

Comparing the Feasibility and Influencing Factors of Marijuana and Hemp Markets in the USA and India

Smera Mittal

Student at, The International School Bangalore

Abstract

This research paper examines the feasibility and development of marijuana and hemp markets in the USA and India, two countries with contrasting legal frameworks and socio-cultural contexts. While the USA's cannabis market thrives on progressive state policies and individualist cultural values, India's approach is characterised by stricter national regulations and evolving societal perceptions. The study highlights the distinct purposes of marijuana (medical and recreational) and hemp (industrial) and explores how differences in legal status, cultural factors like individualism versus collectivism, and market demand shape the cannabis industries in both nations. The findings reveal that while the USA benefits from economic opportunities such as tax revenue and employment, India's emerging hemp industry signals potential for growth. The paper underscores the importance of balanced policies that promote cannabis-derived products' advantages while mitigating risks.

Keywords: cannabis market, marijuana, hemp, laws, society, culture, USA, India

Introduction

Cannabis is a plant belonging to the Cannabaceae family. Different parts of the cannabis plant are used for recreational, industrial, and medical purposes: dried leaves, seed oil, flowers, and roots (Davis, 2020). Cannabis, widely celebrated in the 21st century for its recreational appeal, has a history spanning millennia as a remedy for numerous health problems. Cannabis has a wide range of by-products derived from its plant parts, for example, marijuana and hemp. The aforementioned by-products belong to the same species. However, the main difference lies in how much of a specific cannabinoid each contains, and even though it doesn't discriminate against them, the law does (Ferguson, 2020). Cannabinoids are naturally occurring chemical compounds found in the cannabis plant that interact with the body's endocannabinoid system to produce physiological and psychological effects (Davis, 2020). The most abundant Cannabinoids are cannabidiol (CBD) and tetrahydrocannabinol (THC). The primary difference between marijuana and hemp is the level of THC, which is responsible for producing the 'high' associated with cannabis consumption. Hemp is defined as cannabis that contains 0.3 per cent or less THC content by dry weight, and marijuana has 0.3 or more THC present by dry weight (Ferguson, 2020).

The legal status of marijuana varies worldwide; for instance, while it is legal in some states of the US, possessing even a small amount in India can result in imprisonment. But, have you ever wondered whether the only factors affecting the consumption of marijuana or hemp are the laws and regulations of a country? Although laws and regulations play a vital role in dictating the usage of cannabis, societal and cultural

attitudes towards cannabis-derived products also play an essential role. The USA and India differ significantly, not only in their legal systems but also in their cultural and societal norms, which highly influence the market of cannabis or the potential for economic and societal benefits of cannabis. This research paper, therefore, aims to answer the following research question: **“How does the feasibility of marijuana and hemp markets differ between the USA and India, and what factors influence their development?”**

This paper argues that while the cannabis market’s feasibility in the US is driven by liberal state-level regulations and growing cultural acceptance, India’s stricter regulatory framework and cultural attitudes pose a strong challenge to the cannabis market. Still, there is an opportunity for it to thrive in its industrial applications in the latter country.

Literature Review

The chemical composition of the cannabis plant is complex, consisting of various bioactive compounds, including cannabinoids, terpenes, flavonoids, and other phytochemicals. The cannabis plant produces several byproducts, with marijuana and hemp being two of the most significant. Moreover, cannabis plants produce more than 100 cannabinoids, including the two main ones, THC and CBD, which cause a drug-like reaction in one's body (NCCIH, 2019). As mentioned in the introduction, the main difference between hemp and marijuana is the difference in the level of THC and CBD each contain. THC and CBD have the same chemical formula: 21 carbon atoms, 30 hydrogen, and 2 oxygen atoms. However, the difference in the arrangement results in differing chemical properties, leading to unique effects on one's body (DiLorenzo and Walker-Journey, 2021). While THC stimulates parts of your brain that respond to pleasure and also secrete the feel-good hormone dopamine, giving you a euphoric feeling, researchers are unsure about the effect of CBD on the brain. Still, it mainly affects the communication between cells and serves a therapeutic purpose.

