

Cannabis:

Is legalisation right for Ireland?

Ciaran Wallace

(B.Sc.) Business and Law

DT321

Supervisor:

Sean Byrne

2015

Declaration

I hereby confirm that the following material, which I now submit for assessment as the 4th Year Research Project to help me achieve an undergraduate degree of B.Sc. in Business and Law, is completely my own work and has not been submitted for assessment for any other academic purpose elsewhere.

Ciaran Wallace

Date

Acknowledgements

I would like to thank a handful of people for their help along the way to completing this Research Paper;

First, I would like to say thank you to my supervisor Mr. Sean Byrne for setting me on the right path and giving me fantastic guidance on how to approach my topic.

Secondly, I would like to thank my loving family; Vincent, Rose, Iain, Keith and Laura for their continued encouragement and motivation when I needed it most.

Lastly, I would like to thank Rachael for always being there for me, Owen for his honest and extremely helpful feedback and Shane for making the short coffee breaks enjoyable and the long hours in the library bearable.

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Abstract

Title: Cannabis: Is legalisation right for Ireland?

Author: Ciaran Wallace

Cannabis plays a huge role in modern day Irish society, in this research project I will be examining the literature to see if legalisation of cannabis would be the right move to help Ireland take a step into a better and brighter future. In the literature review I will be looking at both the positive and negatives associated with cannabis legalisation, I will then be forming a personal opinion on the subject based on what the literature resembles and applying that knowledge in to the context of what I feel would be right for Ireland.

Introduction

A quick Google search of the word “marijuana” returns 107,000,000 pages, the word “cannabis” returns 65,900,000 pages. Similarly, a search of PubMed looking for scientific journals published within the last twenty years containing the word "cannabis" revealed over 8,637 results. If you add the scientific term "cannabinoid" the results increases to a staggering 20,991 articles. For context, that’s an average of more than two scientific articles published about the subject, per day over the last 20 years.

These figures, not only illustrate the significant scientific interest in the topic and the huge financial investment in attempting to understand more about cannabis and all of its components, but they also highlight the drastic need for high quality summaries, like the research project you are about to read.

In this research project, I’ll be discussing the positives and negatives of legalising the substance and whether legalisation would be the right decision for Ireland.

A lot of my research is based on primary research from America because of its reliability and because both Ireland and the US have a similar political and cultural lifestyle.

Basic background information

Cannabis is the most commonly used drug in the world, with an estimated 162 million current users, representing 3.9% of the worldwide population¹.

Cannabis use is more common in young people and in countries such as the US, Europe, Australia and New Zealand, though there is evidence to suggest that use is increasing globally².

Cannabis is said to give different types of “highs” to people, depending on the type and strength of the plant used. Some of which being:

Positives: feeling relaxed, feeling happy, increased enjoyment of music and art, more appreciation of the surroundings, forgetting cares and worries, better imagination and visualization, increased creativity, as well as more enjoyment of sexual activity and increased feelings of excitement³.

On the other hand, a number of negative side effects can also be attributed to cannabis use, including:

Negatives: Being forgetful, over sleeping, not getting things done, concentration difficulties, neglecting work or duties, loss of balance or dizziness, problems with performing tasks, and nausea⁴.

¹ United Nations Office on Drugs and Crime, 2006. World Drug report 2006. New York: United Nations.

² Hall, W and L. Degenhardt, 2009 Adverse health effects on non-medical cannabis use. Lancet, 374: 1383-1391

³ Hammersley R, Leon V (2006). Patterns of cannabis use and positive and negative experiences of use amongst university students.

⁴ Ibid

Chapter One:

Literature Review

What is Cannabis?

The hemp plant is said to contain over 450 different substances. Current research indicates only two of these substances are responsible for its intoxicating effect. Researcher's best understand these substances to be THC (delta-9-tetrahydrocannabinol) and Cannabidiol (CBD). They activate the two receptors in the body CB1 and CB2. Whilst the CB1 receptor in the central nervous system influences perception, the CB2 receptor in the tissue plays a crucial role in inhibiting inflammation⁵.

Cannabis can be defined as a genus of flowering plants. It can be broken up into three different species:

Cannabis Sativa

Cannabis Indica

Cannabis Ruderalis

All three species can be inter-bred freely, but Cannabis Ruderalis is rarely cultivated for its THC or CBD levels, so for the sake of this research project I will mainly be focusing on Cannabis Sativa, Cannabis Indica and a hybrid of both the Sativa and Indica breeds.

Cannabis Sativa⁶

Cannabis Sativa is classified as an annual herbaceous plant and a member of the Cannabaceae family.

They are a tall, outdoor plants that can grow up to 25 metres in height and are usually grown in warm to temperate regions around the world, but were originally native to the caucusus region of Eastern Europe, India, and Iran.

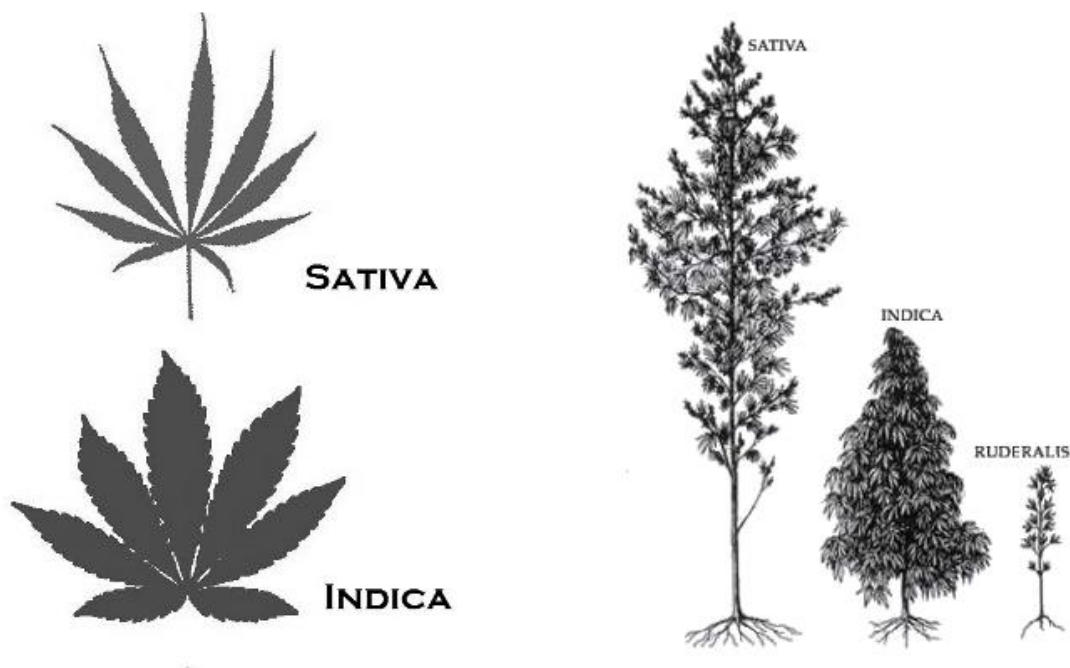
Although the plants may be different in appearance, it should be noted that Cannabis Sativa and Cannabis Indica are biologically the same plant. The name Indica refers to a geographical area in which the plant is grown.

⁵ Science Daily, 22 July 2008, ETH Zurich/Swiss Federal Institute of Technology. "Why Cannabis Stems Inflammation." <www.sciencedaily.com/releases/2008/07/080720222549.htm>.

⁶ Thomas Nordegren, 1 Jan 2002, The A-Z Encyclopedia of Alcohol and Drug Abuse, pg153, Universal-Publishers.

Cannabis Indica⁷

Cannabis Indica Is classified as a putative specie annual plant and a member of the Cannabaceae family. They are short but broad, indoor or outdoor plants. Its origin is said to come from Central Asia and the Middle East, the word Indica is Greek for India which helps to highlight its Asian background. The plants ability to be grown indoors means you can now find it in most places around the world.



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⁷ Ibid

⁸ <http://www.leafscience.com/2014/06/19/indica-vs-sativa-understanding-differences/>

Sexes of the Plant

Cannabis seeds are sexless. They grow into a female or male plant. Saying that genes can pass on from the mother plant that can influence how the seeds are likely to develop.

Feminized cannabis seeds are genetically modified to produce only female plants.

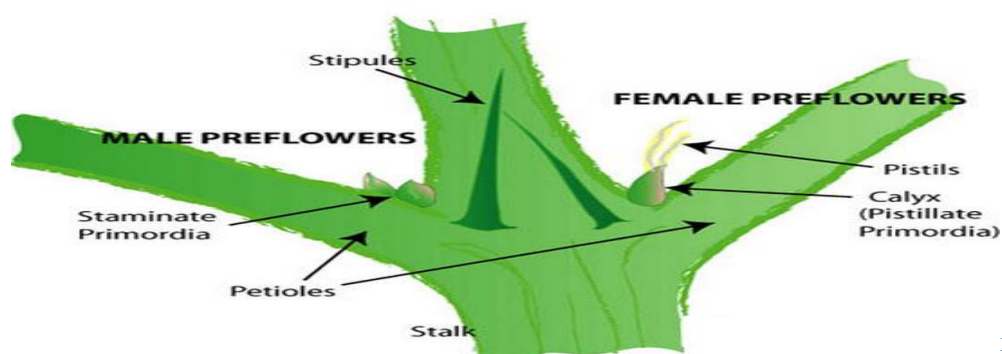
➤ Female Plants⁹

Female Plants have two very different roles to play, the first role involves producing the seeds needed to grow more plants this only starts to happen after the plant has been pollinated by either a male or hermaphrodite plant.

The second role for female plants is called Sinsemilla, it is where they grow large cannabinoid-rich buds while without seed, it is this version of the female plant that is widely used for recreational use of the plant because of the large buds it produces and the high levels of THC it can reach.

➤ Male Plants¹⁰

This type of plant produces very low levels of THC and practically no buds. Its main function is to pollinate the female plant, which will stop the female plant from producing THC and instead produce seeds which can be used for breeding, they are generally introduced into the grow area when a female plant reaches maturity and then removed and destroyed after pollination occurs.



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⁹ Leslie L. Iversen, *The Science of Marijuana*, pg 7, Oxford University Press, 6 Nov 2007

¹⁰ Jorge Cervantes, *Indoor Marijuana Horticulture* - Page 284, Van Patten Publishing, 2002

¹¹ <http://howtogrowmarijuana.com/how-to-grow-marijuana-outdoors/>

Functions of the Plant

Throughout recent history all parts of the plant have had a function in society. This can be broken down into three separate parts: the seed, the stem and the leaves:

➤ Seed

The seed of the plant has historically been used to create hempseed oil which can be used in cooking, paint, or lacquers. The seed itself has also been used to feed caged birds because of its high nutritional content.

➤ Stem

The stem was used to create hemp because of its high levels of durability and in turn was used to create industrial fibre.

➤ Leaves

The leaves of the Sativa plant are usually used for medical, religious, spirituality or recreational usage. The most common and fastest method of consumption would be smoking but it can also be swallowed and digested.

History of Cannabis

Let me introduce you to The Red Emperor - Shen Nung. He is known as the father of Chinese Medicine and ruled somewhere between 2838 B.C and 2698 B.C. (depending on what historical reference you use.) He is known as being the original author of The Great Herbal (also known as The Pen Ts'ao or The Materia Medica Sutra). This book is viewed as probably the world's oldest pharmacopoeia, and states multiple different herbal based remedies. Marijuana (eating the leaves or in a tea format) is listed as a cure for more than 100 different ailments including gout, rheumatism, malaria, absentmindedness and even balancing out your yin and yang.

The Shu King a book written by Confucius discussing Chinese ancient literature, dates back to around 2350 B.C., he discusses the soil in the province of Shantung "*whitish and rich...with silk, hemp, lead, pine trees and strange stones...*"¹²

In 1972 an ancient burial site that dates back to the Chou dynasty (1122-1249 B.C) in China was discovered¹³. At the site various fragments of cloth, weapons, pieces of Jade, and bronze containers were identified. After a close inspection it was discovered that the clothes were made from hemp, it is said to be the oldest preserved specimen of hemp in history¹⁴.

Although this is the oldest preserved specimen of hemp in history, the use of hemp to make clothes for religious purposes can be traced back to ancient Chinese culture, with it being directly referenced in the Book of Rites (2 B.C) "*it ordained that out of respect for the dead, mourners should not wear clothes made of animal skin but from hemp*"¹⁵

When archaeologists were examining artefacts dating back to the time of the Phrygians (a tribe of Aryans who invaded Turkey around 1000 B.C) they unearthed pieces of fabric containing hemp fibres in the debris of the ancient city of Gordion, which is located near present-day Ankara¹⁶.

¹² James Legge, 1865, Volume 3: The Shu King or the Book of Documents

¹³ Ernest L. Abel 1982, Marijuana: the first twelve thousand years, page 4

¹⁴ *ibid*

¹⁵ H. Li, "The Origin and Use of Cannabis in Eastern Asia: Their Linguistic Cultural Implications," in Cannabis and Culture, ed. V. Rubin (The Hague: Mouton, 1975), p.54.

¹⁶ L. Bellinger, "Textiles from Gordion", Bulletin of the Needle and Bobbin Club 46 (1962): 5-33.

An urn containing marijuana leaves and seeds - unearthed near Berlin, Germany, is believed to date from 500 B.C¹⁷.

Ancient Chinese manuscripts are said to be filled with passages urging the people to plant hemp so that they will have clothes on their back¹⁸.

Chinese monarchs set aside large portions of their land exclusively to make hemp bowstrings, the first agricultural war crop¹⁹.

In 5th century A.D., the author of *In A Handy Guide to Papermaking*, states "*hemp and mulberry... have long been used in worshipping the gods. The business of paper making therefore, is no ignoble calling.*"²⁰

The first time on record that cannabis was described as a possible medical remedy was in a Western medical text dating back to around 50-70 A.D. Pedanius Dioscorides a famous Roman physician, of Greek origin, created the *De Materia Medica*. It became to the West what the *Pen Ts'ao* was to the people of China. It was an encyclopaedia of plants referring to their native habitat and the names they were commonly referred by, it also noted the symptoms and conditions for which the plant might offer medical benefits for.

The book was hailed as one of the most important books ever written, so much so it was translated into nearly every one of the languages of the medieval world. No medical library was said to be complete unless it contained at least one copy of *De Materia Medica* and for the next fifteen centuries it remained an essential guide for all physicians.

The author Dioscorides, attempts to describe cannabis by saying that it "*was not only very useful for manufacturing strong ropes, but the juice of its seeds was also very beneficial in treating earaches and in diminishing sexual desires.*"²¹

¹⁷ Robert P. Walton, *Marijuana, America's New Drug Problem*, p. 17

¹⁸ M.D. Merlin, *Man and Marijuana* (Rutherford, N.J.: Fairleigh Dickenson University Press, 1968), p. 80.

