing the foundations for coordinated international action in the field of illicit drugs.

At the international level, different perspectives on the control of narcotic drugs have coexisted, from absolutist prohibitionist approaches to those promoting drug regulation to manage drug production, trade and consumption (Bergeron & Colson, 2017). At the national level, drug policies evolve within an institutional environment characterized by legal changes, religious and socio-political pressures, and macro-economic dynamics.

We put forward two research questions guiding the work developed in this chapter: (i) how has the illicit drug policy evolved over the last two decades in each of the seven countries under analysis? And (ii) how can the illicit drug policy be converted into numbers, so as to allow for intertemporal and international comparison?

To answer these research questions, a state-of-the-art comparative law technique is used: leximetrics. This is a method of comparative law that relies on a systematic quantitative methodology (Cooter & Ginsburg, 2003), turning the law into numbers and therefore allowing intertemporal and international comparison of legal change.

Understanding the trajectory of illicit drug policy may be built via a qualitative analysis of 'law in books' – including statutory law, policy guidelines and judicial precedent – using methods such as discourse analysis. However, to compare the stages of evolution

of 'law in books', a quantitative method needs to be used. The basic idea of leximetrics is precisely to turn law into numbers (Siems, 2011) allowing it to be measured. Within empirical legal research, leximetrics has been used in a number of ways, ranging from simply counting (e.g. counting cases, words, lawyers) to benchmarking of legal rules, measuring the quality of legal rules or surveying perceptions about the law.

The legal fields in which leximetrics has been used are corporate law and corporate governance (e.g. La Porta et al., 1998, 2008; Armour et al. 2009b) and labour law (e.g., Deakin et al., 2007; Mitchell et al., 2010). Leximetrics has been used in comparative corporate governance, involving cross-country comparison of legal rules regarding investor protection (e.g., Cheffins et al., 2014), as well as creditor and worker protection (e.g., Armour et al., 2009a); it has also been used to compare the evolution of labour law, namely regarding rules for worker protection. In addition, it has been used in studies that involve some kind of criminal provisions, such as self-dealing (Djankov et al., 2008). These studies have in common a purpose that also underlies our project proposal: the construction of indices of legal rules that can be used via quantitative techniques to assess the effects of specific policies.

Leximetrics is a demanding method of analysing the law. The risk of coding errors, the reduction of complexity that it involves, and the interdisciplinary approach it requires justify Cheffins' et al. warning of "use, but with care" (Cheffins, 2014). This implies that one must have a special concern with the research protocol, in particular regarding timeline validation, development and implementation of coding procedures and triangulation of sources (e.g., EMCDDA legal database and national laws). Nonetheless, the method may provide valuable insights into public policy assessment and change.

In order to construct this index, we have first identified and collected relevant legislation, court decisions and drug policy documents for each of the 7 countries. This has led to the first output of WP2: detailed drug policy timelines for each country under analysis. Second, we have developed a leximetrics coding methodology which effectively allows us to 'transform the law into numbers'. This has led to the second output of WP2: the CATÓLICA-IDPI.

Section 2.2 presents the methodology used to construct the index; section 2.3 then presents a cross-time and cross-country comparative analysis of the CATÓLICA-IDPI; finally, section 2.4 concludes.

2.2. Methodology

The CATÓLICA-IDPI index is constructed using a version of 'leximetric' methodology, which provides a basis for a comparative quantitative analysis of legal rules (Lele and Siems, 2007; Adams, Bishop and Deakin, 2016). The construction of the index dataset consists of two parts that include the following steps:

Part 1:

(1) Identification of a general phenomenon of interest ('illicit drugs');

(2) Development of a conceptual construct;

(3) Identification of indicators or variables which, singly or together, express the construct in numerical terms;

(4) Construction of a timeline that identifies the provisions of law, relevant court decisions and policy guidelines in each country for each variable;

(5) Validation of the timeline by legal experts of each country, who may suggest additional landmarks;

Part 2:

(6) Development of a coding algorithm which sets out a series of steps to be taken in assigning numerical values to the timeline events for each variable identified, for each country;

(7) Identification of a measurement scale that is embedded in the algorithm;

(8) Allocation of weights, where necessary, to each indicator or variable;

(9) Aggregation of indicators and variables, if possible, in an index that provides a measure of illicit drug policy, to be used in statistical analysis.

From a chronological viewpoint, the work carried out during WP2 consisted of:

- For each country under analysis, producing a timeline of illicit drugs' legislation (legislative timelines) – steps 1 to 4;
- Identifying legal experts in each country that could provide feedback on the legislative timeline and incorporating their feedback in a final version of the country's legislative timeline – step 5;
- Using the legislative timelines to assist in the variable selection and coding system for leximetrics – steps 6 to 9.

2.2.1. Legislative timelines

This subsection provides a description of the methodology adopted to produce illicit drugs' legislative timelines for each of the seven countries under analysis, as well as the timelines themselves.

Overview

A legislative timeline is essentially a list of key events, policy and legislative changes that have occurred in each country between 1996 and 2016.

Period

The period under analysis is, in principle, from 1996 to 2016 (or the present day if relevant policies came into place). In many countries, relevant legislative milestones occurred prior to 1996, some of which are still in force. Therefore, the initial date differs across countries depending on the date of the main legislative landmark prior to 1996.

Timeline construction

The timeline takes into consideration statutory law, coded in the year of its publication, and case law, coded in the year in which judgments are reported. It also considers elements that are deemed as functional equivalents to law: superior court decisions (in civil law-based countries), coded in the year of their reporting, and policy guidelines and regulations issued by administrative entities, coded in the year of their publication.

Therefore, herein we identify the provisions applicable to or corresponding to the description of each of the variables in the index (Table 1), focused on illicit drugs, particularly cannabis. These can take the form of statutory law, case law, superior court decisions or policy guidelines that impact law enforcement. We identify the provisions that cover seven core variables identified and explained in Table 1: Consumption; Possession; Traffic; Money Laundering; Harm Reduction; Treatment and Prevention. We also identify the provisions that are included in the overall category of Traffic, which cover Cultivation, Production and Distribution of illicit drugs, at an industrial or at an agricultural level and at home for own consumption. The choice of the variables is explained in more detail below.

To collect the information we consulted relevant databases of national laws; the EMCDDA Legal Database on Drugs and its reports; the ILO's NATLEX database; and various secondary sources, e.g., the book by Renaud Colson & Henri Bergeron (2017) entitled 'European Drug policies: ways to reform'. Primary sources were retrieved from texts available online. Wherever possible, texts were consulted in their original language (the languages read in the original were English, French, Italian and Portuguese). We consulted texts translated by the EMCDDA, particularly in the case of the Netherlands.

Choice of variables

First and foremost, we chose variables that were typically addressed in legislation and identified as of interest by the project experts. These variables were later complemented by other variables associated with health-oriented policy objectives. Second, we chose variables that would enable us to get a representative mixture of illicit drugs legal rules and main policies adopted by any country. Third, as the purpose of this index is to examine differences across countries and over time, we chose variables where differences could be expected.

We started by identifying illicit drug laws for three main variables: Consumption, Production and Distribution, as these were the core variables within the illicit drugs' 'production process' and the ones identified as of interest by the project experts. After collecting the initial legal information for most countries and reviewing the main literature and case studies on illicit drugs policies, we expanded the analysis to include Harm Reduction, Treatment and Prevention policies. This was done as most EU countries shifted at some point in the period under analysis to a more health oriented drug strategy. Next, in order to better capture differences in EU countries, we adapted and expanded the analysis in the following way: we consider Possession in addition to Consumption; we distinguish between Cultivation, Production and Distribution and include them in a more general Traffic variable (see explanation below); and we include Money Laundering as an additional relevant variable. As cannabis is the main focus of the project and where most of the differences are expected to be found, we also subdivided the variables to identify policies that refer specifically to cannabis.

It might seem surprising that the index includes a variable Traffic broken down into Cultivation, Production and Distribution. This is justified on the grounds that the definition of traffic encompasses the *cultivation, manufacture, distribution and sale* of illicit drugs (see Table 1). It is important to distinguish these concepts, which can have different prohibition regimes across countries, especially in the cannabis case. For example: the distribution/supply of cannabis to a consumer or to a coffee shop (in the case of the Netherlands) can have a different legal framework from the traffic of illicit drugs

(including cannabis) in larger quantities; in the same line of reasoning, cultivation of cannabis for own consumption, production of cannabis for medical purposes or production of synthetic drugs can have different legal implications within and across countries. Therefore, for the purpose of the timeline codification, the variable Traffic includes the sub-variables Cultivation, Production and Distribution, which in turn have a sub-code that is specific to Cannabis (see Table 1).

Timeline description

The timeline draws on provisions of laws (statutory law and case law), relevant superior court decisions, policy guidelines and regulations applicable to or corresponding to the description of each of the core variables set out in Table 1. A one-digit ID number was assigned to each core variable (from 1 to 7); a two-digit ID number was assigned to variables that were expanded from a core variable, but relevant for codification (this is only applicable to the case of Traffic) (31 to 33); the letter C is added to one-digit or two-digit ID numbers to identify variables related to cannabis specifically. The first column of the timeline indicates the year of the event. The second column indicates the variable(s) (ID number) that such event refers to. The third column indicates the legislative/policy milestone. It first refers the name of the event (Law, Act, Regulation, Guideline, etc.), followed by the date of publication, and then describes its relevance as a drug policy landmark in the country in that year.

Guidelines for timeline validation

Experts were asked to review the provisions of law (statutory and case law), relevant superior court decisions and policy guidelines and regulations applicable to the description of each of the core variables. Based on their knowledge and experience of the applicable provisions in their country, they were asked to check that we have not overlooked important landmarks. If we did so, they were asked to add any event they consider to have had an impact in the illicit drug policy of their country. They were also asked open questions about their country's legislation and policy guidelines and regulations.

They were asked to pay attention to the following situations in which we found more difficulties during the construction of the timeline, and which were phrased as follows:

> "1) Statutory and case law. A particular legal rule can be based on statutory law or case law; therefore, for the purposes of this exercise, both must be considered. Although in civil law countries court decisions are not typically regarded as a source of law, please do take them into account while validating and completing the timeline, because they can bring about an effect which is as important as a statutory provision. An example is the prosecution of cannabis possession or cultivation.
> 2) Policy guidelines and regulations. We found that there are guidelines and regulations from administrative sources that do not fit the concept of law, but that have great impact in the drug policy of a country. This is particularly important for harm reduction, treatment and prevention. Moreover, as in the particular case of cannabis, we find guidelines that are aimed, for instance, at the police, which are not included in legal rules, but indeed reflect the drug policy of a country and, if ignored, would not provide a complete picture of its illicit drug policy. Examples are the first warning for a cannabis consumer in the UK; syringe-exchange programs; or safe school programs.
> 3) Agricultural, industrial or financial landmarks. We collected the information on drug policies in databases related to illicit drugs, such as national legal databases and the EMCDDA Legal Database on drugs. However, we found that some relevant laws and policies might not be considered within the scope of illicit drugs' regulation. They are frequently

associated with parliamentary commissions or governmental departments of justice, internal administration or health, and are regulated within the departments of agriculture, industry or finance, as could be the case of industrial cultivation and production of cannabis, its retail, import and export for medical, textile or other uses, such as recreational use. Following the same line of reasoning, there may exist additional financial and banking laws related to money laundering that have eluded us.

4) Non-uniform legal system and listing rules. If the legislation or policy on illicit drugs is not regulated in a uniform way in a given country because, for instance, it is a federal state, we have taken into account the law for the capital state. But if you consider that this criterion significantly constrains relevant distinctions between sub-units of that country from being made, please make that observation and complete the timeline accordingly."

Table 1 – Católica Illicit Drug Policy Index (CATÓLICA-IDPI)

Type	ID	Description
Consumption	1	Refers to the direct consumption/use of illicit/controlled drugs.
Consumption cannabis	1C	Refers to the direct consumption/use of cannabis in any form.
Possession	2	Refers to possession for personal consumption of illicit drugs.
Possession cannabis	2C	Refers to possession for personal consumption of cannabis.
Traffic	3	Refers to the global illicit trade involving the cultivation, manufacture, distribution and sale of substances which are subject to drug prohibition laws. Includes importation and exportation. "Import" and "export" mean in their respective connotations the physical transfer of drugs into or out of a national territory.
Traffic cannabis	3C	Refers to the illicit trade of cannabis.
Cultivation	31	Refers to cultivation of opium poppy, coca bush or cannabis plant.
Cultivation cannabis	31C	Refers to cultivation of cannabis plant - Cannabis sativa L.
Production	32	Refers to the act of manufacture, manipulation or obtainment of narcotic drugs, psychotropic substances of drug precursors, from natural organisms out of the plants that produce them (such as opium, coca leaf, cannabis and cannabis resin), either by way of collecting or by way of extracting or by the way of transforming through physical of chemical products.
Production cannabis	32C	Refers to the act of obtaining, manufacturing or manipulating cannabis plant or resin.
Distribution	33	Domestic supply or attempt to supply illicit/controlled drugs.
Distribution cannabis	33C	Domestic supply or attempt to supply cannabis.
Money laundering	4	Money laundering is the processing of criminal proceeds (including but not limited to drug trafficking) to disguise their illegal origin or the ownership or control of the assets, or promoting an illegal activity with illicit or legal source funds.
Harm reduction	5	Encompasses interventions, programs and policies that seek to reduce the health, social and economic harms of drug use to individuals, communities and societies.
Treatment	6	Encompasses a range of interventions used for the treatment of drug use problems, including psychosocial approaches, opioid substitution and detoxification.
Prevention	7	Drug prevention approaches range from those that target society as a whole (environmental and universal prevention) to interventions focusing on at-risk individuals (indicated prevention).

Notes:
(i) The description of the concepts in this table was elaborated by the authors, as they are not normalized across countries. We developed these descriptions taking into account information collected from different national laws and also reports produced by the EMCDDA and UNODC (United Nations Office on Drugs and Crime).
(ii) The variable traffic encompasses cultivation, production and domestic distribution. In terms of codification, this means that if a law or a specific provision or guideline refers to traffic in general, its code ID is 3; but in case it refers to traffic of cannabis its code ID is 3C; if it refers specifically to cultivation, its code ID is 31; if it refers specifically to the cultivation of cannabis its code ID is 31C (a similar logic applies to the remaining Traffic sub-variables).

In the context of international drug control and in conformity with the 1961 Single Convention on Narcotic Drugs, except where otherwise expressly indicated or where the context otherwise requires, the following definitions shall apply:

a) "Drug" means any of the substances in Schedules I and II, whether natural or synthetic.
b) "Schedule I", "Schedule II", "Schedule III" and "Schedule IV" mean the correspondingly numbered list of drugs or preparations annexed to the 1961 Single Convention on Narcotic Drugs.
c) "Cannabis" means the flowering or fruiting tops of the cannabis plant (excluding the seeds and leaves when not accompanied by the tops) from which the resin has not been extracted, by whatever name they may be designated; "Cannabis plant" means any plant of the genus Cannabis; "Cannabis resin" means the separated resin, whether crude or purified, obtained from the cannabis plant.
d) "Coca bush" means the plant of any species of the genus Erythroxylon; "Coca leaf" means the leaf of the coca bush except a leaf from which all ecgonine, cocaine and any other ecgonine alkaloids have been removed.
e) "Production" means the separation of opium, coca leaves, cannabis and cannabis resin from the plants from which they are obtained.
f) "Manufacture" means all processes, other than production, by which drugs may be obtained and includes refining as well as the transformation of drugs into other drugs.
g) "Preparation" means a mixture, solid or liquid, containing a drug.

2.2.2. Leximetrics: variable selection and coding system

'Leximetrics' refers to a method of turning law into numbers, allowing it to be measured (Siems, 2011). One of its main use is for comparative purposes: this involves the complex task of coding the law alongside specific variables, thus allowing for a taxonomy of legal rules to be built in a functional bottom-up approach. It also allows for econometric tools to be used in assessing the impact of particular types or clusters of legal rules.

Leximetrics methodology

Within IDPSO, 'CATÓLICA-IDPI' is a dataset coding for laws (including statutory and case law, relevant superior court decisions and policy guidelines and regulations) on illicit drugs in the 7 countries selected. The dataset covers the period 1996-2016, though different date limits may apply in a given country, namely when relevant national milestones that are still in force precede 1996 or when relevant policies came into place after 2016.

'CATÓLICA-IDPI' builds on the work carried out at the Centre for Business Research (CBR) in Cambridge, which used leximetrics to code legal data for labour laws in 117 countries between 1970 and 2013 (the CBR Labour Regulation Index), shareholder protection in 30 countries between 1990 and 2013 (the CBR Extended Shareholder Protection Index), and creditor protection in 30 countries between 1990 and 2013 (the CBR Extended Creditor Protection Index). The CBR Leximetric Datasets are available on the University of Cambridge repository, and one of its distinguishing features is that all legal sources for the data coding are fully described in the relevant codebooks, thereby assisting transparency, external validity and replicability of results. Each dataset takes the

form of an Excel spreadsheet containing the data and a Codebook containing the sources of the coding and an explanation of the coding methodology.

When constructing the 'CATÓLICA-IDPI', a number of measures – identified in the CBR's Codebook as safeguards that the index gets as close as possible to representing the real effect of legal rules in any given jurisdiction – were used as a working reference:

- Use a wide range of legal information (i.e., sources of rules): positive legal rules, other norms which are *de facto* binding, and judicial decisions; this allows consideration for relevant cross-national differences in the operation of legal rules;
- Code for a wide range of values, using intermediate score between 0 and 1; this allows for increased sensitiveness to legal variation;
- Cover a wide range of types of legal rules: mandatory and default;
- Code for legal rules as they have evolved over time, so as to build a template that is sensitive to possible variations of the law over time.

The construction of the 'CATÓLICA-IDPI' started with brainstorming sessions aimed at developing a draft template for the dataset, based on questions and coding for each of the dimensions that form the backbone of public policy on drugs: consumption (1); possession (2); traffic (3), which is disaggregated into cultivation (31), production (32) and distribution (33); money laundering (4); harm reduction (5); treatment (6); and prevention (7). A total of 6 brainstorming sessions of the Portugal research team took place at Católica Porto Business School.

Inspired in the paper by Gonçalves, Lourenço & Silva (2015), the research questions that informed the brainstorming exercise were as follows: (i) for each dimension, what variables allow us to classify a country's legal approach to drugs as health-oriented/liberal as opposed to criminal-oriented/prohibitionist? (ii) Also, for each dimension, are these variables different for different types of drugs?

First, when looking into (i), we are fully aware of the politically sensitive nature of the terms we have used. Note that we are looking into 7 different dimensions of drug policy. For each dimension, the coding methodology requires us to set 'bounds' to the coding range. In other words, we need to define, for each of the 7 dimensions, what exactly corresponds to the extremes of the coding range. Upon careful reflection, we came to the conclusion that these extremes should be whether a country is health-oriented/liberal as opposed to criminal-oriented/prohibitionist. For all the dimensions, a health-oriented/liberal country would correspond to a '0' in our coding exercise, whilst a criminal-oriented/prohibitionist would correspond to a '1'.

Considering now (ii), it is natural to expect that the 'bounds' of the coding exercise differ across illicit drugs. For instance, the criteria we define for a country to be considered criminal-oriented/prohibitionist with respect to cannabis may not be exactly the same as those associated with other drugs. As an example, if one of the criteria to determine whether a country is criminal-oriented/prohibitionist is the maximum jail time for an individual caught in the possession of a small quantity of an illicit drug, then we need to adapt the maximum jail time threshold for each type of drug – as they often indeed attract different penalties. We therefore establish a difference between 'soft' and 'hard' drugs. The terms 'soft' and 'hard' are used in this context to refer to the severity of the legal consequence or penalty of drug-related behaviour (a legal-based criterion), and not to the risk for health (a medical-based criterion), notwithstanding the relationship

between these two criteria. Cannabis, which is frequently object of specific regulation and whose legalization is more often discussed, was the only drug considered as 'soft'. In other words, we looked specifically at the drug policy framework associated with cannabis. The exercise was considerably more difficult when looking at 'hard drugs', given that they are much more numerous. We have therefore simplified our analysis by considering only the following hard drugs: cocaine and heroin (which are naturally or plant-derived drugs) and MDMA (a synthetic drug). The rationale was simple: for each country within the sample, these drugs typically attract the harshest penalties.

The brainstorming exercise started with a specific drug – cannabis – and one of the identified dimensions – possession (variable 2C). The aim of the team was to develop a method for identifying the relevant questions/variables and coding, which could then be transferred for the codification of other dimensions and for 'hard' drugs.

As we outlined above, for dimensions 1 to 3 the reference point for the exercise was the dichotomy most strict-most lenient: for each question/variable addressed within each dimension, the strictest regulatory approach would be equivalent to 1, whereas the most lenient regulatory approach would be equivalent to 0. Intermediate points were used when national legislative timelines justified an increased sensitiveness of the scale. The degree of strictness of a country is then the average of the categories included in each dimension.

Dimension 4 (money laundering) was disregarded, given that laws associated with money laundering within national legislative timelines are not only issued to address the illicit drugs problem, but also to safeguard against terrorism and threats to national security. It is therefore difficult to interpret how and whether a change in money laundering laws may (or may not) be associated with or have an impact on illicit drugs, particularly its traffic. By definition, the traffic of illicit drugs involve two parties – the buyer and the seller – often located in different countries. It then becomes difficult – if not impossible – to make reasonable assertions regarding the possible impact of a money laundering law change in a given country on social outcomes of that country. Given this difficulty, we have not pursued our analysis involving this drug policy dimension.

For dimensions 5 to 7 the reference point for the exercise was the dichotomy less health oriented-more health oriented: for each question addressed within each dimension, the approach revealing the narrowest access to health oriented responses would be equivalent to 1, whereas the approach revealing the widest access to health oriented responses would be equivalent to 0. Intermediate points were used when national legislative timelines justified an increased sensitiveness of the scale. The degree of health orientation of a country is the average of the categories included in each dimension.

The CATÓLICA-IDPI coding template is coding template is dimension-specific. In other words, for each of the 6 drug policy dimensions we are looking into, we have developed a set of questions in order to 'classify' a country (between 0 and 1). These questions are often grouped in 'categories'. Consider dimension (1) consumption for cannabis. Within cannabis consumption, we have identified 3 broad categories which would allow us to determine whether a country is health-oriented/liberal ('0') or criminal-oriented/prohibitionist ('1'): the maximum consequence foreseen in the law for an individual caught consuming it (1C.1); whether the law foresees the exemption of sanctions under specific circumstances (1C.2); and whether the law explicitly foresees a different regulatory regime for therapeutic/medicinal cannabis (1C.3). Then, within each

of these categories, we have looked at particular sub-categories which reflect the legal diversity across the countries in our sample. For example, for category 1C.1, the maximum consequence for an individual caught consuming, we considered a differential treatment under the law to addicts/non-addicts, as well as whether they were caught for the first or for the n^{th} time; in addition, we looked into particular restrictions associated with the place of consumption (e.g., near schools) or with particular professions. All these sub-categories allow us to form a more comprehensive view of whether the maximum consequence associated with cannabis consumption is closer to '0' (health-oriented/liberal) or '1' (criminal-oriented/prohibitionist).

As we outlined above, we should not expect to observe the exact same categories when we look into hard drugs. For example, whilst considering differences in regulatory regimes for therapeutic/medicinal cannabis is reasonable, such a consideration is certainly not relevant when looking at hard drugs. Therefore, dimension (1) consumption of hard drugs only contains two categories: the maximum consequence of an individual caught consuming a hard drug (1H.1) and whether the law foresees exemptions of sanctions under particular circumstances (1H.2).

This difference between cannabis and hard drugs was only established for dimensions (1) consumption, (2) possession and (3) traffic. Indeed, dimensions (5) harm reduction, (6) treatment and (7) prevention are typically not drug-specific.

2.3. Results

The CATÓLICA-IDPI index allows for intertemporal and cross-country comparative analysis of drug policies. These analyses are presented in the next sections.

2.3.1. Cross-time results by country [1996-2016]

This section presents a comparative analysis by country, comparing the trajectory of illicit drug policy across time in the period 1996-2016.

Portugal

Figure 1 reports the evolution of three dimensions – Consumption (1), Possession (2) and Traffic (3) – of cannabis over the last two decades in Portugal. We can clearly see the change in Portugal in 2000 from a more criminal oriented policy to a more health oriented policy, when consumption and possession of small quantities was decriminalised. This is the only clear-cut legislative landmark affecting these two drug policy dimensions. These changes did not affect traffic, as the laws referring to cultivation, production and distribution did not suffer any change since 1993.

Figure 1: Consumption, Possession and Traffic of Cannabis in Portugal: 1996-2016

Figure 2 reports a similar evolution of these dimensions (Consumption (1), Possession (2) and Traffic (3)) for hard drugs over the last two decades in Portugal.