The table below identifies the key differences between marijuana and hemp.

	Marijuana	Hemp
THC levels	0.3% or less by dry weight	More than 0.3% by dry weight
CBD levels	Low	High
Psychoactivity	Psychoactive due to high THC levels	Non-psychoactive due to low THC levels
Purpose	Recreational and medical uses	Mainly industrial uses (e.g. <u>fibres</u> , seed oils)
Cultivation	Grown to <u>maximise</u> THC and CBD content	Grown for stalk, seeds and minimum THC
Appearance	Shorter, bushier plants with broad leaves	Taller, thinner plants with narrower leaves
Legal status	Legal in some places for medical and recreational uses	Generally legal but varies by jurisdiction
Uses	Smoking, edibles, tinctures, oils	Textiles, papers, CBD oils, food, bioplastic

Marijuana and hemp, although popularised for their recreational purposes, are also extremely useful in the industrial and medical industries.

Did you know that the global revenue in the medical cannabis market is projected to reach US\$21.04 billion by 2025? While this figure might seem surprising, cannabis has been an integral part of medical practices since ancient times. The demand for medical cannabis products is rising rapidly, with the number of users increasing from 3.46 million in 2016 to an estimated 7.46 million in 2025, a trend expected to continue (Statista, 2024). This surge is primarily driven by a shift in consumer preferences towards holistic and natural remedies and the growing use of medical cannabis as an alternative treatment for various health conditions. Patients often turn to cannabis for relief from seizures, chronic pain, and anxiety. Furthermore, the legalisation of medical cannabis in several parts of the world has fostered greater acceptance. CBD (cannabidiol), the second most predominant ingredient in cannabis, plays a significant role in the medical industry. While CBD is a crucial component of medical marijuana, it is primarily derived from the hemp plant. It is widely recognised for treating various health issues, with the most substantial evidence supporting its effectiveness in managing epilepsy syndromes such as Dravet Syndrome and Lennox-Gastaut Syndrome (Grinspoon, 2024). The first FDA-approved cannabis-derived medicine, Epidiolex, which primarily consists of CBD, has been highly effective in reducing seizures and, in some cases, stopping them entirely (Grinspoon, 2024).

Industrial hemp is an ancient cultivated plant first grown in Central Asia (Rupasinghe et al., 2020). It has historically been a multi-useful plant for its fibre, food, and medical uses. Despite the historical significance, the production of industrial hemp was prohibited in most countries due to its similarities with narcotics cannabis. However, the legalisation of Industrial hemp over the past two decades has led to an increase in products derived from cannabis, marking a significant change in the industry. Industrial hemp, with extremely low levels of intoxicating THC, is mainly grown for fibre and seeds. The industrial hemp industry has room to expand, and the legalisation of industrial hemp as an agricultural commodity is the first step to its expansion. It also presents significant opportunities for growth in the food and paper industries, driven by the increased production of hemp seeds. However, there is likely to always be a close examination of such industrial use, with each step that uses industrial cannabis, hemp seed, hemp oil, and hemp protein being examined thoroughly to ensure consumer safety before the product is available on market shelves.

That being said, it is worth questioning if the legal status of cannabis is the sole factor shaping its usage or if there are more profound influences at play. Beyond legal factors, social and cultural factors play a pivotal role in the acceptance of cannabis. The influence of these factors can be further understood through Hofstede's cultural dimensions theory, which explains how cultural paradigms, such as Individualism vs collectivism, Uncertainty avoidance and indulgence vs restraint, affect attitudes toward cannabis. For example, the individualism vs. collectivism dimension considers the degree to which societies are integrated into groups and their perceived obligations and dependence on groups (Wale, 2024). In societies that embrace collectivism, a person's self-image becomes 'We,' and hence, any action without the approval of the society can become an act of defiance. In such societies, the use of cannabis may, therefore, be perceived through the potential impact on the community or the entire family unit, whereby any stigma or concerns regarding social harmony could then hinder its acceptance. On the other hand, in countries that emphasise an individualistic culture, there is likely to be a greater acceptance of cannabis because more focus is placed on personal choice and individual freedoms. With regard to uncertainty avoidance, if a country has a culture in which there is high uncertainty avoidance, then there could be significant