¹⁹ W. Eberland, *The Local Cultures of South and East China* (Leiden: E.J. Brill, 1968), p. 102.)

²⁰ K. Chokoki, *A Handy Guide to Papermaking* (Berkeley: University of California Press, 1948), p. 2.)

²¹ E.L. Abel, *Marihuana: The First Twelve Thousand Years* 2013, pg 32

A famous Greek philosopher and physician in the Roman Empire by the name of Galen, who dates back to around 130-200 AD records that Romans who had money would eat a marijuana-seed dessert, which gave a warm and pleasurable sensation at their banquets. An overindulgence was said to be avoided because it may cause dehydration and impotence. Galen states that he thinks it contains other important properties like analgesia and anti-flatulence. *"If consumed in large amounts it affects the head by sending to it a warm and toxic vapour."*

In the 2nd Century A.D the famous Chinese surgeon Hua T'uo is said to have created one of the first ever anaesthetics, According to researchers that traced the surgeons own biography his anaesthetic was made from cannabis resin and wine²²

Side note: Just for the record modern medicine have now ruled out marijuana's properties being helpful for anaesthetic purposes²³.

One of the earliest known references to cannabis use within Egypt occurs around the 3rd century A.D. when Aurelian, a Roman emperor imposed a large tax on Egyptian cannabis²⁴.

There are different references to cannabis both as a remedy for backache and a delicacy within Greek literature dating all the way back to the fourth century B.C.²⁵

Although in general terms, the ancient Greeks were not aware of the intoxicating properties of the plant, but they still appreciated the amazing quality of its fibre.

As early as the 6th century B.C., Greek merchants had been carrying out a lucrative business transporting cannabis fibre to different ports along the Aegean²⁶.

A seventh-century Chinese physician, Called Meng Shen, said that if anyone wanted to see spirits, he should consume the seeds of cannabis for at least 100 days²⁷.

²² M.S. Julien, "Chirurgie Chinoise - Substance anesthetique employee en Chine, dans le commencement du III siecle de notre ere, pour paralyser momentanement la sensibilite," Comptes Rendus de l'Academie de Sciences, 28 (1894); 195-8

²³ STEVEN J. DICKERSON, Cannabis and its effect on anesthesia, , RN, BSN, Flint, Michigan, December 1980

²⁴ A.C. Johnson, "Roman Egypt", in Economic Survey of Ancient Rome, ed. T Frank (Patterson, N.J.: Pageant Books, 1959), 2: 3.

²⁵ T.F. Bruner, "Marijuana in Ancient Greece and Rome? The Literary Evidence", Bulletin of the History of Medicine, 47 (1973): 344-55.

²⁶ A.J. Warden, The Linen Trade (New York: A.M. Kelley, 1968), p. 43.

²⁷ H. Li, "Hallucinogenic Plants in Chinese Herbals", Journal of Psychedelic Drugs 10 (1978):17-26.

Cannabis has always had a preeminent place within the Tantric religion which evolved in Tibet around the 7th century A.D. out of an amalgam of Buddhism and local religion²⁸.

Cannabis was a very important part of the Tantric religious yoga sex acts that were done in honour of the goddess Kali. During the ritual, about 90 minutes prior to intercourse the members taking part would place a bowl of bhang before them and then utter the mantra: *"Om hrim, O ambrosia-formed goddess who has arisen from ambrosia, who showers ambrosia, bring me ambrosia again and again, bestow occult power and bring my chosen deity to my power."*²⁹

After repeating the mantra they would then drink the potion. Between the sex act and drinking the bhang, a delay was needed to allow the drug time to act so that it would heighten the senses and increase the feeling of oneness with the goddess³⁰.

In the tenth century A.D., physicians from China said cannabis might be useful in the treatment of *"waste diseases and injuries, clears blood and cools temperature, it relieves fluxes; it undoes rheumatism; it discharges pus"*³¹

A Chinese medical text (1578 A.D.) described the use of marijuana to treat vomiting, parasitic infections, and hemorrhage³².

In modern day China cannabis is still used as a folk remedy for dysentery, diarrhoea, and to stimulate a person's appetite.

Knowledge of cannabis spread across Asia through important trading routes like Silk Road, In India one of their lords Lord Shiva became known as Lord of Bhang.

Derived from cannabis, bhang is heavily incorporated into religious rites of Hindu. In the religion, holy men sometimes consume it to *"center their thoughts on the eternal."*³³

²⁸ M.R. Aldrich, "Tantric Cannabis Use in India" Journal of Psychedelic Drugs 9 (1977): 227-33

²⁹ A. Avalon, Tantra of the Great Liberation (New York: Dover, 1972), p. 73.

³⁰ Cf. Agehananda Bharati, The Tantric Tradition (London: Rider and Co., 1965) p. 251

³¹ Li, "Origin and Use", p. 56.

³² Aldrich MR. 1997. "History of therapeutic cannabis," in Cannabis in Medical Practice, Mathre ML, ed. Jefferson, NC: McFarland; Grinspoon L and Bakalar JB.

³³ Raymond Goldberg - 2009 - Drugs Across the Spectrum - Page 50

An early recipe for Bhang:

Cannabis: 220 grains, Almonds: 120 grains, Poppy seed: 120 grains, Pepper: 120 grains, Cucumber seed: 120 grains, Ginger: 40 grains, Cloves: 10 grains, Nutmeg: 10 grains, Caraway seed: 10 grains, Cinnamon: 10 grains, Cardamom: 10 grains, Rosebuds: 60 grains, Sugar: 4 ounces, Milk: 20 ounces - all boiled together.³⁴

Even if you examine Indian folksongs as far back as the 12th century A.D. warriors are said to consume the drink Ganja. Just as modern day soldiers sometimes drink alcohol before going to war, during Medieval India, warriors tended to drink small amounts of bhang or ganja to suppress feelings of panic.

A custom that earned bhang the cognomen of vijaya, "*victorious*" or "*unconquerable*"³⁵.

Professor Mircea Eliade, perhaps the world's foremost authority on the history of religions, has suggested that Zoroaster (A Persian prophet, from around seventh century B.C) may have been a user of bhang and may have relied on its intoxication to bridge the metaphysical gap between heaven and earth³⁶.

³⁴ M.V. Ball, "The Effects of Haschisch Not Due to Cannabis Indica", Therapeutic Gazette, 34 (1910): 777-80.

³⁵ I.C. Chopra and R.N. Chopra, "The Present Position of Hemp Drug Addiction in India", Indian Medical Research Memoirs 31 (1929): 2.

³⁶ M. Eliade, Shamanism (New York: Pantheon Books, 1964), pp. 399-400

Modern History of Cannabis

In the 1890's, the Indian Hemp Drugs Commission was summoned to investigate the use of cannabis use in India. After a major investigation they concluded that hemp was an *“integral part of the culture and religion³⁷”*.

The International Opium Convention was first signed in 1912 during the First International Opium Conference, it became the very first international drug control treaty.

On the international scene, the first notable mention of cannabis was at the Hague Conference in 1912, one of the closing protocols stated:

“The Conference considers it desirable to study the question of Indian hemp from the statistical and scientific point of view, with the object of regulating its abuses, should the necessity thereof be felt, by internal legislation or by an international agreement.³⁸”

The International Opium Convention came into force globally when it was incorporated into the Treaty of Versailles in 1919.

At the Advisory Committee on Traffic in Opium and Other Dangerous Drugs of the League of Nations, in 1923, this resolution was passed:

“With reference to the proposal of the Government of the Union of South Africa that Indian hemp should be treated as one of the habit-forming drugs, the Advisory Committee recommends the Council that, in the first instance, the Governments should be invited to furnish to the League information as to the production and use of, and traffic in, this substance in their territories, together with their observations on the proposal of the Government of the Union of South Africa.³⁹”

³⁷ J.M Campbell “on the religion of hemp” in Indian hemp drugs commission report (Simla, india: 1892-94), 3: 250-2

³⁸ Addendum and Final Protocol of The international Opium Conf., The Hague, 1912, quoted in W. WILLOUGHBY, supra note 50, at 492.

³⁹ ADVISORY Comm. ON TRAFFIC in OPIUM AND OTHER DANGEROUS DRUGs, REPORT To COUNCIL ON THE WORK OF THE SIXTH SESSION (1924), quoted in W. WILLOUGHBY, supra note 50, at 374.

In Geneva at a conference in 1925, an Egyptian by the name of Mr. El Guindy's presented a study on Hashish. In the study he stated:

“The illicit use of hashish is the principal cause of most of the cases of insanity occurring in Egypt. In support of this contention, it may be observed that there are three times as many cases of mental alienation among men as among women, and it is an established fact that men are much more addicted to hashish than women.”⁴⁰”

There is no record of what scientific or medical evidence were used to support the inclusion of cannabis in the Convention. Nevertheless, it was the subject of Chapters IV and V of the 1925 Geneva Convention⁴¹.

In the League of Nations Treaty Series in 1928 they altered the 1925 Geneva Convention to impose restrictions on the export of Cannabis (Indian hemp), although total prohibition wasn't introduced.

In 1961 the convention was again superseded, but this time by the International Single Convention on Narcotic Drugs, which was introduced in an attempt to control global drug use and limit trading. The Convention stopped countries from treating drug addicts by prescribing alternative illegal substances, but instead only allowing medical and scientific uses of drugs. It's important to note, it did not introduce precise drug laws so instead countries had to pass their own legislation that followed the principles of the convention.

⁴⁰ Richard J. Bonnie & Charles H. Whitebread, II - THE FORBIDDEN FRUIT AND THE TREE OF KNOWLEDGE: AN INQUIRY INTO THE LEGAL HISTORY OF AMERICAN MARIJUANA PROHIBITION, Pg. 378

⁴¹ Geneva Convention of 1925, quoted in W.WILLOUGHBY, supra note 50, at 539.

Discovery of the Endocannabinoid System

Right up to the late 1980s, research on cannabis was a rather esoteric field involving only a small number of different scientists from around the world.

Although their efforts were circumscribed by the politicized agenda of the National Institute of Drug Abuse, which subsidized studies designed to prove the deleterious effects of cannabis while blocking inquiry into its potential benefits⁴².

Ironically, instead of discrediting cannabis, the National Institute of Drug Abuse inadvertently facilitated multiple major discoveries about how the human brain works.

These breakthroughs were seen as some of the most important developments in brain chemistry of the 20th century — it created a revolution in medical science and changed the basic understanding of our health and the healing process.

Raphael Mechoulam, the dean of the transnational cannabinoid research community described the breakthrough as *“By using a plant that has been around for thousands of years, we discovered a new physiological system of immense importance,”*

Cannabinoid receptors, which were initially identified by William Devane and Allyn Howlett, turned out to have the most neurotransmitter receptors of any type of receptor in the brain.

Cannabinoid receptors function as subtle sensing devices, tiny vibrating scanners perpetually primed to pick up biochemical cues that flow through fluids surrounding each cell⁴³.

⁴²Martin A.Lee, 2008, The Discovery of the Endocannabinoid System

⁴³ Martin A.Lee, Smoke Signals: A Social History of Marijuana – Medical, Recreational and Scientific Pg. 210

The Endocannabinoid system has two different types of receptors: CB1 and CB2⁴⁴.

- CB1 receptors are in the brain and help to mediate psychoactivity.
- CB2 receptors are in the brain but are also present in the Liver, spleen, heart, bones, kidneys lymph cells, blood vessels, gut, endocrine glands and reproductive organs – all of these receptors is why cannabis is believed to regulate the immune system.

The main reason cannabis is seen as such a versatile medicine is because of how widely dispersed these receptors are all over the brain and body.

Prior to the discovery of the endocannabinoid system, retrograde signalling was known to occur only during the embryonic development of the brain and nervous system⁴⁵.

Endocannabinoid deficits do exist and are heavily associated with a body's ability to adjust to chronic stress - whether the result of drug abuse, genetic factors, environmental toxins, a poor diet or even a lack of exercise. A prolonged exposure to stress can deplete a human's endocannabinoid tone, which will have an adverse impact on multiple physiological processes within the brain and body.

University of Washington neurologist Ethan Russo postulates that "clinical endocannabinoid deficiency" underlies migraines, fibromyalgia, irritable bowel disease, and a cluster of other degenerative conditions, which may respond favourably to cannabinoid therapies⁴⁶.

What Is The Endocannabinoid System?

The endocannabinoid system is an essential part of the biology of life and has historically adapted to environmental change whenever it's had to whether it's for tiny nematodes, sea squirts or any of the vertebrate species. After comparing the cannabinoid receptors in different species genetics, scientists believe the endocannabinoid system evolved in primitive animals more than 600 million years ago.

⁴⁴ <http://www.ukcia.org/research/CannabisTheScientificAndMedicalEvidence.php>

⁴⁵ Roger A. Nicoll and Bradley E. Alger, "The Brain's Own Marijuana," *Scientific American*, December 2004.

⁴⁶ Ethan B. Russo, "Clinical Endocannabinoid Deficiency," *Neuroendocrinology Letters* Nos. , Feb-Apr Vol. 25, 2004

In each tissue, the cannabinoid system completes various different tasks, but the overall goal always remains the same: **homeostasis**.

Homeostasis definition is *“the tendency of a system, especially the physiological system of higher animals, to maintain internal stability, owing to the coordinated response of its parts to any situation or stimulus that would tend to disturb its normal condition or function. Cannabinoids promote homeostasis at every level of biological life, from the sub-cellular, to the organism, and perhaps to the community and beyond⁴⁷”*.

Cannabinoids and Endocannabinoids are usually located at the intersection of various systems all around the body, they allow and improve coordination and communication between multiple different cells.

Cannabinoids can also influence a person's understanding and relationship with their external environment. Socially, the ingestion of cannabinoids clearly alters some aspects of human behaviour, often promoting humour, creativity and sharing.

The study of the endocannabinoid system and cannabinoids is an emerging science but one thing that's unquestioned is that it's essential for health and balance within the human body.

From embryonic implantation on the wall of our mother's uterus, to nursing and growth, to responding to injuries, endocannabinoids help us to survive in a quickly changing and increasingly hostile environment⁴⁸.

⁴⁷ <http://dictionary.reference.com/browse/homeostasis>

⁴⁸ Alistair Thomson - 20 January 2014 - Understanding the Endocannabinoid System

Positives effects of legalising Cannabis

Economic Benefits

Any reasonable Economist would agree that if a cost-benefit analysis on the subject in hand is to be done unmeasurable factors like the enjoyment gained by future users, or even current users who would now be able to get cannabis cheaper, more conveniently, safer and with less worry would have to be considered. But for this part of the research project, I will attempt to establish measurable economic factors that are deemed beneficial based on research conducted world-wide, but with emphasis on primary research from America.