Figure 2 - Consumption, Possession and Traffic of Hard Drugs in Portugal: 1996-2016

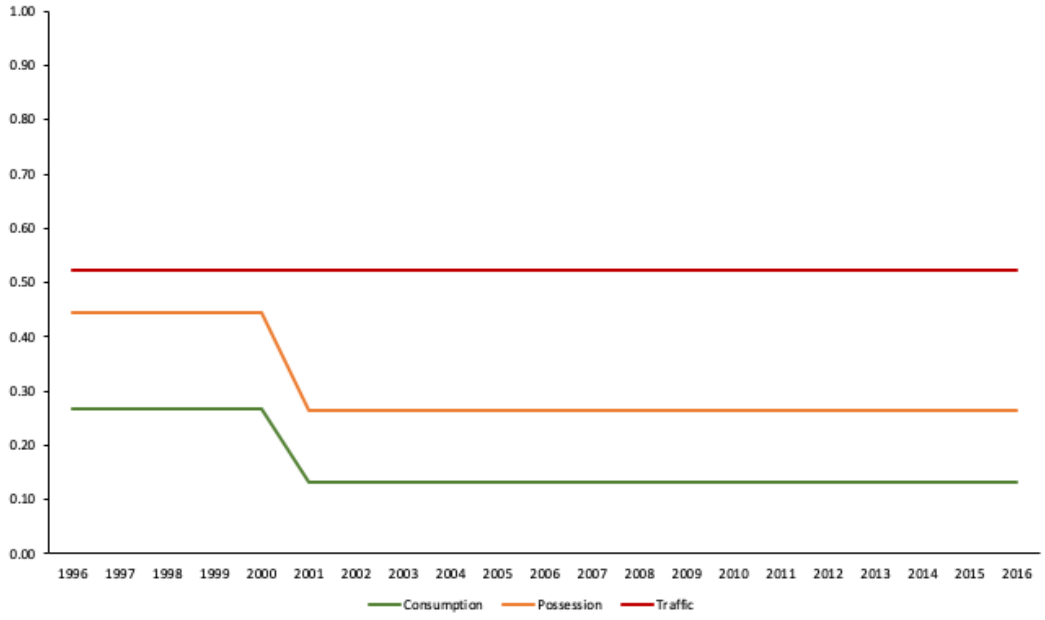
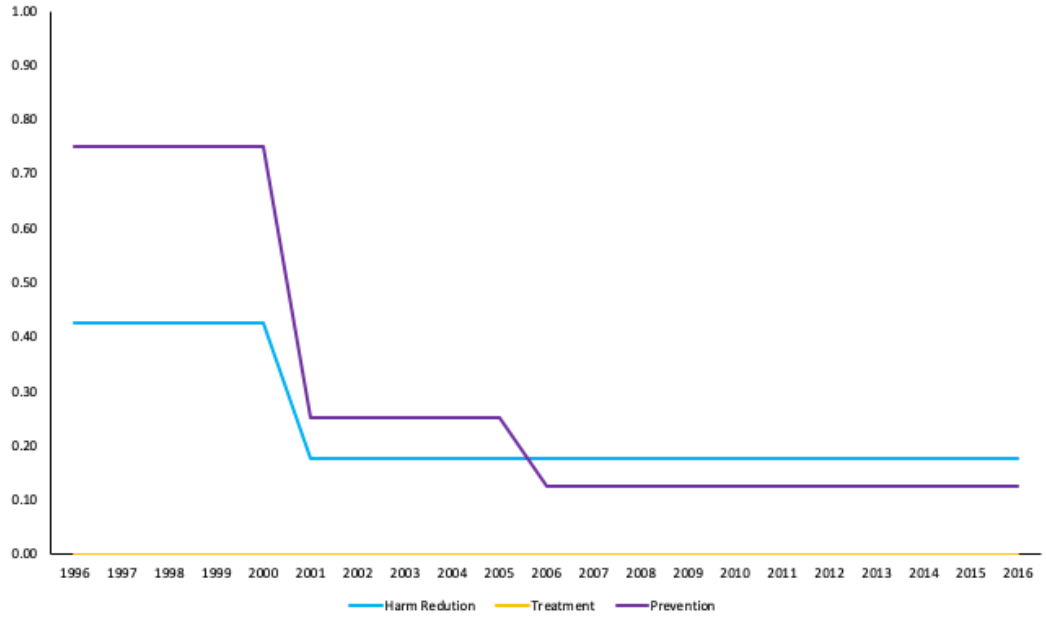


Figure 3 reports a somewhat similar pattern of evolution with regard to the harm reduction and prevention dimensions: a significant policy shift is observed in 2000. In 2006 there was an increase in prevention efforts for specific groups. In terms of treatment,

the health-oriented approach started much earlier – at least since 1993 – and is not associated with the legislative change around 2000.

Figure 3 - Harm Reduction, Treatment and Prevention in Portugal: 1996-2016



Italy

The evolution of the Possession (2) dimension of cannabis over the last two decades in Italy shows a turning point in 2006, a year in which a more criminal oriented law was introduced, as we can see in Figure 3: the law n. 49/2006 provided the same criminal penalties for possession, cultivation, production and distribution regardless of the kind of drug. Another turning point can be observed in 2014, as the Italian Constitutional Court declared the law n. 49/2006 unconstitutional, thus effectively reverting to the previous legislation. With regards to Consumption (1), we can observe the same turning points, as the shifts correspond to the same law changes.[I] We can also observe a clear shift in 2007, which is associated with the possibility of doctors to prescribe medicines based on cannabis that can be prepared by pharmacists. In what regards traffic, there were slight changes mostly due to allowances for distribution of low THC level products in 1999 and allowances for therapeutic cannabis cultivation in 2013.

[I] In the work of Maresca (2015) and Zuffa (2017), it is considered that between 2006 and 2014 courts tended to be strict regarding the burden of proof of 'exclusivity for personal use' (that is, it was difficult for users to prove that possession was exclusively for personal use, thus imprisonment was, in practice, the rule); after 2014 there has been a densification of criteria that facilitate proof of exclusivity for personal use, thus increasing the use of non-pecuniary sanctions. Although the non-pecuniary sanctions are still harsh after 2014, the penalties for personal use above a quantity threshold amount to imprisonment for 1 to 3 months.

Figure 4 - Consumption, Possession and Traffic of Cannabis in Italy: 1996-2016

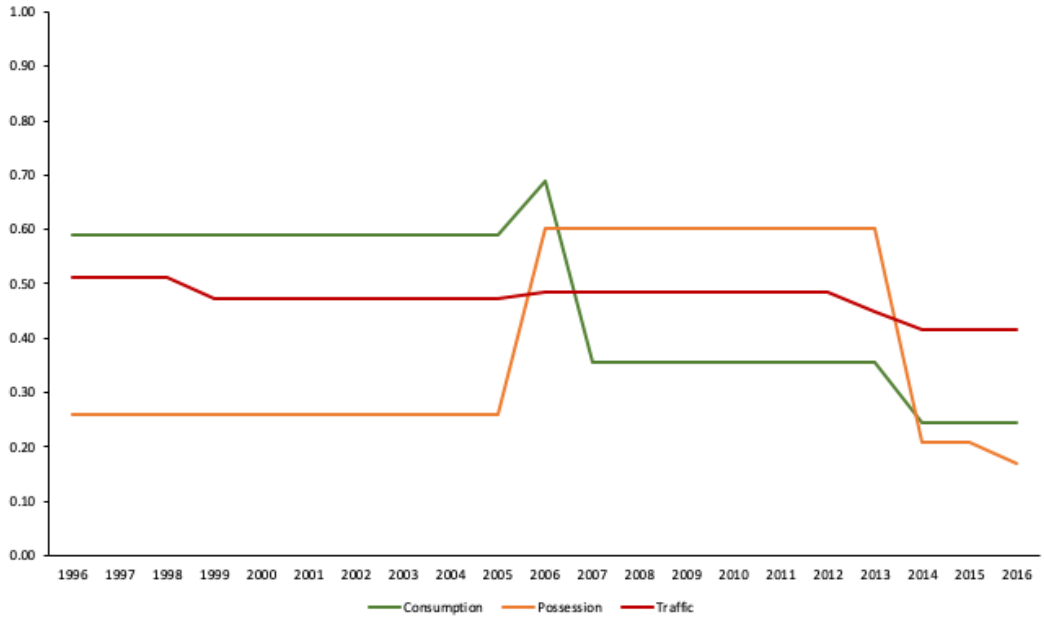
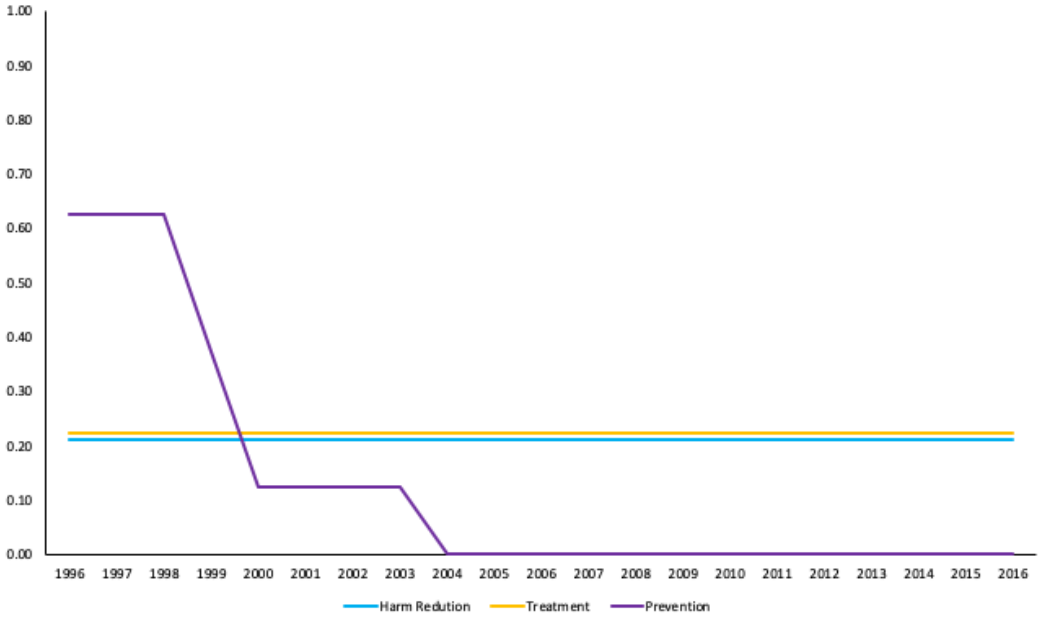


Figure 5 reports the same turning points for Consumption (1) and Possession (2) in what concerns hard drugs over the last two decades in Italy.

Figure 5 - Consumption, Possession and Traffic of Hard Drugs in Italy: 1996-2016

In relation to health oriented measures such as harm reduction or treatment, we can observe in Figure 6 that Italy has maintained them over time. By contrast, it has gradually increased its efforts in the prevention dimension, increasing prevention in recreational settings in 1999, prisons in 2000 and schools in 2004.

Figure 6 - Harm Reduction, Treatment and Prevention in Italy: 1996-2016



France

Figure 7 and Figure 8 indicate that French laws did not suffer many changes in the period 1996-2016 in what regards consumption, possession and traffic of cannabis and hard drugs. We can observe a turning point in consumption to a more criminal oriented policy in 2007 due to an increase of penalties for illicit drugs consumption (cannabis or hard drugs) in specific occupations/professions.

Figure 7 - Consumption, Possession and Traffic of Cannabis in France: 1996-2016

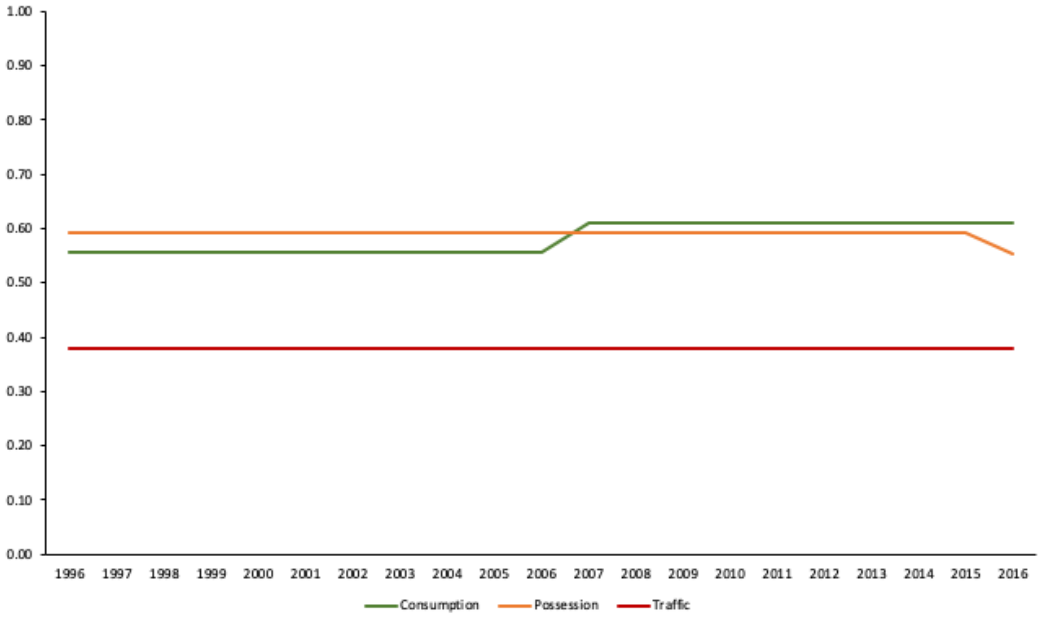
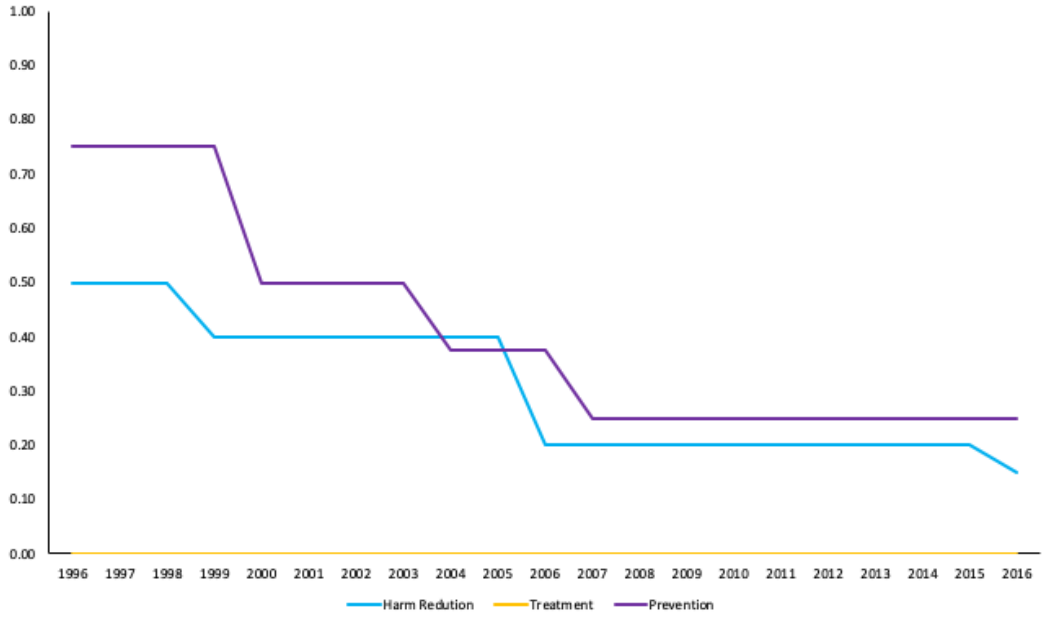


Figure 8 - Consumption, Possession and Traffic of Hard Drugs in France: 1996-2016

In relation to health oriented measures, we can observe in Figure 9 that France has maintained a broadly constant treatment framework since 1996 and has gradually increased its efforts in the harm reduction and prevention dimensions.

Figure 9 - Harm Reduction, Treatment and Prevention in France: 1996-2016

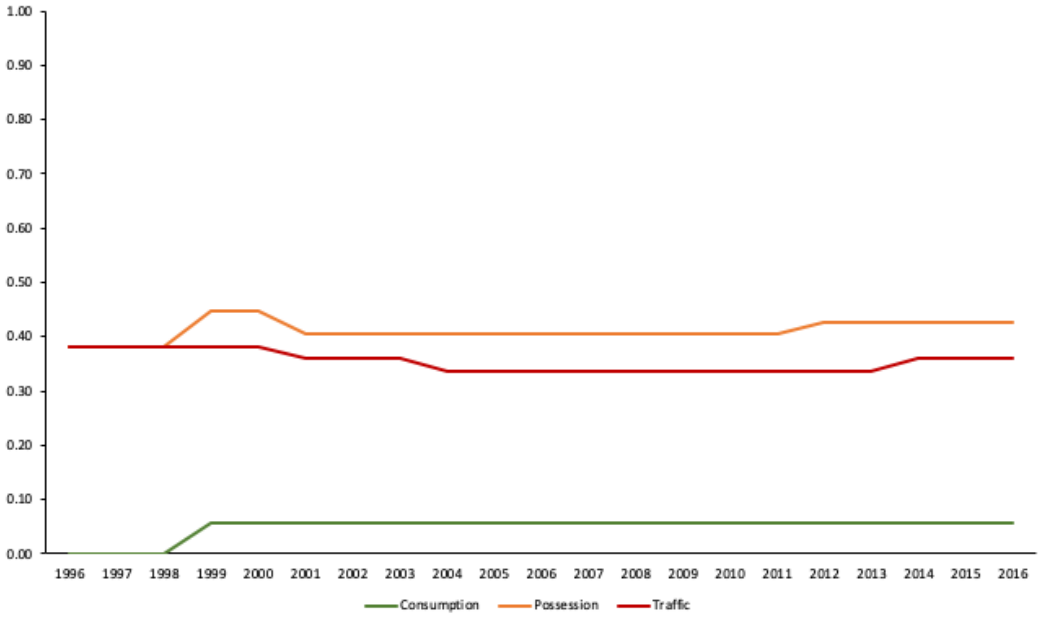


The Netherlands

Figure 10 shows that Netherlands has a relatively lenient drug policy in relation to cannabis consumption and possession. In both these dimensions, we observe an increase in the respective scores in 1999, as the laws associated with consumption in coffee shops

were tightened up, and a prohibition was introduced for possession in designated areas, such as schools and public transports. In 2001, allowances were introduced for medical cannabis. In what regards traffic, there were slight changes mostly due to allowances for therapeutic cannabis cultivation.

Figure 10 - Consumption, Possession and Traffic of Cannabis in the Netherlands: 1996-2016

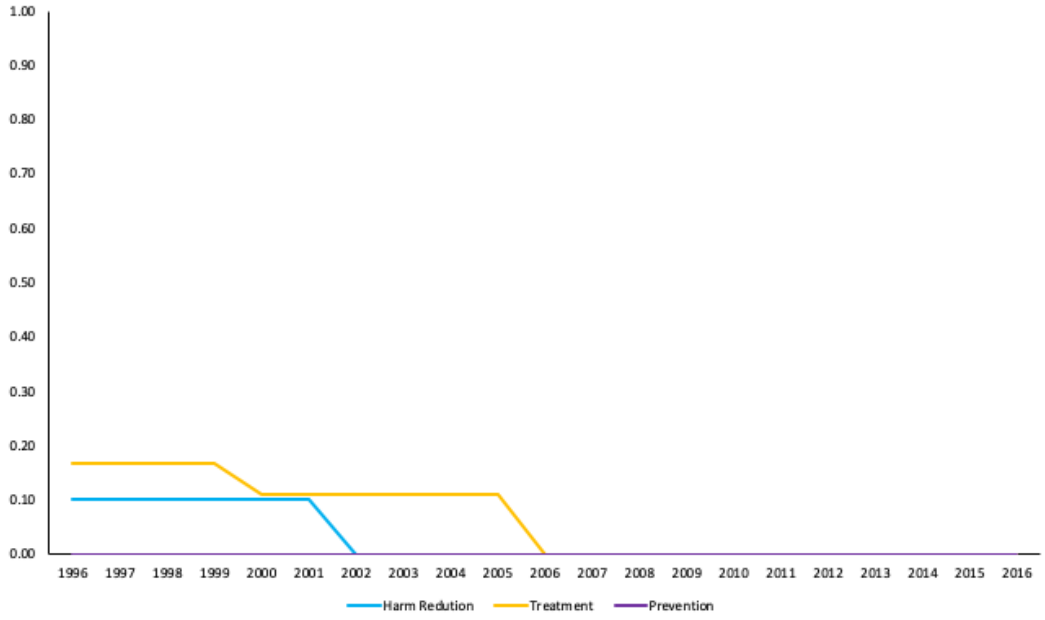


In what concerns hard drugs, we can observe in Figure 11 that the legal framework was fairly stable in the period 1996-2016. In 1997, treatment was introduced as an alternative to penalty.

Figure 11 - Consumption, Possession and Traffic of Hard Drugs in the Netherlands: 1996-2016

In relation to harm reduction, treatment and prevention, we can observe in Figure 12 that the Netherlands has a health oriented drug policy. Prevention efforts exist since before 1996 and we can also observe increased efforts on harm reduction and treatment until 2006.

Figure 12 - Harm Reduction, Treatment and Prevention in the Netherlands: 1996-2016



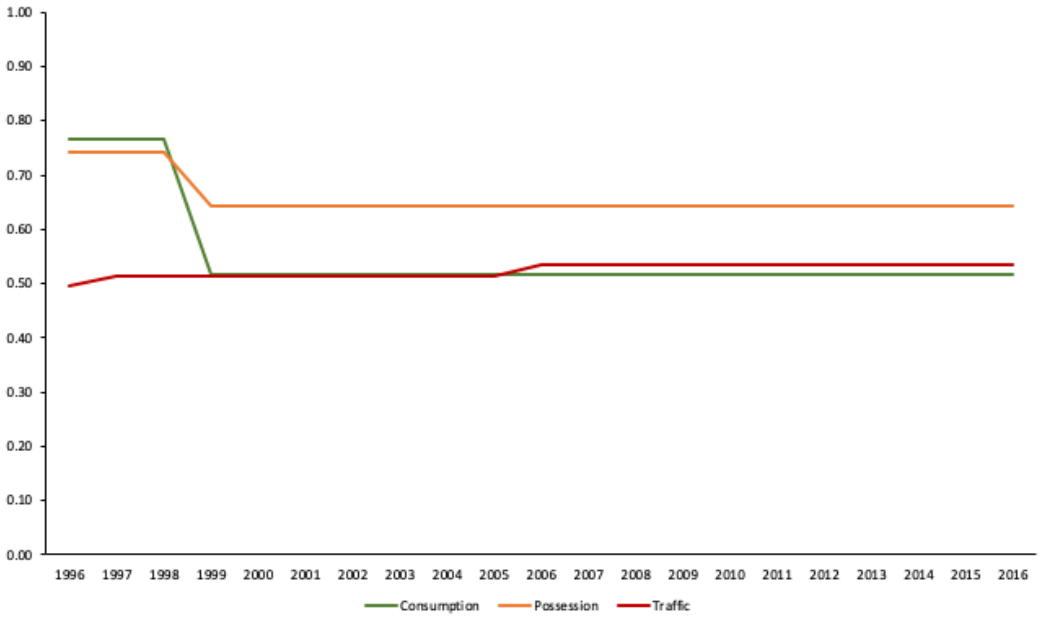
United Kingdom

In the United Kingdom, we can observe in Figure 13 a first turning point in 1999, both in consumption and in possession, which is related to the introduction of treatment as an alternative to penalty. We can also observe a turning point in possession in 2004, which is related to the introduction of a first time warning for possession of cannabis. In what regards traffic, there weren't many slight changes during the period in analysis.

Figure 13 - Consumption, Possession and Traffic of Cannabis in the United Kingdom: 1996-2016

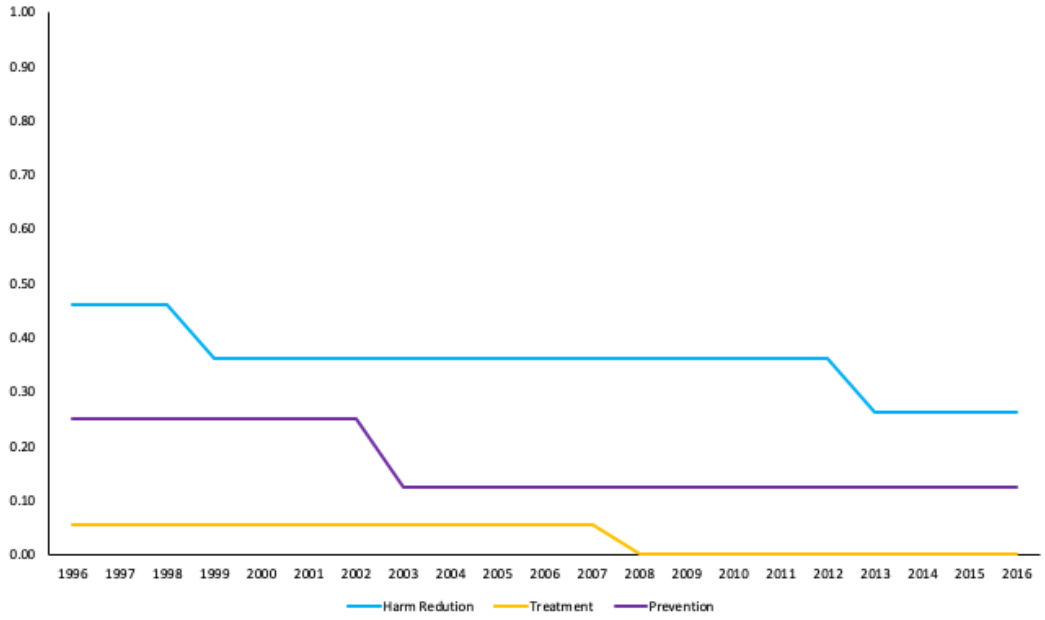
Figure 14 reports a somewhat similar evolution of the Consumption (1), Possession (2) and Traffic (3) dimensions in what concerns hard drugs over the last two decades in the United Kingdom, with a clear turning point in 1999 due to the introduction of treatment as an alternative to penalty. However, in contrast to cannabis, no significant changes were observed since then.