resistance to cannabis due to its perceived risks, lack of long-term research and potential side effects. In such countries, strict regulations may also be implemented to mitigate and avoid any of these uncertainties. Contrastingly, countries with a low uncertainty avoidance are likely to have a greater level of willingness to experiment with the use of cannabis and also adopt it into several practices, including medicinal ones. Finally, in a country with an indulgent culture, there is a prioritisation on enjoyment and living life to the full, and this could translate to more acceptance of the different uses of cannabis. In a restrained culture, however, cannabis may be perceived with a higher level of scepticism and, therefore, could be constrained by cultural norms which are more focused on discipline and control.

The Cannabis Market in the US: A Case Study

The US operates in a patchwork system where state laws often contradict federal laws. While state policies to legalise and regulate recreational marijuana are being developed and implemented, marijuana remains illegal under the federal act, with marijuana listed as a Schedule I drug under the Controlled Substances Act. However, the first four US states to legalise recreational marijuana through the initiative process include Colorado (2012), Washington (2012), Alaska (2014), and Oregon (2014) (Barry and Glantz, 2018). Legalisation has drastically evolved over the years, and by 2017, 29 states and the District of Columbia, constituting 63% of the US population, had legalised medical marijuana, while eight states and the District of Columbia, representing 21% of the US population, had legalised the consumption of recreational marijuana.

Across the United States, numerous legislations have redefined the legal status of marijuana, with states adopting diverse laws to regulate and decriminalise the use of marijuana - each with a unique approach that helped change public attitudes and policies. For example, in 1996, California voters passed Proposition 215, the Compassionate Use Act of 1996, popularly known as the “medical marijuana initiative.” This initiative allowed qualifying people and their caregivers the right to possess or cultivate marijuana (Vitiello, 1998). On November 6, 2012, voters in Colorado and Washington moved to legalise the sale and consumption of marijuana by adults aged 21 and older (HICKENLOOPER, 2014). Even though Colorado and Washington were the first states to legalise recreational marijuana, today, more than half of US states have decriminalised the possession of small amounts of marijuana, approved it for medical use, or legalised it completely, and numerous other states are considering it (HICKENLOOPER, 2014).

While the legalisation of marijuana has been a significant focus, the 2018 Farmer Bill marked another crucial shift in U.S. cannabis policy, particularly concerning hemp and its derivatives. Before this bill was passed, hemp was coined with marijuana and made illegal in 1970 under the Controlled Substance Act. The farmer bill is more expansive, and it allows hemp cultivation broadly, allows the transfer of hemp-derived products across rivers for commercial and other legal purposes and also does not ban the sale, transport or possession of hemp-derived products (Squire Patton Boggs, 2019). Legalising hemp does not automatically translate to the legalisation of CBD, but farmers who cultivated hemp were treated equally, and hemp eventually did become a mainstream crop. This was beneficial, given the crop's potential and significance for farmers and hemp-derived products in the market (Abernethy, 2019). This also paved the way for the rise of industrial hemp, as it can be grown as a seed, a fibre or a dual-purpose crop.