Estimated savings from reduced spending on the criminal justice costs of cannabis law enforcement

According to Harvard economist Jeffrey Miron in his report “The Budgetary Implications Of Marijuana Prohibition”, legalization of Cannabis in America would reduce the need for prosecutorial, judicial, correctional, and police resource spending by approximately \$7.7 billion – \$13.7 billion per year, even though some revenue from court fines and asset forfeitures would be lost. Miron claims his estimates can be verified empirically and his calculations are adjusted for economic inflation and growth in enforcement spending over the past decade⁴⁹.

Projected revenues from additional taxes and streams of income

Tax Revenue

According to the Colorado’s state’s department of revenue, the first year of legal cannabis sales have resulted in nearly \$76 million in tax revenue⁵⁰.

The financial returns from cannabis have been so high, that the state legislatures are discussing giving a rebate back to its constituents.

⁴⁹ Jeffrey A. Miron, June 2005, The Budgetary Implications of Marijuana Prohibition, Visiting Professor of Economics, Department of Economics, Harvard University

⁵⁰ http://www.oregonlive.com/marijuana/index.ssf/2015/02/marijuana_news_colorado_collec.html

A study based in the UK came to the following conclusion:

A regulated market could reduce the government deficit by up to £1.25bn, whilst producing roughly £400m in "net benefit" for the country⁵¹.

In a study in June 1994 by Dale Gieringer, Ph.D. Coordinator, California NORML called "*Economics of Cannabis Legalization (1994) Detailed Analysis of the Benefits of Ending Cannabis Prohibition*" summarised the economic benefits in the following chart:

Excise Taxes	\$2.2 - \$6.4 Billion
Sales Taxes	\$0.2 - \$1.3 Billion
Enforcement Savings	\$6 - \$9 Billion
Hemp Industry	\$6 - \$10 Billion
Others: Spinoff industries, Reduced hard-drug and alcohol abuse	

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Create jobs/cut unemployment

If we look at the research collected from the Colorado job market, we can get a clearer image of how this sector would be influenced.

The Marijuana Industry Group (MIG) estimates that 10,000 workers in the state of Colorado are directly involved with cannabis, with 10% to 20% of them joining the industry since the legal change in stature from medical cannabis to full legislation.

The 10,000 workers equates for roughly 0.5% of the total workforce in Colorado

As of November 2014, Colorado's unemployment rate has dropped by 0.4% to 4.3% in October, the lowest level in more than 6½ years the success of the cannabis legalisation is seen as a major force.

Not only will new jobs be created, and unemployment will be cut because of the availability of these jobs that didn't exist before, new career paths open up to people with previous criminal records.

⁵¹ Mark Bryan, Emilia Del Bono, Stephen Pudney - Licensing and regulation of the cannabis market in England and Wales: Towards a cost-benefit analysis Institute for Social and Economic Research University of Essex

⁵² <http://norml.org/library/item/revenues-from-legalization>

Legalising cannabis creates whole new jobs spreading the scope of what type of people can be employed in the industry.

Collateral sector workers retained by marijuana businesses include: lawyers, accountants, construction workers, landlords, advertisers, consultants, security, insurance, transportation, and indoor growing-supply equipment providers.

Productivity gains from anticipated reductions in the rates of unemployment, employee turnover and absenteeism related to involvement with the criminal justice system

Criminal Records being overturned will open up new career paths for citizens that they previously didn't have access to, less people will be going to jail for cannabis usage reducing employee turnover and reduced court appearances for those who interact with cannabis will reduce work absenteeism.

Value of improvements in family stability and socioeconomic mobility within underprivileged communities, due to the reduction in incarcerations and disqualifying collateral consequences.

Citizens being released from prison, and cannabis consumers no longer being liable to possible criminal sanctions will improve family stability and reduce barriers associated with progressive socioeconomic mobility.

In 2014 Colorado was ranked by Business Insider as the #1 fastest-growing economy among U.S. states⁵³.

Save an industry

The agriculture industry has slowly been dying in recent decades because of improved technology and supermarkets taking advantage of economies of scale, the legalisation of Cannabis has the potential to slow down the decline in the short-term and diversify the industry.

Statistically, Cannabis is now the biggest cash-crop in the world, even in America – it's estimated to be worth more than the wheat (\$7.5 billion) and corn (\$23.3 billion) industry combined, best guesses estimated it at \$35+ billion.

⁵³ Andy Kiersz and Elena Holodny, "Here's How All 50 State Economies Are Doing, Ranked From Slowest To Fastest," Business Insider, August 4, 2014

In the state controlled system the Uruguayan government has implemented, farmers from all over the country are selected to grow cannabis for the state and our paid accordingly.

Reduce cost of national health expenditure

Cannabis is much cheaper than multiple leading pharmaceutical products and could potentially cure various different diseases and ailments (see Health Benefits chapter) before state intervention is needed or equally as important offer to supply a cheaper medicine to diseases that are currently being treated by expensive pharmaceutical products, statistically it also has less side-effects than then the average pharmaceutical product which could further reduce the cost of National Health.

Legalisation of cannabis would also likely reduce the use of alcohol. This is particularly beneficial in Ireland, where the financial cost of alcohol is staggering.

Standard of living

In America which is that some 19 to 32 million people would no longer be treated as criminals and subject to arbitrary arrest, imprisonment, asset forfeiture and other punishment.

This benefit goes way beyond the criminal justice system's costs of enforcing cannabis laws. It is about the ability of those 19 to 32 million users, their families, and friends to live normal lives.

Open and regulated markets are safer than black markets, and our judicial system is clogged enough already with real criminals. Legalising cannabis rids the stigma that a criminal record for possession or use of cannabis may cause.

Reduce pressure on the prison system

Overcrowding in prisons is an issue for most countries, legalising cannabis would reduce the amount of people behind bars by a relatively large percentage, freeing up space and essential capital that is badly needed to maintain the prison system.

Tourism

In The Netherlands, Amsterdam has the legalisation of cannabis to thank for its highly successful tourism industry, although in recent years as franchise-chain coffee shops have start to spread, and serious criminal dealers have made the city there haven, local governments have started to try and change the image of the city.

In Colorado since the legalisation of Cannabis, tourism has been booming:

In 2014 Colorado ski resorts enjoyed a record-breaking season during the winter, with 12.6 million visitors⁵⁴.

While in Denver, 14 million tourists spent an all-time high of \$4 billion⁵⁵.

⁵⁴ Jason Blevins, "Colorado skier visits surge to 12.6M in 2013-14, set new season record," Denver Post, June 12, 2014.

⁵⁵ Jason Blevins, "Denver tourists spend record \$4.1 billion in 2013," Denver Post, June 18, 2014.

Health Benefits of Cannabis

There is currently no existing evidence that anyone has ever died of a cannabis overdose, but this doesn't rule out the possibility of experiencing adverse effects when it is consumed in large doses.

For comparison's sake, alcohol overdoses claim roughly 5,000 deaths per year, in America alone. This is one of the reasons that cannabis is seen as safer than other drugs, like alcohol⁵⁶.

1) General Health Effects

Anti-inflammatory

Cannabinoids from cannabis seem to help the gut regulate bacteria and intestinal function which is essential in fighting inflammatory bowel diseases like Crohn's disease and ulcerative colitis and other inflammatory related diseases like rheumatoid arthritis.

Cannabinoids have been tested in several experimental models of autoimmune disorders such as multiple sclerosis, rheumatoid arthritis, colitis and hepatitis and have been shown to protect the host from the pathogenesis through induction of multiple anti-inflammatory pathways.

- Cannabinoids may also be beneficial in certain types of cancers that are triggered by chronic inflammation. In such instances, cannabinoids can either directly inhibit tumour growth or suppress inflammation and tumour angiogenesis⁵⁷.

Neuro-protective

Chemical compounds found in the plant could help shrink the area of the brain affected by stroke.

Findings confirm that minocycline decreases brain damage caused by TBI and indicate for the first time, and that the activation of CB receptors is required for the neuroprotective actions of this compound⁵⁸.

⁵⁶) Janet E. Joy, Stanley J. Watson, Jr., and John A. Benson, Jr. (1999) MARIJUANA AND MEDICINE: Assessing the Science Base, Editors Division of Neuroscience and Behavioral Health INSTITUTE OF MEDICINE NATIONAL ACADEMY PRESS Washington, D.C.

⁵⁷Prakash Nagarkatti - Future Med Chem. 2009 Oct; 1(7): 1333–1349. Cannabinoids as novel anti-inflammatory drugs

⁵⁸ Ana Belen Lopez-Rodriguez - CB1 and CB2 Cannabinoid Receptor Antagonists Prevent Minocycline-Induced Neuroprotection Following Traumatic Brain Injury in Mice, Cerebral Cortex, Oxford Journals, August 19, 2013

Antipsychotic effects

The University of Cologne in Germany, conducted a study on 39 people with schizophrenia who were hospitalized for a psychotic episode. Nineteen patients were treated with Amisulpride, an antipsychotic medication that is not approved in the U.S., but is similar to other approved drugs.

The remaining 20 patients were given CBD, a substance found in cannabis that is considered responsible for the mellowing or anxiety-reducing effects.

Daniel Piomelli, Ph.D., professor of pharmacology at the University of California-Irvine and a co-author of the study. “Not only was [CBD] as effective as standard antipsychotics, but it was also essentially free of the typical side effects seen with antipsychotic drugs.”

In the latest study, published in the journal *Neuropsychopharmacology*, Dutch and British researchers reviewed more than 66 past studies on CBD and psychosis, and concluded that the compound offers a number of advantages over current drugs.

“Given the high tolerability and superior cost-effectiveness, CBD may prove to be an attractive alternative to current antipsychotic treatment.”

Influence on Sleep

A study compared the sleep patterns of experienced marijuana users on tetrahydrocannabinol (THC) and a placebo. Feinberg reported reduced eye movement activity and less REM sleep in the THC condition. They also reported a REM rebound effect, which is more REM activity, on withdrawal from THC⁵⁹.

The acute effects of cannabis use on sleep appear to be a disruption to the sleep cycle reflecting a reduction in time spent in slow wave sleep and an increase in time spent in REM sleep. When the body is in slow wave sleep the body is in repair mode which may be one of the reasons why cannabis is known to encourage the human body to repair itself.

⁵⁹ Feinberg, I., Jones, R, Walker JM, Cavness, C, March, J. (1975). Effects of high dosage delta-9-tetrahydrocannabinol on sleep patterns in man. *Clin Pharmacol Ther.* 1975; 17(4):458-66.

According to a 2013 study published in *Frontiers in Psychiatry*:

"...Δ9-TetraHydroCannabinol (Δ9THC) stabilizes autonomic output during sleep, reduces spontaneous sleep-disordered breathing, and blocks serotonin-induced exacerbation of sleep apnea⁶⁰." Building off of this, the researchers went on to find that dronabinol, a man-made form of THC, did, in fact, improve sleeping conditions for 17 adults suffering from obstructive sleep apnea without reducing quality of sleep.

2) Disease Related Effects

Multiple- Sclerosis

One of the leading medicines in the fight against Multiple-Sclerosis is Sativex, it is a cannabinoid medicine for the treatment of spasticity. It comprises of THC from the Cannabis Sativa plant.

In a study published in the American Academy of Neurology about Cannabis and multiple sclerosis they concluded:

Cannabis-based medicine is effective in reducing pain and sleep disturbance in patients with multiple sclerosis related central neuropathic pain and is mostly well tolerated⁶¹.

Parkinson's Disease

Recent research from Israel shows that smoking marijuana significantly reduces pain and tremors and improves sleep for Parkinson's disease patients. Particularly impressive was the improved fine motor skills among patients⁶².

⁶⁰ Bharati Prasad, Miodrag G. Radulovacki - Proof of concept trial of dronabinol in obstructive sleep apnea—*Frontiers in Psychiatry*, January 2013

⁶¹David J. Rog, BMBS, Turo J. Nurmikko, PhD, Tim Friede, PhD and Carolyn A. Young, MD - Randomized, controlled trial of cannabis-based medicine in central pain in multiple sclerosis. , *The Official Journal of the American Academy of Neurology*, Neurology September 27, 2005 vol. 65 no. 6 812-819

⁶²Ed Susman - Smoking Pot Eases Tremors in Parkinson's Published: Jun 18, 2013
<http://www.medpagetoday.com/meetingcoverage/mds/39933>

Glaucoma

According to the National Eye Institute cannabis decreases the pressure inside the eye: *"Studies in the early 1970s showed that marijuana, when smoked, lowered intraocular pressure (IOP) in people with normal pressure and those with glaucoma."*⁶³

Asthma

In January 2012, a study published in Journal of the American Medical Association, claimed that cannabis does not damage lung function and might even increase lung capacity.

It also may help reverse the carcinogenic effects of tobacco and improve lung health.

In a study of 5,115 young adults over the course of 20 years, researchers searched for risk factors of heart disease in relation to lung function. Tobacco smokers lost lung function over time, but pot users actually showed an increase in lung capacity⁶⁴.

Research has also indicated it can get rid of an asthma attack by instantly unrestricting the air ventricles.

AIDS

In the journal AIDS Research and Human Retroviruses by a team of researchers at Louisiana State University indicates that a daily regimen of THC may have a significant impact on the progression of HIV.

Researchers say that after delivering a daily dose of THC to monkeys for a period of 17-months, the diseased primates displayed a decrease in damaged immune tissue in the stomach -- a common spot for the infection to occur⁶⁵.

⁶³ <http://uk.businessinsider.com/health-benefits-of-medical-marijuana-2014-4?op=1?r=US#ixzz3SaDLrOz0>

⁶⁴ <https://technical420.com/cannabis-article/19-health-benefits-marijuana>

⁶⁵ <http://gwmac.com/medical-marijuana-hiv-racism/>

Appetite Stimulant

The drug Dronabinol is a man-made form of the active natural substance THC in cannabis. Dronabinol is prescribed by doctors to treat loss of appetite and weight loss in patients with HIV infection.

Nausea and Vomiting

Cannabis can help maintain control of chemotherapy-related nausea and vomiting. In a randomized, double-blind study of 469 adults with advanced cancer and weight loss, patients received 2.5 mg of oral THC twice daily, 800 mg of oral megestrol daily,. Appetite increased by 75% in the megestrol group and weight increased by 11%, compared with a 49% increase in appetite and a 3% increase in weight in the oral THC group after 8 to 11 weeks of treatment⁶⁶.

PTSD

In a recent study, researchers at the University of Haifa in Israel were able to prevent rats from developing post-traumatic stress disorder (PTSD) by treating them with the active compounds in cannabis.

Led by Dr. Irit Akirav from the Department of Psychology, the team used rats because of their similarity to humans in responding to trauma.

People with PTSD — a severe type of anxiety disorder — suffer from symptoms that can be set off by common triggers, also known as trauma reminders.

While PTSD is usually treated after symptoms appear, the team found that dosing rats with cannabinoids following a traumatic event could make them immune to future triggers. Dr. Akirav explained “In other words, cannabis made the effects of trauma reminders ‘disappear’”. The treated rats showed no symptoms of PTSD. But rats that were left untreated did, including impairments in memory extinction, changes in pain sensation and increased panic behaviour.