Figure 14 - Consumption, Possession and Traffic of Hard Drugs in United Kingdom: 1996-2016



In relation to the harm reduction, treatment and prevention dimensions, the United Kingdom has also increased gradually its efforts during the period 1996-2016.

Figure 15 - Harm Reduction, Treatment and Prevention in the United Kingdom: 1996-2016



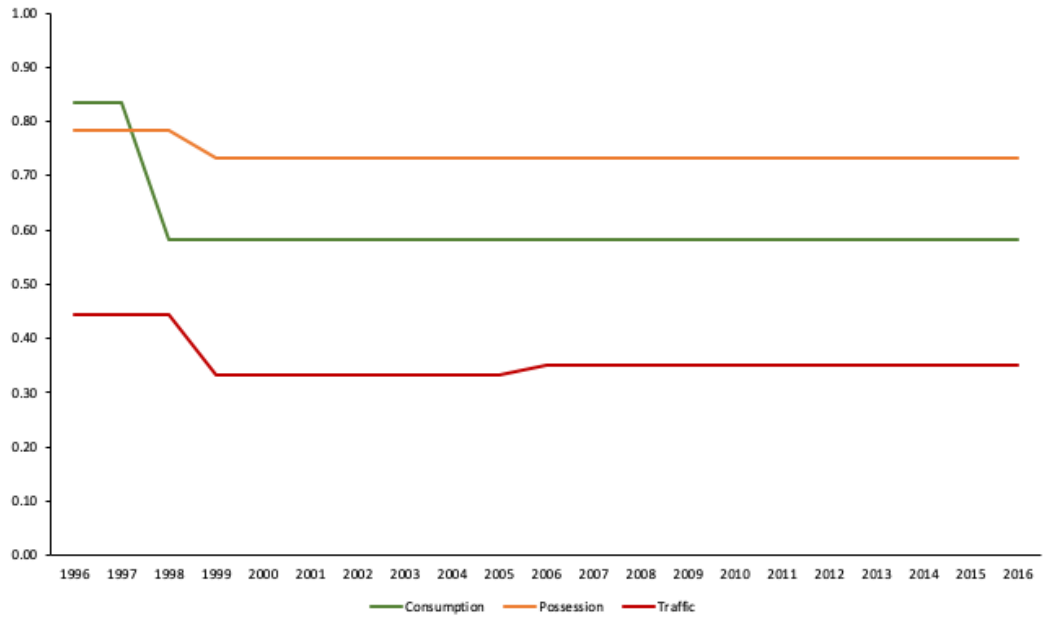
Australia

We can observe in Figure 16 that Australia has four main turning points in the direction of a more lenient drug policy regarding cannabis consumption and possession. The 1998 shift is related with the introduction of treatment as an alternative to punishment. The 1999 shift is associated with the introduction of injecting centers. The 2000 shift is related with the introduction of the Adult Cannabis Cautioning Scheme, where the police have a discretion to let consumers go with a caution. We can observe another turning point in 2014, which is linked with allowances for therapeutic cannabis.

Figure 16 - Consumption, Possession and Traffic of Cannabis in Australia: 1996-2016

In what concerns hard drugs, we can observe in Figure 17 a similar turning point in 1998-1999, but no further significant changes since then.

Figure 17 - Consumption, Possession and Traffic of Hard Drugs in Australia: 1996-2016



In relation to harm reduction, treatment and prevention, Australia has also increased gradually its efforts during the period 1996-2016.

Figure 18 - Harm Reduction, Treatment and Prevention in Australia: 1996-2016

Canada

As we can observe in Figure 19, during the period 2001-2004 we can clearly observe a shift in Canada towards a more lenient drug policy in what concerns consumption and possession of cannabis. The 2001 shift is related with allowances for therapeutic cannabis. The 2004 shift is associated with the introduction of treatment as an alternative to penalty. In what concerns traffic, we can observe shifting points, which are related with permissions for non-individual cultivation in 1998 and allowances for therapeutic cannabis cultivation in 2001.

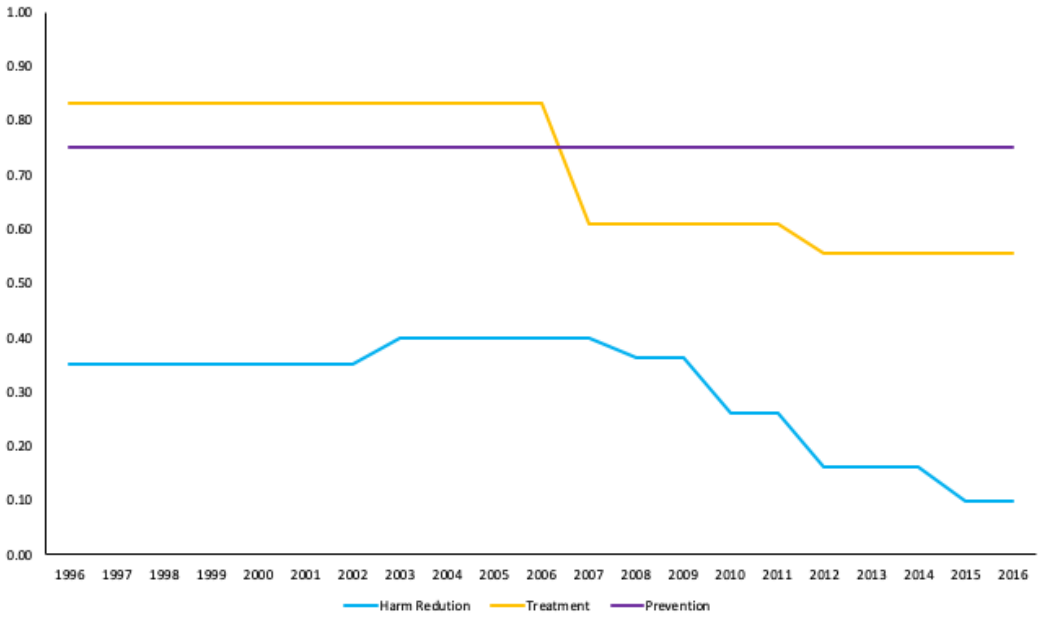
Figure 19 - Consumption, Possession and Traffic of Cannabis in Canada: 1996-2016

In what concerns hard drugs, we can observe in Figure 20 a key turning point in 2004 towards a more lenient drug policy for consumption and possession, which is related with the introduction of treatment as an alternative to penalty.

Figure 20 - Consumption, Possession and Traffic of Hard Drugs in Canada: 1996-2016

As we can observe in Figure 21, Canada has not exerted strong treatment and prevention efforts. Since 2007, Canada has increased its efforts associated with harm reduction and treatment.

Figure 21 - Harm Reduction, Treatment and Prevention in Canada: 1996-2016



2.3.2. Cross-country and cross-time results [1996-2016]

This section presents a cross-country comparative analysis, comparing the trajectory of illicit drug policy in the seven countries under analysis across time in the period 1996-2016.

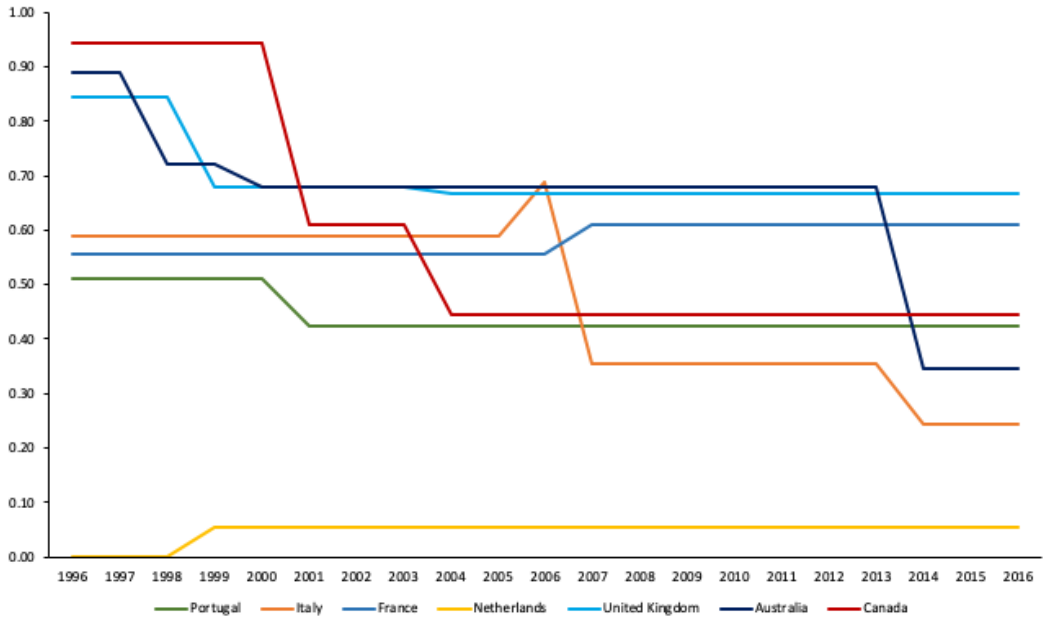
Consumption

Cannabis

Figure 22 reports the cross-country legal frameworks in what concerns cannabis consumption and the turning points from more to less criminal oriented policies or vice versa. We can observe that the Commonwealth countries (United Kingdom, Australia and Canada) had the more criminal oriented drug policies in 1996. France, Italy and Portugal were close to one another in 1996, with a 'balanced' (neither very strict, nor very lenient) drug policy towards drug consumption. At the time, the Netherlands had the less criminally-oriented drug policy.

As reported in the previous section (2.3.1), most countries show (different) turning points over time towards less strict drug policies. The observed asymmetric pattern of evolution dictates that the relative position of each country has changed in the period under analysis. As we can observe in Figure 22, in 2016 the country with stricter drug policies was the United Kingdom, followed by France. Canada and Portugal are grouped together slightly below 0.5, followed by Australia and Italy. In that year, the Netherlands is still the country with a more lenient drug policy towards consumption of cannabis.

Figure 22 – Consumption of Cannabis: 1996-2016

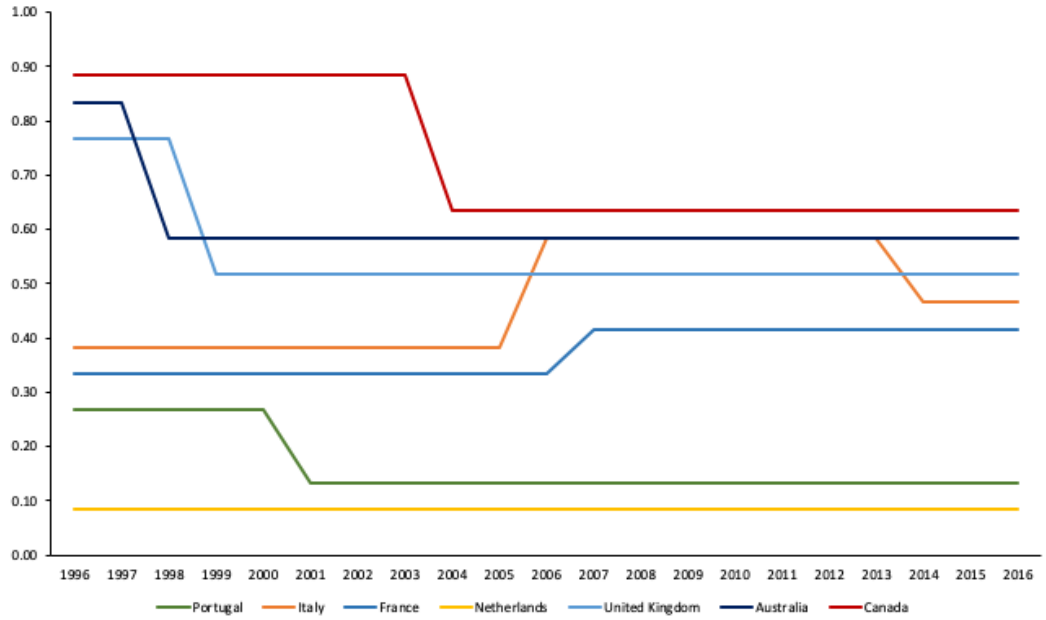


Hard Drugs

In what concerns hard drugs, we can observe in Figure 23 that the Commonwealth countries have the strictest drug policies related to consumption during the period under

analysis, even though there are several turning points towards a less strict approach. In the period, Portugal and the Netherlands are the countries with a more lenient approach towards the consumption of hard drugs. France and Italy are grouped together in the period 1996-2016, with scores around 0.5.

Figure 23 – Consumption of Hard Drugs: 1996-2016

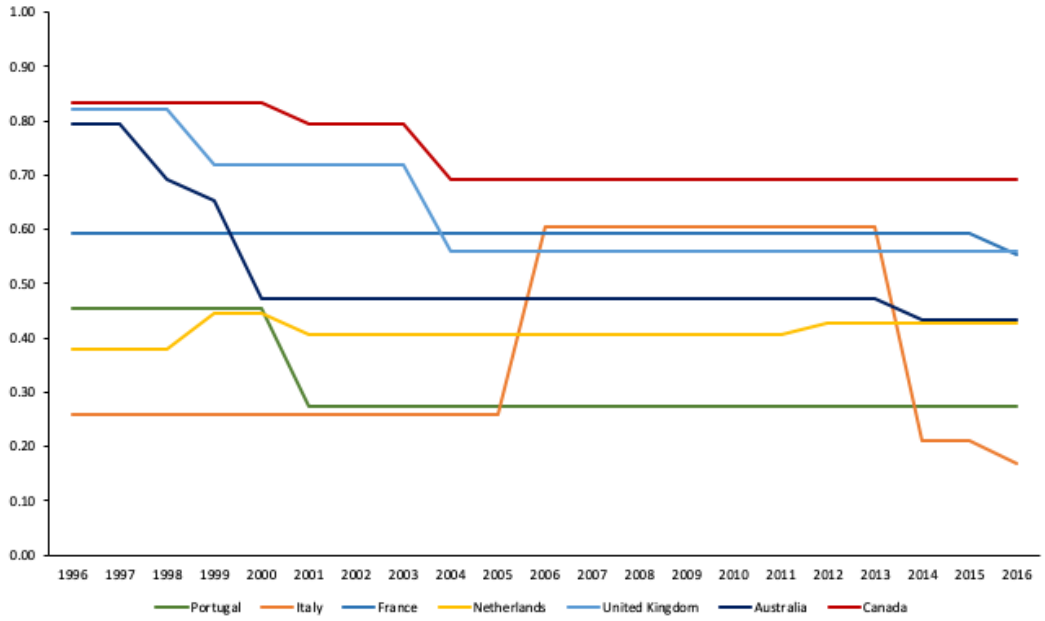


Possession

Cannabis

In what concerns possession of cannabis, we can observe a broadly similar pattern of evolution of legal frameworks, with most countries displaying shifts towards more lenient drug policies. The only exception is Italy, for which a period of more criminally-oriented policies can be observed between 2006 and 2014, as we noted in the previous section.

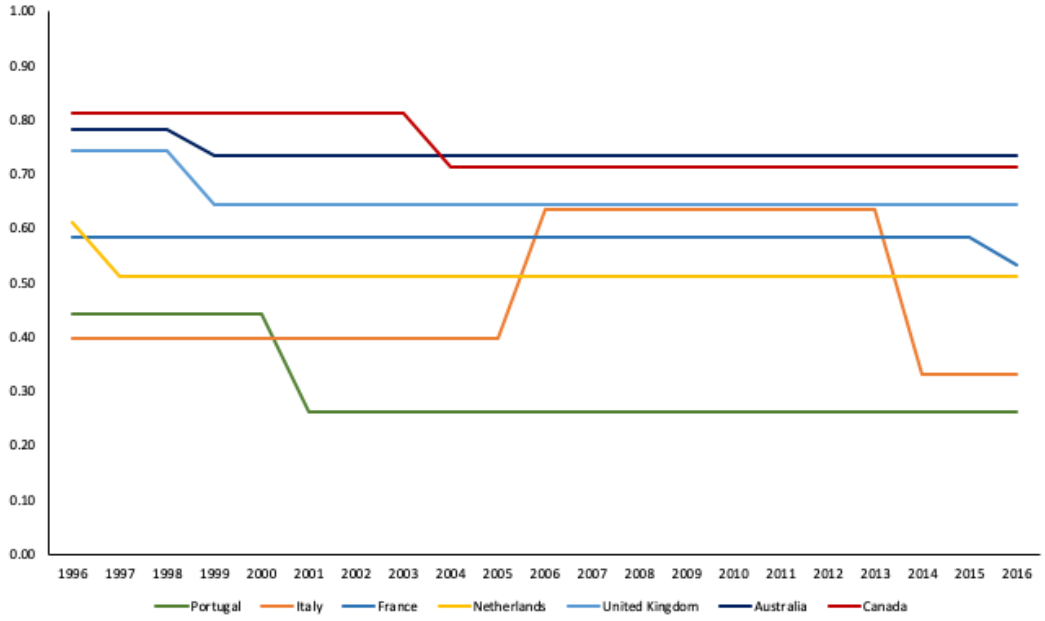
Figure 24 – Possession of Cannabis: 1996-2016



Hard Drugs

Figure 25 reports a similar pattern of evolution of the legal framework for possession of hard drugs over the last two decades in the countries under analysis.

Figure 25 – Possession of Hard Drugs: 1996-2016



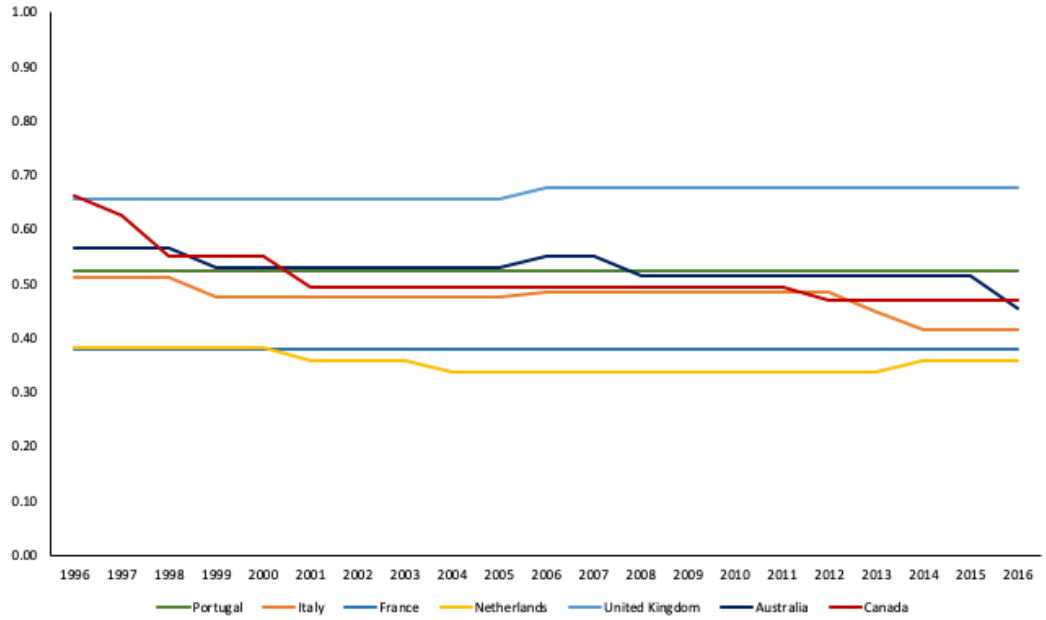
Traffic

Cannabis

In relation to the traffic of cannabis, we can observe in Figure 26 that the changes in the period 1996-2016 are relatively small. The United Kingdom is the country with the strictest approach in relation to the traffic of cannabis and the Netherlands is the less

strict. Note, however, that the differences between the countries are considerably smaller than for consumption and possession. Over time, Canada and Italy display the most pronounced shifts from a more to a less strict legal framework, but the changes are relatively small in absolute terms.

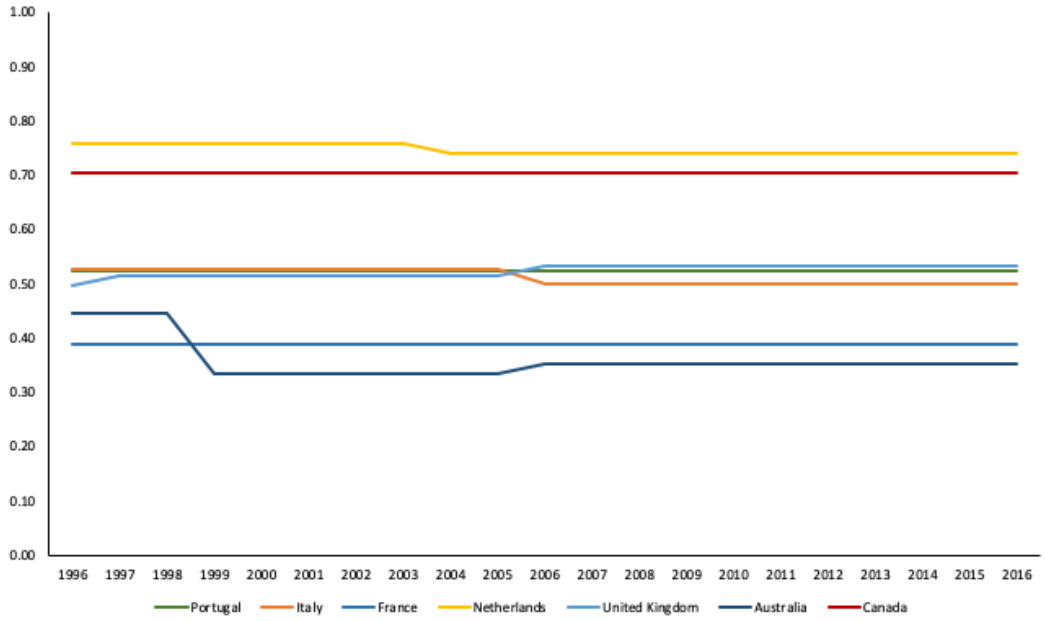
Figure 26 – Traffic of Cannabis: 1996-2016



Hard Drugs

In relation to hard drugs, we can observe in Figure 27 that the Netherlands is the country with the strictest legal framework for traffic, alongside Canada. By contrast, Australia, followed by the United Kingdom, have the more lenient approaches to traffic. Note, however, that similarly to the traffic of cannabis, the countries are closer to one another than when we look at the consumption and possession dimensions.

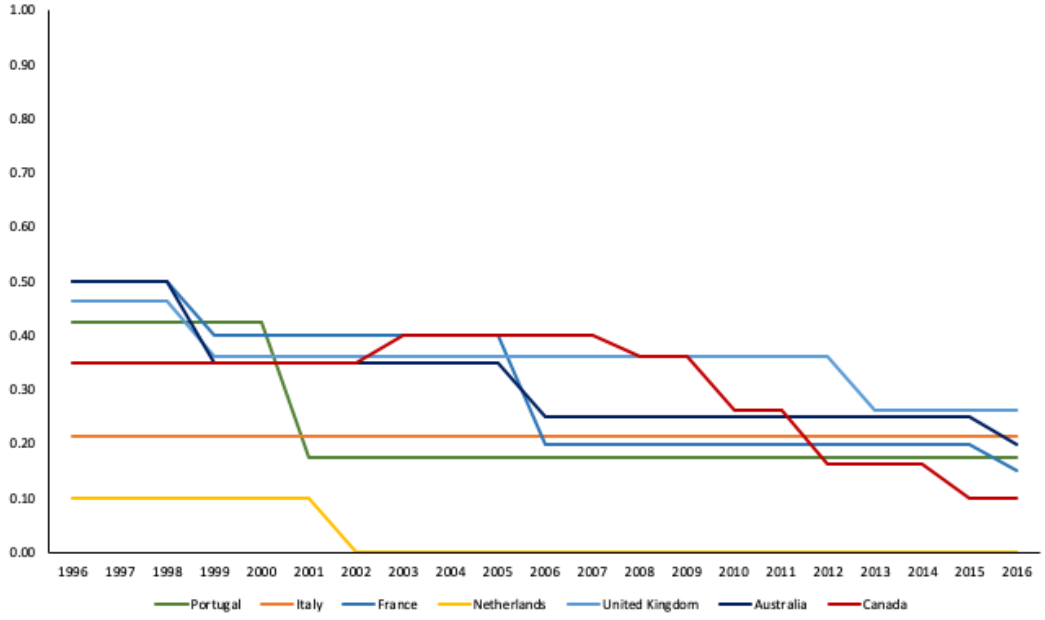
Figure 27 – Traffic of Hard Drugs: 1996-2016



Harm Reduction

As we can observe in Figure 28, all the seven countries under analysis display increased efforts in harm reduction in the period 1996-2016. In relative terms, Australia and the United Kingdom are the countries for which the score has decreased by less, suggesting that their harm reduction efforts did not increase as much as in the other countries. Throughout the period, the Netherlands is the country exhibiting higher efforts regarding harm reduction.