That being said, one must wonder what are the implications of legalising cannabis-derived products, especially the use of marijuana in any form, in the case of the US. There are some key differences between states that have legalised the use of marijuana and the states that have not. The state's economy primarily

benefits substantially as legalisation generates tax income and, hence, government revenue. For example, “California has brought in over \$5 billion in state cannabis tax revenue since legal sales began, and the state generated a total of just over \$1 billion in cannabis taxes in 2023” (MPP, 2024). Legalisation also creates a safer environment for consumers by ensuring the products are thoroughly tested and hence minimises the risks associated with black markets. Moreover, patients and industries benefit significantly due to the legalisation of marijuana, saving lives and creating employment. Conversely, prohibition states face ongoing challenges such as losing revenue, creating underground markets and unequal enforcement. Other than the legalisation of cannabis products in some states across the US, the social and cultural attitudes towards its use have also helped benefit the economy greatly. Given that America has long been recognised as a country with a greater degree of individualism, lower uncertainty avoidance and a far greater acceptance towards indulgence, Americans are increasingly favouring legalising the plant (Carliner et al., 2017). People have different reasons to favour the legalisation of marijuana and hemp, some for the industrial benefits while others for recreational and medicinal purposes. While the growing acceptance has led to booming industries and economic benefits to various low-income groups such as farmers, the overuse of cannabis high in CBD levels for recreational purposes must not be left entirely unregulated as excessive use can lead to deteriorating lifestyles and health of many Americans.

The Cannabis Market in India: A Case Study of Policies, Challenges, and Contrasts

In India, cannabis can land you in jail for years, while in some parts of the US, you can buy it legally from a fancy dispensary. The difference between India's and the USA's cannabis laws goes above legalities - it reflects culture, history, societal views and policy priorities.

Cannabis is deeply rooted in India's history and religion, with its use dating back thousands of years in Ayurveda and religious rituals. It may be hard to believe, but the earliest mention of cannabis was in the Vedas or sacred Hindu texts from 2000 to 1400 BC (Gumbiner, 2012). Cannabis has been part of Indian culture for over 2000 years, and even the British, instead of banning it, chose to tax it in 1798 (Menon, 2020). In fact, it was considered a holy plant and a source of happiness that releases us from stress. Lord Shiva, for instance, is associated with cannabis, called bhang, in India (Gumbiner, 2012). Even though today recreational cannabis is banned in India, bhang is used in Thandai (drink), laddos and traditional sweets and plays a significant role in Indian culture and spirituality. Bhang is an intoxicant made from female parts of cannabis and is used widely for festivities such as Shivratri and Holi. There are over 200 government-approved bhang shops, and it is even popular in India's Brahmin community, who were traditionally forbidden from consuming alcohol. In some religious parts of India, Sadhus and babas often consume bhang directly or smoke it through a clay pipe (Ramadurai, 2022). Furthermore, ayurveda has long believed that cannabis is a medical herb to treat pain, digestive issues and insomnia.

So, how did a plant woven into the fabric of culture and medicine become a symbol of control and restriction? In the 1800s, cannabis cultivation and its use spread widely, prompting the creation of the Indian Hemp Drugs Commission Report in 1894, regarded as one of the first systematic studies on cannabis. The studies revealed that heavy use of cannabis can lead to drastic physical and mental changes. Over the decades, cannabis's popularity increased and spread, but in 1985, India passed the Narcotic Drug and Substances Act, effectively banning the cultivation, production, and consumption of cannabis and 70 other narcotic and psychotropic drugs (Karki and Rangaswamy, 2022). Despite these legal constraints, cannabis remains the most consumed and illegally trafficked substance in India. Mumbai and Dehli - two of the most prominent cities in India - rank among the top 10 cities in the world for cannabis consumption

(Karki and Rangaswamy, 2022). The criminalisation of cannabis has fueled the growth of underground markets, with individuals continuing to obtain and use cannabis through illegal means.