⁶⁶ Jatoi A, Windschitl HE, Loprinzi CL, et al.: Dronabinol versus megestrol acetate versus combination therapy for cancer-associated anorexia: a North Central Cancer Treatment Group study. *J Clin Oncol* 20 (2): 567-73, 2002.

Pain Relief (particularly nerve, muscle and chronic pain)

Cannabis has been proven to have painkilling properties while lacking the negative physical and psychological effects of legal drugs such as Morphine, Vicodin, and Oxycontin, which are extremely hard on the body, and are also highly addictive.

Epilepsy

In one study using the rat pilocarpine model of epilepsy, they showed that the cannabis extract Δ 9-tetrahydrocannabinol (10 mg/kg) as well as the cannabimimetic, 4,5-dihydro-2-methyl-4(4-morpholinylmethyl)-1-(1-naphthalenyl-carbonyl)-6H-pyrrolo[3,2,1-i,j]quinolin-6-one [R(+)]WIN55,212 (5 mg/kg), completely abolished spontaneous epileptic seizures⁶⁷.

Cancer

At the California Pacific Medical Centre in San Francisco, researchers reported in 2007, that CBD found in cannabis stops cancer from spreading by essentially '*turning off*' the ID-1 gene⁶⁸.

Anxiety

These results suggest that CBD reduces anxiety in SAD and that this is related to its effects on activity in limbic and paralimbic brain areas⁶⁹.

Alzheimer's

A study published in the journal of Molecular Pharmaceutics in 2006, found that THC, can slow the formation of amyloid plaques by blocking the enzyme in the brain that is associated with creating them.

A study based on that journal by the Scripps Research Institute ,led by Kim Janda, found the amyloid plaque that were mentioned in the 2006 journal, are what can kill brain cells and potentially cause Alzheimer's.

⁶⁷Lobe Epilepsy Melisa J. Wallace, Robert E. Blair, Katherine W. Falenski, Billy R. Martin and Robert J. DeLorenzo - The Endogenous Cannabinoid System Regulates Seizure Frequency and Duration in a Model of Temporal JPET October 2003 vol. 307 no. 1 129-137

⁶⁸ McAllister SD1, Christian RT, Horowitz MP, Garcia A, Desprez PY. Mol Cancer Ther. 2007 Nov;6(11):2921-7.) - Cannabidiol as a novel inhibitor of Id-1 gene expression in aggressive breast cancer cells.

⁶⁹ J Psychopharmacol. 2011 Jan;25(1):121-30. doi: 10.1177/0269881110379283. Epub 2010 Sep 9. Neural basis of anxiolytic effects of cannabidiol (CBD) in generalized social anxiety disorder: a preliminary report. Crippa JA1, Derenusson GN, Ferrari TB

Lessens side effects from treating hepatitis C and increases treatment effectiveness.

A study in the European Journal of Gastroenterology in 2006 found that 86% of patients using cannabis successfully completed their hepatitis C treatment, while only 29% of non-smokers went on to complete their treatment, indicating that cannabis can help lessen the treatments side effects.

Cannabis can also improve the treatment's effectiveness: 54% of hepatitis C patients smoking cannabis got their viral levels to a low level and were able to keep them low, while in comparison to only 8% of non-smokers⁷⁰.

Regulate metabolism and control body's reactions to insulin

A study analysed data from more than 4,500 American adults — 579 of whom were current cannabis users. About 2,000 had used cannabis at some stage in their life, while the other 2,000 had never smoked cannabis.

They analysed their body's response to eating sugars: their blood sugar levels when they hadn't eaten in nine hours and their levels of the hormone insulin before and after eating sugar.

They discovered that in general, cannabis users tend to be skinnier, and that their bodies have a healthier response to insulin and sugar.

The study concluded:

We found that cannabis use was associated with lower levels of fasting insulin and HOMA-IR, and smaller waist circumference⁷¹.

⁷⁰ C, Sylvestre, Diana L.a b; Clements, Barry J.b; Malibu, Yvonneb - Cannabis use improves retention and virological outcomes in patients treated for hepatitis European Journal of Gastroenterology & Hepatology: October 2006 - Volume 18 - Issue 10 - pp 1057-1063

⁷¹ Elizabeth A. Penner - The American Journal of Medicine, July 2013 Volume 126, Issue 7, Pages 583–589 The Impact of Marijuana Use on Glucose, Insulin, and Insulin Resistance among US Adults

Negatives of Cannabis

UK Advisory Council on the Misuse of Drugs noted, in its 2005 cannabis review, that the evidence from the various studies *"suggests an association between cannabis use and the development of psychotic symptoms which is consistent between studies and remains after adjustment for confounding factors"*.

The council concluded that the *"evidence supports a causal association between the use of cannabis in adolescence and the later development of schizophrenia"*.

Economic Negatives

Productivity losses from work

The first thing to note is that nobody is advocating smoking cannabis or being high on the job, no more than anyone advocates drinking or being drunk on the job. People are expected to show up for work sober, and employers have always had the right to fire people who fail to meet that basic requirement. The issue, then, is whether smoking cannabis in one's free time impairs one's job performance. Long-term memory loss and "amotivational syndrome" have been alleged, but decades' worth of studies have debunked both of those claims.

The argument can also be claimed, that anyone who would like to smoke on the job, will already be doing so, and that the legality of the drug doesn't affect their decision.

A rise in health care costs including mental health

Health care costs associated with mental health will likely increase as abuse of the drug may lead to increase mental illnesses (see health negatives of cannabis section).

Reduction of learning capacity in students

Considerable evidence suggests that students who smoke marijuana have poorer educational outcomes than their non-smoking peers. For example, a review of 48 relevant studies found marijuana use to be associated with reduced educational attainment (i.e. reduced chances of graduating)⁷².

⁷² Macleod J, Oakes R, Copello A, et al. Psychological and social sequelae of cannabis and other illicit drug use by young people: a systematic review of longitudinal, general population studies. *Lancet*. 2004;363(9421):1579-1588.

A recent analysis using data from three large studies in Australia and New Zealand found that adolescents who used marijuana regularly were significantly less likely than their non-using peers to finish high school or obtain a degree⁷³.

Increases in drugged driving

Anti-cannabis legalisation movements claim drugged driving will increase, but according to The Journal of Law and Economics, cannabis legalisation is actually followed by a 7.2% decrease in traffic fatalities in non-alcohol related accidents.

Traffic fatalities fell 3% in the first year of legal marijuana sales in Colorado, from 481 fatalities in 2013 to 466 fatalities in 2014⁷⁴.

Roadside, we can test only for the presence of marijuana metabolites, not for inebriation. Metabolites can linger in the body for days after the drug's effects wear off — sometimes even for weeks. Because we all metabolize drugs differently (and at different times and under different conditions), all that a positive test tells us is that the driver has smoked pot at some point in the past few days or weeks.

Revenue losses from shifts in law enforcement policies

There is likely to be revenue lost in the process of shifting law enforcement policy to new policies, this initial cost will be caused by inefficiency and lack of standard practise guidelines because of how large a change would be expected to policies e.g new training costs, relocation of jobs, change of hierarchy within the organisational structure, certain units now being deemed obsolete etc.

Immediate and projected expenditures to address the known harms of cannabis use and to implement and enforce policy reforms

Large marketing costs should be expected to ensure the public understand any potential harms cannabis legalisation would bring into society. Children and schools would be the primary target of these campaigns as they would most likely be the segment of society with the biggest risk factor.

⁷³ Silins E, Horwood LJ, Patton GC, et al. Young adult sequelae of adolescent cannabis use: an integrative analysis. *Lancet Psychiatry*. 2014;1(4):286-293.

⁷⁴ "Fatal Crash Data," Colorado Department of Safety, <https://www.codot.gov/library/traffic/traffic-manualsguidelines/safety-crash-data/fatal-crash-data-city-county>.

Breaking International Treaties

The International Narcotics Control Board believes that any international treaty regarding cannabis should be interpreted to mean that states must prosecute drug possession offenses to the letter of the law.

They say the treaties clearly state that controlled substances should be restricted to medical and scientific uses.

Health Negatives of Cannabis

The main negatives of cannabis to a person's health are mostly seen as a psychiatric risk. The level of risk varies depending on the dose of the drug and inborn genetic vulnerability. It's also important to note most studies are based on heavy use of the substance.

Addiction

General opposition to cannabis with regards to addiction is generally comprised of:

- 1) That whatever potential medical value cannabis has to offer, is already fulfilled by other, equally effective drugs on the market.
- 2) Cannabis is highly addictive.

In terms of the 1st argument, the market is already full of drugs that do the same job as other products on the market, and they rarely have trouble receiving approval. If you look at Schedule 2 amphetamines and opiates, it proves that potential addiction is quite obviously not a basis for the different legal classification of certain drugs.

In terms of the 2nd argument, certain observational studies suggest that 1 in 9 people who smoke cannabis regularly may become dependent on it, but these studies have also been debunked by other observational studies which would indicate that cannabis being addictive or not isn't as straight forward as some studies would indicate.

A particular element for concern in terms of addiction could be based on the fact that the average THC concentration had risen from 4% to 7% in Europe. This increased level of potency might potentially accelerate the development of dependence⁷⁵.

Heart Problems

It is generally accepted in medical circles that cannabis use has no link to long-term cardiovascular problems for the average person.

Although one particular study claimed, in the hour after having smoking cannabis, the risk of a heart attack goes up five fold. This link is based on the fact that cannabis is known to increase the heart-rate of a user just after inhalation.

⁷⁵ Crippa JA, et al. "Cannabis and Anxiety: A Critical Review of the Evidence," Human Psychopharmacology (Oct. 2009): Vol. 24, No. 7, pp. 515–23.

Mental Health

Brain Development

A recent study, published in the Journal of Neuroscience in April 2014, found structural changes within brains of 18-25 year olds who smoked pot at minimum once a week, compared to people of the same age who have little or no history of cannabis use.

Using an MRI machine, researchers from North-western University detected minor alterations in the brain regions associated with emotion and reward processing. They found the heavier the cannabis use, the greater the abnormalities in both brain regions.

Other research has shown thinking, working memory, executive function (umbrella term for mental processes involved in organizing, decision-making, planning and meeting long-term goals) are all influenced in some way while under the influence of Cannabis.

A long-term study conducted in New Zealand followed 1,037 people born in Dunedin during 1972-73, from birth to early forties.

In a 2012 report, researchers from Duke University analysed the overall data from the Dunedin study and found that the earlier and more frequently a person smoked pot, the greater the loss of intelligence by age 38. Compared to their IQs measured at age 13, people who had started using cannabis as teens and maintained a daily pot habit into adulthood had, on average, a six-point drop in IQ.

A journal in PNAS found that individuals who began using cannabis heavily as adults did not show similar losses in IQ, but quitting pot did not seem to restore intellectual functioning in those who had been chronic pot users as teenagers.

Effects on Short-Term Memory

Studies have consistently demonstrated significant impairment of short-term memory for number sequences or verbal recall, although not for major events or factual elements of narratives. The effects of cannabis are usually subtle, and although statistically significant, the magnitude of any impairment tends to be dose-related and subject to tolerance of the drug's effects, on the personal characteristics of the user, and on the circumstances in which the drug is taken.

Cannabis may increase the likelihood of minor errors of time perception, verbal recall and similar factors, but not affect recall of important actions observed or experiences undertaken. In a regular user of cannabis, acute intoxication by the drug would have little effect on performance.

Cannabinoids appear to disrupt short-term memory by interfering with the filtering of information, such that a greater volume of information reaches consciousness, overwhelming the ability to store, or prioritise such information for storage in memory.

Psychosis

Several large observational studies suggest that using cannabis in the early teenage years may increase the risk of developing psychosis.

A study of more than 50,000 young Swedish soldiers found that those who had smoked cannabis at least once were more than twice as likely to develop schizophrenia as those who didn't smoke cannabis. The heaviest users (who said they had used the drug more than 50 times) were six times as likely to develop schizophrenia as the non-smokers⁷⁶.

Schizophrenia

There have been various different studies on the impact of cannabis use on schizophrenia and psychotic disorders. Findings from a 10-month prospective study that was printed in the *Psychol. Med.*, 37: 927-934 found that in those with a diagnosis of schizophrenia, cannabis use increased the severity of psychosis⁷⁷.

Another study found increased hallucinations and grandiosity in patients using cannabis⁷⁸. Half of all first episode psychosis patients have used cannabis⁷⁹ and the majority begin using cannabis before the emergence of their psychotic symptoms⁸⁰.

⁷⁶ <http://www.health.harvard.edu/mind-and-mood/medical-marijuana-and-the-mind>

⁷⁷ Degenhardt, L., C. Tennant, S. Gilmour, D. Schofield, L. Nash, W. Hall and D. McKay, 2007. The temporal dynamics of relationships between cannabis, psychosis and depression among young adults with psychotic disorders

⁷⁸ Katz, G., R. Durst, E. Shufman, R. Bar-Hamburger and L. Grunhaus, 2010. Cannabis abuse and severity of psychotic and affective disorders in Israeli psychiatric inpatients. *Comp. Psychiatry*, 51: 37-41.

⁷⁹ Barnett, J.H., U. Werners, S.M. Secher, K.E. Hill and R. Brazil et al., 2007. Substance use in a population-based clinic sample of people with first-episode psychosis. *Br. J. Psychiatry*, 190: 515-520.

⁸⁰ Sevy, S., D.G. Robinson, B. Napolitano, R.C. Patel and H. Gunduz-Bruce et al., 2010. Are cannabis use disorders associated with an earlier age at onset of psychosis: A study in first episode schizophrenia.

Cannabis use may also lead to a poorer long term prognosis, as stopping cannabis use is associated with better functioning and fewer negative symptoms⁸¹.

Anxiety

There are studies that have reported that about 20%-30% of recreational smokers may experience panic attacks and intense anxiety after smoking cannabis. The most vulnerable being those who had never used cannabis before⁸².

The amount of THC matters. At low doses and in balance with CBD, THC is usually sedating but at higher unbalanced doses cannabis can induce episodes of anxiety.

A study found that those who used cannabis frequently had the highest levels of anxiety⁸³.

One study sampled more than fourteen thousand participants from the general population and found that anxiety disorders were present in 18% of heavy cannabis users compared to 8.7% of non-users and more frequent risk further increased the risk⁸⁴.

A longitudinal study found that frequent cannabis use in adolescence was related to an elevated likelihood of anxiety disorders in young adulthood. This relationship was particularly strong for those who began using cannabis before the age of 15⁸⁵.

Another study found that weekly use in adolescence increased the risk of later anxiety by two fold and daily use increased the risk fivefold⁸⁶.

