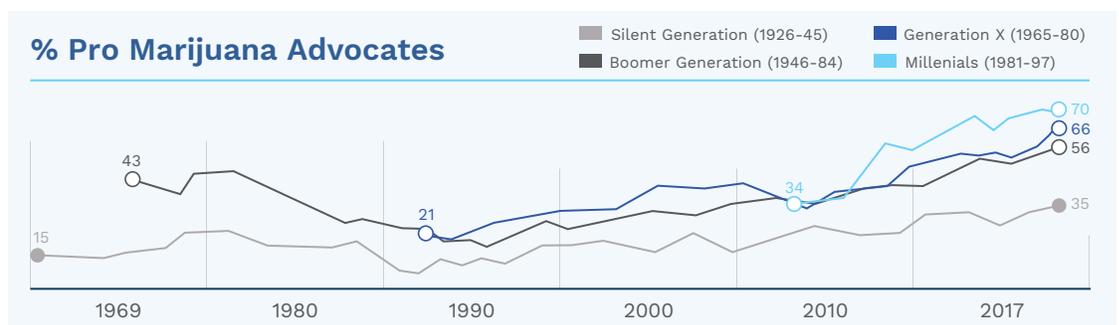
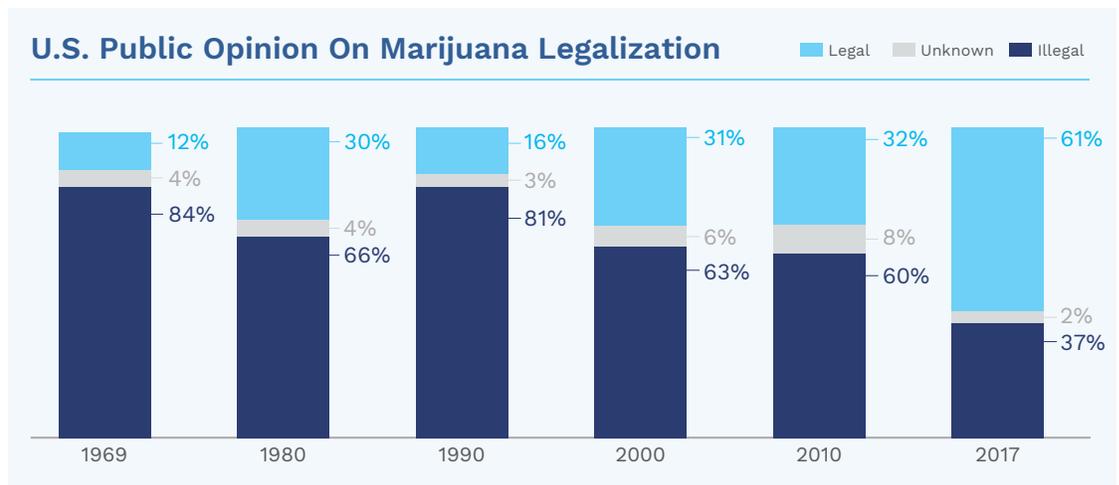




The Alternative Harvest Index: A Primer

Introduction

After decades of prohibition and stigma, cannabis is finding its way out of the shadows and into the mainstream. Public attitudes towards marijuana have noticeably shifted in recent years, and now a majority of Americans believe it should be legalized at the federal level.¹ Already, marijuana has been legalized for medicinal use in 29 states, and for recreational use in eight states and Washington D.C. The nascent legal marijuana industry stands to substantially benefit from these ongoing shifts in the political and cultural landscape. The Prime Alternative Harvest Index allows investors to track the growth of the long-term trends in medicinal and recreational cannabis.