One notable exception under the NDPS Act is the allowance for hemp cultivation in regions where it is traditionally grown, such as Uttarakhand, Uttar Pradesh, Madhya Pradesh, Himachal Pradesh, Jammu & Kashmir, and Sikkim. Similar to the U.S., each state in India has its own hemp policy. Uttarakhand became the first state to legalise industrial hemp cultivation, setting a precedent for others (Jain, 2023). In recent years, social attitudes toward cannabis have shifted, creating the potential for a thriving hemp industry in India. The “medicinal plant” is now being used in versatile ways, including textiles, cosmetics, and even construction materials. Hemp has moved beyond its earlier perception as a recreational drug to find a place in Indians' daily routines through essential products. One key driver of the industry's growth is the gradual reduction of social stigma surrounding hemp. The number of hemp-driven businesses in India is rising rapidly, with people from various age groups purchasing hemp-based products despite common questions like, “Will this get me high?” (Janardhan, 2021). India's willingness to expand the hemp industry is also fueled by the recognition of hemp's sustainable qualities and its potential to provide environmentally friendly alternatives in various sectors. Hemp is transforming Indian markets, benefiting industries such as fashion, textiles, agriculture, and medicine (Bhaiji, 2024). Startups like Boheco, Hemp Horizons, and Bengaluru's India Hemp & Co. are leading the charge in this emerging sector.

It is also worth questioning if socio-cultural factors in India play a role in the criminalisation of recreational cannabis. Compared to the US, India is a much more collectivist and much less indulgent society. With cannabis products, such as marijuana, containing high levels of THC and having a negative reputation for the chemical high it enables people and further the potential misuse and repercussions of it, a social stigma has settled in the country, which, to a great extent has prevented the laws from legalising it. Unfortunately, however, this stigma has also translated into a lack of drug education and awareness, especially in rural parts of India, which, if an individual illegally gets their hands on the drugs, can lead to the misuse of them, unawareness of risks and the inability to tell the difference between abuse and regulated consumption. This could lead to people suffering both mentally and physically and displaying a reluctance to go to rehab to avoid the scrutinising gaze of society. This, therefore, raises concerns regarding the degree of regulation of cannabis products in the country and the further restrictions that socio-cultural stigmas place on it.

Conclusion

This research paper intended to explore the feasibility of the use of cannabis-derived products such as marijuana and hemp in two differing countries, i.e. the USA and India. Specifically, the paper assessed the different use cases of such products in the respective countries and aimed to evaluate how, beyond legal factors, even socio-cultural factors influence their consumption.

Marijuana and hemp, though derived from the same plant, serve a distinctive purpose. While marijuana is often utilised for either medical cures or recreational purposes, hemp is majorly being used in industries to innovate and create new products. The main difference between them stems from the difference in THC levels, making marijuana psychoactive and hemp almost harmless. As the world evolves and revolutionises, the aggregate demand for cannabis-derived products, whether it be industrial, medical or recreational, has seen a rapid surge. While legal frameworks have a significant role to play in the aforementioned, culture and society are other essential factors that influence this market's growth. Cultural

characteristics such as individualism vs collectivism, uncertainty avoidance and indulgence vs restraint play a large role in dictating the feasibility of the cannabis-derived goods market in any country. To prove how a country's legal frameworks, culture and societal values and beliefs affect the feasibility of the market, this research paper compared the USA and India, two countries with differing policies and attitudes regarding cannabis. With states such as Colorado and California in the USA passing laws that differ from the federal law and imply the legalisation of recreational marijuana, combined with the individualist culture of the country, the cannabis market seems to be increasingly growing. The aforementioned has great benefits from a tax revenue and employment creation perspective. On the other hand, India has laws which much more strictly govern the use of cannabis-derived products on a national level. While this has led to the creation of black markets for the illegal exchange of such products, what is interesting to notice is that the country is opening up slightly to the legalisation of cannabis-derived hemp for industrial purposes. In fact, many start-ups from the country are also witnessing success due to this. The future of this market in India may, therefore, hold opportunities as we move into the future. Overall, neither approach can be deemed entirely right or wrong. However, there is ample evidence to suggest that when cannabis-derived products are effectively regulated and managed, they can offer significant economic opportunities. Therefore, implementing well-crafted policies that harness these benefits while mitigating the risks of unregulated and improper use would be the most balanced and beneficial approach for any country.

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