⁸¹ Gonzalez-Pinto, A., S. Alberich, S. Barbeito, M. Gutierrez and P. Vega et al., 2009. Cannabis and first-episode psychosis: different long-term outcomes depending on continued or discontinued use. *Schizophrenia Bull.*, 10.1093/schbul/sbp126

⁸² <http://www.health.harvard.edu/mind-and-mood/medical-marijuana-and-the-mind>

⁸³ Bonn-Miller, M.O., M.J. Zvolensky, A. Bernstein and T.R. Stickle, 2008. Marijuana coping motives interact with marijuana use frequency to predict anxious arousal, panic related catastrophic thinking and worry among current marijuana use among current marijuana users. *Depress Anxiety*, 25: 862-873.

⁸⁴ Cheung, J.T.W., R.E. Mann, A. Ialomiteanu, G. Stoduto, V. Chan, K. Ala-Leppilampi and J. Rehm, 2010. Anxiety and mood disorders and cannabis use. *Am. J. Drug Alcohol. Abuse*, 36: 118-122.

⁸⁵ Hayatbakhsh, M.R., J.M. Najman, K. Jamrozik, A.A. Mamun, R. Alati and W. Bor, 2007. Cannabis and anxiety and depression in young adults: A large prospective study. *J. Am. Acad. Child Adolesc. Psychiatry*, 46: 408-417.

⁸⁶ Patton, G.C., C. Coffey, J.B. Carlin, L. Degenhardt, M. Lynskey and W. Hall, 2002. Cannabis use and mental health in young people: Cohort study. *BMJ*, 325: 1195-1198.

Depression

A number of studies suggest that cannabis use may increase depressive symptoms and the risk of diagnosed depression. A study of more than fourteen thousand adults from the general population found that diagnosed depression was more common in heavy cannabis users compared to non-users⁸⁷.

Another study found that in those with no baseline affective disorders, cannabis use predicted major depression 3 years later⁸⁸. Another study reported that adolescents who use cannabis are more likely to have somatic complaints accompanying their depressive symptoms⁸⁹.

A study found that cannabis use in childhood, adolescence or young adulthood increased the risk of experiencing a major depressive disorder at age 27⁹⁰. A study found that 24% of cannabis users had experienced an episode of major depression by age 40, compared to just 15% of non-users⁹¹.

⁸⁷ Cheung, J.T.W., R.E. Mann, A. Ialomiteanu, G. Stoduto, V. Chan, K. Ala-Leppilampi and J. Rehm, 2010. Anxiety and mood disorders and cannabis use. *Am. J. Drug Alcohol. Abuse*, 36: 118-122.

⁸⁸ Van Laar, M., S. van Dorsselaer, K. Monshouwer and R. de Graaf, 2007. Does cannabis use predict the first incidence of mood and anxiety disorders in the adult population. *Addiction*, 102: 1251-1260.

⁸⁹ Rey, J.M., M.G. Sawyer, B. Raphael, G.C. Patton and M. Lynskey, 2002. Mental Health of teenagers who use cannabis: Results on an Australian study. *Br. J. Psychiatry*, 180: 216-221.

⁹⁰ Brook, D.W., J.S. Brook, C. Zhang, P. Cohen and M. Whiteman, 2002. Drug use and the risk of major depressive disorder, alcohol dependence and substance use disorders. *Arch. Genet. Psychiatry*, 59: 1039-1044.

⁹¹ Chen, C.Y., F.A. Wagner and J.C. Anthony, 2002. Marijuana use and the risk of major depressive episode: epidemiological evidence from the United States National Comorbidity Survey. *Soc. Psychiatry Psychiatr. Epidemiol.*, 37: 199-206.

Why Was Cannabis Made Illegal?

The War on Alcohol (and in turn on Narcotics)

Cannabis was for all purposes legal in America. However, around the start of the 20th century, the theory of alcohol prohibition started to develop. The restrictive public policy with regards to cannabis was first initiated around the late twenties and early thirties, and has continued to the present day. It's important to note the war on cannabis is not an isolated phenomenon. At every level of the development of the nation's marijuana policy, the process and public perception has been heavily influenced by multiple other social issues that have stemmed from broader diverse cultural patterns. The idea of alcohol prohibition was based on acceptable reasoning that in general its consumption led to violence, crime and theft. The entire inception of an anti-cannabis policy was only implemented because of the damage alcohol was having on American society, because of this initial and bizarre link between the two, cannabis's fate in the courts have always been inseparably linked with the prohibition experiences.

In an essay for the New York Times in 1970, famous American writer Gore Vidal wrote, "*No one in Washington today recalls what happened during the years alcohol was forbidden to the people by a Congress that thought it had a divine mission to stamp out Demon Rum and so launched the greatest crime wave in the country's history, caused thousands of deaths from bad alcohol, and created a general (and persisting) contempt for the laws of the United States*⁹²."

If you look at the general structure of both the alcohol prohibition and narcotic prohibition movements, there are obvious similarities. Initially they were both directed against the evils of possible large scale use and then later down the line changed their agenda to be against all use. Even the rhetoric was practically the same: These euphoricants guarantee pauperism, crime and insanity. Each movement began on state level and then picked up enough pace to secure significant congressional action. Finally and expectantly both movements ultimately got exactly what they were looking for within the judicial system.

⁹² Vidal. Gore, New York Times, September 26, 1970 Drugs: Case for Legalizing Marijuana

Even though major similarities existed between the movements, three obvious and key differences can be identified.

- 1) The prohibition movement was in the public eye and a key issue of public debate; the movement against narcotics was not.
- 2) Prohibition legislation was created by a highly organized nationwide lobby; narcotics legislation was mostly ad hoc.
- 3) Prohibition legislation was designed to stop known evils that were created by alcohol abuse; narcotics legislation was not based on any scientific or medical research and was largely anticipatory.

The Harrison Narcotic Act in 1914 was seen as being mostly anticipatory, the Government witnessed the damage alcohol was doing so they decided to lump all known narcotics into the same bundle (cocaine, heroin, cannabis, morphine, and opium) and make them illegal before they can cause any real damage.

The government tried to justify their actions of placing cannabis in The Harrison Narcotic Act by starting a propaganda campaign against cannabis itself.

The Chief Detective of the Los Angeles Police Department Joseph F. Taylor stated:

“In the past we have had officers of this department shot and killed by Marihuana addicts and have traced the act of murder directly to the influence of Marihuana, with no other motive. Numerous assaults have been made upon officers and citizens with intent to kill by Marihuana addicts which were directly traceable to the influence of Marihuana.”⁹³

These five drugs were included in the Narcotics Act was based on two different reasons:

- 1) Heroin, Cocaine and Morphine because of high levels of addiction among war veterans.
- 2) Racial stereo-typing:
 - Opium because of its link with Asian immigrants on the west coast of America.
 - Cannabis became known as “*Mexican opium*” that Mexican immigrants were using down South.

⁹³ Hayes & Bowery, Marihuana, 23 J. CRIM. L. & CRIMINOLOGY (1932). pg1088

Addiction to Heroin, Cocaine and Morphine (and occasionally Opium) only became a problem because of their over prescription as pain medication. They were unlabelled because of lack of legislation, so people didn't know how much they could take or even know exactly what they were taking.

Cannabis use must be prohibited to keep addicts from switching to it as a substitute for the drugs which had become much more difficult to obtain after the enactment of the Harrison Act, and for alcohol after Prohibition⁹⁴.

Although cannabis was included in the Harrison Act there was no "national" public policy regarding it until the Uniform Narcotic Drug Act in 1932 and the passage of the Marihuana Tax Act in 1937.

⁹⁴ Simon Carlton, From Opium to Hasheesh, Scientific American, Nov. 1921, at 14-15

Different types of legislation for Cannabis:

A case study of Portugal, Uruguay, The Netherlands and Colorado

Portugal

In the 90's, Portugal realised its war on drugs was failing miserably, yet was still a massive financial burden on the Country. As a result, the government decided to change its drug laws in 2001 from being completely illegal to a new model of decriminalisation. This meant that all cases of personal drug possession for all hard and soft drugs, up to 10 days of personal supply, were now seen as a misdemeanour rather than a criminal offense. The reason it became a misdemeanour instead of completely legal was just to ensure the new legislation didn't break any international treaties. The country realised that the average cannabis user was never the source of any social problems, so keeping it illegal could not be justified. Hard drug users were a different issue, their drug habits did cause wider problems for society and acute problems for many of the users themselves as well as their loved ones. Under this model dealers could still be prosecuted.

Overnight there were drastic changes. Courts were now free from the needless daily ritual of criminalising perfectly decent citizens for petty drug offences⁹⁵. There was instantly less restraint on police resources, available manpower increased while costs decreased. Jail overcrowding became less of a problem. The police were now able to focus on career criminals rather than recreational drug users. Treatment centres found that hard drug users were more likely to ask for help now. This model was designed to view drug addiction as a disease rather than a criminal offense, the newly freed up funds were being used to aggressively targeted drug addicts with therapy rather than punishment. Drug users in Portugal are forced to attend classes aimed at getting them back on the straight and narrow.

⁹⁵ <http://www.dutch-passion.nl/en/news-and-development/portugals-drug-laws-a-new-european-model/>

Uruguay

Uruguay went down a different road than Portugal regarding drugs. They only changed their policy on cannabis, but instead of introducing decriminalisation they became the first country in the world to make cannabis completely legal, with a few restrictions to regulate the market (this is the road Portugal are planning to go down next, due to the obvious success the change in legislation has had on the nation).

By making cannabis legal it means that consumers would not face any penalty at all. However, more importantly, the main difference between decriminalising cannabis and making it completely legal is the influence it has on the supply side of the business—cultivation, transportation and retailing all become legal, helping to fight the battle against organised crime.

Uruguay's long term plan is to include a system of user registry, a tax, and quality control, all coordinated through the existing agency that monitors tobacco, alcohol, and pharmaceuticals⁹⁶. It's estimated that with current 70,000 cannabis users, the country will have to produce more than 5,000 pounds each month⁹⁷

They believe regulating the market is essential, because if the market was allowed to be a free-market its goal would be to maximise sales, which Uruguay don't want to do, they just want to take the power away from organised crime.

Possession for personal use is not penalized, although today's law does not specify quantity for "*personal amount*"⁹⁸.

The supply would be state regulated and foreigners would not be allowed to purchase cannabis, THC levels must be less than 15% and each consumer can buy up to 40 grams a month but only after they register with a database run by the Ministry of Health.

In August 2014 Uruguay legalized growing up to six plants at home, and in October 2014 the Government began registering growers' clubs, who will be allowed to grow a maximum of 99 cannabis plants annually⁹⁹.

⁹⁶ "Marijuana in the Americas: Legalize Me, Decriminalize Me, Prohibit Me". *Revolución Pan Americana*. 30 July 2012.

⁹⁷ Cave, Damien (30 July 2012). "Uruguay Considers Legalizing Marijuana to Stop Traffickers". *The New York Times*.

⁹⁸ "Cannabis South American laws". *Erowid.org*. March 1995.

⁹⁹ "Uruguay cannabis growers' clubs: Registration begins". *BBC News*. 31 October 2014.

The Netherlands

The Netherlands is known for its lenient view on drug consumption especially regarding its cannabis policy, but it's important to understand technically all drugs are still forbidden in the Netherlands.

In 1976 they introduced a new policy that effectively decriminalised the personal possession of up to 5 grams of cannabis, but only for adults. The policy also tolerated the existence of outlets for cannabis sales, called 'coffee shops'.

The coffee shops are allowed to operate under strict licensing conditions, which include age-access restrictions, a ban on sales of other drugs (including alcohol), and controls on the shops' external appearance, signage and marketing.

The approach has been broadly successful:

Although the use of cannabis in the Netherlands has risen since 1976, this has been in line with wider European trends.

Annually, the coffee shops generate an estimated 400 million euros in tax – money that would otherwise have accrued to criminal profiteers¹⁰⁰.

Drug policy in the Netherlands is based on the two principles that drug use is a health issue, not a criminal issue, and that there is a distinction between hard and soft drugs.

Rather than seeing an inexorable psychopharmacological link between cannabis and hard drugs, the Dutch hypothesized that the link was sociological, and they sought a way to "separate the markets" to keep soft drug users out of contact with hard drug addicts and dealers¹⁰¹.

There is a penalty up to a maximum of 4 years for importing or exporting large quantities of cannabis. The money saved on not having to prosecute personal cannabis use has allowed the Netherlands to invest more in prevention of drug addiction and available treatment.

¹⁰⁰ Grund, J-P. and Breeksema, J. (2013) Coffee Shops and Compromise: Separated Illicit Drug Markets in the Netherlands, Global Drug Policy Program, Open Society Foundations, p.52.

¹⁰¹ What Can We Learn from the Dutch Cannabis Coffeeshop Experience? Robert J. MacCoun WR-768-RC July 2010

The Netherlands spends significantly more per capita than all other countries in the EU on drug law enforcement. 75% of drug-related public spending is on law enforcement. Drug use remains at average Western European levels and slightly lower than in English speaking countries.

The Dutch policy is to keep anti-drug laws on the books while restricting enforcement of certain offenses in an attempt to reduce harm and not break any international drug treaties. They do this to avoid complications with the International Narcotics Board.

Colorado

As of January 1st 2014, Colorado has officially moved from a medical marijuana system to full legalization. Thanks to the passing of Colorado Amendment 64, Colorado's constitution now outlines a state-wide drug policy for cannabis. The measure passed on November 6, 2012, is now enacted as Article 18, section 16 of the state constitution, the law addresses "personal use and regulation of cannabis".

Adults aged 21 or older can grow up to six cannabis plants (with no more than half being mature flowering plants) privately in a locked space, legally possess all cannabis from the plants they grow (as long as it stays where it was grown) legally possess up to one ounce of cannabis while traveling, and give as a gift up to one ounce to other citizens 21 years of age or older. Consumption is permitted in a manner similar to alcohol. Consumption in public remains illegal. Visitors and tourists in Colorado can use and purchase cannabis, but cannot take it out of the state.

Anti-legalisation groups warned that Colorado would become a lawless wasteland but all data collected since its full legalisation point in the opposite direction.

According to the Drug Policy Alliance, the available data indicates that the state has collected around \$70 million in tax revenue, violent crime in Denver decreased for 11 straight months and Roughly 10,000 jobs have been created, helping economy growth.

Surprisingly, cannabis use among teenagers has actually dropped in Colorado and traffic data has proven that traffic fatalities have declined since legalisation was introduced.

The state has one of the lowest unemployment rates in the States – 6% – which is also the lowest rate it has been at since the recession started.

Literature Review Conclusion

After analysing all of the above literature, I believe the pros of legalising cannabis heavily outweighs the negatives. I will now apply what I have learned in my literature review and use that knowledge to explain why I think Ireland should legalise cannabis.