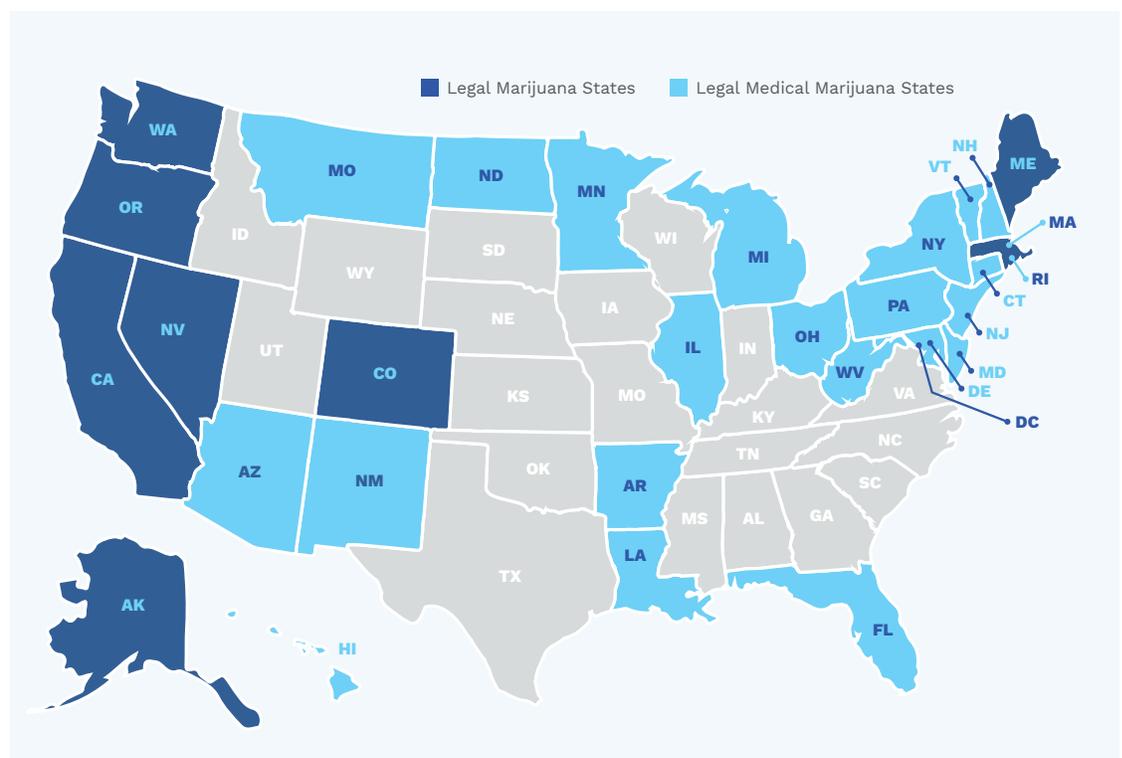


Source: http://www.pewresearch.org/fact-tank/2018/01/05/americans-support-marijuana-legalization/ft_18-01-05_marijuana_line_update/

Legalization Initiatives

Although cannabis is already legalized in some form throughout the majority of U.S. states, it remains illegal in 20 U.S. states and at the federal level, as well as in the majority of foreign nations. As public opinion on marijuana has shifted, and as its many benefits have come into sharper focus, ongoing legalization initiatives have begun to gain traction. Already, recreational marijuana has been legalized at the countrywide level by Uruguay (the first to do so, in 2013, legal sales began in 2017),² while more than twenty nations have some form of decriminalization or medical marijuana system in place, including Australia, Spain, Peru, and Colombia. But the most far-reaching legalization initiative thus far is in Canada, where marijuana is expected to be formally legalized for recreational consumption by July of 2018.³

Back home in the U.S., 8 states have already legalized cannabis for recreational use, and Vermont became the first state to legalize recreational marijuana in 2018, with the governor signing the bill into law on January 22nd. At least 6 other states are mulling over recreational marijuana consumption in 2018, including New Jersey, Michigan, Delaware, Rhode Island, Connecticut, and Ohio. In addition, Kentucky, South Dakota, Utah, and Missouri will decide on whether to legalize medical marijuana in 2018.⁴