Figure 28 – Hard Reduction: 1996-2016



Treatment

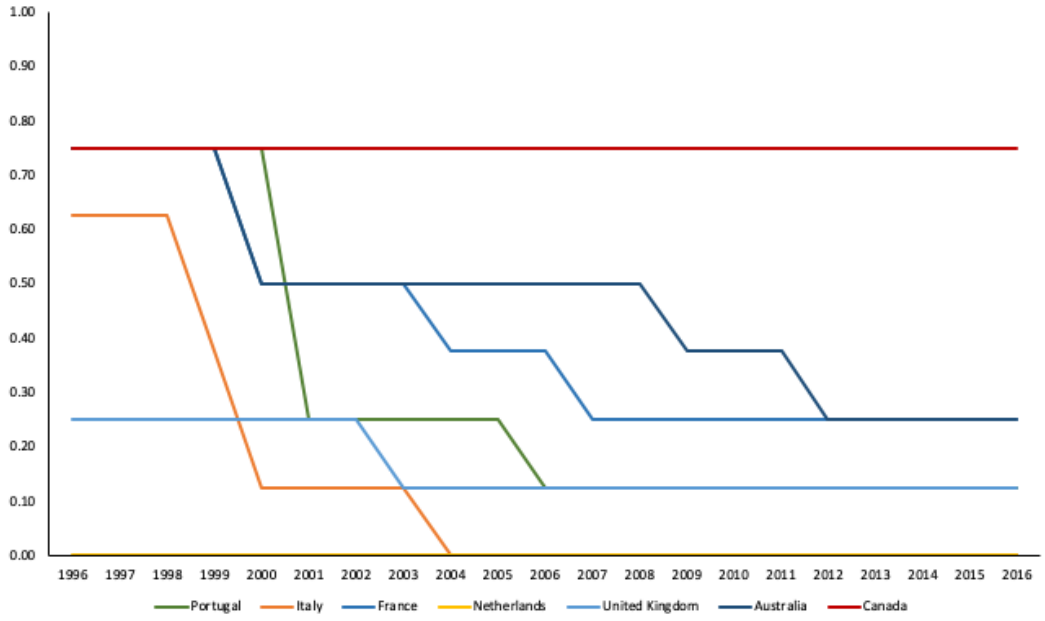
In relation to treatment, Figure 29 shows that Canada and Australia are the countries which have increased the most their efforts towards a more health oriented approach. Portugal and France form a group of countries in which since before 1996 there has been a health oriented approach.

Figure 29 – Treatment: 1996-2016

Prevention

Figure 30 reports the various countries' efforts on prevention in the period 1996-2016. We can observe that Canada is the country displaying the lowest effort associated with drug prevention. Australia had a score similar to that of Canada in 1996, but has clearly increased its prevention efforts over time. The Netherlands is the country displaying the highest efforts on prevention since before 1996.

Figure 30 – Prevention: 1996-2016



2.4. Conclusion

This report presents the methodology involved in the construction of an index of illicit drug policy – the Católica Illicit Drug Policy Index (CATÓLICA-IDPI) 1996-2016. This index allows for an intertemporal and cross-country quantitative analysis of drug policy.

In a nutshell, we identify various turning points in each of the various drug policy dimensions over time. Typically (but not always) these turning points are in the direction of a more lenient (or less strict) approach towards drug policy. Comparisons across countries show that these shifts were not uniform: some countries took larger steps than others in that direction, thus changing their relative position for each dimension of drug policy.

From the viewpoint of this research project, the development of this index was an instrument rather than an end in itself. Indeed, this index was developed in order to understand, in a quantitative way, how different countries evolved over time in each dimension of drug policy. This instrument will be used, in chapter 5, to understand the extent to which such changes in drug policy resulted in tangible changes on social outcomes.

3

3. Qualitative and quantitative study of drug policy perceptions

This chapter contains the work developed in Work Package 3 (WP3 – Qualitative and quantitative study of drug policy perceptions). The main objective of this work package is to ascertain the perception of drug policy and its evolution in the selected countries. This involves empirical data gathering: surveys on perceptions of law in action and qualitative expert interviews to gather actors' perceptions on legal evolution and its impact on social indicators.

3.1. Drug policy perceptions: summary of two quantitative surveys

3.1.1. Introduction

Two quantitative surveys were conducted to capture citizens' perceptions regarding the actual operation of drug policies in their country: a general population survey and a survey among current drug users (user survey). In both surveys the age range of participants was **18-40 years**.

General population survey

In November, 2018, five to six weeks after cannabis legalization in Canada, the general population survey was conducted in the seven participating countries (France, Italy, the Netherlands, Portugal, the United Kingdom, Australia and Canada). In each country, quota sampling was applied (gender*age, education, and region) to recruit respondents from participants in a large national online opinion panel of a professional international survey firm, until a minimum of 1,000 respondents per country had completed the online questionnaire in the applicable language (Dutch, English, French, Italian, Portuguese, or both English and French for Canada). The survey data were weighted for national representation of gender*age, education, and region.

The total number of respondents in the general population survey was 7,105, with slightly more males than females (50.2%:49.8%), and their mean age was 29.3 years. As the ethics department of the international survey firm did not allow questions about respondent's personal illegal behaviour, respondents in some countries could not be asked about their personal drug use. As an alternative, they were asked about cannabis use in their social network, using the question 'Thinking about the people you know, have they ever used cannabis?'. Slightly over half of the total sample reported cannabis use in their social network in the past 12 months.

User survey

The aim of the **user survey** was to deepen and extend the information and opinions gathered in the general population survey. The user survey questionnaire replicated the items from the general population survey and also included questions about treatment accessibility, drug supply, social norms and self-regulation regarding drug use (cannabis in particular). Over three months (February-April 2019), together with a multi-lingual team of trained field-assistants, **1,059 participants** were recruited and surveyed inside or in the vicinity of (i.e. close to the entrance) coffeeshops in the Netherlands. All participants were residents of one of the seven countries under study by this project and had used cannabis at least once in the past 12 months. Non-Dutch respondents were tourists, and all the questions, including most recent drug use, referred to the country of residence. Participants could choose between a pen-and-paper or an online version of the questionnaire, both available in the applicable languages.

Respondents' ages ranged from 18-40 years (mean age 27.3 years) and 30.9% were female, 68.3% male, and 0.8% 'other'. Close to three-quarters had used cannabis in the last 30 days and about one-third were daily users (>20 days / last month). Close to one-third had used hard drugs (cocaine, ecstasy and/or heroin) in the last 12 months.

3.1.2. Key findings of the general population survey

Perceived legal status of cannabis

To assess the perceived legal status of cannabis, the general population survey respondents were asked whether it is legal or illegal in their country to use cannabis; to possess a small quantity (a few grams) of cannabis for personal use; to buy a small quantity (a few grams) of cannabis for personal use; and to grow a few marihuana plants. Interestingly, possession was most often thought to be legal (by 45.2% of total sample), substantially more often than use (32.2%), and use was more often perceived as illegal than buying. Growing a few marihuana plants was least often perceived as legal. The highest proportion of those who perceived that cannabis was legal in their country were Canadians, followed by the Dutch.

Perceptions of drug policy

In the Netherlands, about half of respondents perceived their country's drug policy on **drug users** as soft or very soft, followed by four in ten in Portugal. In contrast, respondents in France were most likely to perceive drug policy towards users in their country as tough or very tough. The most common response from French and Canadian respondents was that they did not know. Around half of respondents in Portugal perceived drug policy towards **drug dealers** as soft or very soft, followed by four in ten in the Netherlands. In other words, in Portugal, drug policy concerning dealers was perceived as softer than towards users, and in the Netherlands, drug policy concerning dealers was perceived as tougher than towards users. French respondents were most likely to perceive drug policy towards dealers in their country as tough or very tough.

As a next step in the assessment of drug policy perceptions, the general population survey respondents were asked to nominate three out of seven predefined aspects of drug policy – presented in random order in the electronic questionnaire – that in their opinion, in practice, are given the highest priority in their country. Drug prevention and drug education scored highest, followed by arresting drug dealers. Reducing theft

committed by drug addicts (as an indicator of drug-related crime) and reducing risk of overdose (as an indicator of harm reduction) scored lowest.

Perceptions of the drug law in action

To more specifically assess the perception of the role of law enforcement in drug policy in their country, respondents were asked how large or small the chance is that drug dealers will be arrested by the police and sentenced to a term in prison. The same questions were asked for **cannabis**, the most widely used drug, and for heroin, representing the prototypical 'problem drug'. On a five-point Likert scale (from very small to very large), close to half of the respondents thought that there was a small or very small chance that a drug dealer who sells 100 grams (3.5 ounce) of cannabis in one month to users in their country will be arrested by the police. Slightly fewer respondents thought that the chance that a drug dealer who is arrested for the same offence in their country will be sentenced to prison is (very) small. At the other end of the scale, about one in six respondents thought that the chance that such a cannabis dealer will be arrested by the police is (very) large, and slightly more thought that the chance that they will be sentenced to imprisonment is (very) large.

In the case of a drug dealer who sells 100 grams of **heroin** in one month to users in their country, about three in ten respondents thought that their chance of being arrested by the police is (very) small, and slightly fewer thought that the chance was (very) small that an arrested heroin dealer will be sentenced to prison. On the other hand, more than a quarter of respondents thought that the chance that such a heroin dealer will be arrested by the police is (very) large, and close to a third thought that the chance that they would subsequently be sentenced to imprisonment is (very) large.

In all countries, the risk of a prison sentence after arrest was perceived to be similar to the risk of arrest. In the case of dealing cannabis, the average chances of both arrest and prison sentences were thought to be between small and moderate: France and Australia were closest to moderate, and the Netherlands was closest to small. In the case of dealing heroin, the average chances of both arrest and prison sentences were thought to be around moderate, although Canadians thought the chances were above moderate and Italians, Dutch, and Portuguese thought they were below.

Drug availability and supply

Asked about the availability of various drugs, over half of the total sample perceived that it would be very easy or fairly easy to obtain cannabis (57%) in their country. This dropped to around one-third for ecstasy and cocaine, and to one-quarter for heroin. The accessibility of cannabis was most often reported as very or fairly easy in Canada, the Netherlands and Italy; by around half of respondents in the UK and Portugal; and by less than half of French and Australian respondents. The easy availability of ecstasy was reported by close to half of respondents in the Netherlands, followed (by some distance) by those from Italy and the UK. Cocaine was reported to be easily available by more than four in ten respondents in Italy and the Netherlands, followed by those from the UK. The easy availability of heroin was reported by over one-third of respondents in Italy, followed by some distance by those from the Netherlands.

To investigate opinions in the general population about drug supply policy, for each of the same four drugs (cannabis, ecstasy, cocaine, and heroin), respondents were asked to indicate whether they thought it should be banned, regulated, available without

restriction, or 'don't know'. While the majority of the total sample opted for a ban on ecstasy, cocaine and heroin, less than one-third did so for cannabis (31%), and many more preferred a regulated sale of the drug (46%). Although only a minority (11%) of the total sample preferred cannabis to be available without restrictions, this was three times larger than for the other drugs.

Cross-national comparisons of perceptions and opinions

In cross-national comparisons of perceptions and opinions asked for in the general population survey, the strongest contrast overall was between respondents from the Netherlands and those from France. The most characteristic features arising from the survey when comparing countries' responses are summarised below.

The Netherlands: least punitive; highest in drug policy priority to access to treatment

- Punitivity: low on perceived illegality of cannabis-related acts[2]; drug policy towards users and dealers not perceived as tough; relatively low perceived risk of arrest and imprisonment for dealing in cannabis and in heroin.
- Supply: easy availability of various drugs; lowest support for a ban on ecstasy.
- Policy: higher priority than other countries to providing drug addicts with access to treatment; relatively high priority to reducing theft committed by drug addicts; relatively low priority to reducing the risk of HIV and AIDS among injecting drug users, and the risk of overdose.

Italy: highest drug policy priority to arresting drug dealers and social integration, lowest priority to prevention

- Punitivity: relatively low perceived risk of arrest for dealing heroin and the lowest perceived risk of imprisonment for dealing heroin; relatively tough drug policy towards drug users.
- Supply: relatively easy availability of various drugs, easiest access to heroin; highest support for a ban on ecstasy, cocaine and heroin.
- Policy: highest priority to arresting drug dealers and the social integration of drug users; drug prevention is a lower priority than in other countries.

Canada: by far the least punitive towards cannabis, most punitive towards heroin dealers; highest priority on overdose reduction

- Punitivity: by far the lowest perceived illegality of cannabis-related acts; relatively tough drug policy towards dealers; highest perceived risk of arrest and imprisonment for dealing heroin.
- Supply: easy availability of cannabis, relatively low access to ecstasy and heroin; lowest support for a ban on cannabis, cocaine and heroin.
- Policy: highest priority to drug prevention and a much higher priority to reducing the risk of overdose than in other countries.

[2] In this document, the term 'cannabis-related acts' is shorthand for using the drug; possessing a small quantity (a few grams) for personal use; buying a small quantity (a few grams) for personal use; and growing a few marihuana plants. These acts are those asked about in both the GPS and the user survey.

Portugal: highest priority on reducing health risks among intravenous drug users, lowest on arresting drug dealers

- Punitivity: highest perceived illegality of growing a few marihuana plants; drug policy towards users and dealers not perceived as tough; relatively low risk of arrest and imprisonment for dealing heroin.
- Supply: medium access to various drugs; moderate support for a ban on cannabis, ecstasy, cocaine and heroin.
- Policy: much higher priority to reducing risk of HIV and AIDS among injecting drug users than in other countries; relatively high priority to social integration of drug users; lowest priority to arresting drug dealers and reducing the risk of overdose.

The UK: highest priority to drug-related theft; relatively high priority to arresting drug dealers

- Punitivity: medium-high perceived illegality of cannabis-related acts; medium-tough drug policy towards users and dealers; relatively low risk of arrest for dealing cannabis; and relatively high risk of arrest and imprisonment for dealing heroin.
- Supply: medium access to various drugs; medium support for a ban on cannabis, ecstasy, cocaine and heroin.
- Policy: highest in priority to reducing theft committed by drug addicts; relatively high priority to arresting drug dealers; lowest priority to reducing risk of HIV and AIDS among injecting drug users; and relatively low priority to access to treatment.

Australia: relatively punitive; low priority on social integration of drug users, relatively high priority on overdose reduction

- Punitivity: high perceived illegality of cannabis-related acts; relatively tough drug policy towards users and dealers; relatively high risk of arrest and imprisonment for dealing cannabis; and the highest risk of arrest and imprisonment for dealing heroin.
- Supply: low access to cannabis, lowest access to cocaine and heroin; medium support for a ban on cannabis, ecstasy, cocaine and heroin.
- Policy: relatively high priority on reducing overdose, and relatively low priority on the social integration of drug users.

France: most punitive; lowest priority on social integration of drug users

- Punitivity: highest perceived illegality of cannabis use, possession, and buying for personal use; toughest drug policy towards users and dealers; highest risk of arrest for dealing cannabis; relatively high risk of imprisonment for dealing cannabis or heroin.
- Supply: lowest access to cannabis and ecstasy, relatively low access to cocaine and heroin; strongest support for a ban on cannabis.
- Policy: relatively high priority on drug prevention, arresting drug dealers, and reducing risk of HIV and AIDS among injecting drug users; lowest priority on the social integration of drug users and reducing drug-related theft.

3.1.3. Key findings of the user survey

Availability and acquisition

The majority of respondents stated that in their country, cannabis is (very) easily available to them and most respondents bought at least part of their cannabis themselves. Dutch respondents mostly buy cannabis in coffeeshops and Canadians from licensed retailers, while in the other countries, most users obtain it from peers (particularly in Portugal and Italy), from street dealers (France, the UK), or home dealers (Australia). French respondents were also most likely to buy from mobile phone dealers/delivery services. Cannabis is mostly used with others and at home/friends' homes, or when going out to, for example, clubs, bars and parties.

Regarding hard drugs, most respondents reported the easy availability in their country of ecstasy and cocaine, while close to half said they did not know whether or not heroin is easily available. The perceived availability of ecstasy was reported to be easiest in the Netherlands and least easy in France and Italy. The perceived availability of cocaine was easiest in the UK. As with cannabis, hard drugs are acquired mainly from, or together with peers, followed by street or home dealers or mobile phone dealers/delivery services. In a cross-national comparison, buying hard drugs from street dealers was the most prevalent among UK buyers, while Portuguese users most often bought from home dealers and mobile phone dealers/delivery services.

Comparison with the general population survey (GPS): users report much easier access to drugs, except for heroin

Overall, the user survey data show that obtaining cannabis, ecstasy or cocaine within 24 hours was much more often reported as fairly or very easy than in the GPS. In both surveys, the availability of cannabis, ecstasy, and cocaine was easiest in the Netherlands, and least easy in France and Australia. Access to heroin was perceived as equally difficult in both surveys, whilst a much higher proportion of the user survey respondents reported that they did not know how to obtain heroin.

Perceptions of legal status, drug policy, and drug law in action

As in the GPS, cannabis users were asked about the legality of four cannabis-related acts at user level to determine the perceived legality of cannabis in terms of use, possession of few grams for personal use, buying a few grams for personal use, growing a few marihuana plants. Possession was most often perceived as legal. The majority of the total sample believed that all four acts were illegal, but there were significant differences between countries. Almost all the Canadian users believed use, possession and buying cannabis to be legal, and two-thirds that growing cannabis was as well. A similar pattern was seen in the Netherlands, but with a lower proportion of respondents. All four acts were predominantly perceived as illegal in France, the UK and Australia. Portugal stands out here, as the perception of the legal status of cannabis use and possession was very divided, and over one-quarter of Portuguese respondents said that they did not know the legal status of growing a few marihuana plants.

When asked about drug policy in general, it was most often perceived as softer/less tough towards users than towards dealers. Drug policy towards both users and dealers was perceived as toughest in France and Australia, and least tough/softest in the Netherlands and Portugal. In all countries, the perceived risk of arrest and imprisonment for dealing

100 grams of cannabis in one month to users was generally lower than for dealing the same amount per month of heroin. The perceived chance of both arrest and subsequent imprisonment was highest in Australia and France (for both drugs), and lowest in the Netherlands (both drugs), followed by Canada (cannabis), Italy (heroin), and Portugal (both drugs).

Comparison with the general population survey (GPS): Italian users are the least likely and Portuguese users the most likely to perceive that cannabis is legal

Overall, the perceived legal status of cannabis in each country in the user survey was quite similar to that reported in the GPS. The main differences are that Italians in the user survey were far less likely than those in the GPS to think that possession (21.7% vs. 51.3%) and buying for personal use (5.1% vs. 32.3%) are legal. Conversely, the Portuguese respondents in the user survey were much more likely than the GPS respondents ((51.6% vs. 15.7%) to think that cannabis use is legal.

Users perceive drug policy as tougher

Overall, respondents in the user survey were much more likely than GPS respondents (especially those from France) to perceive drug policy towards users and dealers as (very) tough. This difference between the surveys was stronger for drug policy towards dealers than towards users. Each country's ranking was largely similar across the two surveys. The main exceptions were that, relative to other countries, a smaller proportion of Australian users than GPS respondents perceived drug policy towards users as (very) soft, and a smaller proportion of Canadian users than the GPS respondents perceived drug policy towards dealers as (very) soft.

Users perceive a larger risk of arrest and imprisonment for drug dealing

Overall, the perceived risk of arrest and prison sentence after arrest for dealing cannabis or heroin was higher in the user survey than in the GPS. In both surveys, the risk of arrest for dealing cannabis was perceived to be the lowest in the Netherlands, and second lowest in Canada (user survey) and Italy (GPS), and highest in France and Australia. In both surveys, the risk of arrest and a subsequent prison sentence for dealing heroin was perceived to be the smallest in the Netherlands and Italy. These risks were perceived to be highest by Canadian GPS respondents and Australian user survey respondents.

About one in ten users reported that they had been arrested at least once for cannabis offences in their own country, most often for possession and/or use. This was most often the case in France (a quarter of respondents), followed at some distance by the UK, and was least common in the Netherlands and Canada.

Opinion on drug supply policy and perceived drug policy priorities

In the user survey, almost none of the respondents opted for a ban on cannabis in their country. Most were in favour of a regulated cannabis supply, but far fewer wanted legalization ('available without restrictions'). The most support for a legal supply of cannabis was found in countries with liberal cannabis policies (Canada and the Netherlands), although in all countries, the majority opted for a regulated supply.

Regarding other drugs, support for a ban was largest for heroin, followed by cocaine, and then ecstasy. Opinions were most divided for ecstasy, with the majority in Canada, the Netherlands, Australia, and Portugal preferring a regulated supply, and the majority of

Italians favouring a ban. Preference for a ban on cocaine supply was also highest among Italians, while it was lowest in Canada and Portugal.

Comparison with general population survey (GPS): users show more preference for regulated supply, except for heroin

Overall, in the user survey there was much more support for regulated cannabis and ecstasy, and to a lesser extent cocaine, but not for heroin. As in the GPS, relative to the other countries, user survey respondents' preference for a ban on supply of ecstasy, cocaine and heroin was strongest in France and Italy.

From the predefined aspects of drug policy that, in users' opinions, are in practice given the highest priority in their country, drug prevention and drug education scored highest, followed by arresting drug dealers. Reducing the risk of overdose (as an indicator of harm reduction) and reducing theft committed by drug addicts (as an indicator of drug-related crime) scored the lowest.

- In all seven countries drug prevention and education scored in the top three of drug policy priorities (number one in the Netherlands, Canada, Portugal, and Australia).
- Arresting drug dealers was a top three priority in five countries (except in Portugal and Canada).
- Reducing the risk of HIV and AIDS was a top three priority in the four countries (France, Italy, Canada, and Australia).
- Access to treatment was a top three priority in three countries (the Netherlands, Portugal, and Canada).
- Reducing theft committed by drug addicts was a top three priority only in the UK.
- Social integration of drug users was a top three priority only in Portugal.

Comparison with the general population survey (GPS): strong similarities in perceptions of drug policy priorities

Overall, the ranking of respondents' perceptions of drug policy priorities reported in the user survey was very similar to the ranking in the GPS. In most cases, what was given as the highest priority in the user survey also scored highest or second in the GPS, and what was named as the lowest priority in the user survey scored also lowest or second lowest in the GPS.

France: arresting drug dealers was perceived as the highest priority in the user survey, and as the second priority in the GPS; social integration of drug users was the lowest priority in both surveys.

Italy: arresting drug dealers was the highest priority in both surveys; reducing the risk of overdose was the lowest priority in the user survey, and second lowest in the GPS.

The Netherlands: drug prevention was the highest priority in both surveys; reducing the risk of HIV and AIDS was the lowest priority in the user survey, and second lowest in the GPS.

Portugal: drug prevention was the highest priority in both surveys; reducing the risk of overdose was the lowest priority in both surveys.

The UK: arresting drug dealers was the highest priority in both surveys; social integration of drug users was the lowest priority in the user survey, and second lowest in the GPS; reducing the risk of overdose was the lowest priority in the GPS, and second lowest in the user survey.

Canada: drug prevention was perceived as the highest priority in both surveys; reducing theft committed by drug addicts was the lowest priority in both surveys.

Australia: drug prevention was the highest priority in both surveys; reducing theft committed by drug addicts was the lowest priority in the user survey, and second lowest in the GPS; social integration of drug users was the lowest priority in the user survey, and halfway in the rankings in the GPS.

Treatment, self-help, and barriers to finding help

Over half of the user survey respondents thought that it would be fairly or very easy to get access to treatment for addiction or other problems related to cannabis (one quarter did not know), and less easy in case of ecstasy, cocaine and heroin. In cross-national comparison, Portuguese and Dutch respondents believed treatment for various drugs to be easily accessible. French respondents believed treatment for users of ecstasy, cocaine or heroin to be the least easily accessible, and the UK respondents reported the least easy access for cannabis users. Except for the Portuguese, the majority of respondents did not know about the accessibility of specific treatment modalities for heroin users.

In the event of respondents having any problems related to drug use, they most often would choose to talk with someone from their close environment (partner, relative, friend), followed by doing more sports and solving the problem themselves. Entering a detoxification centre of a drug-free clinic was the least popular option. However, there were significant differences in preferences between countries. For example, Dutch respondents were the most likely to consult the general practitioner (family doctor); Portuguese users to consult a professional in out-patient addiction care; and Italians to

seek treatment from a therapeutic community/drug free clinic. This last option was the least popular amongst the UK respondents, however.

Overall, the most important barriers to seeking/finding help for drug-related problems were (1) being labelled as an addict (three-quarters of user survey respondents); (2) the negative effects on work/study/career (more than half); and (3) a lack of trust in treatment institutions. Lack of health insurance coverage was mentioned the least often as a barrier. Although in all countries, being labelled as an addict was seen as the number one or number two barrier, there were significant differences between countries in the prevalence of other perceived barriers. In Portugal, for example, compared with the other countries, lack of trust in treatment scored lowest, but geographical distance to treatment highest.

Self-regulation / consumption rules

Most respondents said that they generally apply rules for when, with whom and where they use or not use cannabis. The most often mentioned rules for use were 'with people I know personally and trust' and 'when I'm done with my work/study'. The most common rules for not using cannabis was when in the presence of children or parents/relatives, and during/before work or study. A vast majority said they would never use cannabis at school/work/in a car.

3.2. Changes in drug policy and practice: a qualitative approach

3.2.1. Introduction

We integrate here the main findings from the seven country reports based on interviews with experts about changes in drug policy and practice in four European countries (France, Italy, the Netherlands, Portugal and the United Kingdom) and two non-European countries (Australia and Canada). As one element of the IDPSO project, interviews were conducted with a total of 66 experts (7-13 in each country). These interviews resulted in concise country reports presenting information about changes in drug policy, the law in action and access and barriers to treatment during the years under study (1996-2016); explanations for/interpretations of changes; and perceptions of the reactions of drug producers and suppliers to drug laws/drug law enforcement.