Chapter Two:

Contextualisation

History of Cannabis in Ireland

Cannabis was first introduced to Ireland by Dr. William O'Shaunessy. He was sent on a mission to Calcutta, India to discover new medicine, and it was there where he came across cannabis in 1839. At the time it was seen as an anti-compulsive remedy and hailed as a wonder drug, so he brought it back to Ireland to introduce it to the medical and scientific community.

In the late 1800's and 1900's, interest in cannabis started to increase in the UK but not in Ireland, interest had stagnated since O'Shaunessy's discovery of the drug.

Internationally, Ireland signed up to both the 1961 and 1971 UN drug conventions which were aimed at making a number of drugs, including cannabis use, illegal world-wide. At that point in time cannabis use was extremely rare in Ireland and first became illegal under the Misuse of Drugs Act of 1977 that was heavily influenced by the American and UK Drug Acts. It was made a Schedule 1 drug, right beside heroin.

In the 1980's Ireland became a back door to smuggling cannabis in to Britain because of its close proximity to the areas of demand like Manchester (which had a thriving drug and music scene) and low level security ports located on the east coast of Ireland.

In 1984 the Misuse of Drugs Act redefined the definition of cannabis under the Principal Act.

Even though cannabis was illegal during the 1980's, use of the substance began to rise. This rise can be attributed with the fact criminals in Ireland were now facilitating in the trafficking of cannabis to England, which increased supply, access and knowledge of cannabis within the borders of Ireland.

The Gardai attempt to stop the drugs trade had mostly focused on areas of import, for example, customs and national borders. Then grow-houses began to pop up around Ireland in the late 80's/early 90's to cut the cost of importing the product and maximise profit. These new grow-houses and the increase of drugs in general led to the creation of The Garda National Drugs Unit (GNDU) in 1995.

Cannabis use in Ireland has continued to steadily increase in the 90's, 00's and 10's and is currently Ireland's most popular drug because of its euphoric effect and multiple medical benefits.

Current Day Legislation - Ireland

The current legislation in Ireland for cannabis or cannabis resin depends on whether the court believes it was for personal use or supply for sale and distribution.

Possession:

According to the Misuse of Drugs Acts, anyone that is found in possession of cannabis or cannabis resin is seen as being guilty of an offence. If it's a first offence, a court can impose a class D fine based on a summary conviction from a District Court. The fine can be up to €1,270.

For a 2nd offence, a class D fine may be imposed again. On conviction on indictment, a fine of up to €2,540 can be imposed.

For a 3rd offence, a class C fine can be imposed along with a potential prison sentence of up to 12 months. On conviction on indictment, the court may decide on an appropriate fine and/or a prison sentence of up to 3 years.

Growing cannabis plants:

It is an offence to grow cannabis plants and on summary conviction for this offence, you could be liable for a class C fine and/or a prison sentence of up to 12 months.

Supply for sale and distribution:

Anyone found guilty of this offence is liable to a class C fine. On a summary conviction in a District Court, a fine and/or a prison term of up to 12 months can be given. Where the market value of the drugs is €13,000 or more, the person convicted is liable for a minimum sentence of 10 years. This does not apply, however, where the court is satisfied there are exceptional circumstances. Similar penalties apply to someone convicted of importing drugs with a value of €13,000 or more.

Cannabis in Ireland Today

In the Ireland and Northern Ireland Drug Prevalence Survey 2010/2011 it was concluded that *“1 in 4 Irish adults have used Cannabis¹⁰²”*.

Phillip Ryan of the Irish Independent wrote an article on 26/01/2015 stating that *“a third of people believe cannabis should be legalised¹⁰³”*

NORML (the American organisation, which drove the campaigns to legalise marijuana in Colorado and Washington states) launched in Ireland in 2013 to try help legalise cannabis.

The same year, Luke Ming Flanagan put forward the Cannabis Bill 2013, which, if it had passed, would have made Ireland the first country in Europe to vote to legalise Cannabis. The bill was voted out 111 – 8¹⁰⁴.

In 2014, Gareth McGovern one of Irelands leading addiction specialists says, after years of treating Irish addicts, that cannabis is *“not physically addictive”*.

UCD Professor of Economics - Ronald Davies. Speaking at the 2014 Think Big event suggested a conservative estimate, that cannabis legalisation could be worth around €560 million a year to the Irish Economy¹⁰⁵.

At the beginning of 2015, NUIG students voted whether their student union should *“actively supports the legalisation and regulation of the cultivation, sale and possession of cannabis for adults age 18 and over¹⁰⁶”* Of the 2,634 voters, 68% voted yes and 32% voted no. This result now gives the SU a mandate to support legalisation, making it the first SU in Europe to take such a stance.

Ciarán Maher, of the university’s Students for Sensible Drug Policy Society said *“our current legal system allows this very profitable industry to be controlled by criminal gangs, while needlessly criminalising normal people¹⁰⁷”*.

¹⁰² <http://www.independent.ie/irish-news/one-in-four-have-used-cannabis-with-education-a-factor-29389458.html>

¹⁰³ <http://www.independent.ie/irish-news/one-in-three-wants-cannabis-legalised-poll-says-30936624.html>

¹⁰⁴ <http://www.rte.ie/news/2013/1106/485090-cannabis-dail/>

¹⁰⁵ <https://irishcannabis.wordpress.com/2015/03/07/regulated-cannabis-revenue-potential/>

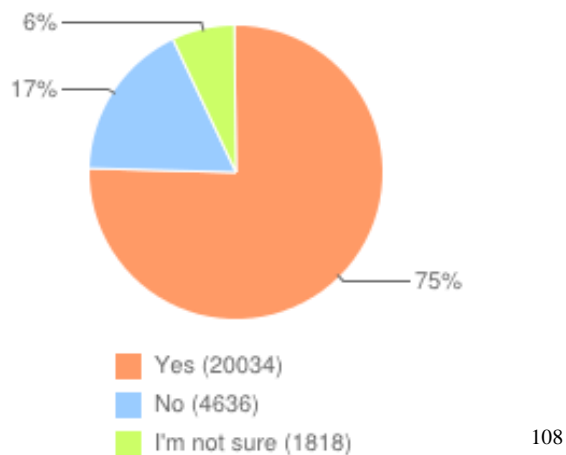
¹⁰⁶ <http://www.su.nuigalway.ie/component/k2/itemlist/tag/Cannabis%20legalisation>

¹⁰⁷ <http://www.galwayindependent.com/20150306/news/nui-galway-students-back-cannabis-legalisation-551836.html>

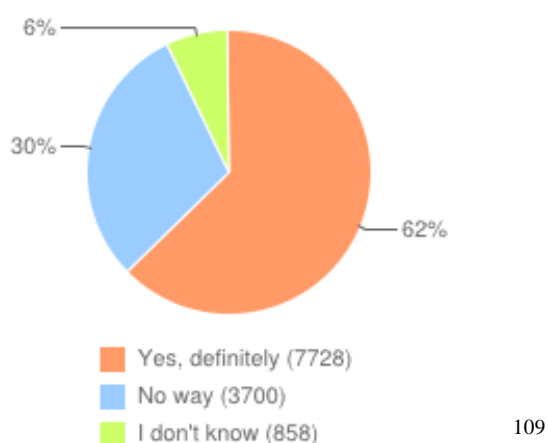
National Polls on Cannabis Legalisation

The first important factor to notice regarding this section is the fact that The Journal is the ONLY national media outlet asking the nations opinion on the subject of cannabis legalisation.

On the 15th of June 2013 in honour of the 7th annual Legalise Cannabis Ireland protest held in Dublin, The Journal ran a poll on “*Should we legalise cannabis in Ireland?*”



In March 2015 The Journal asked the same question “*Should we legalise cannabis in Ireland?*” below are the results so far, but votes are still being collected and will be until August.



¹⁰⁸ <http://www.thejournal.ie/poll-cannabis-952366-Jun2013/>

¹⁰⁹ <http://www.thejournal.ie/nuig-cannabis-1977726-Mar2015/>

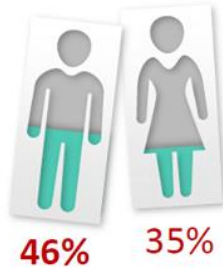
In January 2014, The Journal ran a poll asking “Who is more likely to support the Legalisation of Marijuana?”

Who is more likely to support the Legalisation of Marijuana?

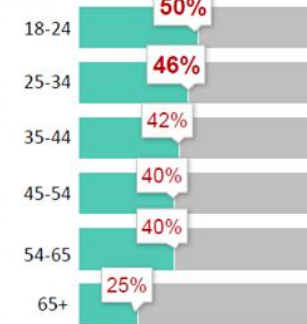
(Base: All Adults 18+ excluding Don't Knows - 953)



Gender



Age



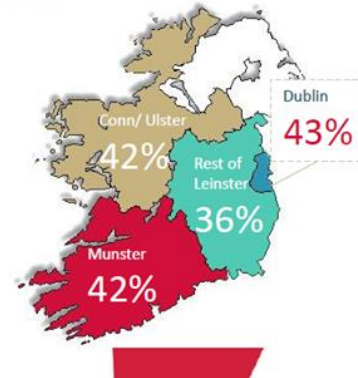
Social Class



Party Support



Region



110

The findings suggest that since the younger end of the population would like to make cannabis legal, the overall number of those wanting to legalise cannabis is likely to increase steadily over time.

¹¹⁰ <http://www.thejournal.ie/marijuana-legal-1256495-Jan2014/>

Arguments against Cannabis Legislation in Ireland

The Cannabis Bill 2013 created a debate about cannabis legalisation in the House of the Oireachtas and allowed members to explain why they are against legalisation.

Derek Keating TD FG Dublin Mid-West explained that cannabis is “*one of the most toxic substances*” that it “*damages the brain*” and then claimed “*8% of under 10’s in Ireland have used cannabis in the last 12 months*”.

Minister for Health James Reilly (FG) warned that there are “*Serious health risks associated with Cannabis*” while if you ask a doctor with years of medical and cannabis experience if this is true, they would give an answer along the same lines as Rd. Tod H. Mikuriya MD ,a well-respected doctor from Berkeley, did when he was asked about the health benefits of cannabis:

“In my practice over 200 different medical conditions responded favourably to cannabis, there is no medical product out there today that provides as much medical benefits as cannabis¹¹¹”

Or maybe an answer like Dr. Jeffrey Hergenrather MD gave when asked about the Cancer risks associated with cannabis:

“Cannabis has antiproliferative effects which prevents cancer cells from reproducing, the cannabinoids have antiangiogenic effects which prevents formation of new blood vessels needed by a tumor to grow, and there is also antimetastatic effects which prevents cancer from spreading to other organs. It even has an apoptotic effect which induces a cell to seek its own death.¹¹²”

Alex White TD Minister of State at the Department of Health and Minister in charge of the National Drugs Strategy said “*Cannabis increases seizures and epilepsy*” a fact dismissed by research stated in the health benefits section, in fact cannabis has been proven to greatly help stop seizures and help people cope with epilepsy.

¹¹¹ The Union (2007) film – personal interview

¹¹² <https://doctoravicenna.wordpress.com/tag/cannabis-oil/>

Mary Mitchell O'Connor TD (FG) stated: "*Cannabis increases the risk of lung cancer by 8% every year of use*" while Joe O'Reilly TD (FG) confirmed that "*Cannabis causes throat and lung cancer*".

After 30+ years of NADA funded evidence, Dr. Donald Tashkin MD UCLA was asked does cannabis cause throat and lung cancer, he responded by saying:

"There is no evidence of increased risk of lung cancer related to cannabis smoking alone and the development of the growth of a cancerous tumour is actually suppressed by THC¹¹³".

The Irish government is using the known negatives of tobacco to try and stop the legalisation of cannabis, two substances that have nothing in common with each other except for the fact it's possible to inhale both substances, as previously mentioned cannabis could indeed improve some of the health effects caused by smoking.

The government also tried to claim cannabis is a gateway drug. The Dutch system has proven that the gateway theory isn't true and that in fact it's actually because cannabis is illegal and consumers have to interact and get it off a drug dealer, which creates any possible gateway link between cannabis and harder drugs.

Even more than that, studies have shown it might be the perfect exit drug. People who want to get clean, should substitute their drug of choice with cannabis and it will heavily reduce the withdrawal effects and make the process much easier on the patient (user). There are currently 15,000 heroin addicts in Ireland that are still using heroin or substituting with state funded methadone – cannabis offers a legitimate, safe exit strategy from both.

The government argued that a regulated product would be too weak and too expensive to kill the black market for cannabis, this should not be a reason to keep it illegal but a valid reason to ensure a fair tax and pricing system is applied to the product.

The government did make a valid point when they said they'd be worried the legalisation of cannabis may increase tobacco use because of its association with the method of ingestion of cannabis, but with the right advertisements and warnings this link can be broken, there are multiple other forms of ingestion from e-cigarettes, vaporisers and even edibles.

¹¹³ <http://healthland.time.com/2012/01/10/study-smoking-marijuana-not-linked-with-lung-damage/>

Why Should Ireland Consider Legalising Cannabis?

David Nutt, a former advisor to the department of Health in England and well respected psychiatrist predicts that alcohol use would drop by 25% in Ireland if cannabis was legalised¹¹⁴.

Alcohol abuse costs Ireland 3.4 billion each year¹¹⁵, a 25% saving would be a staggering 850 million per year. According to the HSE 2,000 hospital beds per night are occupied for alcohol related reasons¹¹⁶, that's an extra much needed 500 hospital beds available every single night.

HSE stats indicate there are 88 deaths per month from alcohol in Ireland¹¹⁷, which is double all other drugs combined, if a 25% reduction in alcohol use is accurate, it would mean cannabis legalisation might even save 264 lives from dying of alcohol abuse alone.

There are currently 100,000 people in Ireland with a criminal record because of cannabis¹¹⁸, they would all be able to increase their economic activity. If they all increased their activity by even €1000 each, that's a €100m created instantly.

100,000 people in Ireland can't adopt kids, can't get a job as a doctor, nurse, police man or teacher all because they have a criminal record for cannabis possession. How can we claim we live in a free, open and democratic society if we're not even allowed to choose what we consume.

There are between 150,000-300,000 cannabis users in Ireland, if we take the extremely conservative number of 150,00 users, predict they are spending roughly €100 per month at 33% tax that's almost €60m a year in tax money alone for the government, that's without even considering potential new users, users increasing their consumption or tax generated by tourists buying cannabis.

¹¹⁴ <http://www.theguardian.com/science/2012/jun/19/david-nutt-alcohol-cannabis-cafes>

¹¹⁵

<http://oireachtasdebates.oireachtas.ie/Debates%20Authoring/DebatesWebPack.nsf/committeetakes/TRJ2013041700009?opendocument>

¹¹⁶ <http://alcoholireland.ie/facts/alcohol-and-costs/>

¹¹⁷ <http://www.imt.ie/mims/2015/01/alcohol-consumption-ireland.html>

¹¹⁸

<http://oireachtasdebates.oireachtas.ie/debates%20authoring/debateswebpack.nsf/takes/dail2013110600070?opendocument>

There are roughly 8,000 arrests a year in Ireland because of cannabis¹¹⁹. That's 8,000 less arrests the police and judicial system would have to deal with, yet alone the fact they will now be able to spend more time dealing with more dangerous crimes.