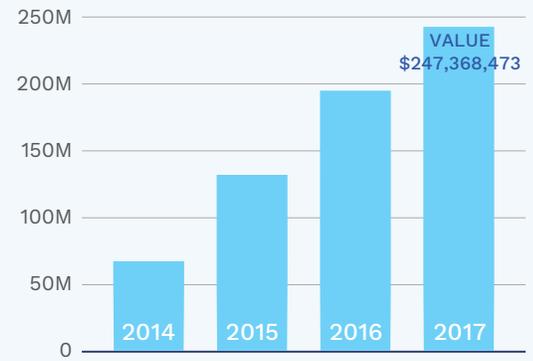


Cannabis Consumption and Revenue Growth

According to Arcview, a cannabis industry market research firm, North American sales of marijuana, including legal and black market sales, reached \$53.3 billion dollars in 2016. For comparison, that's already more than half of all U.S. cigarette sales, which totaled \$93.4 billion in the same year according to tobacco industry trade group TMA. It's important to keep in mind that legal marijuana sales still account for a small portion of this total— just \$6.9 billion— but some estimates see legal marijuana sales in the U.S. reaching as high as \$75 billion by 2030.⁵

Colorado's experience with legalization is an instructive example of the substantial incentives for states to roll back prohibition. In 2014, Colorado voters approved amendment 64, making it the first state in the country to legalize cannabis for recreational use. In that year, tax revenue from legal sales of marijuana reached \$67 million on \$700 million in sales, doubling to \$130 million in 2015 on \$996 million in sales.^{6,7} By 2017, legal sales of cannabis in Colorado had reached a staggering \$1.51 billion, generating more than \$247 million in tax revenue.⁸

Colorado Recreational Marijuana Tax And Fee Revenue



Source: <https://www.colorado.gov/pacific/revenue/colorado-marijuana-tax-data>

A New Frontier for the Tobacco Industry

Big Tobacco has been paying attention—for quite a while, as a 1970 Philip Morris memo on marijuana makes clear—as legal cannabis represents both a potential threat to its business model and a tremendous opportunity to move into a new market. Some tobacco companies have either acquired or are funding research in e-cigarette technology, a popular cannabis delivery system that would leave them well-positioned for an entrance into the marijuana market, should it become legal at the federal level.¹⁰

In 2016, Philip Morris bought a stake in Syqe Medical, an Israeli producer of 3D-printed marijuana inhalers, for \$20 million dollars—the second-largest cannabis deal in 2016,¹¹ and has been patenting a wide array of vaping devices that bear a strong resemblance to those sold in marijuana dispensaries. Its European subsidiary, Philip Morris S.A., has already applied for and received a patent for producing terpenes (fragrant oils that lend different marijuana strains their unique aromas and effects).¹² And in June of 2017, Imperial Brands, a global tobacco company, added Simon Langelier, the co-chairman of Pharmaciello—a Canada-based medicinal marijuana supplier—to its board of directors.¹³ Perhaps most significantly of all, in February of 2018, Alliance One, a U.S. tobacco company, purchased a 75% stake in Canada's Island Garden, a Canadian marijuana producer.¹⁴ The transition from Big Tobacco to Big Marijuana could be a logical one for the industry if the federal government moves to lift restrictions—indeed, it appears to be well underway.

Growing recognition of marijuana's therapeutic benefits, as well as industrial applications, are likely to drive further growth in the space.

Medical Applications

A majority of U.S. states—29 plus the District of Columbia—have already implemented a legal framework for medical marijuana. It is most commonly used for pain control, particularly chronic pain, and can serve as a non-addictive alternative to opiates. Notably, sufferers of multiple sclerosis have used marijuana successfully for pain management. Marijuana also sees use in treating nausea and weight loss, especially in cancer patients; tremors in Parkinson’s disease; and a host of other afflictions including wasting syndrome, Crohn’s disease, irritable bowel syndrome, glaucoma, and more.¹⁵

Marijuana’s potential as a viable replacement for opioids—which can be highly addictive and have led to an ongoing opioid crisis in the United States—is particularly noteworthy. According to the National Institute on Drug Abuse, 90 Americans a day die from opioid overdoses,¹⁶ while the CDC estimates the economic burden of prescription opioid misuse to be as high as \$78.5 billion per year.¹⁷ Biopharmaceutical companies are taking notice, with recent research efforts focused on utilizing cannabis as an effective substitute for opioids, with reduced risk of dependence and no risk of a fatal overdose.¹⁸