We discuss the similarities and the differences between the countries and explore whether we could identify overlapping chronological phases in policy and practices. We also look for indicators to measure or evaluate the impact of drug policy that could be used in analyzing quantitative data as part of other work packages of the IDPSO project.

STABILITY AND CHANGE IN DRUG POLICY SINCE 1996

- The experts from some countries reported major changes in drug policy during the timeframe of this project: from Portugal for example, where drug use was decriminalized in 2001. Changes in drug policy did not occur simultaneously across all the countries studied: although there were parallel tendencies, the timing differed. For instance, harm reduction has characterized Australian, British and Dutch drug policies since the 1970s/1980s, but not until 1996 in France.

- Experts from several countries (for example, France, Italy, the Netherlands, the UK, and Australia) mentioned a shift to a more stringent drug policy just after the turn of the century, with a greater emphasis on law enforcement.
- When the experts were asked to reflect on the major drug policy changes that took place from 1996-2016, opinions were divided mainly into two major issues: (i) policy changes as responses to heroin addiction, which was often referred as an epidemic; and (ii) policy changes regarding cannabis use and possession.
- In some countries, policy changes in harm reduction, treatment issues, and law enforcement were strongly associated with changes in government. In the experts' reports, there are specific references to political influence on drug policy in France, the Netherlands, France, the UK, and Australia.
- Across the seven countries, major changes in drug policy were implemented as responses to the heroin epidemic in the 1980s and 1990s. Despite differences in magnitude and type of measures and interventions, policy responses became increasingly based on harm reduction approaches, thereby emphasizing users' and public health, and putting less focus on the criminalization of users.
- While drug policy changes regarding heroin addiction and heroin users took place within a relatively short period of time across the countries and broadly followed a harm reduction strategy, there was no such cross-national alignment regarding cannabis policy. Each country in this project more or less followed its own policy, although this was not always in the same direction as other countries, and changes in different countries were many years apart in some cases. The legal status of cannabis fluctuated in some of the countries, and was de facto or de jure decriminalized in others.

CHANGES IN DRUG LAW

- From 1996 onwards, experts in most of this project's countries see a shift in drug law focus from users to organized crime and drug trafficking. The most common characteristic is that the position of cannabis users became better in the eyes of the law, police and society. The perception of the danger that users pose to society changed gradually, and users (particularly cannabis users) started to experience less criminalization and stigmatization.
- Differences between the countries studied can be seen in the priorities that they set in internal issues or issues with an international scope. For example, the Netherlands and Australia have taken more drastic and efficient measures to reduce international drug trafficking compared with France, Italy, Portugal, the UK, and Canada.

CHANGES IN DRUG PRODUCTION AND SUPPLY

- None of the experts in the seven countries under study reported an increased availability of heroin during 1996-2016. A common feature reported from the Netherlands, France, the UK, and Australia is a rise in the domestic indoor cultivation of cannabis to supply the domestic market, which is increasingly in the hands of organized crime.

- In the course of the 2000s, several countries (France, Italy, the Netherlands, the UK) experienced an increase in the availability and purity of cocaine; Canada experienced a strong increase in the availability, trade and use of synthetic opioids such as fentanyl; Australia saw an increase in the production and availability of methamphetamine; and in the Netherlands, the large-scale production of ecstasy continued.
- Due to technological innovations in communication, street-level (retail) transactions do not take place in open drug scenes anymore, leading to a reduction of violence and drug-related nuisance in public places.

CHANGES IN PREVENTION

- From the mid-1990s onwards, some countries (for example, the UK) continued to predominantly focus on universal prevention, as it targets the general population and large groups (such as sessions in schools). In other countries, school-based prevention became much less important, largely disappeared and/or was replaced by a different approach at schools, including the involvement of parents (France, the Netherlands). More generally, in several countries (Canada, France, Portugal, and the Netherlands in particular), there has been a change in prevention away from scaring and warning recipients and a focus on drugs (substances, illegality) towards a focus on users, risk behaviour and promoting healthy lifestyles.
- While France is characterized by a central decision-making policy and a top-down approach to prevention, in other countries (Italy, the UK, and Australia, for example), authority and funding were decentralized and increasingly allocated to local authorities.

CHANGES IN HARM REDUCTION

- In all the countries in this project, the evolution of the heroin epidemic, death through overdose and the spread of HIV/AIDS that took place in the late 1980s and 1990s was a strong – often the strongest – driver behind the introduction and development of harm reduction. The UK and the Netherlands already had a history of methadone substitution, and some other countries (France, Australia, and Canada) used other substitute opioids, and in the late 1990s, the Netherlands began medically assisted treatment with heroin.
- Harm reduction implemented as substitution and maintenance programs meant a change in societal perception of drug users, heroin addicts in particular. The discourse moved from the crime to the health field, and heroin users began to be treated as patients and humans with needs, rather than criminals and outsiders.
- Sooner or later, all countries in this project started needle and syringe exchange programs for injecting drug users (IDUs). In some countries (the Netherlands, Australia, and Canada), safe consumption rooms/safe injection spaces were created.
- Another change, most explicitly reported from the Netherlands, was the implementation of harm reduction interventions aimed at recreational drug users, particularly of so-called party drugs and NPS, through peer-to-peer

education and the promotion of safe use in nightlife settings, festivals and raves, drug testing (on-site testing of users' drugs), and Red Alert (warnings about adulterated drugs that are in circulation).

CHANGES IN TREATMENT

- In some countries, treatment with methadone was the subject of controversy between political ideologies in the parliaments. Countries varied in the structure of treatment services, with some being predominantly out-patient (ambulant/mobile units) and others more oriented towards residential treatment (in-patient), yet in all countries, in the case of heroin dependence, substitution treatment became the most common approach. Differences between countries can also be seen in the funding structures, ranging from public and free access to access being subject to the criteria required by health insurance companies.
- A general trend to be observed is towards evidence-based treatment. That might lead to stricter rules, such as time-limited treatment, as became the case in the Netherlands and the UK. Although the major changes reported by the countries' experts mostly referred to treatment aimed at opiate users, some countries, the Netherlands and the UK in particular, report an increase in treatment targeting cannabis users, many of whom are younger than the heroin users in treatment.

KEY INDICATORS TO MEASURE AND EVALUATE THE IMPACT OF DRUG POLICY

We looked at indicators that (could) measure or evaluate the impact of drug policy, and which could be used in analyzing quantitative data as part of other work packages of the IDPSO project. The experts mention various types of drug policy results and/or potential outcome indicators that fulfil this purpose, and many cited them to illustrate their statements. These indicators can be categorized according to the outcomes of health interventions; law enforcement policy; prevention programs; harm reduction and treatment interventions; and the social effects of drug policy.

CONCLUSION

Our conclusions from the results of the expert interviews are drawn from the similarities and differences between the seven countries that participated in the project in terms of:

- the harm reduction responses to the heroin epidemic of the late 1980s and early 1990s;
- a return to a crime rather than health approach;
- the appearance of a wider variety of drugs on the markets;
- a rise in the indoor cultivation of cannabis;
- cannabis in drug policy;
- the timing and nature of drug policy changes;
- party political influence on drug policy; and
- indicators to measure and evaluate drug policy changes.

3.2.2. Approach

As part of the IDPSO project, in the course of 2019-2020, interviews were conducted with a total of 66 experts on drug policy, law, and practice in each of the seven participating countries (see table below). These interviews resulted in concise country reports

presenting information about changes in drug policy, the law in action and access and barriers to treatment during the years under study (1996-2016); explanations for/interpretations of changes; and perceptions of the reactions of drug producers and suppliers to drug laws/drug law enforcement. Country reports from France, Italy, Portugal and the Netherlands were provided by the respective consortium partners, while external scholars conducted the expert-interviews and wrote the country reports about Australia (Paul Dillon & Annie M. Bleeker), Canada (Daniel Bear), and the UK (Andrew Bennet).

Table 2 – Number of expert interviews per country

	Australia	Canada	France	Italy	Netherlands	Portugal	UK	Total
Interviewees	9	12	8	13	9	8	7	**66**
Of whom Females	3	3	2	5	3	2	2	**20**

Interviewees were generally selected based on their expertise on and overview of drug law and/or drug policy (in action) between 1996 and 2016, with a special focus on cannabis. They were asked to comment on what they believed were key changes in drug policy between 1996 and 2016, the reasons behind those changes, and the subsequent consequences. The experts were professionals with diverse backgrounds and working in various fields: at ministries, research institutes, in law enforcement (police and the criminal justice system), drug services, and policy-making. They all had a good knowledge of different drugs, although some were more interested in cannabis.

A topic list was used to guide the expert interviews, and included changes in drug policy; the law in action; harm reduction; drug market; prevention; harm reduction: and treatment. Experts were not necessarily interviewed about all these topics, depending on their knowledge and expertise. Obviously, some were more familiar with certain topics than others, although their knowledge overlapped on several topics.

Interviews were conducted in several ways: face-to-face, through Skype or on the telephone, and in some cases via email. The anonymity of interviewees was guaranteed, and they gave informed oral consent for their participation. For each country, a concise report in English was provided by the respective consortium partner or an external research partner. In this report, we integrate the main findings and focus on similarities and differences between these country reports. We also look at the experts' suggestions of indicators suggested by the experts to measure or evaluate the impact of drug policy that could possibly be used in analysing quantitative data as part of other work packages of the IDPSO project.

3.2.3. Stability and change in drug policy since 1996

The experts from some countries reported major changes in drug policy during the timeframe studied: for example, drug use was decriminalized in Portugal in 2001. Other experts reported that the most important changes had already been implemented in their country before 1996. For example, Australian experts described that the most important changes took place before 1996, and, like the Dutch experts, they stressed that, despite several changes during the study period, the harm minimization approach (that was

adopted by the Australian Government in 1985) has formed the constant and stable factor in drug policy since then. In the Netherlands, too, drug policy between 1996 and 2016 built on policy choices that had been made before 1996, of which the separation of markets policy (soft versus hard drugs) – as laid down in the 1976 Drug Act – had been the most far-reaching. In Italy on the other hand, the division of the difference between hard and soft drugs was not lawfully established until 2014, in the Constitutional Court n.32. When discussing changes in drug policy, the experts from most countries spontaneously related the changes to other topics, including harm reduction, injecting drug (heroin) users (IDUs), and HIV/AIDS (often in combination). When the experts were asked to reflect on the major drug policy changes that took place from 1996-2016, opinions were divided mainly into two major issues: (i) policy changes as responses to heroin addiction, which was often referred as an epidemic; and (ii) policy changes regarding cannabis use and possession.

Changes in drug policy did not occur simultaneously across all the countries studied: although there were parallel tendencies, the timing differed. For instance, harm reduction has characterized Australian, British and Dutch drug policies since the 1980s, yet according to experts in France, harm reduction was first introduced in 1996 with the implementation of substitution treatment with Subutex (buprenorphine). In Portugal, harm reduction became the leading policy approach in 2001, with the decriminalization of drug consumption.

Several experts mentioned a shift to a more stringent drug policy just after the turn of the century, with a greater emphasis on law enforcement. Australia, for example launched a 'Tough on Drugs' strategy (1997-2005), which separated illicit drugs from alcohol, tobacco and pharmaceuticals. The Dutch experts identified a shift from public health to public order along with political changes: the Ministry of Health (VWS) had a coordinating role in Dutch drug policy between 1996 and 2006, but after that, the Ministry of Justice and Security took the lead. A similar trend was perceived in Italy, where due to political reasons in 2006, Law 49/2006 was introduced: it focused exclusively on repressive activity, tightening penalties both for sellers and consumers (Law 49/2006 was later declared unconstitutional by the Constitutional Court). According to the French experts, drug policy in France had generally been repressive during the entire study period, and was characterized by a continuous increase in strictness, resources, and European cooperation, with, for example, the creation of Europol in 1999.

Marginalized users and heroin epidemics in the late 1980s and early 1990s

Across the countries, major changes in drug policy were implemented as responses to the heroin epidemic in the 1980s and 1990s. This was linked to serious health problems (intravenous drug use, overdose, HIV/AIDS) and social harms (drug-related crime, open hard drug scenes, and public nuisance). These problems were largely common among the seven countries. Despite differences in magnitude and type of measures/interventions, policy responses became increasingly based on harm reduction approaches, thereby emphasizing users' and public health, and putting less focus on the criminalization of users. In some countries, policy changes on harm reduction, treatment issues and law enforcement were strongly associated with changes in government. In the experts' reports, there are specific references to political influence on drug policy in France, the Netherlands, the United Kingdom (UK), and Australia. From a comparative analysis of the country reports, a controversy is apparent over which country had pioneered the

most pragmatic and humanitarian way to respond to the heroin epidemic, and over the efficacy and social outcomes of these policies.

France In France in the 1990s, increased concerns about heroin addiction, the HIV epidemic, and the social damage caused by heroin use and injection-related issues led to development of harm reduction approaches. In 1996, heroin substitution treatment (Subutex) was introduced and the French experts consider this as the true beginning of harm reduction in the country. In 2004, risk and harm reduction policies became official (including in health law), and were followed by the Ministry of Health's Plan for the Treatment and Prevention of Addictions in 2007-2011. The experts also point out the development of low-threshold consumption rooms in 2016. According to the French experts, these policies contributed to the destigmatization of people with HIV; a reduction in overdose mortality; a reduction in HIV incidence; a reduction in social damage due to a decrease in petty crimes by heroin users; and success in in terms of society's more positive perception of prevention activities.

Italy Italy faced also problems with heroin addiction and HIV/AIDS during the 1980s and 1990s, and, in 1990 implemented Law no. 309/1990. A widespread network of services was created for the treatment of addictions. In addition to the traditional therapeutic communities, methadone maintenance treatment and mobile units were introduced. However, after 2000, there was a reduction in funding which meant new challenges for drug services.

The Netherlands Major changes took place initially in the 1970s and particularly with the establishment of Opiumwet (Drug Act) in 1976 that separated hard and soft drugs. Regarding heroin addiction, the Netherlands invested in and developed pragmatic approaches towards heroin addiction from the early 1980s onwards by putting emphasis on low threshold services, methadone maintenance, syringe exchange programs, and, since the late 1990s, heroin-assisted treatment. Together with increased policing against street dealing and drug-related petty crime, these interventions are seen as important factors in the disappearance of open hard drug scenes, the diminishing of heroin-related public nuisance, the decrease in the number of heroin users, and an ageing heroin user population with very few new users.

Portugal Increased heroin use, the threat of HIV/AIDS, and heroin-related social problems during the 1980s and 1990s led to the National Strategy for the Fight Against Drugs in 1999, decriminalization in 2001, and related harm reduction approaches. Under the new policies implemented under these strategies, addiction was disconnected from the criminal justice system and drug addicts were seen as individuals rather than criminals. The introduction of dissuasion commissions replacing criminal court decisions by judges, and the emphasis on specialized health professionals played a crucial role in the shift in approach towards drugs and addiction. Portuguese experts mention positive societal outcomes in terms of changing the societal perception towards users; a reduction of stigma; a decrease in criminal procedures; and a reduction of police prejudice against drug users.

The UK During the late 1980s/early 1990s, the UK was concerned with increased injecting heroin use and the spread of HIV/AIDS. Pragmatic harm reduction-based interventions, including needle exchange schemes and maintenance prescribing became popular, and characterise this period as the 'health phase' of UK drug policy, with focus on users and public health. That public health approach was positively evaluated as

having led to limitation of HIV infections. However, in 1995, the first National Drug Strategy, 'Tackling Drugs Together', which had cross-parliamentary party support, was criticized by the experts as the 'crime phase' in drug policy: the focus was on crime, not on users. The experts pointed out that this policy continued under the new Labour Government during 1998-2010, in their strategy 'Tackling Drugs to Build a Better Britain'. However, in practice, UK experts also conclude that until 2010, there was also a substantial increase in coverage and quality of drug treatment services (including drug treatment in the Probation Service and correctional facilities), and local authorities established Drug Action Teams (DATs). The experts noted the benefits of the substantial increase in funding of drug treatment and the wider infrastructure during that period, and the emphasis that was put on social exclusion and the link between drug use and homelessness, truancy, and poor education.

After 2010, a new phase of drug policy was marked by a shift in power, and responsibilities and accountability were transferred from top-down state interventions to the local level, as a consequence of the reduction in public spending aiming at reducing the state budget deficit by making cuts in the welfare state budget. This new policy (under the Conservative Government) put methadone maintenance prescribing under the spotlight. Treatment and harm reduction were now seen as mutually exclusive to abstinence and recovery. As a consequence of austerity and devolved responsibility to local authorities, a lack of central accountability became apparent, as well as a lack of initiatives to help marginalized people.

Australia The roots of the early implementation of harm minimization as an Australian national framework go back to 1985, with the Needle and Syringe Program (NSP) that began as a trial program in Sydney. It was followed by national investment in methadone programs. Together, these programs eventually resulted in the avoidance of large-scale injecting drug use that was related to the HIV/AIDS epidemic. Despite the early adoption of harm minimization as a national strategy, the Australian drug policy process fluctuated. The most significant change was the launch of the national 'Tough on Drugs' strategy in 1997, which led the police to focus on drug supply and at the same time allowed and funded NGOs to apply harm reduction approaches through treatment.

According to the Australian experts, the combination of drug-free treatment via therapeutic communities and drug substitution treatment (with methadone, naltrexone, buprenorphine and levo-α-acetylmethadol/LAAM), combined with the development of medically supervised injecting centres (MSICs) in 2001, resulted in a major reduction in the number of heroin addicts and also in the reduction of heroin-related deaths. At the same time, the focus of police enforcement on heroin supply and trafficking led to a major reduction in the supply of the drug.

Canada In the late 1990s, safe consumption spaces (SCS) were developed in British Columbia, a province that was characterized by high rates of heroin overdose. The Controlled Drugs and Substances Act that was implemented in 1997 allowed the SCS to operate legally and contributed to the expansion of a harm reduction approach. Later, between 2003 and 2005, experts point out the vast development of SCSs, the extensive access to needle and syringe exchange programs, the broader understanding of harm reduction approaches by law enforcement, and the shift away from criminalization of drug use. According to Canadian experts, this new understanding on treating heroin addiction with the related individual and social harms led to positive outcomes on both the individual and societal levels. Experts mention the positive impact on users' health

and lives; a reduction of infectious diseases such as AIDS/HIV; a higher involvement of the police in communities; and that a change in society's perceptions towards drug users contributed towards their destigmatization.

Decriminalization of drugs, with focus on cannabis

While drug policy changes regarding heroin addiction and heroin users took place within a relatively short period of time across the countries and broadly followed a harm reduction strategy, there was no such cross-national alignment regarding cannabis policy. Each country in this project more or less followed its own policy, although this was not always in the same direction as other countries, and changes were many years apart in some cases.

The legal status of cannabis remained the same in France, but fluctuated in Italy and the UK. In 1999, cannabis possession was de facto decriminalized in Australia. In 2001, Portugal de jure decriminalized the possession and use of all drugs, including cannabis. It may be that the Netherlands has lost the leading position the country had in the 1970s regarding liberal cannabis policies, because other countries have taken major steps in that direction. The most fundamental change took place in Canada, where the production and sale of recreational cannabis was legalized at the end of 2018. The Netherlands remains the only (European) country with a regulated retail market via coffee shops, but since the mid-1990s, the regulations have been tightened and the number of coffee shops has dropped significantly.

France According to the experts, no significant changes regarding cannabis policy have taken place since 1996.

Italy In 1990 Law no. 162/1990 initiated a more repressive period in which cannabis use was considered a criminal offence if it exceeded the defined 'daily average dose'. In 1993, the limit of average daily dose was abolished and cannabis use became decriminalized. More than a decade later, Law no. 49/2006 introduced the same maximum penalties for possession, trafficking, cultivation, distribution and production, meaning that cultivation of cannabis for personal use could lead to a maximum of 20 years in prison. Experts define the years 2006-2014 as the most repressive period in Italian drug policy. In 2014, the Constitutional Court declared part of Law 49/2006 as unconstitutional, and the law was modified into the less repressive Law no. 79/2014.

The Netherlands Dutch experts characterize their country as a pioneer, the first country in the world to decriminalize cannabis (in 1976, Opium Act). Possession of small quantities of drugs including cannabis stopped a police target. Under the Dutch 'tolerance policy', coffeeshops were allowed to sell cannabis to users, while production and supply remained illegal. During the 1980s, the number of coffeeshops rapidly increased, and step-by-step, coffeeshops became increasingly regulated. The maximum quantity per transaction was reduced from 30 to 5 grams, and in 1996, the minimum age to enter a coffeeshops was raised from 16 to 18. In addition, local communities obtained the right to choose a zero-option policy, meaning that there could be no coffeeshops in their municipal area at all. Since the mid-1990s, the number of coffeeshops has decreased by half, to less than 600 in 2017. About 70% of municipalities have no coffeeshops. In 2017, the Dutch parliament voted for an experiment to supply coffeeshops in some municipalities with domestically cultivated cannabis, so as to regulate the whole 'cannabis chain' from plant to user.

Portugal In 2001, Portugal decriminalized the possession and use of drugs, including cannabis. The new legislation was aimed mainly at heroin and heroin users. Possession and use of cannabis became an administrative offence to be dealt with by a dissuasion commission rather than a criminal offence dealt with by the judicial system.

The UK In the UK, the main legal change regarding cannabis was related to its classification. The Misuse of Drugs Act, 1971 divides drugs into three classes (A, B, C). Penalties are more severe for Class A drugs (for example heroin, cocaine, and ecstasy), followed by Class B drugs (for example, amphetamine, ketamine and cannabis). Less severe penalties apply to Class C drugs such as GHB and khat). In 2004, cannabis was reclassified from Class B to Class C. However, in 2009, cannabis was brought back to Class B, where it remains today.

Australia In 1999, the creation of Illicit Drug Diversion Initiative (IDDI) led to the development of a range of law enforcement strategies, which led to a de facto decriminalization of cannabis possession.

Canada In Canada, there was a shift in the criminal justice system's treatment of cannabis users, which was associated with the development of medical cannabis regulations in 2001. Experts point out that the legalization of medical cannabis, and thus a recognition of its beneficial medical effects, had an impact on police perception about the harms of cannabis use and its users. This led to a decrease in the illicit market's profits; decreased police involvement with cannabis-related offences; a decrease in the criminalization of cannabis users; and a decrease in traumatic experiences related to arrest for cannabis-related offences. In October 2018, Canada legalized recreational cannabis.

3.2.4. Changes in drug law

From 1996 onwards, the experts from most of the countries participating in this project see a shift in drug law focus from users to organized crime and drug trafficking. The most common characteristic is that the position of cannabis users became better in the eyes of the law, police and society. The perception of the danger that users pose to society changed gradually: judges distinguished between cannabis and other drugs when sentencing offenders; the police began to distinguish between possession for personal use and supply; and the users (particularly cannabis users) started to experience less criminalization and stigmatization. Differences between the countries studied can be seen in the priorities that they set in terms of internal or international issues. For example, the Netherlands and Australia have taken more drastic and efficient measures to reduce international drug trafficking compared with France, Italy, Portugal, the UK and Canada.

France According to the French experts, despite the stringency of the French law towards users, in practice users are infrequently arrested. In particular, the experts state that sanctions regarding cannabis use are poorly enforced: although the French Penal Code does not distinguish between hard and soft drugs, in practice cannabis is treated differently, and judges have put in place rules that specify when to prosecute an offender or to impose a fine. Over the years, the battle against drug trafficking - and particularly hard drugs – has become the priority of criminal policy and law enforcement.

Italy Experts put focus on the consequences of the repressive law in 2006 (Law no. 49/2006), that increased the complaints from social groups and experts, increased the police reports for drug possession, and increased the number of users in prisons and also the suicide rate there. After the 2006 law was declared unconstitutional, the new law of

2014 (Law no. 79/2014) allowed a redefinition of penalties applicable to drug-dealing, making a distinction between so-called soft (mainly cannabis) and hard drugs. Experts state that this law change had positive consequences for cannabis users, because in previous years, there was a risk that the possession of even a small quantity of the drug for personal use would be prosecuted as possession with intent to supply.

The Netherlands While for many years, in urban areas and in the border region, Dutch police had a major task in reducing street dealing, crime and nuisance related to open hard drug (heroin, crack-cocaine) scenes, since the mid-1990s this phenomenon has largely disappeared. Experts state that regarding cannabis, the law enforcement focus was never on the users, but on coffeeshops and cannabis producers. Parallel to the increased regulation of coffeeshops, law enforcement policy against domestic cannabis cultivation was intensified, and from the late 1990s onwards, thousands of cannabis cultivation sites were dismantled annually. Regarding ecstasy, the Synthetic Drugs Unit was founded and operated in 1997 in order to tackle production in the Netherlands, resulting in the dismantling of many ecstasy laboratories and seizures of MDMA, before that role was moved to the National Crime Department (Nationale Recherche) in 2003. Due to an increase in cocaine smuggling, in 2003, 'risk flights' (on which all passengers were checked for smuggling cocaine, particularly those flying from some Latin American countries and the Caribbean) were established at Schiphol Airport (Amsterdam), resulting in thousands of arrests and many imprisonments per year.