The government claims the medical benefits associated with cannabis are already supplied by other drugs, let's take Sativex as a perfect example:

Sativex that's used for MS is not currently sold in the Republic of Ireland but is available in Northern Ireland. It costs £125 for a 10ml vial that lasts 10 days¹²⁰, to compare 1 Oz of dried cannabis that would easily last 10 days use, can be grown for under €5 in the patient's own house and even at this hypocrisy, it's the pharmaceutical company that profits from these sales not the government which would reinvest the money into essential services. It's also important not to forget that the £125 doesn't include the transport costs a Republic of Ireland citizen has to pay to get to Northern Ireland or the legal risk they face for possessing the illegal drug "Sativex".

Ireland has the highest rate of MS in Europe. It has 30,000 new cases of cancer each year¹²¹ not to mention the thousands of patients who still have cancer. The country also has globally high levels of obesity and diabetes.

Cannabis actually has the ability to help all of these patients, not one, not some, all.

It has the potential to stop problems developing before they become a problem by regulating and balancing out different elements of the body e.g. sugar levels, gut bacteria etc. which in turn would make people healthier, increasing their standard of living, reducing their own financial health costs and even potentially reducing the cost of governmental medical care.

Ireland runs on a politically motivated economy, where social ethical morals are happily traded by politicians for a few guaranteed votes. The truth is there are a lot of votes in being seen tough on drugs, everybody has a brother, a sister, or even a child that they would hate to see become a drug addict, a fear that everyone has in the back of their minds, but voting out of fear is not a democratic free choice, its emotional blackmail. The war on drugs has taught us that continuing to keep certain drugs illegal has no effect on consumption.

¹¹⁹ <http://www.broadsheet.ie/tag/legalise-cannabis/>

¹²⁰ <http://www.theguardian.com/business/2010/jun/21/pharmaceuticals-industry-multiple-sclerosis>

¹²¹ <http://www.cancer.ie/about-us/media-centre/cancer-statistics#sthash.8veZd7xr.dpbs>

After analysing my case studies, I believe the cannabis legislation in the Netherlands led to one major problem, it created "border hot spots" for drugs to enter the Netherlands neighbouring countries which caused friction with international relations especially in the bordering countries of France and Germany, this would not be an issue in Ireland because it's an Island but the border with Northern Ireland may be cause for concern.

But What About Our Kids?

Illegal drug-dealers don't ask for ID, it's easier for kids to get cannabis than ever before. A legalised regulated system would make it harder for them to get their hands on it, and at an absolute minimum, it would take all the bad cannabis "skunk" off the streets and away from kids. Adult drug dealers recruit young children to sell drugs for them, the safest way to protect our children is to limit any contact with drug-dealers, not by giving drug dealers more and desirable products to sell that would entice children to interact with them. Drug dealers are currently getting very cheap labour from children being mules, less interaction with drug dealers would mean drug dealers would now have to pay more money to be able to hire adults to be there mule, therefore reducing their financial power even more. Kids are also much more likely to sell to other kids purely because of social interactions, like the interactions they make daily in schools.

Albert Einstein in 1921 said "The prestige of government has undoubtedly been lowered considerably by the prohibition law. For nothing is more destructive of respect for the government and law of the land than passing laws that cannot be enforced"

The respect the Irish people have for their own Government has never been lower, cannabis legalisation not only offers the government help in achieving monetary aims and creates fiscal benefits, it gives them the unique opportunity to win back the respect, of the youth of today.

Conclusion

After examining the literature, I believe prohibition is wrong for Ireland and that full legalisation is the correct route.

The literature indicates, the budgetary implications of legalisation exceed those of decriminalisation for three main reasons:

- 1) Legalisation eliminates arrests for trafficking in addition to eliminating arrests for possession.
- 2) Legalisation saves prosecutorial, judicial, and incarceration expenses; these savings are minimal in the case of decriminalisation.
- 3) Legalisation allows taxation of cannabis production and sale.

Founder and executive director of the Drug Policy Alliance, Ethan Nadelmann, once said: *“Clearly marijuana prohibition is unique among the criminal laws in America and most other open societies. No other law is both enforced so widely and harshly yet deemed unnecessary by such a substantial portion of the populace”*.

Even inside the Drug Enforcement Administration the view on Cannabis is widely divided their own administrative law judge, Francis Young, came to the conclusion in 1988 that *“marijuana may well be the safest psychoactive substance commonly used in human history”*.

Steve Rolles, the Senior Policy Analyst for the Transform Drug Policy Foundation believes *“Prohibition doesn’t improve public health, it actually endangers public health. It doesn’t protect children, it imperils children. It doesn’t reduce crime, it fuels crime. It’s very expensive and is delivering terrible outcomes”*

Transform, a group who are trying to get drugs under control, stated in their Practical Guide on how to regulate cannabis *“The experience of the past 50 years demonstrates that prohibitionist policies have not, and cannot, achieve their stated aims.”*

Diego Canepa, the president of the Uruguay's National Drug Board, said *“A regulated market that is visible has greater oversight than prohibition.”*

The war on cannabis seems to be slowly burning out, it needs to be replaced by a system of legalization, taxation, regulation, and education. Science should supersede politics.

The literature highlights the simple truth that people just want safe, natural and inexpensive treatments that stimulate our bodies' ability to self-heal and help our population improve its quality of life. Cannabis legalisation has the potential to offer this.

I whole heartily believe the literature I've reviewed proves that any negative or potential danger associated with cannabis is heavily out-weighed by the obvious social, economic and financial benefits that legalisation would bring to Ireland.

One area on this debate that's rather surprisingly constantly overlooked and I feel is actually very important, is the accuracy of long term social studies in regards to cannabis use.

The studies completed on long term cannabis use, is mostly based on cannabis purchased illegally from a drug dealer. This obvious flaw in the studies can have detrimental effects on the overall accuracy of the results. It can show cannabis in a much more negative light than it should be, because it's highly likely the standard of cannabis consumed would be extremely poor, not only would the THC to CBD ratio be severely unbalanced, but it's common practise for the product to be weighed down with fertilisers to make the product heavier, to make the product more profitable; and we all know drug dealers only care about the profit side of their business. It's the equivalent of claiming you're doing scientific studies on alcohol but using the famous "moonshine" product drunk during alcohol prohibition as an alcohol substitute for the basis of your research.

It's obvious from reviewing the literature that cannabis is definitely not for everyone, but that doesn't mean it should be illegal to everyone. The no-win 'drug war' keeps driving up the price, users may commit crimes to cover the cost, making the public the overall loser.

THC can in high doses be linked with psychosis, but within the same plant it has CBD which is anti-psychotic. In a regulated system you can ensure the correct balance of chemicals, to limit any possible negatives associated with the plant.

If legalisation is implemented it's essential we keep the cannabis industry away from the tobacco industry, they should not be linked, they are not related, and the only link between them is that cannabis is sometimes consumed by mixing it with tobacco.

Tobacco has known carcinogens (chemicals that cause cancer), cannabis does not. A vapouriser or eating cannabis raw would be a much better health conscious option and would help push the association of cannabis and tobacco away from each other.

In my literature review I discovered It's illegal to patent plants, that's why pharmaceutical companies are currently funding anti-cannabis movements to buy themselves time to extract the different elements out of cannabis, to patent them and then to sell them as pharmaceutical drugs like there attempting to do with THC and Sativex. It is for this reason, I believe legalising cannabis as soon as possible is of major importance.

I'd advise, in a legalised system that the government is in control of supply and outsources it to businesses in the agriculture industry but limits how much each farm can produce – it's essential to stay far away from the big tobacco model.

I believe the literature evidence proves that THC limits must not exceed a maximum, and must be in line with CBD levels.

On evidence of the case study about Colorado, I'd recommend under selling cannabis for the first 6-12 months to cripple the criminal industry.

The literature would indicate, legalising cannabis may take business away from the pub industry, but as a whole this new legalised industry might be a tourist attraction for the nation. The people of Ireland (especially the youth) generally abuse the availability of alcohol, to such an extent it's difficult to socialise if you abstain from alcohol. The economic loss to the industry should be weighed against the economic and health benefits created by the cannabis industry.

A recent study by economists D. Mark Anderson and Daniel I. Rees found that semi-legalisation, in the form of medical cannabis, in 16 states led adults to consume more cannabis but to moderate their alcohol consumption, leading to a 9% decrease in traffic fatalities caused by drunk drivers¹²².

I've highlighted the success of Colorado's hands-off approach to cannabis legalisation and how it has proven to be successful, it's important to point out that Washington's more heavily-regulated market has led to some challenges. Due to rather aggressive tax rates on not just consumers, but on producers, processors, and retailers, many are finding it cheaper to stick to the black market. The licensing scheme for growers has also resulted in product shortages, driving prices even higher, and making product harder to find at retail locations.

¹²² http://www.huffingtonpost.com/ranjit-dighe/legalize-marijuana-economic-argument_b_4695023.html

If Ireland are going to be successful in legalising cannabis it's important they don't fall into the same trap that Washington has succumb to.

In summary, I believe Ireland is ready for the legalisation of cannabis and should look to do so in the near future. There are of course pros and cons of legalisation, which I've highlighted in the Literature Review, but when applied to the Contextualisation of Ireland, legalisation is clearly the best choice.

Over 100 years ago, in 1902, Thomas Edison said:

"There were never so many able, active minds at work on the problems of disease as now, and all their discoveries are tending toward the simple truth that you can't improve on nature."

This statement still holds true even today.

In my humble opinion, now is the right time to legalise cannabis in Ireland.

Appendix

While examining the literature and reviewing the case studies I've come across some key suggests that would help to ensure a safe rite of passage for the legalisation of cannabis in Ireland:

First, part of my advice would be to say, it's important to consider all elements of the legalisation – Possession, sale, transport, cultivation.

Very strict rules should be applied to the industry at the start because of Ireland's bandwagon effect. Available to over 21's to absolutely guarantee that the person's brain has fully developed. THC levels capped at a 10-15% maximum, no advertising what so ever, distribution centres should not be located anywhere near schools, it should be illegal to consume in a public place, taxes in line with alcohol and tobacco but for those with a medical card for cannabis should get it cheaper, membership only clubs should be allowed, limited tourism scheme regarding tourists purchasing cannabis in Ireland, distribution centres should have restricted opening – closing times and maximum amount you can buy. There should be a maximum amount you can carry around at any one time, I believe these restrictions should be put on in the short-term (3-5 years) to ensure that cannabis legalisation is well received by all aspects of the public. I would also advice Ireland to set up a research centre for cannabis, be a world leader in research and help provide jobs.

The list below are other suggestions that come to mind:

- Limiting outlet density
- Requiring plain paper packaging
- Ongoing drug-driving testing
- Licensed commercial growers
- A regulatory board to set prices
- Government as monopoly distributor and retailer

References

1. United Nations Office on Drugs and Crime, 2006. World Drug report 2006. New York: United Nations.
2. Hall, W and L. Degenhardt, 2009 Adverve health effects on non-medical cannabis use. *Lancet*, 374: 1383-1391
3. Hammersley R, Leon V (2006). Patterns of cannabis use and positive and negative experiences of use amongst university students.
4. Ibid
5. Science Daily, 22 July 2008, ETH Zurich/Swiss Federal Institute of Technology. "Why Cannabis Stems Inflammation."
<www.sciencedaily.com/releases/2008/07/080720222549.htm>.
6. Thomas Nordegren, 1 Jan 2002, The A-Z Encyclopedia of Alcohol and Drug Abuse, pg153, Universal-Publishers.
7. Ibid
8. <http://www.leafscience.com/2014/06/19/indica-vs-sativa-understanding-differences/>
9. Leslie L. Iversen, *The Science of Marijuana*, pg 7, Oxford University Press, 6 Nov 2007
10. Jorge Cervantes, *Indoor Marijuana Horticulture* - Page 284, Van Patten Publishing, 2002
11. <http://howtogrowmarijuana.com/how-to-grow-marijuana-outdoors/>
12. James Legge, 1865, Volume 3: *The Shu King or the Book of Documents*
13. Ernest L. Abel 1982, *Marihuana: the first twelve thousand years*, page 4
14. *ibid*
15. H. Li, "The Origin and Use of Cannabis in Eastern Asia: Their Linguistic Cultural Implications," in *Cannabis and Culture*, ed. V. Rubin (The Hague: Mouton, 1975), p.54.
16. L. Bellinger, "Textiles from Gordion", *Bulletin of the Needle and Bobbin Club* 46 (1962): 5-33.
17. Robert P. Walton, *Marijuana, America's New Drug Problem*, p. 17
18. M.D. Merlin, *Man and Marijuana* (Rutherford, N.J.: Fairleigh Dickenson University Press, 1968), p. 80.
19. W. Eberland, *The Local Cultures of South and East China* (Leiden: E.J. Brill, 1968), p. 102.)
20. K. Chokoki, *A Handy Guide to Papermaking* (Berkeley: University of California Press, 1948), p. 2.)