Industrial Applications

In 2014, the U.S. farm bill legalized the cultivation of industrial hemp. Consisting of less than 0.3 percent THC, the ingredient that produces the marijuana “high,” hemp is a versatile crop that can be used in a wide range of applications: for the production of CBD oil, a non-psychoactive cannabis compound that can be used medicinally; in food and health products, as an industrial fiber; it can even be used as a construction material for homes and is strong and lightweight enough to be used in auto parts. Unfortunately, hemp’s status at the federal level remains murky. So long as marijuana remains a controlled substance, hemp farmers face a long list of issues in exporting their crops to other states, in obtaining bank accounts, loans, or insurance, and in securing federal water rights. Many of these issues could be remedied with the recently introduced Hemp Farming Act of 2018, which if passed, would specifically remove hemp from Schedule I of the Controlled Substances Act.¹⁹ If federal prohibitions on hemp farming are lifted, this nascent industry could provide substantial new growth opportunities for investors.²⁰

Conclusion

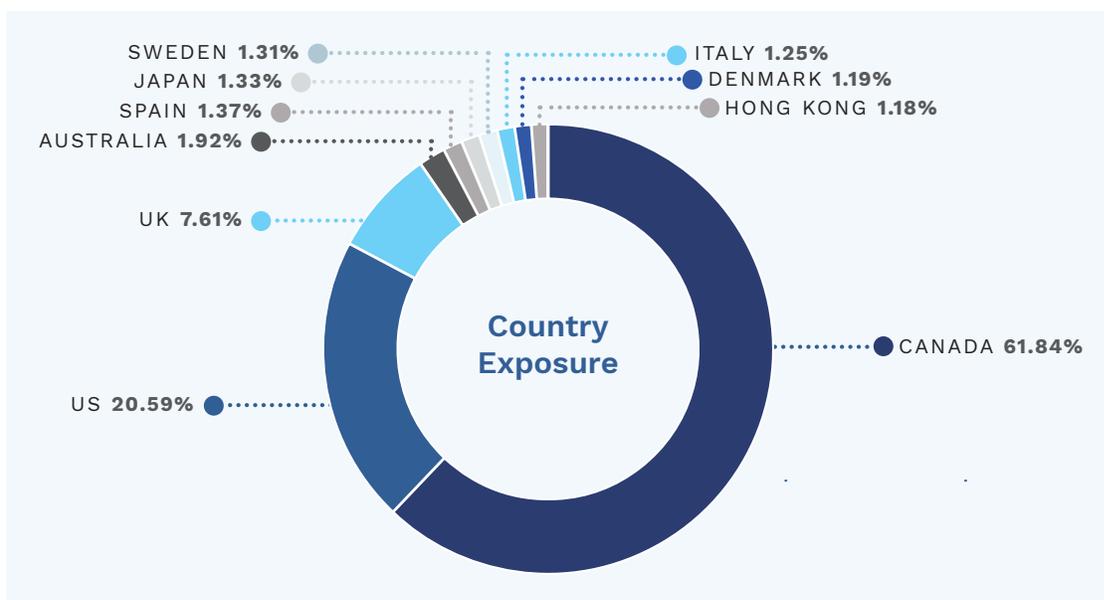
Taken as a whole, the broad picture for the cannabis industry is one of growth, expansion, and innovation, in spite of federal prohibition. As attitudes towards marijuana have shifted, state laws have as well, enabling a vibrant and growing industry that is only in its infancy. It seems only a matter of time before federal marijuana policy catches up with state laws and public opinion, with full legalization at the federal level.

The Prime Alternative Harvest Index

The Index has been created to allow investors to track both event-driven news and long-term trends in the marijuana industry as well as the industries likely to be influenced by the medicinal and recreational cannabis legalization initiatives taking place in many locations globally. The Index is designed to measure the performance of companies that will benefit from these initiatives, collectively referred to as companies in the Prime Cannabis Ecosystem. To be included in the Index, companies need to have satisfied additional eligibility requirements.