More recently, focus has shifted to larger-scale cocaine smuggling into the seaport of Rotterdam, where large amounts of cocaine have been confiscated. Experts also mention the use of 'party drugs' in the Netherlands, which is related to the many music festivals that take place in the country. From 2006-2008, in order to reduce the sale and use of party drugs in nightlife settings and at festivals and large parties, police applied a zero-tolerance policy. Despite the increased number of arrests, this strategy met resistance from various sources and eventually led to an approach more orientated to harm reduction, including the establishment of guidelines for safer drug use at festivals and other events. Since the end of 1990s, the focus has been on combating drug trafficking, drug production and organized crime, not only by seizing large quantities of drugs, but also by focusing on criminal networks and interactions between the legal world and organized crime.

Portugal The most significant change in drug law was the decriminalization of drug possession and use in 2001, which is characterized by the experts as 'coherent and 'legitimized'. With decriminalization, there was a 'provisional suspension of enquiry' which helped to divert drug possession and use from the criminal justice system into treatment facilities. This allowed to police to focus on trafficking, the users were given some leeway, and they avoided stigmatization.

The UK The experts point out three major changes in the UK's drug policy since 1996. (1) Reclassification of cannabis from Class B to Class C in 2004, and from Class C to Class B in 2009. According to the experts, these changes had limited impact on cannabis use, cannabis-related harms, and cannabis users, who mostly receive a reprimand for cannabis possession. (2) The Psychoactive Substances Act, which came into force in 2016 as a response to increased availability, consumption and perceived harm of new psychoactive substances (NPS). This law prohibited the production and supply of these substances, but possession for personal use was not defined as an offence. This legislation

and its consequences are characterized as minimal or negative by the UK experts, who mention the danger that the perceived problem was being driven underground and creating vulnerable populations of users. (3) The alteration of the Misuse of Drugs Act criteria by the Sentencing Council for England and Wales in 2012. This change aimed to provide some mitigation for low level user/dealers and social suppliers compared with organized crime, by placing greater emphasis on culpability and the harm caused by the supply of drugs.

Australia This country is a unique case due to the federal system and multi-level governance. In terms of drug policy, each state enacts its own drug laws and enforcement is the responsibility of state police forces. The 'Tough on Drugs' strategy, launched in 1997, brought about a stronger focus on organized crime and the international drug trafficking of heroin, cocaine, methamphetamine and cannabis. The Law Enforcement Cooperation Program (LECP) was established and aimed at tackling drug syndicates and attacking international crime. This shift in focus was a new dimension in law enforcement in Australia, moving away from 'easy targets' (users) and putting emphasis on dismantling drug syndicates. This resulted in some significant changes in drug supply. Experts criticize these changes as not evidence-based or not cost-effective, and attribute them to the conservative shift in drug policy.

The Illicit Drug Diversion Initiative (IDDI) of 1999 led to the development of various law enforcement strategies where police could refer minor drug offenders to a diversion program instead of to the criminal justice system, effectively decriminalizing personal possession of cannabis. However, due to the federal system, IDDI was not implemented equally around the country. Experts critically point out the introduction and use of roadside drug testing (traffic control) and detection dogs across all Australian jurisdictions, aiming mainly at users.

The experts mention the Australian Capital Territory as the most progressive example across all jurisdictions. The territory was at the forefront not only of cannabis law reform, but also of issues surrounding possession of other drugs (such as cocaine and MDMA for personal use).

Canada Experts from Canada point out the shift in policing style when dealing with drug-related offences. Changes regarding opioid use developed gradually after 2000 as a response to the reduced stigma around drug users and the efforts to provide harm reduction and medical interventions to those who are dependent on opioids. A positive impact can be seen on the decreased number of overdose fatalities. Regarding cannabis, experts mentioned that changes took place gradually from the 1990s, as the burden of cannabis offences on the criminal justice system was overwhelming law enforcement. The decreased criminalization was supported by the communities and that support may have further contributed to a reduced focus on policing cannabis.

3.2.5. Changes in drug production and supply

None of the experts in the seven countries under study reported an increased availability of heroin during 1996-2016. This might possibly be linked to the drug policy interventions that all countries implemented as a response to the heroin epidemic in the 1980s and early 1990s. Regarding cannabis, a common feature reported for the Netherlands, France, UK, and Australia is a rise in domestic indoor cultivation, increasingly in the hands of organized crime, to supply the domestic market. That has led

to an increase in the availability of domestically produced cannabis and an increase in THC levels of the drug.

In the course of the 2000s, several countries (France, Italy, the Netherlands, the UK) experienced an increase in the availability and purity of cocaine. Canada experienced a strong increase in the availability, trade and use of synthetic opioids such as fentanyl. Australia experienced an increase in the production and availability of methamphetamine, while in the Netherlands, the large-scale production of ecstasy continued. Experts from some countries explicitly mention that, due to technological innovations in communication, street-level (retail) transactions do not take place in open drug scenes anymore, leading to a reduction of violence and drug-related nuisance in public places.

France Regarding cannabis, a significant change took place in the mid-2000s. While prior to the 2000s, cannabis in France was mainly imported, there has been a rise in domestic indoor cultivation, which meant that more than half of cannabis consumed in France is now produced there. That has led to an increased concentration of THC in comparison to the 1990s. Regarding cocaine, in the early 2000s there was an explosion of cocaine imports from Latin America, which led to increased availability, lower prices and higher quality. There was also an increase in the diversity and quality of synthetic drugs responding to the demand in France. The experts also mention the increased popularity of cocaine and synthetic drugs, but also a significant reduction in the health and social problems associated with heroin use.

Italy Experts state that in recent years, the demand of the Italian drug market is more varied than in the past, especially with regard to NPS. The Italian experts also mention an increase in cocaine use, especially among young people. Drug producers have adapted to market's demands and it has become increasingly easy for users to obtain cocaine and synthetic drugs in open drug scenes and in nightlife settings. The increased availability has caused a fall in prices and the increased demand has led to a lower quality of drugs. Regarding heroin, users have become much less likely to inject heroin as they are aware of the HIV/AIDS risk, and there is an increase in non-injected heroin use.

The Netherlands The Dutch experts focus their analysis on changes in the production of cannabis and the production and supply of stimulant drugs. Domestically cultivated marihuana increasingly replaced imported hashish. Cannabis cultivation became more and more associated with criminal groups and organized crime. Regarding ecstasy, Dutch experts expressed their concerns about the large-scale production of synthetic drugs, particularly with the aim of exporting them.

The Netherlands has repeatedly been described as an ecstasy and amphetamines export country, as well as a transit country for cocaine, mainly because of its geographical position and the significant roles that Rotterdam seaport and Schiphol airport play in the international transport of all kinds of goods. With ever more and larger cocaine seizures in the Rotterdam seaport, it seems that, more recently, cocaine importation has partly shifted to the seaport of Antwerp (Belgium). Experts also note that the Schengen Agreement (the abolition of border checks between 26 European countries) facilitates the import, export and transit of drugs.

Portugal According to the Portuguese experts, decriminalization of drugs in 2001 did not really have an impact on trafficking mechanisms. However, at street-level, retail dealers

adjusted the amount of drugs they carried to stay within the new law regarding the maximum quantity limits for personal use. Experts also mention new transaction methods, such as ordering from the Internet and darknet, and using mobile phones to arrange transactions. These new technological developments have diminished the role of 'drug territories' (where users and dealers meet in public), and thereby reduced drug-related violence.

The UK The first drug market change that the UK experts refer to concerns cannabis. While the UK historically imported cannabis resin (hash) from North Africa, over the course of the 2000s, the home-grown market has expanded significantly, as criminal organizations have been involved in the indoor cultivation of the drug. That has led to an increase in THC concentrations. Regarding cocaine, experts mention a major shift since 2013, with increased availability, increased purity and lower price. As to supply methods, the UK experts focus on changes such as 'county lines' (the grooming and exploitation of young people to sell/deliver drugs), 'cuckooing' (when drug dealers take over the home of a vulnerable person and use it to supply drugs), social supply (non-commercial supply in user networks), and digital technology (increased use of the Internet and darknet to purchase illicit drugs or medicines).

Australia While on the one hand, the experts stated that the 'Tough on Drugs' strategy had a direct impact on the decreased availability and supply of heroin in the Australian market, on the other hand they reported a continued sophistication and interconnection of criminal organizations in drug distribution. Transportation became more organized; concealment methods became more sophisticated and more difficult to be detected; criminal organizations became better at masking communication and more aware of the surveillance methods of law enforcement; and drugs imported into Australia come from a wider range of source countries. Furthermore, the experts mention the increase of polydrug trafficking as an important change from 1996 onwards, with drug syndicates being involved with trafficking of a range of substances. In addition, the internal marketplace became more sophisticated, resulting in increased production and availability of drugs such as methamphetamine, and in the increased involvement of drug syndicates in the internal production of cannabis, using new methods of indoor cultivation such as hydroponic cultivation.

Canada The most significant changes in the Canadian drug market since 1996 concern cannabis and synthetic opioids. Canadian experts date the changes in the cannabis market around 2012, as a response to the increased number of medical cannabis prescriptions (introduced in 2001) and the associated financial profits. The experts report that some medical cannabis consumers distributed the legally acquired cannabis to the illicit market, and the illegal operation of storefront cannabis dispensaries increased. Furthermore, semi-legal medical cannabis producers flooded the market with high quality cannabis in various forms, such as dried flowers, extracts, and oils. Some experts also argue that the change had a positive outcome, as it signposted the legalization of recreational cannabis in 2018.

Major changes regarding synthetic opioids such as fentanyl also took place around 2012, albeit it that this change had followed the constant flux in the opioids market since the 1980s. The introduction of synthetic opioids came as a response to the increased needs of drug users for low-price and high-quality opioids and is strongly associated with the financial benefits to illicit market dealers and 'Big Pharma'. Experts identify negative consequences associated with the synthetic opioids, such as the many deaths caused by

their use. Furthermore, they point to an opportunistic migration of organized crime to smaller communities associated with these drugs.

3.2.6. Changes in prevention

From the mid-1990s onwards, some countries continued to predominantly focus on primary prevention, usually now defined as universal prevention, as it targets the general population and large groups (such as schools). Universal prevention aims to prevent the spread of drug use from ever occurring. In some countries, the emphasis came to be on selective, indicated or targeted prevention to address specific individuals or groups that are characterized by problematic drug use that poses a risk to their health and society. The UK is a typical example of a focus on universal prevention through school education and media campaigns. In other countries, school-based prevention became much less important, largely disappeared and/or was replaced by a different approach at schools, including the involvement of parents (France, the Netherlands).

More generally, in several countries (Canada, France, Portugal, and the Netherlands in particular), there has been a change in prevention away from scaring and warning recipients and a focus on drugs (substances, illegality) towards a focus on users, risk behaviour and promoting healthy lifestyles.

Countries also differ in the organizational structure in which prevention is embedded and implemented. While France is more characterized by a central decision-making policy and a top-down approach to prevention, the UK is a prominent example of a country where authority and funding were decentralized and increasingly allocated to local authorities. This shift also occurred in Australia and Italy.

Since the end of the first decade of the 2000s, countries faced economic challenges, and, as part of rearranging their budgets, prevention either moved from a top-down to a local or regional approach and financial responsibility, thereby relieving the government's budget, or governments privatized prevention structures (especially targeted prevention), thus risking prevention becoming a privilege rather than universal.

France A major change in prevention activities in France occurred in the late 1990s when there was a change from a product-based approach – a separation of legal from illegal drugs – to a focus on users, with the aim of reducing risky use. The second main development during this period was the focus on evidence-based long-term prevention programs starting as early as primary school age, to teach and strengthen psychosocial skills. These programs have been evaluated positively as they have been proven to be very effective in reducing risky and addictive (and also violent) behaviour. In 2005, voluntary 'cannabis consultations' were set up for individuals with problematic use and their families. In general, French experts mention that progress has been made on the conceptualization of prevention, most recently in 2014 after the establishment of the Institut national de la santé et de la recherche médicale (INSERM) and its related collective expertise on the prevention of addictions.

Italy In the 1990s, many prevention programs were implemented in Italy, especially in schools. In the course of the 2000s, a financial crisis led to cuts in welfare budgets and healthcare spending, particularly in budgets for prevention. Expert opinions about the relevance and effectiveness of universal prevention vary from very positive to critical, with a strong preference for indicated prevention.

The Netherlands Dutch experts mention that an important aspect of prevention is that it is evidence-based. An important change was an increasing move away from universal prevention and product information at school towards healthy behaviour programs and indicated prevention that focus on users at risk and use-related problems, and includes informing, consulting, and supporting parents.

Portugal Drug prevention in Portugal is mainly targeted at current users and users at risk, more specifically through a dissuasion commission who are in contact with users and inform them about the law and the effects of drugs. Universal prevention and prevention in primary schools is limited. Also, the Portuguese experts mention sporadic prevention initiatives at music festivals.

The UK The UK experts agree that prevention in the UK in general is based on education in schools, mass media campaigns, and remains underfunded. Prevention is characterized by localism (as responsibilities have been transferred to local authorities) and the subsequent lack of funding. The 2017 Drugs Strategy focuses on ensuing an effective universal approach combined with targeted action for those who are at most risk. This strategy provides local decision-makers with the justification to reprioritise prevention, but is not supported by investment.

Australia The Australian experts refer to the national prevention as poor. In 1999, responsibility for the National School Drug Education Strategy (NSDES) transferred from the health department to the education department and was defunded after 2007. Together with a defunding of a range of initiatives, this resulted in less evidence-based drug information being available in the public domain. Experts state that Australia has demonstrated little success in the field of prevention, and see the changes as being politically motivated instead of aiming at building a long-term, evidence-based prevention strategy, to the detriment not only of the drug and alcohol fields, but also of the wider community. Some experts believe that the defunding will continue.

Canada Experts mention the education programs at schools as an important aspect of drug prevention in Canada. An important change was to target these at young people, as a response to the low effectiveness of the Drug Abuse Resistance Education (DARE) program. There was shift in police awareness of drug issues as health concerns, a change in educating police officers, and the police started to inform the community about drugs by having evidence-informed discussions, using soft and friendly language rather than scaring young people about the negative health and criminal justice consequences of using drugs.

3.2.7. Changes in harm reduction

In all the countries in this project, the evolution of the heroin epidemic, death through overdose and the spread of HIV/AIDS that took place in the late 1980s and 1990s was a strong - often the strongest - driver behind the introduction and development of harm reduction. Some countries, including the Netherlands and the UK already had a history of methadone substitution at a relatively early stage of the heroin epidemic, not in the least as a means to reduce the risk of overdose from heroin, and intensified low threshold maintenance programs as response to HIV and AIDS. France acted relatively late and remained critical about methadone, but in 1996 the country began large-scale Subutex dispensing. Australia chose naloxone, naltrexone, buprenorphine and methadone for substitution treatment, and Canada used suboxone and methadone. In the late 1990s, the

Netherlands was among the first countries to start medically assisted treatment with heroin.

Harm reduction implemented as substitution and maintenance programs meant a change in societal perception of drug users, heroin addicts in particular. The discourse moved from the crime to the health field, and heroin users began to be treated as patients and humans with needs, rather than criminals and outsiders. Sooner or later, all countries in this project started needle and syringe exchange programs for injecting drug users (IDUs). In some countries, particularly in the Netherlands, Australia and Canada, safe consumption rooms/safe injection spaces were created.

Another change, most explicitly reported from the Netherlands, was the implementation of harm reduction interventions aimed at recreational drug users, particularly of so-called party drugs and NPS, through peer-to-peer education and the promotion of safe use in nightlife settings, festivals and raves, drug testing (on-site testing of users' drugs), and Red Alert (warnings about adulterated/dangerous drugs that are in circulation).

France In the course of the 1990s, treatment of drug users in France became more and more intertwined with harm reduction. A major change was that the prime objective changed from abstinence to reducing consumption and increasing the quality of users' lives. This change was accompanied by substitution treatment. A landmark year was 1996, when Subutex was authorized. Substitution treatment and needle exchange have had positive health consequences, as overdose mortality and HIV incidence have been reduced. Furthermore, experts see social effects of the strategy, as crime was reduced, users became more peaceful, and relations between users and society have improved.

Italy The 1990 drug law (Law no.309/1990) change led to widespread harm reduction services in Italy, and provided life-saving interventions. Before 1996, when the introduction of antiretrovirals for AIDS treatment began in the country, the heroin epidemic, with increased deaths from overdoses and AIDS, had peaked. A significant turning point was the introduction of methadone maintenance treatment. Italian experts also point to the importance of the mobile units that began operating in the early 1980s and targeted drug users who did not seek help from services.

The Netherlands The Dutch experts mention heroin-assisted treatment that started in the late 1990s as one of the most effective harm reduction strategies. Other harm reduction approaches that are considered effective are syringe exchange facilities; the creation of user spaces; care, shelter and housing for homeless drug users; and methadone maintenance provision, for which multiple bodies and agencies collaborate with professionals in the field. These approaches had started in the course of the 1980s, were intensified in the 1990s, and continued in the 2000s. Combined with an intensified police and criminal justice system strategy against street dealing and other drug-related crime, the harm reduction policy resulted in the disappearance of open drugs scenes, and almost no new heroin users.

Other Dutch harm reduction interventions include the establishment of the Drug Information and Monitoring System (DIMS) in 1992, where drug users can test their drugs, predominantly so-called party drugs such as MDMA. Linked to DIMS, a Red Alert procedure was introduced to warn users when diluted or dangerous drugs are circulating on the market, and peer-to-peer harm reduction projects aim at promoting safe use in nightlife settings, festivals, and raves.

Portugal Portuguese experts focus on the change in the way that drug users are treated by society and the state. From the turn of the century onwards, the perception of drug users has changed from the stereotypical poor addict or criminal, to people with individual characteristics and needs. The major developments were methadone maintenance treatment and needle and syringe exchange schemes. Experts perceive harm reduction as showing and practising greater respect regarding people's choices, and particularly heroin users, who, in practice, are the main focus of harm reduction policy in Portugal.

The UK The first important harm reduction interventions in the UK took place in the late 1980s and early 1990s. A pragmatic harm reduction approach, with maintenance prescribing and needle exchange schemes was developed as a response to heroin injecting use and HIV/AIDS, and characterized the 'health phase' of the UK drug policy. After the mid-2000s, methadone maintenance prescribing was placed in the spotlight: its efficacy became controversial as the availability and quality of psychosocial interventions varied; users' voices were not always taken into account; and there was a limited focus on recovery. The 2010 Drug Strategy aimed at changes such as reduction of the waiting time to improve access, and shorter methadone programs. Access and treatment retention were described as evidence-based by the experts, but the strategy's focus on ending treatment is viewed negatively.

The experts note that there is still need in the UK for harm reduction activities similar to those in 1990s, given the concern about NPS, prescription drugs, and an ageing cohort of heroin users. However, they add that the lack of funding, the abstinence dogma, and localised decision-making make the implementation of new harm reduction policies quite difficult.

Australia Most of the Australian experts believe that the most significant change in harm reduction was the gradual introduction of needle and syringes exchange programs, after 1986. The experts report that more recent important changes were introduction of medically supervised injecting centres (MSIC), and, in 2016, the listing of naloxone as a Schedule 3 drug, allowing it to be used for treatment of opioid overdose. The experts believe that Australia's implementation of these harm reduction approaches, along with the investment in methadone programs, contributed significantly to combatting large-scale injecting drug use in terms of HIV/AIDS.

Canada Experts agree that the most important changes in harm reduction occurred after the Controlled Drugs and Substances Act in 1997 and allowed the establishment of safe consumption spaces and needle exchange programs. Furthermore, opiate antagonist therapy was developed, with the provision of methadone and other drugs. These changes reflect the transition from a criminal to a public health framework in Canadian policy. Experts see positive outcomes at individual and societal level, such as the improvement in users' health and lives; the disappearance of open drug scenes; a reduction of HIV/AIDS; a reduction in the burden for the criminal justice system; and a reduction in users' stigmatization by the public. Notwithstanding these positive effects, the implementation of harm reduction was not uniformly successful. Safe consumption spaces were often not welcomed in neighbourhoods, and opposition groups congregated against them, claiming they led to increased criminality in the facilities' neighbourhoods.

3.2.8. Changes in treatment

Similar to harm reduction initiatives, changes in treatment were largely a response to the heroin epidemic in the late 1980s and 1990s. All countries in this project took measures to adapt to the new situation. Interventions targeted the people directly affected by this crisis: heroin users and injecting drug users. The main goal was to provide them with more options than only abstinence, such as substitution maintenance treatment. The substitute substances varied between the countries, but methadone appears to be the most popular and common substance. In some countries, treatment with methadone was the subject of controversy between political ideologies in the parliaments.

Countries also varied in the structure of treatment services, with some being predominantly out-patient (ambulant/mobile units) and others more oriented towards residential treatment (in-patient). However, in all countries, in the case of heroin, substitution treatment became the most common approach to address dependence, with access ranging from public and free access, to it being subject to the criteria required by health insurance companies.

A general trend to be observed is towards evidence-based treatment. That might lead to stricter rules, such as time-limited treatment, as became the case in the Netherlands and the UK. Although the major changes reported by the countries' experts mostly referred to treatment aimed at opiate users, some countries, the Netherlands and the UK in particular, report an increase in treatment targeting cannabis users, many of whom are younger than the heroin users in treatment.

France The main change regarding treatment in France is the shift in the primary care objective, from abstinence to reducing consumption and increasing the quality of users' lives. This change was accompanied by substitution treatment. As stated in the previous section, treatment and harm reduction are strongly linked in France, and conceptually, the French experts do strictly distinguish one from the other. Since Subutex was authorized in 1996, access to substitution treatment has become quite wide, as all French medical doctors can prescribe it, without specific qualification, so it is not restricted to a few specialized institutions. The treatment rate for opioid dependence has been around 80%, which French experts characterize as unique in the world. In their critical comments, these experts focus on the inequality in treatment access, especially for young women, people in prisons, people from rural areas, and immigrants.

Italy In the early 1990s, a widespread network of services for the treatment of addictions and more rigorous monitoring were implemented. Treatment was combined with harm reduction, and the focus shifted from abstinence-oriented treatment to the life-saving interventions, including methadone maintenance treatment. This shift was harshly criticized by political opponents. Alongside maintenance treatment, specific courses have been designed to train staff such as social workers. Treatment in Italy has changed over the years. In particular, it has tried to adapt to the personal situation of drug users in treatment by not only considering detoxification from substances, but also the reconstruction of their lives from an emotional and educational point of view. Italian experts state, however, that after 2000, there was a reduction in funds for treatment.

The Netherlands Since the mid-1990s, evidence-based treatment is a prerequisite in the Netherlands, and healthcare has improved in quality. Since 2004, the treatment of drug users has become more professionalized. There is a more targeted approach, focusing on

users, and the number of treatment options has increased, especially due to the introduction of online aid (e-therapy). Nowadays, the norm is that treatment is 'ambulatory' (out-patient) rather than residential (in-patient). A major organizational change was that in the 2010s, the Dutch healthcare system became structured on two pillars: cure and care. Time limits were set for the duration of treatments, which particularly affects methadone treatment: continuation requires updated treatment plans and is thus an extra administrative burden. Since 2012, healthcare costs have been reimbursed by insurers.

Between 2001 and 2016 there was an increase in the number of people seeking help for cannabis-related issues. According to the Dutch experts, the increase might be related to the increased potency of cannabis.

Portugal The most relevant development in Portugal was the change of perception towards drug users, particularly heroin users. The policy regarding treatment has been focused on maintenance methadone programs and the idea of abstinence as the only solution was abandoned. Maintenance programs have been accompanied by psychotherapy, social support, and nursing care. Treatment is universal, public and free of charge.

The UK The National Treatment Agency for Substance Misuse (NTA) was established in 2001 and worked till 2013 to improve the availability, capacity and effectiveness of drug treatment. Experts refer to it as a successful intervention which led to an expansion of community-based drug treatment services alongside the development of treatment programs in the Probation Service and correctional facilities. This investment resulted in one of the most accessible opioid substitution therapy systems in the world with around 60% of those who would benefit from receiving this treatment. In the second half of the 2000s, methadone maintenance programs were placed in the spotlight as part of opposition to the previous Labour government's drug policies. The coalition government of Conservatives and Liberal Democrats (2010-2015) reduced funding of treatment and health and social support, but, most notably, moved to a recovery-orientated treatment model. This policy shift created a debate compromising harm reduction and substitute prescribing from one side and recovery from the other. The time-limited treatment provision and the time-limited performance indicators that were introduced in the Drug Strategy 2010 (titled 'Reducing demand, restricting supply, building recovery: supporting people to live a drug free life'). The UK experts criticize this strategy, particularly in respect of the rise in drug-related deaths in the UK during the 2010s.

Australia The experts point to the most significant change regarding treatment in Australia as the establishment of National Evaluation of Pharmacotherapies for Opioid Dependence (NEPOD) in 1998. This three-year project offered new evidence-based pharmacotherapies to treat opioid dependence, combined with psychological and medical interventions, and led to substantial reductions in heroin use while patients remained in treatment. Secondly, experts mention the importance of the publicly funded alcohol and other drugs treatment services, which provide services to assist people to address their problematic use through a range of treatments. Assistance may also be provided to support the family and friends of people using drugs. The development of the National Treatment Framework was also considered key to assuring better treatment planning, commissioning and monitoring. Furthermore, experts indicate that as a result of the 'Tough on Drugs' strategy (1997-2005), the non-governmental treatment sector received a major part of the funding. NGOs are described by some experts as agencies

that treat clients holistically, including addressing social welfare issues, housing, food, and mental health. Lastly, experts mentioned the development of clinical guidelines and funding of treatment options for the management of Hepatitis C: treatment was free and without restrictions.

