

Tax rates, state revenue and markets for marijuana

How much tax revenue can states raise on legal cannabis
before driving users into the illegal market?



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Introduction

States that have legalized cannabis for adult recreational use now collect billions of dollars in taxes, but evidence shows that the higher the tax rates the more market share remains in the legacy, illegal market. In California, which has an exceedingly high and complex tax regime, for instance, it is estimated that 75% of the market is still controlled by unlicensed dealers.

Conversely, initial research reveals that low tax rates can allow states to make additional headway in reducing the illicit market beyond the extent that can otherwise be expected post-legalization. Michigan, for instance, has imposed a lower and less complicated tax burden, and legal sellers in the last four years have already captured more than 60% of the market share.

Demand for legal cannabis products is elastic, in other words, so states must consider this fact when setting tax rates.

Tobacco and alcohol taxes, meanwhile, remain much more significant sources of revenue.

State Tax Revenue from Cannabis

States that have legalized cannabis for adult or medical use currently raise more than \$3.3 billion in annual tax revenue from those products.¹ Since 2020 the additional revenue states have received on account of taxes imposed on cannabis

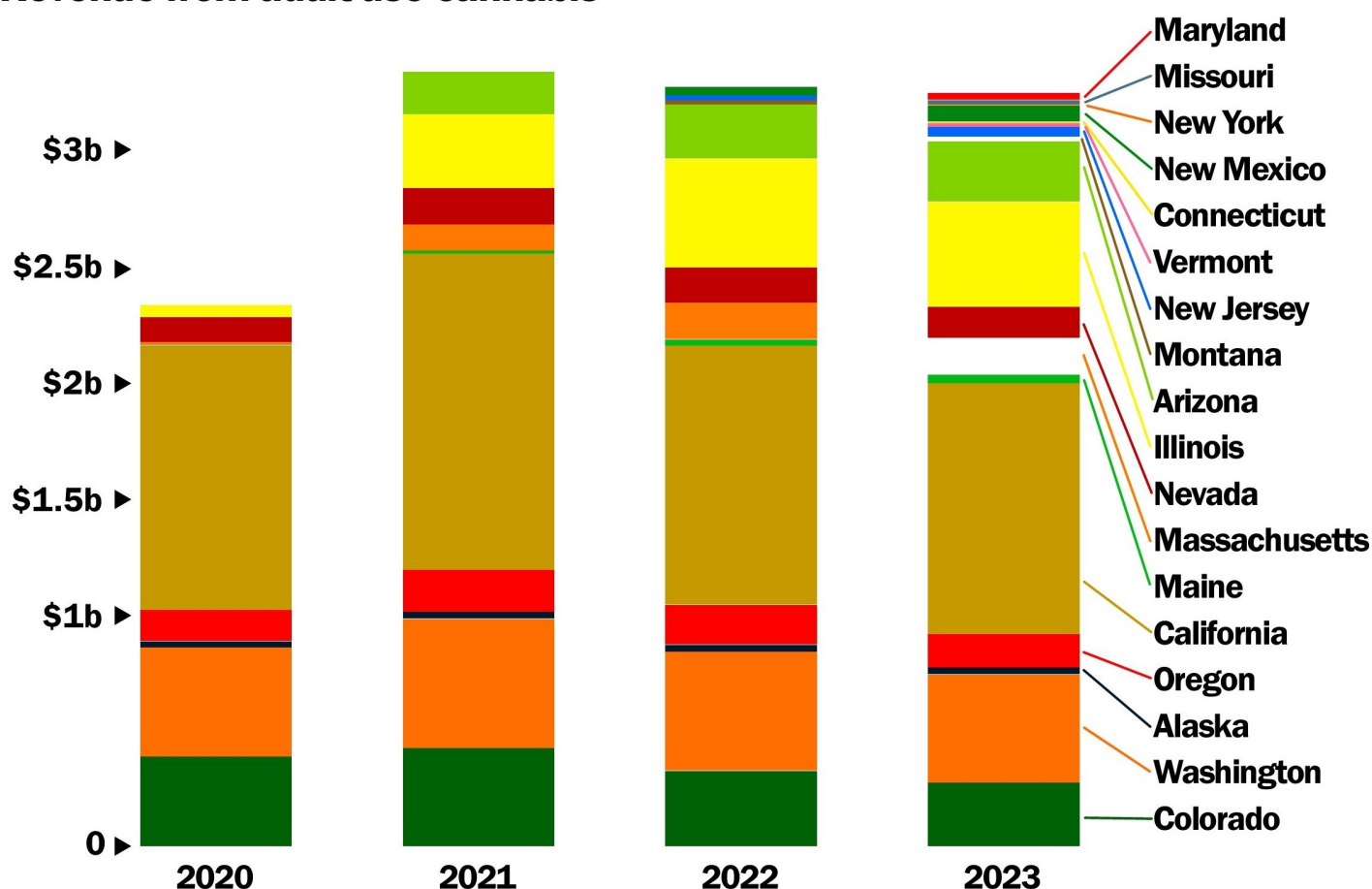
products is nearly \$13.1 billion.² Five states – Arizona, California, Colorado, Massachusetts, and Washington – consistently receive a super-majority of this national revenue but many of them have seen their revenues decline slightly over time as more states establish their own markets.

More than 90 percent of this revenue is from the sales of adult-use, or recreational, products rather than cannabis intended for medical use.³ Many states do not impose a sales or excise tax on cannabis products intended for medical use, and when they do, it is subject to a much lower tax burden.