To be considered as part of the Prime Cannabis Ecosystem a company must operate in one of the following categories as determined by disclosures in the latest annual or quarterly report filed with the SEC or other financial regulatory authority.

- 1. Cannabis-Focused:** cannabis product manufacturers, marketers, or distributors, and cannabis growers and farmers (does not include medicine with cannabinoids as the active ingredient).
- 2. Cannabis Biopharma:** Companies currently engaged in creating, marketing, or distributing cannabinoid prescription drugs for medicinal purposes. Eligible companies have disclosed in their latest annual or quarterly report, in their overview or business description, that they (a) produce drug products that use cannabinoids as an active ingredient and that (i) have been approved for use as prescription drugs by a national healthcare regulator (e.g., U.S. Federal Drug Administration in the U.S., Health Canada in Canada, or European Medicines Agency in the European Union), or (ii) are in clinical trials that have been approved by a national healthcare regulator, or (b) have received permission from a national regulatory body to market or distribute drug products that use cannabinoids as an active ingredient.
- 3. Tobacco and Tobacco Substitutes:** Companies currently engaged in producing tobacco products such as cigarettes and cigars, electronic cigarettes, as well as tobacco leaf merchants, as described in their overview or business description of their public filings.
- 4. Tobacco-Related:** Companies currently engaged in producing cigarette and cigar components for tobacco product manufacturers, such as paper and filters, as described in their overview or business description of their public filings.
- 5. Agrochemical:** Companies currently engaged, as described in their overview or business description of their public filings, in i) the creation, production, and distribution of fertilizers, plant foods and pesticides, and growing equipment for cannabis or tobacco growing; or, ii) manufactures and markets consumer hydroponic products.



INDEX COMPOSITION (As of 5/11/18)

Component Name	Ticker	Weight	Component Name	Ticker	Weight
Hydrothecary Corp/The	THCX	6.96%	Swedish Match AB	SWMA	1.44%
Medreleaf Corp	LEAF	6.91%	Turning Point Brands Inc	TPB	1.40%
GW Pharmaceuticals -ADR	GWPH	6.86%	Imperial Brands PLC	IMB	1.40%
Cantrust Holdings Inc	TRST	5.93%	Arena Pharmaceuticals Inc	ARNA	1.36%
Cannabis Wheaton Income Corp	CBW	5.49%	Miquel Y Costas & Miquel Sa	MCM	1.32%
Canopy Growth Corp	WEED	5.37%	Japan Tobacco	2914	1.31%
Organigram Holdings Inc.	OGI	4.64%	Radiant Technologies Inc	RTI	1.24%
Emerald Health Therapeutics	EMH	4.07%	Universal Corp/VA	UVV	1.24%
Corbus Pharma. Holdings Inc.	CRBP	4.02%	Gima TT Spa	GIMA	1.23%
Aurora Cannabis Inc	ACB	3.92%	Vector Group Ltd	VGR	1.21%
CANN Group Ltd	CAN	3.52%	Huabao Intntl Holdings Ltd	336	1.20%
Supreme Cannabis Co Inc	FIRE	3.51%	Scandinavian Tobacco Group A	STG	1.19%
Cronos Group Inc	CRON	3.34%	British American Tobacco PLC	BATS	1.19%
Newstrike Resources Ltd	HIP	2.87%	Scotts Miracle-A	SMG	1.17%
ABCANN Global Corp	ABCN	2.38%	Altria Group Inc	MO	1.14%
Terrascend Corp	TER	2.25%	Insys Therapeutics Inc	INSY	1.13%
ISODIOL International Inc	ISOL	1.56%	22Nd Century Group Inc	XXII	1.13%
Hiku Brands Co Ltd	HIKU	1.47%	Cara Therapeutics Inc	CARA	1.12%
Schweitzer-Mauduit Intntl Inc	SWM	1.46%	Philip Morris International	PM	1.02%