Over time, the availability of a range of evidence-based treatment options combined with a more professional workforce and led to improved treatment outcomes. All of these changes occurred as a response to the heroin epidemic that had caused heroin deaths to peak in the late 1990s: their impact can be seen in the reduction of opiate-related deaths.

Canada Canadian experts indicate as most important change in treatment as the expanded access to treatment programs that are not exclusively based on abstinence, which began around 2000. An important development was that these treatment programs used harm reduction measures, with maintenance using prescription drugs such as Suboxone, methadone, Dilaudid and heroin. Previous treatment programs were characterized as restrictive, and the new programs gave users more options to access a safe supply of drugs.

3.2.9. Key indicators to measure and evaluate the impact of drug policy

In this project, we looked at possible indicators to measure or evaluate the impact of drug policy that could be used in analysing quantitative data as part of other work packages of the IDPSO project. In the country reports, the experts mention various types of drug policy results and/or potential outcome indicators that would fulfil this purpose. In short, these can be categorized as follows:

- Direct indicators of health interventions (numbers of drug users in treatment, needles and syringes exchanged, prevention campaigns, peer-to-peer activities, etc.).
- Direct indicators of law enforcement policy and practice (number of arrests, number of seizures, amount of seizures, etc.).
- Potential outcome indicators for the effect of prevention programs, such as prevalence rates, number of dependent users/addicts, continuation/discontinuation rates (percentage of current users compared to lifetime users), frequency of use.
- Potential indicators for the effect of harm reduction and/or treatment measures, such as the numbers of drug deaths, overdose cases (lethal/non-lethal), hepatitis C and HIV and AIDS cases, percentage of injecting drug users among heroin addicts.
- Potential indicators for the effect of law enforcement, such as price, purity, acquisitive crime statistics, drug-related nuisance.
- Potential indicators for the social effects of drug policy: stigmatization, destigmatization, societal acceptance of drug users, social integration.

3.2.10. Conclusion

In this report, we integrated the main findings from seven country reports based on interviews with experts about changes in drug policy and practice in France, Italy, the Netherlands, Portugal, the UK, Australia, and Canada. We remarked on the similarities and the differences between the countries and explored whether we could identify overlapping chronological phases in policy and practices.

We can conclude that between the countries in this project, there are similarities regarding interventions to combat the heroin epidemic of the late 1980s and early 1990s. Policy changes then focused on prevention, treatment and harm reduction, mostly following a health rather than a crime approach. Maintenance treatment using substitute substances was considered as one of the most important interventions that came to replace abstinence as the treatment goal. Substitute substances varied between the countries of this project, although methadone was reported to be the most commonly used.

In general, the health approach interventions in response to the heroin epidemic had positive results for drug users and for society: injecting heroin use was reduced; the prevalence of HIV and AIDS dropped; heroin addiction was reduced; open drug scenes disappeared; heroin-related crime was reduced; and drug users were gradually destigmatized. However, despite these successes, later steps towards a return to the crime approach were observed when treatment and harm reduction were placed in the spotlight of political debates, and when drug policy was a feature of electoral campaigns, reflecting the conservative reflexes of voters.

In the same period that countries were winning the first battles against the heroin epidemic, significant changes in the production and supply of other drugs started to become apparent in drug markets. Experts across the seven countries report an increase in the availability of cocaine, ecstasy, MDMA, and synthetic drugs, while Canada also experienced a rise in synthetic opioids. The experts agree that changes in drug supply methods and the availability of different drugs are associated with the demand for higher quality, greater variety, and lower prices. The changes in production, imports, and exports vary among countries and is connected to their geographical position. In the years covered by this project (1996-2016), drug trafficking became more sophisticated and organized crime developed its operational capacity through the use of technology in a globalized market. The countries monitored these changes and tried to adjust their mechanisms to tackle drug trafficking and combat organized crime.

Regarding cannabis, experts in many countries report changes in cultivation methods, pointing out the rise of indoor cultivation (usually hydroponic). In some cases, this led to an increase of THC levels, which some blame for increased access to treatment by young cannabis users. Despite the changes in the fields of law enforcement, prevention, treatment and harm reduction, cannabis users were never the target of these changes. In general, laws did not change for them (except in Canada, where cannabis was legalized in 2018), but the opinion and behaviour of the police and the criminal justice system towards cannabis users changed significantly, to a more decriminalized approach.

Drug policy changes regarding the heroin epidemic in the late 1980s/early 1990s took place within a relatively short period of time across the countries and broadly followed a harm reduction strategy. However, there was no such cross-national alignment regarding later changes, especially to cannabis policy, and whether a country's drug policy focussed on crime or health. Each country in this project more or less followed its own policy, although this was not always in the same direction as the other countries and in some cases, the same change in different countries were many years apart.

We can place the adoption of countries' different approaches to changes in the topics discussed with the experts on three major structural political dividing lines: a public and free health service vs a private system; top-down vs local level governance; and an

evidence-based vs a political ideological approach. In the experts' reports, there are specific references to political influence on drug policy in France, the Netherlands, the UK, and Australia. In these countries, policy changes in harm reduction, treatment issues and law enforcement were strongly associated with changes in government.

In this project, we looked at indicators that (could) measure or evaluate the impact of drug policy, and which could be used in analysing quantitative data as part of other work packages of the IDPSO project. The experts mention various types of drug policy results and/or potential outcome indicators that fulfil this purpose, and many cited them to illustrate their statements. These can be categorized according to the outcomes of health interventions; law enforcement policy; prevention programs; and harm reduction and treatment interventions; and the social effects of drug policy.

4

4. Key social indicators for drug policy analysis

4.1. Introduction

This chapter contains the work developed in work package 4 (WP4 – Developing key social indicators for drug policy analysis). Its main objective is to review, develop and collect information on key social indicators directly or indirectly related to illicit drug use.

Given that the European countries under analysis, in the 1996-2016 timeframe, were EU countries, the primary data source for the social indicators collected was the EMCDDA. In addition to this, effort was put into collecting data for the same variables in Australia and Canada.

Putting together a database of social indicators between 1996 and 2016 for the seven countries proved to be more difficult than initially anticipated because for some variables:

- There was a large number of missing observations, either over time or across countries;
- Often (but not always) the large number of missing observations is related to changes in variable definitions (or data collection methodology), which essentially renders impossible the task of collecting data for the same variable throughout the period under analysis;
- Although EU countries largely follow the data collection methodologies and variable definitions stipulated by the EMCDDA, the same is not true for Canada and Australia – both of which collect statistics on variables that are similar in nature to those collected by the EMCDDA, but not exactly the same;
- In addition, whilst data collection for EU countries was made comparatively easier by relying on a single data source – the EMCDDA –, data collection for Australia and Canada was typically not possible from a single source, thus increasing comparability problems.

The data collection methodology followed was:

- First, a large list of available and relevant social indicators was put together;
- Second, the list was analysed in detail with a view towards identifying the indicators which (i) appeared to be more relevant for the work developed in WP5 and also (ii) appeared to have a large number of observations (or a relatively low number of missing observations) throughout the period under analysis in every country;
- Third, data was collected for the indicators identified in step two.

By and large, a significant overlap exists between the indicators suggested by experts (see chapter 3) and those that were collected.

The next section describes the variables for which data was collected.

4.2. Social indicators database

Most of the variables for which we have collected data are essentially a combination of various 'elements', namely:

- Variable group
- Variable definition
- Type of drug
- Population group
    - Based on age
    - Based on gender

Each of the 'elements' is different for each variable. Therefore, we found it easier to describe our database on a variably-by-variable basis. Note that Table 3 only lists variables for which we have a relevant number of observations in our timeframe (1996-2016). Data was also collected on other variables, but we have decided not to consider them as they had only been collected for a short number of years.

Table 3 – Social indicators database

Variable group	Variable definition	Type of drug	Population group
Prevalence of drug use	Lifetime prevalence Last year prevalence Last month prevalence	Amphetamines Cannabis Cocaine Ecstasy LSD	All adults (15-64) Young adults (15-34) Aged 15-24 Aged 25-34 Aged 35-44 Aged 45-54 Aged 55-64
Overdose deaths	Number of deaths	n/a	Gender: male/female Age group: Mean age, <15, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, >=65, Not Known

Variable group	Variable definition	Type of drug	Population group
Infectious diseases	Prevalence HIV Prevalence HBV Prevalence HCV	n/a	n/a
Treatment demand	Number of all clients Number of never before treated Number of previously treated	All opioids, Heroin, Methadone, Buprenorphine, Fentanyl, Other opioids, All cocaine, Powder cocaine, Crack cocaine, Other cocaine, All stimulants, Amphetamines, Methamphetamines, MDMA, Synthetic cathinones, Other stimulants, All hypnotics and sedatives, Barbiturate, Benzodiazepines, GHB/GBL, Other hypnotics and sedatives, All hallucinogens, LSD, Ketamine, Other hallucinogens, Volatile inhalants, Cannabis, Other substances	Gender: male/female
	Outpatient units Inpatient units Low-threshold units General practitioners Prison Other	n/a	n/a
Problem drug use	% injecting in treatment	n/a	n/a
Seizures of drugs	Number of seizures Quantity seized	Cannabis Resin (Kg), Herbal Cannabis (Kg), Cannabis Plants (Kg), Cannabis Plants (Nº Of Plants) , Cannabis Oil (Kg), Cannabis Oil (Litres) , Heroin (Kg), Methadone (Kg), Methadone (Tablets), Cocaine Powder (Hcl) (Kg), Crack Cocaine (Base) (Kg), Amphetamine (Kg), Amphetamine (Tablets), Mdma And Related Mdx Substances (Ecstasy) (Kg), Mdma And Related Mdx Substances (Ecstasy) (Tablets), Methamphetamine (Kg), Methamphetamine (Tablets), Khat (Kg), Lsd (Units)	n/a

Variable group	Variable definition	Type of drug	Population group
Price, purity and potency	Minimum, maximum, median, mean, mode price	Cannabis Resin, Herbal Cannabis, Undistinguished Heroin, Brown Heroin, White Heroin, Cocaine, Crack, Amphetamine, Methamphetamine, Ecstasy, LSD	n/a
	Minimum, maximum, median, mean, mode potency	Cannabis Resin, Herbal Cannabis, Undistinguished Heroin, Brown Heroin, White Heroin, Cocaine, Crack, Amphetamine, Methamphetamine, Ecstasy, LSD	n/a
Drug law offenses	Number of offenses Use offenses Supply offenses	Cannabis, Heroin, Cocaine (powder), Crack, Amphetamine, Methamphetamine, Ecstasy, LSD	n/a
	Number of offenders	n/a	n/a
Health and social responses	Total number of substitution clients Number of methadone substitution clients	n/a	n/a
	Number of syringes (needle and syringe programmes)	n/a	n/a

5

5. Assessing the impact of drug policies on key social indicators

5.1. Introduction

This chapter contains the work developed in Work Package 5 (WP5 – Assessing the impact of drug policies on key social indicators). The objective of WP5 is to combine the work developed in WP2 (chapter 2), WP3 (chapter 3) and WP4 (chapter 4), with the objective of understanding the links between national drug policies and social indicators, considering the complex interrelationships that exist between the variables.

Understanding the effect of national drug policies on social indicators is a central question for policymakers. Assessing this effect in the long run requires an evaluation of social indicators before and after drug policy changes. However, this is a complex issue, as changes in drug policies may have an impact in more than one indicator. Notwithstanding, studies on the impact of drug policies changes are not uncommon. Ritter et al. (2016) provide a broad overview of the literature on comparative policy analysis in the field of alcohol and drugs.

Our work differs from previous literature in three somewhat interrelated dimensions. First, ours is a cross-country study focusing on social outcomes associated with illicit drug use at an aggregate (national) level. Second, we use a new approach to specify drug policies, based on leximetrics (see chapter 2). This approach 'transforms' the law into numbers and allows for the creation of indexes with data driven policy coding. Third, we use a multidimensional index – the CATÓLICA-IDPI, developed in chapter 2 – to 'measure' drug policy over time and across countries.

The research question guiding our work is therefore the following: for the countries under analysis, in the period 1996-2016, what is the impact of each dimension of drug policy on prevalence rates for (i) cannabis, (ii) cocaine and (iii) ecstasy? In other words, of all the various social indicators described in chapter 4, we will focus on prevalence rates. Despite their methodological limitations, prevalence rates are a sort of 'gold standard' in the illicit drug field. Other indicators, such as drug-related deaths, are problematic due to differences in forensic policies between countries and over time.

We propose to answer our research question using an econometric approach. We do so for two main reasons. First, there are multiple explanatory factors affecting prevalence rates in any given country at any point in time, including each country's drug policy. Using an econometric approach allows for multiple variables simultaneously

contributing towards explaining the observed evolution of a particular variable (in this case, the prevalence rates). In addition, it allows for statistical testing of the significance of each of those explanatory factors, including each of the drug policy dimensions captured by the CATÓLICA-IDPI. Second, the choice of a well-suited regression methodology allows us to capture the impact of unobserved variables in each country's prevalence rates. In other words, despite any researcher's best effort to adequately control for all the multiple explanatory factors, a concern always remains that omitted and/or unobserved variables could unduly influence the results obtained. In this context, our choice of a random-effects regression model allows us to address this concern. This approach incorporates a random intercept for each country, constant over time, which captures unobserved heterogeneity across countries.

Our results are interesting and intriguing. On the one hand, they corroborate some prior results from the literature; on the other hand, they clearly contradict earlier results. Importantly, they allow for a more in-depth understanding of how different dimensions of drug policy affect prevalence rates and, therefore, allow the results that diverge from earlier literature to be reconciled or at least contextualized.

In the case of cannabis, both for the overall population as well as for 15-24 years old, we find that drug policy changes in the direction of a less criminally-oriented approach towards consumption and possession contribute to a *decrease* in prevalence rates. This is a very interesting result which contradicts those of Simons-Morton et al. (2010), Kotlaja and Carson (2018), Grucza et al. (2018) and Stevens (2019), who all find there to be no evidence of a causal association between cannabis drug policy and adolescent cannabis use. Our results also contradict those of Shi et al. (2015), who find an association between cannabis liberalization and adolescent use, although Stevens (2019) shows this result not to be robust when he attempted to replicate the analysis.

We must, however, interpret our results with some caution. Note that our results do not support or advocate that reductions in the penalties associated with consumption or possession induce reductions in prevalence rates. Our consumption and possession indicators encompass a wide array of drug policy characteristics which go beyond a narrow focus on penalties. Indeed, in our consumption indicator we consider whether the individual is an addict or a non-addict, as well as whether being caught for the first time attracts lower penalties. The possibility of an individual being exempt from penalties if he/she adheres to treatment as well as the existence of a specific framework for therapeutic/medicinal cannabis are also considered. In our possession indicator we also consider such differential treatment to addicts vs. non-addicts and/or to individuals caught for the first time, as well as specific frameworks for therapeutic/medicinal cannabis. In addition, the existence of quantity thresholds that dictate differential penalties for detention and/or different types of procedure are considered and clearly move this indicator away from a narrow focus on penalties and/or the criminal nature of possession. This is also further reinforced by our consideration of possible exemptions from sanctions associated with treatment or with other specific circumstances. Therefore, we refer to drug policy changes in the direction of a less criminally-oriented approach whenever a country changes its drug policy in either (or in several) of these multiple features – which is clearly very different from merely focusing on a simple alleviation of penalties for cannabis possession.

We also find that a less criminally-oriented approach towards the traffic of cannabis is associated with increases in prevalence rates. Recall that our traffic indicator encompasses cultivation, production and distribution. We further find that a more health-oriented approach towards harm reduction and treatment (in this case, only for the overall population) also leads to a reduction in prevalence rates.

Our results for cocaine suggest that drug policy changes in the direction of a less criminally-oriented approach towards consumption *decrease* prevalence rates, but the *opposite* is true for possession. In what concerns possession, our results for cocaine are in stark contrast to those obtained for cannabis and suggest differential impacts on prevalence rates for (otherwise similar in nature) drug policy changes. In addition, our results contradict those of Vuolo (2013): looking at the population aged 15-24 years old (using Eurobarometer data), Vuolo (2013) finds that in countries where there are no restrictions on the possession of drugs for personal use (which would be akin in our case to a reduction of the possession indicator), individuals exhibit a *lower* probability of drug use in the last month. In addition, we also find that (similarly to cannabis) increased harm reduction efforts induce reductions in prevalence rates – a result which is in line with that of Vuolo (2013). Unlike cannabis, however, we find no effect of increased treatment efforts on cocaine prevalence rates.[3]

Finally, in what concerns ecstasy, we did not find evidence of a relationship between a country's drug policy dimensions, captured by the CATÓLICA-IDPI, and the ecstasy prevalence rates.

Overall, we contribute to the literature by looking in detail at the relationship between drug policy and prevalence rates in a dynamic perspective: how changes in drug policy impact on prevalence rates. In addition, we do so by looking at different dimensions of drug policy and find there to be a more intricate relationship between those dimensions and prevalence rates. For instance, although we find that prevalence rates are impacted in a similar way whenever countries change their drug policy associated with cannabis or cocaine consumption – in particular, a change towards a less criminally oriented approach induces reductions in the prevalence rate –, the same is not true for possession. Indeed, an otherwise similar in nature drug policy change, in the direction of a less criminally-oriented approach towards possession, leads to reductions in cannabis prevalence rates, but instead to an increase in the cocaine prevalence rate.

In a similar vein, our results indicate the drug policy dimensions that countries should pay more attention to if they intend to pursue an objective of reducing prevalence rates. In particular, our results corroborate the view that an integrated approach towards drug policy changes, that is, an approach which explicitly considers the multiple dimensions of the drug problem, is likely to be more successful in reducing prevalence rates. This is in line with the orientation that was followed in Portugal in 1999: its drug policy changed considerably (and within a short time period) across multiple dimensions – consumption, possession, harm reduction and prevention. In that context, our results allow for a 'fine-tuning' of the drug policy dimensions that each country should consider changing in order to achieve reductions in its prevalence rates.

---

[3] Vuolo (2013) finds that higher treatment usage (measured as new treatment clients per 100,000) also leads to a higher probability of last month drug usage. However, this variable is not a drug policy variable; instead, it is really an 'outcome variable' which could be related to drug policy (as well as to many other possible explanatory factors). As such, this result cannot be compared or reconciled with ours.

This chapter is structured in the following way: section 5.2 contains a presentation and discussion of our approach; section 5.3 presents the results; and section 5.4 concludes.

5.2. Approach

5.2.1. Econometric approach

As outlined above, we set out to answer the following research question: for the countries under analysis, in the period 1996-2016, what is the impact of each dimension of drug policy on prevalence rates for (i) cannabis, (ii) cocaine and (iii) ecstasy?

We propose to answer this research question using an econometric approach. We put forward the following regression model:

$$y_{it} = \alpha + \boldsymbol{x}'_{it}\boldsymbol{\beta} + \boldsymbol{z}'_{it}\boldsymbol{\gamma} + \delta t + c_i + \varepsilon_{it} \qquad (1)$$

In this equation, y_{it} is the dependent variable, that is, the prevalence rate in country i in year t; $\boldsymbol{x}'_{it}$ is a matrix containing the six dimensions of drug policy assessed by the CATÓLICA-IDPI, indicating the value of each variable for country i in year t; $\boldsymbol{z}'_{it}$ is a matrix containing other explanatory variables which we designate as 'controls', that is, variables other than the six drug policy dimensions which could potentially explain country i's prevalence rate in year t; c_i is a country-specific individual effect; and ε_{it} is the error term. We include the time dimension in our model, through coefficient δ. We do so in order to capture possible effects that are common across countries at any period in time. For example, if there are unobserved trends over time that affect all countries under analysis, coefficient δ would effectively account for them.

Note that the main goal of this regression is the estimation of $\boldsymbol{\beta}$, that is, the coefficients associated with each of the six dimensions of drug policy.

We estimate this as a random-effects model, that is, we assume that the country-specific effects c_i are independently and identically distributed random variables with mean 0 and variance σ_c^2. These country-specific effects intend to capture unobserved heterogeneity across countries, that is, omitted or unobserved explanatory variables that are country-specific and which may explain a country's prevalence rate. The error term ε_{it} is also assumed to be independently and identically distributed random variables with mean 0 and variance σ_ε^2.

5.2.2. Variables

Dependent variable: prevalence rates

The evolution of last year prevalence rates for cannabis, cocaine and ecstasy varies significantly between countries, both in their levels, as well as in their evolution patterns over time. As we have discussed above, despite their methodological limitations, prevalence rates are a sort of 'gold standard' in the illicit drug field, making them a suitable and sensible social outcome over which to evaluate the impact of drug policy changes.

Considering the available last year prevalence rates for cannabis (overall population and 15-24 years old)[4] in our timeframe (1996-2016), we can conclude that:

- Available prevalence rates come from General Population Surveys (GPS) which are typically carried out in different years across countries;
- The number of interval years between the available prevalence rates differs across countries, leading us to have a minimum of 4 observations (Portugal) and a maximum of 19 observations (UK) for each country in our timeframe (1996-2016);
- Data on prevalence rates pre-2000 only exists for the Netherlands and the UK;
- On average (across the years) for the overall population, the country which reports a highest (average) prevalence rate is Canada (11.1%) and the country reporting the lowest (average) prevalence rate is Portugal (3.7%);
- On average (across the years) for 15-24 years old, the country which reports a highest (average) prevalence rate is Canada (27.2%) and the country reporting the lowest (average) prevalence rate is Portugal (6.9%);
- Over time, considering the overall population, no country presents an evolution of prevalence rates always in the same direction (either increasing or decreasing); in other words, all the countries display periods of increasing prevalence rates, as well as periods of decreasing prevalence rates;
- Over time, considering 15-24 years old, only Canada presents an evolution of prevalence rates always in the same direction - downwards;
- Comparing the first and the last prevalence rates available for the overall population, Australia, Canada and the UK display a decreasing trend, whilst France, Italy, the Netherlands and Portugal display an increasing trend;
- Comparing the first and the last prevalence rates available for 15-24 years old, a similar pattern emerges: Australia, Canada and the UK display a decreasing trend, whilst France, Italy, the Netherlands and Portugal display an increasing trend.

Considering the available last year prevalence rates for cocaine (overall population and 15-24 years old)[5] in our timeframe (1996-2016), we can conclude that:

- Available prevalence rates come from General Population Surveys (GPS) which are typically carried out in different years across countries;
- The number of interval years between the available prevalence rates differs across countries, leading us to have a minimum of 4 observations (Portugal) and a maximum of 19 observations (UK) for each country in our timeframe (1996-2016);
- Data on prevalence rates pre-2000 only exists for France, the Netherlands and the UK;
- On average (across the years) for the overall population, the country which reports a highest (average) prevalence rate is the UK (2.2%) and the country reporting the lowest (average) prevalence rate is Portugal (0.3%);

[4] In the case of Australia, prevalence rates refer to the closest possible age group: 18-24 years old.

[5] In the case of Australia, prevalence rates refer to the closest possible age group: 18-24 years old.

- On average (across the years) for 15-24 years old, the country which reports a highest (average) prevalence rate is the UK (4.7%) and the country reporting the lowest (average) prevalence rate is Portugal (0.4%);
- Over time, considering the overall population, only France presents an evolution of prevalence rates always in the same direction – upwards; all other countries display periods of increasing prevalence rates, as well as periods of decreasing prevalence rates;
- Over time, considering 15-24 years old, only France (upwards) and Portugal (downwards) present an evolution of prevalence rates always in the same direction;
- Comparing the first and the last prevalence rates available for the overall population, Australia, France, the Netherlands and the UK display an increasing trend, whilst Canada and Portugal display a decreasing trend (Italy exhibits only a small change);
- Comparing the first and the last prevalence rates available for 15-24 years old, a similar pattern emerges: Australia, France, the Netherlands and the UK display an increasing trend, whilst Canada, Italy and Portugal display a decreasing trend.

Finally, considering the available last year prevalence rates for ecstasy (overall population and 15-24 years old)[6] in our timeframe (1996-2016), we can conclude that:

- Available prevalence rates come from General Population Surveys (GPS) which are typically carried out in different years across countries;
- The number of interval years between the available prevalence rates differs across countries, leading us to have a minimum of 4 observations (Portugal) and a maximum of 19 observations (UK) for each country in our timeframe (1996-2016);
- Data on prevalence rates pre-2000 only exists for France, the Netherlands and the UK;
- On average (across the years) for the overall population, the country which reports a highest (average) prevalence rate is Australia (2.9%) and the country reporting the lowest (average) prevalence rate is Portugal (0.3%);
- On average (across the years) for 15-24 years old, the country which reports a highest (average) prevalence rate is Australia (10.2%) and the country reporting the lowest (average) prevalence rate is Italy (0.8%);
- Over time, considering the overall population, only the Netherlands (upwards) and Portugal (downwards) present an evolution of prevalence rates always in the same direction; all other countries display periods of increasing prevalence rates, as well as periods of decreasing prevalence rates;
- Over time, considering 15-24 years old, only France and the Netherlands present an evolution of prevalence rates always in the same direction – upwards;
- Comparing the first and the last prevalence rates available for the overall population, Australia, Canada, Portugal and the UK display a decreasing trend, whilst France, Italy and the Netherlands display an increasing trend;

[6] In the case of Australia, prevalence rates refer to the closest possible age group: 18-24 years old.

- Comparing the first and the last prevalence rates available for 15-24 years old, a similar pattern emerges: Australia, Canada, Portugal and the UK display a decreasing trend, whilst France, Italy and the Netherlands display an increasing trend.