21. E.L. Abel, *Marihuana: The First Twelve Thousand Years* 2013, pg 32
22. M.S. Julien, "Chirurgie Chinoise - Substance anesthetique employee en Chine, dans le commencement du III siecle de notre ere, pour paralyser momentanement la sensibilite," *Comptes Rendus de l'Academie de Sciences*, 28 (1894); 195-8
23. STEVEN J. DICKERSON, *Cannabis and its effect on anesthesia*, , RN, BSN, Flint, Michigan, December 1980
24. A.C. Johnson, "Roman Egypt", in *Economic Survey of Ancient Rome*, ed. T Frank (Patterson, N.J.: Pageant Books, 1959), 2: 3.
25. T.F. Bruner, "Marijuana in Ancient Greece and Rome? The Literary Evidence", *Bulletin of the History of Medicine*, 47 (1973): 344-55.
26. A.J. Warden, *The Linen Trade* (New York: A.M. Kelley, 1968), p. 43.
27. H. Li, "Hallucinogenic Plants in Chinese Herbals", *Journal of Psychedelic Drugs* 10 (1978):17-26.
28. M.R. Aldrich, "Tantric Cannabis Use in India" *Journal of Psychedelic Drugs* 9 (1977): 227-33
- A. Avalon, *Tantra of the Great Liberation* (New York: Dover, 1972), p. 73.
29. Cf. Agehananda Bharati, *The Tantric Tradition* (London: Rider and Co., 1965) p. 251
30. Li, "Origin and Use", p. 56.
31. Aldrich MR. 1997. "History of therapeutic cannabis," in *Cannabis in Medical Practice*, Mathre ML, ed. Jefferson, NC: McFarland; Grinspoon L and Bakalar JB.
32. Raymond Goldberg - 2009 - *Drugs Across the Spectrum* - Page 50
33. M.V. Ball, "The Effects of Haschisch Not Due to Cannabis Indica", *Therapeutic Gazette*, 34 (1910): 777-80.
34. I.C. Chopra and R.N. Chopra, "The Present Position of Hemp Drug Addiction in India", *Indian Medical Research Memoirs* 31 (1929): 2.
35. M. Eliade, *Shamanism* (New York: Pantheon Books, 1964), pp. 399-400
36. J.M Campbell "on the religion of hemp" in *Indian hemp drugs commission report* (Simla, india: 1892-94), 3: 250-2
37. Addendum and Final Protocol of The international Opium Conf., The Hague, 1912, quoted in W. WILLOUGHBY, *supra* note 50, at 492.
38. ADVISORY Comm. ON TRAFFIC in OPIUM AND OTHER DANGEROUS DRUGs, REPORT To COUNCIL ON THE WORK OF THE SIXTH SESSION (1924), quoted in W. WILLOUGHBY, *supra* note 50, at 374.
39. Richard J. Bonnie & Charles H. Whitebread, II - *THE FORBIDDEN FRUIT AND THE TREE OF KNOWLEDGE: AN INQUIRY INTO THE LEGAL HISTORY OF AMERICAN MARIJUANA PROHIBITION*, Pg. 378

40. Geneva Convention of 1925, quoted in W.WILLOUGHBY, *supra* note 50, at 539.
41. Martin A.Lee, 2008, *The Discovery of the Endocannabinoid System*
42. Martin A.Lee, *Smoke Signals: A Social History of Marijuana – Medical, Recreational and Scientific* Pg. 210
43. <http://www.ukcia.org/research/CannabisTheScientificAndMedicalEvidence.php>
44. Roger A. Nicoll and Bradley E. Alger, “The Brain’s Own Marijuana,” *Scientific American*, December 2004.
46. Ethan B. Russo, “Clinical Endocannabinoid Deficiency,” *Neuroendocrinology Letters*
47. Nos. , Feb-Apr Vol. 25, 2004
48. <http://dictionary.reference.com/browse/homeostasis>
49. Alistair Thomson - 20 January 2014 - *Understanding the Endocannabinoid System*
50. Jeffrey A. Miron, June 2005, *The Budgetary Implications of Marijuana Prohibition*, Visiting Professor of Economics, Department of Economics, Harvard University
51. http://www.oregonlive.com/marijuana/index.ssf/2015/02/marijuana_news_colorado_collec.html
52. Mark Bryan, Emilia Del Bono, Stephen Pudney - *Licensing and regulation of the cannabis market in England and Wales: Towards a cost-benefit analysis* Institute for Social and Economic Research University of Essex
53. <http://norml.org/library/item/revenues-from-legalization>
54. Andy Kiersz and Elena Holodny, “Here’s How All 50 State Economies Are Doing, Ranked From Slowest To Fastest,” *Business Insider*, August 4, 2014
55. Jason Blevins, “Colorado skier visits surge to 12.6M in 2013-14, set new season record,” *Denver Post*, June 12, 2014.
56. Jason Blevins, “Denver tourists spend record \$4.1 billion in 2013,” *Denver Post*, June 18, 2014.
57. Janet E. Joy, Stanley J. Watson, Jr., and John A. Benson, Jr. (1999) *MARIJUANA AND MEDICINE: Assessing the Science Base*, Editors Division of Neuroscience and Behavioral Health INSTITUTE OF MEDICINE NATIONAL ACADEMY PRESS Washington, D.C.
58. Prakash Nagarkatti - *Future Med Chem.* 2009 Oct; 1(7): 1333–1349. Cannabinoids as novel anti-inflammatory drugs
59. Ana Belen Lopez-Rodriguez - *CB1 and CB2 Cannabinoid Receptor Antagonists Prevent Minocycline-Induced Neuroprotection Following Traumatic Brain Injury in Mice, Cerebral Cortex*, Oxford Journals, August 19, 2013

60. Feinberg, I., Jones, R, Walker JM, Cavness, C, March, J. (1975). Effects of high dosage delta-9-tetrahydrocannabinol on sleep patterns in man. *Clin Pharmacol Ther.* 1975; 17(4):458-66.
61. Bharati Prasad, Miodrag G. Radulovacki - Proof of concept trial of dronabinol in obstructive sleep apnea– *Frontiers in Psychiatry*, January 2013
62. David J. Rog, BMBS, Turo J. Nurmikko, PhD, Tim Friede, PhD and Carolyn A. Young, MD - Randomized, controlled trial of cannabis-based medicine in central pain in multiple sclerosis. , *The Official Journal of the American Academy of Neurology*, *Neurology* September 27, 2005 vol. 65 no. 6 812-819
63. Ed Susman - Smoking Pot Eases Tremors in Parkinson's Published: Jun 18, 2013 <http://www.medpagetoday.com/meetingcoverage/mds/39933>
64. <http://uk.businessinsider.com/health-benefits-of-medical-marijuana-2014-4?op=1?r=US#ixzz3SaDLrOz0>
65. <https://technical420.com/cannabis-article/19-health-benefits-marijuana>
66. <http://gwmac.com/medical-marijuana-hiv-racism/>
67. Jatoi A, Windschitl HE, Loprinzi CL, et al.: Dronabinol versus megestrol acetate versus combination therapy for cancer-associated anorexia: a North Central Cancer Treatment Group study. *J Clin Oncol* 20 (2): 567-73, 2002.
68. Lobe Epilepsy Melisa J. Wallace, Robert E. Blair, Katherine W. Falenski, Billy R. Martin and Robert J. DeLorenzo - The Endogenous Cannabinoid System Regulates Seizure Frequency and Duration in a Model of Temporal JPET October 2003 vol. 307 no. 1 129-137
69. McAllister SD1, Christian RT, Horowitz MP, Garcia A, Desprez PY. *Mol Cancer Ther.* 2007 Nov;6(11):2921-7.) -Cannabidiol as a novel inhibitor of Id-1 gene expression in aggressive breast cancer cells.
70. *J Psychopharmacol.* 2011 Jan;25(1):121-30. doi: 10.1177/0269881110379283. Epub 2010 Sep 9.
71. Neural basis of anxiolytic effects of cannabidiol (CBD) in generalized social anxiety disorder: a preliminary report. Crippa JA1, Derenusson GN, Ferrari TB
72. C, Sylvestre, Diana L.a b; Clements, Barry J.b; Malibu, Yvonneb - Cannabis use improves retention and virological outcomes in patients treated for hepatitis *European Journal of Gastroenterology & Hepatology*: October 2006 - Volume 18 - Issue 10 - pp 1057-1063
73. Elizabeth A. Penner - *The American Journal of Medicine*, July 2013 Volume 126, Issue 7, Pages 583–589 The Impact of Marijuana Use on Glucose, Insulin, and Insulin Resistance among US Adults
74. Macleod J, Oakes R, Copello A, et al. Psychological and social sequelae of cannabis and other illicit drug use by young people: a systematic review of longitudinal, general population studies. *Lancet.* 2004;363(9421):1579-1588.

75. Silins E, Horwood LJ, Patton GC, et al. Young adult sequelae of adolescent cannabis use: an integrative analysis. *Lancet Psychiatry*. 2014;1(4):286-293.
76. "Fatal Crash Data," Colorado Department of Safety, <https://www.codot.gov/library/traffic/traffic-manualsguidelines/safety-crash-data/fatal-crash-data-city-county>.
77. Crippa JA, et al. "Cannabis and Anxiety: A Critical Review of the Evidence," *Human Psychopharmacology* (Oct. 2009): Vol. 24, No. 7, pp. 515–23.
78. <http://www.health.harvard.edu/mind-and-mood/medical-marijuana-and-the-mind>
79. Degenhardt, L., C. Tennant, S. Gilmour, D. Schofield, L. Nash, W. Hall and D. McKay, 2007. The temporal dynamics of relationships between cannabis, psychosis and depression among young adults with psychotic disorders
80. Katz, G., R. Durst, E. Shufman, R. Bar-Hamburger and L. Grunhaus, 2010. Cannabis abuse and severity of psychotic and affective disorders in Israeli psychiatric inpatients. *Comp. Psychiatry*, 51: 37-41.
81. Barnett, J.H., U. Werners, S.M. Secher, K.E. Hill and R. Brazil et al., 2007. Substance use in a population-based clinic sample of people with first-episode psychosis. *Br. J. Psychiatry*, 190: 515-520.
82. Sevy, S., D.G. Robinson, B. Napolitano, R.C. Patel and H. Gunduz-Bruce et al., 2010. Are cannabis use disorders associated with an earlier age at onset of psychosis: A study in first episode schizophrenia.
83. Gonzalez-Pinto, A., S. Alberich, S. Barbeito, M. Gutierrez and P. Vega et al., 2009. Cannabis and first-episode psychosis: different long-term outcomes depending on continued or discontinued use. *Schizophrenia Bull.*, 10.1093/schbul/sbp126
84. <http://www.health.harvard.edu/mind-and-mood/medical-marijuana-and-the-mind>
85. Bonn-Miller, M.O., M.J. Zvolensky, A. Bernstein and T.R. Stickle, 2008. Marijuana coping motives interact with marijuana use frequency to predict anxious arousal, panic related catastrophic thinking and worry among current marijuana use among current marijuana users. *Depress Anxiety*, 25: 862-873.
86. Cheung, J.T.W., R.E. Mann, A. Ialomiteanu, G. Stoduto, V. Chan, K. Ala-Leppilampi and J. Rehm, 2010. Anxiety and mood disorders and cannabis use. *Am. J. Drug Alcohol. Abuse*, 36: 118-122.
87. Hayatbakhsh, M.R., J.M. Najman, K. Jamrozik, A.A. Mamun, R. Alati and W. Bor, 2007. Cannabis and anxiety and depression in young adults: A large prospective study. *J. Am. Acad. Child Adolesc. Psychiatry*, 46: 408-417.
88. Patton, G.C., C. Coffey, J.B. Carlin, L. Degenhardt, M. Lynskey and W. Hall, 2002. Cannabis use and mental health in young people: Cohort study. *BMJ*, 325: 1195-1198.

89. Cheung, J.T.W., R.E. Mann, A. Ialomiteanu, G. Stoduto, V. Chan, K. Ala-Leppilampi and J. Rehm, 2010. Anxiety and mood disorders and cannabis use. *Am. J. Drug Alcohol. Abuse*, 36: 118-122.
90. Van Laar, M., S. van Dorsselaer, K. Monshouwer and R. de Graaf, 2007. Does cannabis use predict the first incidence of mood and anxiety disorders in the adult population. *Addiction*, 102: 1251-1260.
91. Rey, J.M., M.G. Sawyer, B. Raphael, G.C. Patton and M. Lynskey, 2002. Mental Health of teenagers who use cannabis: Results on an Australian study. *Br. J. Psychiatry*, 180: 216-221.
92. Brook, D.W., J.S. Brook, C. Zhang, P. Cohen and M. Whiteman, 2002. Drug use and the risk of major depressive disorder, alcohol dependence and substance use disorders. *Arch. Genet. Psychiatry*, 59: 1039-1044.
93. Chen, C.Y., F.A. Wagner and J.C. Anthony, 2002. Marijuana use and the risk of major depressive episode epidemiological evidence from the United States National Comorbidity Survey. *Soc. Psychiatry Psychiatr. Epidemiol.*, 37: 199-206.
94. Vidal. Gore, *New York Times*, September 26, 1970 *Drugs: Case for Legalizing Marijuana*
95. Hayes & Bowery, *Marihuana*, 23 *J. CRim. L. & CRIMINOLOGY* (1932). pg1088
96. Simon Carlton, *From Opium to Hasheesh*, *Scientific American*, Nov. 1921, at 14-15
97. <http://www.dutch-passion.nl/en/news-and-development/portugals-drug-laws-a-new-european-model/>
98. "Marijuana in the Americas: Legalize Me, Decriminalize Me, Prohibit Me". *Revolución Pan Americana*. 30 July 2012.
99. Cave, Damien (30 July 2012). "Uruguay Considers Legalizing Marijuana to Stop Traffickers". *The New York Times*.
100. "Cannabis South American laws". *Erowid.org*. March 1995.
101. "Uruguay cannabis growers' clubs: Registration begins". *BBC News*. 31 October 2014.
102. Grund, J-P. and Breeksema, J. (2013) *Coffee Shops and Compromise: Separated Illicit Drug Markets in the Netherlands*, *Global Drug Policy Program*, *Open Society Foundations*, p.52.
103. *What Can We Learn from the Dutch Cannabis Coffeeshop Experience?* Robert J. MacCoun *WR-768-RC* July 2010
104. <http://www.independent.ie/irish-news/one-in-four-have-used-cannabis-with-education-a-factor-29389458.html>
105. <http://www.independent.ie/irish-news/one-in-three-wants-cannabis-legalised-poll-says-30936624.html>

106. <http://www.rte.ie/news/2013/1106/485090-cannabis-dail/>
107. <https://irishcannabis.wordpress.com/2015/03/07/regulated-cannabis-revenue-potential/>
108. <http://www.su.nuigalway.ie/component/k2/itemlist/tag/Cannabis%20legalisation>
109. <http://www.galwayindependent.com/20150306/news/nui-galway-students-back-cannabis-legalisation-S51836.html>
110. <http://www.thejournal.ie/poll-cannabis-952366-Jun2013/>
111. <http://www.thejournal.ie/nuig-cannabis-1977726-Mar2015/>
112. <http://www.thejournal.ie/marijuana-legal-1256495-Jan2014/>
113. The Union (2007) film – personal interview
114. <https://doctoravicenna.wordpress.com/tag/cannabis-oil/>
115. <http://healthland.time.com/2012/01/10/study-smoking-marijuana-not-linked-with-lung-damage/>
116. <http://www.theguardian.com/science/2012/jun/19/david-nutt-alcohol-cannabis-cafes>
117. <http://oireachtasdebates.oireachtas.ie/Debates%20Authoring/DebatesWebPack.nsf/committeetakes/TRJ2013041700009?opendocument>
118. <http://alcoholireland.ie/facts/alcohol-and-costs/>
119. <http://www.imt.ie/mims/2015/01/alcohol-consumption-ireland.html>
120. <http://oireachtasdebates.oireachtas.ie/debates%20authoring/debateswebpack.nsf/takes/dai12013110600070?opendocument>
121. <http://www.broadsheet.ie/tag/legalise-cannabis/>
122. <http://www.theguardian.com/business/2010/jun/21/pharmaceuticals-industry-multiple-sclerosis>
123. <http://www.cancer.ie/about-us/media-centre/cancer-statistics#sthash.8veZd7xr.dpbs>
124. http://www.huffingtonpost.com/ranjit-dighe/legalize-marijuana-economic-argument_b_4695023.html