Four additional comments on our dependent variables are warranted. First, prevalence rates do not appear to follow a 'unidirectional' pattern, that is, almost always in the same direction (upwards or downwards). In addition, the observed patterns differ across countries. This pattern is similar to what is observed for the CATÓLICA-IDPI (see below, as well as chapter 2): we observe significant heterogeneity in the patterns of evolution over time both within a country as well as across countries. From an econometric viewpoint, this heterogeneity is important in order to obtain meaningful results when carrying out our regressions.

Second, although we have observations of the CATÓLICA-IDPI for every year in the 1996-2016 timeframe, that is not the case for the dependent variables. This naturally restricts the number of observations to be used in each regression, which varies between 50 observations (last year prevalence of cocaine, 15-24 years old) and 57 observations (last year prevalence of cannabis, overall population).

Third, the observations to be used in the regression constitute an unbalanced panel, with a relatively large number of observations over time for the UK (19 observations), but not as many for all other countries (between 4 and 8). Therefore, it is particularly important to use a panel data regression methodology, such as the random effects model we have chosen to use.

Fourth, the use of prevalence rates for 15-24 years old is not without problems. It is quite a young age, especially for cocaine. Moreover, this age range typically includes minors and adults, which typically attract differential treatment under the law.

Independent variables: CATÓLICA-IDPI

Chapter 2 analyses in detail the construction of the CATÓLICA-IDPI. Therefore, we only provide here a very brief discussion. The CATÓLICA-IDPI was developed as a tool to 'measure' each country's drug policy at any point in time. In doing so, we have adopted a multidimensional approach to the construction of the index, looking at six different dimensions of drug policy: consumption, possession, traffic, harm reduction, treatment and prevention. In practice, the CATÓLICA-IDPI consists of one index for each of these six dimensions. Also, because the first three dimensions are necessarily different for different types of drugs, we have carried out a separate analysis for cannabis vs. hard drugs. Therefore, we have obtained separate indexes for consumption, possession and traffic for cannabis and for hard drugs.

Looking at descriptive statistics of the CATÓLICA-IDPI associated with cannabis, for the timeframe under analysis, we have 21 observations for each country because we have carried out an analysis of each country's drug policy in every year between 1996 and 2016. Therefore, in total, we have 147 observations for each of the six dimensions of the CATÓLICA-IDPI associated with cannabis.

Second, we observe significant variability in each dimension across countries. Moreover, there is also significant variability in some dimensions within each country: for Australia and the UK, the two dimensions with higher variability (measured by the coefficient of variation) are treatment and prevention; for France and Portugal, it is harm reduction

and prevention; for Canada it is consumption and harm reduction; for Italy it is possession and prevention; and for the Netherlands it is harm reduction and treatment. This shows that changes in drug policy were not uniform over time for any given country (across dimensions), and they were also not uniform across countries (for a given dimension).

As we discussed above, one particular concern when using these variables, which attempt to capture multiple dimensions of drug policy, is the possible correlation between them. Using in our regression model variables which exhibit high correlations between them could lead to the problem of multicollinearity. Therefore, we looked at the number of countries for which the correlation between every pair of dimensions exceeds 0.8 (in absolute value) – a common threshold used in econometrics to suggest possible multicollinearity problems. Overall, it appears as if the various dimensions are capturing different (and unrelated) dimensions of drug policy. The dimension which generates more concerns is prevention: it exhibits high correlation with possession and harm reduction in three countries and with consumption in two countries.

Considering now the descriptive statistics of the CATÓLICA-IDPI associated with hard drugs, for the timeframe under analysis, we have 21 observations for each country because we have carried out an analysis of each country's drug policy in every year between 1996 and 2016. Therefore, in total, we have 147 observations for each of the six dimensions of the CATÓLICA-IDPI associated with hard drugs.

Second, we observe significant variability in each dimension across countries. Moreover, there is also significant variability in some dimensions within each country: for Australia and the UK, the two dimensions with higher variability (measured by the coefficient of variation) are treatment and prevention; for France and Portugal, it is harm reduction and prevention; for Canada and the Netherlands it is harm reduction and treatment; and for Italy it is possession and prevention. This shows that changes in drug policy were not uniform over time for any given country (across dimensions), and they were also not uniform across countries (for a given dimension).

Third, looking specifically at the consumption, possession and traffic dimensions, their variability (measured by the coefficient of variation) is lower for hard drugs than it is for cannabis in Canada, Italy and the Netherlands. By contrast, the variability of these dimensions for hard drugs (compared to cannabis) is higher in France and Portugal. Australia and the UK present a mixed picture, with only some of these indicators for hard drugs having a higher coefficient of variation than for cannabis.

Looking at whether the correlation between every pair of dimensions exceeds 0.8 (in absolute value), it appears as if the various dimensions are capturing different (and unrelated) dimensions of drug policy. The dimensions which generate more concerns are consumption, possession and prevention. Consumption exhibits a high correlation with possession in four countries; with harm reduction and prevention in two countries; and with traffic in one country. Possession exhibits high correlation with consumption in four countries; with harm reduction in two countries; and with traffic, treatment and prevention in one country. Finally, prevention exhibits a high correlation with hard reduction in three countries; with consumption in two countries; and with possession and treatment in one country.

Independent variables: controls

As controls for our regression, we have collected data on the following variables for the period 1996-2016:

1. GDP per capita, US$, at constant prices and controlling for purchasing power parities (PPP). Source: OECD;
2. Women per 100 men. Source: OECD;
3. Percentage of the population aged 15-24 years old. Source: OECD;
4. Percentage of adult population with tertiary education. Source: OECD (2020), "Educational attainment of 25-64 year-olds (2019): Percentage of adults with a given level of education as the highest level attained", in *The output of educational institutions and the impact of learning*, OECD Publishing, Paris.
5. Population density (population per square Km). Source: OECD;
6. Unemployment rate. Source: OECD (2021), Unemployment rate (indicator).

Looking at the variables collected, we can immediately understand that GDP per capita and population density present a statistical problem: both are indicators that make use of a country's population in their calculation. Inevitably, this could generate a significant correlation between them and cause multicollinearity concerns if both were to be used in our regression analysis.

In order to understand whether this problem extends to other variables, we have identified the number of countries for which any of the above two variables exhibit a correlation above 0.8 (in absolute value). As expected, population density is a worrisome variable, which exhibits high correlation with GDP per capita and with the percentage of the adult population with tertiary education in six countries, and with women per 100 men in three. In addition, the percentage of the adult population with tertiary education also appears to be worrisome: it is highly correlated with population density in six countries, with GDP per capita in five countries, with the percentage of 15-24 years old in four countries and with women per 100 men in two countries. This is not entirely surprising and it suggests that these two variables should not be used as controls.

In addition to these, we find that the variable women per 100 men also exhibits a worryingly high correlation with GDP per capita in three countries. There is no obvious explanation for this and it may be a statistical issue associated with the specific countries we are looking into. For this reason, we have also chosen not to use this variable as a control in our regression.

In summary, all our regressions incorporate three controls: GDP per capita, the percentage of the population aged 15-24 years old and the unemployment rate.

5.3. Results

5.3.1. Cannabis

We carry out our regressions for the overall population and for 15-24 years old. In addition, we estimate a model with and a model without a time trend.

Let us start by the results for the overall population (without a time trend). Looking at the coefficient estimates for controls, all are statistically significant (at the 10% level).

Moreover, the coefficient for GDP per capita is positive, suggesting that (all else constant) last year prevalence rates for cannabis tend to increase when GDP per capita also increases. The coefficient of the percentage of the population aged 15-24 years old is negative, suggesting that prevalence rates decrease (all else constant) when the weight of 15-24 years old in the population increases. Finally, the coefficient estimate for the unemployment rate is negative, suggesting that (all else constant) an increase in the unemployment rate leads to a decrease in the prevalence rate. Once a time trend is added, the only significant difference in the coefficient estimates for controls is related to GDP per capita, which becomes insignificant. This suggests that the time trend could be correlated with the evolution of GDP per capita across countries and thus that this could be a symptom of multicollinearity.

In what concerns the main focus of this work – the coefficient estimates for CATÓLICA-IDPI – we obtain a positive and statistically significant (at the 1% level) coefficient for consumption and for possession of cannabis. This suggests that (assuming all else constant) a country that introduces a drug policy change for consumption or for possession in the direction of a less criminally-oriented approach will see its prevalence rates *decrease*. This is a very interesting result which contradicts earlier literature (Simon-Morton et al., 2010; Kotlaja and Carson, 2018; Grucza et al., 2018; and Stevens, 2019) finding there to be no evidence of a causal association between cannabis drug policy and (adolescent) cannabis use.

Regarding traffic, we obtain a negative and statistically significant (at the 1% level) coefficient, suggesting that drug policy changes in the direction of a less criminally-oriented lead (all else constant) to increased prevalence rates.

Considering now harm reduction and treatment, the coefficient estimates are positive and significant at the 5% significance level, suggesting that a more health-oriented approach (assuming all else equal), which translates into increased efforts towards harm reduction and treatment of drug addiction, actually leads to a reduction in the prevalence rate for cannabis. The only dimension which does not emerge as statistically significant is prevention. This could be because it is a dimension that is inherently harder to capture using the methodology outlined in chapter 2, or it could be a statistical problem associated with multicollinearity, as we described above.

Considering now 15-24 years old, the results are broadly very similar to those of the overall population. The main difference is that when looking at controls, both the percentage of the population aged 15-24 years old and the unemployment rate are not statistically significant. Also, when looking at the CATÓLICA-IDPI coefficient estimates, treatment is also not statistically significant.

5.3.2. Cocaine

We carry out our regressions for the overall population and for 15-24 years old. In addition, we estimate a model with and a model without a time trend.

Consider first the results for the overall population (without a time trend). Looking at the coefficient estimates for controls, GDP per capita emerges as positive and statistically significant (at the 1% significance level). This suggests that (all else constant) last year prevalence rates for cocaine tend to increase when GDP per capita also increases In column (1), the percentage of the population aged 15-24 years old has a positive and

significant coefficient (5% level), whilst the unemployment rate's coefficient is negative but statistically insignificant. When we include a time trend, the latter is positive and statistically significant and the coefficient estimates for the percentage of the population aged 15-24 years old and unemployment rate change significantly (including their statistical significance). This could be a reflection of multicollinearity and, therefore, we will focus our attention mainly in the results obtained without a time trend.

Looking at the coefficient estimates for the CATÓLICA-IDPI, we obtain a positive and statistically significant coefficient for consumption, traffic (both at the 1% level) and harm reduction (at the 10% level), whereas the coefficient estimates for possession and prevention are both negative and statistically significant at the 1% level. Consider consumption first: the results suggest that (assuming all else constant) a country that introduces a drug policy change in the direction of a less criminally-oriented approach towards the consumption of hard drugs will see its prevalence rates *decrease*. By contrast, a less criminally-oriented approach towards possession appears to induce the opposite effect: an increase in prevalence rates. Therefore, in what concerns possession, the results for cocaine are opposite to those of cannabis. In addition, our results contradict those of Vuolo (2013): looking at the population aged 15-24 years old (using Eurobarometer data), Vuolo (2013) finds that in countries where there are no restrictions on the possession of drugs for personal use (which would be akin in our case to a reduction of the possession indicator), individuals exhibit a *lower* probability of drug use in the last month. Finally, the coefficient estimate for traffic is positive and statistically significant, but relatively close to zero, thus suggesting a very small impact on prevalence rates.

Considering now harm reduction, the coefficient estimate is positive and significant at the 10% significance level, suggesting that a more health-oriented approach (assuming all else equal), which translates into increased efforts towards harm reduction actually leads to a reduction in the prevalence rate for cocaine. This result is in line with that of Vuolo (2013). The estimated coefficient for prevention is difficult to understand (as it is negative and statistically significant), and this could be a result of prevention being a dimension that is inherently harder to capture using the methodology outlined in chapter 2. Alternatively, it could be a statistical problem associated with multicollinearity, as we described above.

Considering now 15-24 years old, the results are broadly very similar to those of the overall population. The main difference is that the coefficient estimates for possession and prevention are negative (as for the overall population) but not statistically significant (contrary to the overall population).

5.3.3. Ecstasy

We carry out our regressions for the overall population and for 15-24 years old. In addition, we estimate a model with and a model without a time trend.

Looking at the results for the overall population, we can see that the only control which emerges as statistically significant is the percentage of the population aged 15-24 years old. The positive coefficient suggests that (assuming all else constant), a country with a higher percentage of the population aged 15-24 years old will have a higher prevalence rate for ecstasy. Interestingly, neither GDP per capita nor the unemployment rate emerge as statistically significant. Therefore, contrary to the results for cannabis and cocaine, ecstasy prevalence rates do not appear to be affected by the country's main economic variables.

Considering now the coefficient estimates for the CATÓLICA-IDPI, only prevention emerges as statistically significant (and negative). The remaining coefficient estimates are statistically not different from zero. As we had discussed earlier, this could be a reflection of the relatively low number of observations used in the regression and/or of multicollinearity. As such, we are unable to assess the impact of drug policy on prevalence rates for ecstasy.

Our conclusions for the overall population also apply to 15-24 years old: the results do not allow us to draw well-founded conclusions regarding the impact of drug policy on prevalence rates.

5.4. Conclusion

This chapter combines the work developed in WP2 (chapter 2), WP3 (chapter 3) and WP4 (chapter 4), with the objective of understanding the links between national drug policies and social indicators, considering the complex interrelationships that exist between the variables.

Our approach is based on drug policy indicators that were developed in WP2, namely the six dimensions of the CATÓLICA-IDPI. In particular, our goal was to understand the extent to which changes in these six dimensions of drug policy have an effect on the (last year) prevalence rates for cannabis, cocaine and ecstasy.

Using an econometric approach, which simultaneously incorporates these six dimensions of drug policy as well as other explanatory variables (controls), we obtain interesting and thus far novel results. In the case of cannabis, we find that drug policy changes in the direction of a less criminally-oriented approach towards consumption and possession contribute to a *decrease* in prevalence rates. By contrast, a less criminally-oriented approach towards the traffic of cannabis is associated with increases in prevalence rates. We further find that a more health-oriented approach towards harm reduction and treatment also leads to a reduction in prevalence rates.

The results for cocaine are somewhat different: whilst drug policy changes in the direction of a less criminally-oriented approach towards consumption *decrease* prevalence rates, the *opposite* is true for possession. Therefore, our results for cocaine are in stark contrast to those obtained for cannabis and we find that similar (in nature) drug policy changes have an impact on prevalence rates which differs across drugs. In addition, we also find that (similarly to cannabis) increased harm reduction efforts induce reductions in prevalence rates. Unlike cannabis, however, we find no effect of increased treatment efforts on cocaine prevalence rates.

Finally, in what concerns ecstasy, we did not find evidence of a relationship between drug policy and prevalence rates.

As the concluding WP of this research project, the work developed in this chapter has some limitations but also identifies avenues for further research. The first limitation is related to our focus on prevalence rates and, consequently, to the relatively few observations available for each country. A second limitation is related to our results. By using the CATÓLICA-IDPI and the six dimensions of drug policy it focuses on, we are able to understand whether and how changes in drug policy affect prevalence rates. On

the one hand, this is extremely useful to pinpoint policy dimensions that can be 'fine-tuned' if a given country sets as an objective the reduction of prevalence rates. On the other hand, we are unable to understand exactly which policy changes can succeed in achieving such an objective.

Nevertheless, it is our hope that our work contributes towards the opening of new research avenues into this topic, possibly using other approaches (e.g., qualitative or mixed methods approaches), and ultimately contributing to a more comprehensive view of how drug policy impacts on illicit drug use.

6

6. Discussion and conclusions

The objective of this project was to assess how differences in national drug laws and policies related to illicit drug production, distribution and consumption impact on key drug-related social indicators, with a particular focus on cannabis. In a nutshell, in order to achieve this objective, this research projects aimed, first, to translate into quantitative indicators the different 'written' policies, typically approved and enacted by law, as well as the perceptions, by stakeholders, of policies 'in action'. Second, this research project aimed to measure their impact on key indicators for drug use.

The focus was on seven different countries – Portugal, France, Italy, Netherlands, United Kingdom, Canada and Australia – over a relatively long timeframe: 1996-2016.

To do so, this project involved four steps: (i) the use of leximetrics to allow cross-country comparison of national drug policies (measuring 'law in the books'); (ii) a quantitative and qualitative study to assess the perceptions of key actors regarding those policies (capturing perceptions of 'law in books' and 'law in action'); (iii) a careful analysis of key social indicators directly or indirectly related to illicit drug use (e.g., health indicators, such as HIV or hepatitis infection rates; demand indicators, such as illicit drug consumption rates; or justice system indicators, such as number of drug-law offences or imprisonments); and (iv) an in-depth understanding of the relationship between national drug laws and policies (steps (i) and (ii)) and social indicators, namely prevalence rates (step (iii)).

In step (i), for each country, we identified various turning points in each of the various drug policy dimensions over time. Typically (but not always) these turning points were in the direction of a more health oriented/liberal (or less criminal-oriented/prohibitionist) approach towards drug policy. Comparisons across countries show that these shifts were not uniform: some countries took larger steps than others in that direction, thus changing their relative position for each dimension of drug policy.

In step (ii), based on the opinions of experts, we concluded that there were similarities regarding interventions to combat the heroin epidemic of the late 1980s and early 1990s. However, later steps towards a return to the crime approach were observed when treatment and harm reduction were placed in the spotlight of political debates, and when drug policy was a feature of electoral campaigns, reflecting the conservative reflexes of voters. Regarding cannabis, there was no cross-national alignment regarding cannabis policy changes, namely whether a country's drug policy focussed on crime or health. Each country more or less followed its own policy, although this was not always in the same direction as the other countries and in some cases, the same change in different countries were many years apart. These findings were consistent with those of step (i).

In step (iii), we have reviewed, developed and collected information on key social indicators directly or indirectly related to illicit drug use and put together a (somewhat

incomplete, due to various data availability limitations) database of social indicators for the seven countries between 1996 and 2016.

Finally, in step (iv), in the case of cannabis, we find that drug policy changes in the direction of a less criminally-oriented approach towards consumption and possession contribute to a decrease in prevalence rates, both for the overal population as well as for 15-24 years old – a result which contradicts earlier literature. We also find that a less criminally-oriented approach towards the traffic of cannabis is associated with increases in prevalence rates whilst a more health-oriented approach towards harm reduction and treatment (in this case, only for the overall population) leads to a reduction in prevalence rates. For cocaine, drug policy changes in the direction of a less criminally-oriented approach towards consumption decrease prevalence rates, but the opposite is true for possession – a result which also contradicts earlier literature. We also find that (similarly to cannabis) increased harm reduction efforts induce reductions in prevalence rates. Unlike cannabis, however, we find no effect of increased treatment efforts on cocaine prevalence rates.

This research project was financed by ERANID in its transnational call for research projects on 'society and responses to drug use: policy and society'. It is therefore important to discuss our contribution in this context. First, we have identified, analysed and compared drug policies enacted by laws ('hard' and 'soft' laws) across countries and over a long timeframe using a state-of-the-art method – leximetrics – which had not yet been used in the illicit drugs field. Each country's response to drug use is inherently different and it changes over time. Therefore, the use of the leximetric method, which allows for cross-country as well as temporal comparisons of drug policy, is an important contribution for policy makers. We quote Kilmer et al. (2015, p. 227) who say that "cross-national analysis is part of the twenty-first-century zeitgeist. Nations anxiously compare themselves with their peers to see how they are doing". Second, we recognize that perceptions of drug policy – and not just drug policy itself – may also constitute an important explanatory factor for drug-related behaviour. For example, drug users' behaviour may be explained by their perception of the applicable drug policy ('law in the books'), as well as by their perceptions of 'law in action' (e.g., how likely they are to be arrested if they choose to use a certain drug). And third, we hope to have contributed to a more comprehensive understanding of the relationship between drug policy and prevalence rates – which may ultimately help policy makers in making (often difficult) decisions in increasingly complex and fast-changing societies.

As usual, our contributions also have limitations, some of which identify avenues for further research. It is our hope that our work contributes towards further research into this topic, possibly exploring other approaches (e.g., qualitative or mixed methods approaches), and ultimately contributing to a more comprehensive view of how drug policy impacts on illicit drug use.

References

Adams, Z., Bishop, L. and Deakin, S. (2016) CBR Labour Regulation Index (Dataset of 117 Countries) (Cambridge: Centre for Business Research)

Armour, J., Deakin, S., Lele, P.; Siems, M. (2009a). How do legal rules evolve? Evidence from a cross-national comparison of shareholder, creditor and worker protection. *American Journal of Comparative Law*, 57, 579-630.

Armour, J., Deakin, S., Sarkar, P., Siems, M.; Singh, A. (2009b). Shareholder protection and stock market development: an empirical test of the legal origins hypothesis. *Journal of Empirical Legal Studies*, 6, 343-380.

Bergeron, H. & Colson, R. (2017). European drug policies in context. In Colson, R. & Bergeron, H. (eds.) *European Drug Policies: The Ways of Reform.* Oxon; New York: Routledge.

Cheffins, B., Bank, S. & Wells, H. (2014). Law and history by numbers: Use but with care. *U. Ill. L. Rev.*, 1739-1764.

Colson, R. & Bergeron, H., eds. (2017). *European Drug Policies: The Ways of Reform.* Oxon; New York: Routledge.

Cooter, R. & Ginsburg, T. (2003). Leximetrics: Why the same laws are longer in some countries than others. *Illinois Law & Econ. Working Papers Series*, Working Paper No. LE03–012, June.

Deakin, S. (2009). Legal origin, juridical form and industrialisation in historical perspective: the case of the employment relationship and the joint stock company. *Socio-Economic Review*, 7, 35-65.

Deakin, S., Lele, P. & Siems, M. (2007). The evolution of labour law: Calibrating and comparing regulatory regimes. *International Labour Review*, 146, pp. 133-162.

Djankov, S., LaPorta, R., Lopez-de-Silanes, F. & Shleifer, A. (2008). The law and economics of self-dealing. *Journal of Financial Economics*, vol. 88(3), 430-465.

Félix, S. & Portugal, P. (2017). Drug decriminalization and the price of illicit drugs. *International Journal of Drug Policy*, 39, 121-129.

Gonçalves, R., Lourenco, A. & Silva, S. (2015). A social cost perspective in the wake of the Portuguese strategy for the fight against drugs. *International Journal of Drug Policy*, 26, 199-209.

Grucza, R., Vuolo, M., Krauss, M., Plunk, A., Agrawal, A., Chaloupka, F., & Bierut, L. (2018). Cannabis decriminalization: A study of recent policy change in five U.S. states. *International Journal of Drug Policy*, 59, 67-75.

Kilmer, B., Reuter, P., & Giommoni, L. (2015). What Can Be Learned from Cross-National Comparisons of Data on Illegal Drugs. *Crime and Justice: Review of Research*, 44, 227-296.

Kotlaja, M. M., & Carson, J. V. (2019). Cannabis Prevalence and National Drug Policy in 27 Countries: An Analysis of Adolescent Substance Use. *International Journal of Offender Therapy and Comparative Criminology*, *63*(7), 1082–1099.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R. (1998). Law and Finance. *Journal of Political Economy*, 106 (6), 1113-1155.

La Porta, R., Lopez-de-Silanes, F. & Shleifer, A. (2008). The Economic Consequences of Legal Origins. *Journal of Economic Literature*, 46 (2), 285-332.

Lele, P., & Siems, M. (2007). Shareholder protection: a leximetric approach. *Journal of Corporate Law Studies*, 7, 17-50.

Maresca, E. (2015). Outline of drug law enforcement in Italy. Available at https://www.fuoriluogo.it/wp-content/uploads/2015/01/K-Italian-Drug-Legislation-an-overview-of-the-norms-after-the-Supreme-Court%E2%80%99s-ruling-in-2014.pdf.

Mitchell, R., Gahan, P., Stewart, P., Cooney, S. & Marshall, S. (2010). The Evolution of Labour Law in Australia: Measuring the Change. *Australian Journal of Labour Law*, 23 (1), 61-93.

Ritter, A., Livingston, M., Chalmers, J., Berends, L., & Reuter, P. (2016). Comparative policy analysis for alcohol and drugs: Current state of the field. *International Journal of Drug Policy*, 31, 39-50.

Shi, Y., Lenzi, M., & An, R. (2015). Cannabis Liberalization and Adolescent Cannabis Use: A Cross-National Study in 38 Countries. *PLoS ONE*, 10(11), e0143562.

Siems, M. (2011). Measuring the immeasurable: how to turn law into numbers. In Faure, M. & Smits, J. (eds.) *Does law matter? On law and economic growth*. Cambridge: Intersentia, 115-136.

Simons-Morton, B., Pickett, W., Boyce, W., ter Bogt, T., & Vollebergh, W. (2010). Cross-national comparison of adolescent drinking and cannabis use in the United States, Canada, and the Netherlands. *International Journal of Drug Policy*, 21(1), 64-69.

Stevens, A. (2019). Is policy 'liberalization' associated with higher odds of adolescent cannabis use? A re-analysis of data from 38 countries. *International Journal of Drug Policy*, 66, 94-99.

UK Home Office (2014). Drugs: International Comparators. Available at https://www.gov.uk/government/publications.

Vuolo, M. (2013). National-level drug policy and young people's illicit drug use: A multilevel analysis of the European Union. *Drug and Alcohol Dependence*, 131(1-2), 149-156.

Zuffa, G. (2017). Italian drug policy. In Colson, R. & Bergeron, H. (eds.) *European Drug Policies: The Ways of Reform*. Oxon; New York: Routledge.