The tax revenue states receive from cannabis products is significant, but when compared to taxes imposed on other similar products or entirely different revenue sources; it is small. Within the “sin tax” category, cannabis tax revenue exceeds the current total revenue that states receive from sports betting but is much less than what states receive from the sales of tobacco and alcohol products.⁴ It is also not even equal to half a percent of the revenue states receive from all sales and excise or income taxes annually.⁵

Tax type and source	2023 Revenue
Sales and gross receipts	\$664,891,545,000
Tobacco	\$17,060,030,000
Alcoholic beverages	\$8,389,533,000
Cannabis sales	\$3,345,410,647
Sports betting	\$2,220,776,000
Income	\$615,949,953,000
Property	\$26,043,497,000
Licenses and Fees	\$68,847,109,000

Revenue from adult use cannabis



Sources: see endnotes. States arranged bottom to top by year of legalization.
Massachusetts and Montana 2023 figures not yet reported.

Legalization Results in Special Taxes

Every state with an adult-use cannabis market has chosen to impose a special, additional tax on such products, but their tax regimes vary widely depending on the state.⁶ The most popular approach – used by half of the states with adult-use markets – is to apply both a general state sales tax and an additional excise tax equal to a set percentage of the retail sales price. The other half of states use a variety of approaches, such as imposing a set-dollar tax on the cultivation of each plant or a certain weight of product, utilizing product potency to impose different tax rates, or solely applying a special excise tax without a general sales tax.

There is also a wide diversity in the severity of tax burdens imposed by states. These burdens range from 9% in states such as Maryland and New York to 43.5% in Washington. In a handful of states, it is very difficult to quantify the tax burden given their weight- or potency-based approaches and the unpredictable fluctuations in product prices.

A comprehensive breakdown of tax methodologies by state is in Appendix B.

Impact of Tax Rates on Legal Markets

These differing approaches illustrate that states are placing differing values on three competing goals to be considered when establishing a so-called “sin tax”: discouraging overall product consumption, generating revenue, and shifting demand out of the black market.⁷ We know from most existing research that the demand for legal cannabis products is elastic⁸ and that consumers will continue to purchase products illegally if it can save them substantial sums of money.⁹

Initial research shows that an additional \$1 in tax revenue costs consumers and companies more than that in increased costs.¹⁰ Researchers Brett Hollenbeck and Kosuke Uetake utilized administrative data provided by the state of Washington to analyze how much of Washington’s 37% excise tax was borne by the companies (via reduced profit) and how much by consumers (via increased product cost).¹¹ They found that every \$1 increase in tax imposed on each cannabis product in the state would result in approximately \$5 million more in state revenue but would cost consumers \$8 million in additional product costs and producers \$4.1 million in reduced profits.¹²

A state that wishes to maximize the public safety benefits of cannabis legalization by reducing the cash flowing to cartels and gangs will need to consider that such an approach might not maximize revenue and vice versa.¹³ States must also remember that pursuing reduced cannabis use through higher taxes on legal cannabis products may not be a true public health gain because consumers may merely shift their demand to illegal cannabis products, higher alcohol or tobacco consumption, or another illicit substance from among those also readily available.¹⁴

Empirical evidence

This report marks the sixth installment in our “real facts” report series — a first-of-its-kind effort to better understand and summarize the effects of cannabis legalization in other states. In an earlier report in this series, we summarized research showing that the legalization of adult use reduces the

size of the illicit cannabis market but that “factors that impact price, such as tax rates and regulatory burden” will affect the amount by which this binary choice changes the size of the illicit market in a state.¹⁵

There are a handful of studies evaluating how tax rates in cannabis markets affect the market share of the legal market versus the illicit market. These studies unanimously find that lower tax burdens allow regulated providers to take market share more effectively from legacy illicit providers.¹⁶

The only academic study we could locate on the topic was completed by Joohun Han of the University of Arkansas and colleagues this year. It specifically found that an extra 10% excise tax on cannabis products in California would increase the quantity of products sold in the illicit market by 3.1% while reducing the amount sold in the state’s legal market by 17.1%.¹⁷

The other existing studies are all empirical analyses completed by a mix of think tanks, consulting firms, and government agencies to predict the effect of various potential tax policies on a state’s current or future cannabis market.

Geoffrey Lawrence of the Reason Foundation utilized an empirical model to determine the potential effect of California’s removal of its tax on the cultivation of cannabis plants and various levels of reduction in the state’s excise tax rate. Lawrence found that California’s tax structure can result in a total state and local tax burden of \$1,441 per pound.¹⁸ A reduction in the tax burden by ending the cultivation tax or reducing the excise tax rate was found to allow the legal market to capture more market share from illicit providers. The study also found that this market growth would quickly compensate for the short-term loss in tax revenue.¹⁹ Similar market analysis completed pre-legalization by consulting firms for the states of Maine and New Mexico, empirically modeling market share growth of each state’s future legal markets, showed that lower tax rates result in more legal market share.²⁰

Case study

Given the limited empirical research on this topic, leaders in Wisconsin can look to other states as case studies for how

different tax policies have affected the ability of those jurisdictions to maximize the potential public safety benefits of establishing an adult use cannabis market.

The experience of California presents a clear warning for the Badger State. Voters there approved a measure to establish an adult-use cannabis market more than seven years ago, but the illicit market has continued to thrive, given the state's complex and high tax regime. The state imposes a 7.25% state and up to 3.5% local sales tax on consumers, and a 15% state excise tax on all retail sales.²¹ The state recently sought to somewhat simplify its tax burden by repealing a significant cultivation tax on every plant farmers harvest from their fields or greenhouses, but that still leaves California with a much higher tax rate than other states.²²

Consumers in the state report that they believe it is important for them to purchase from legal sources, but it does not appear that they are acting on that belief.²³ The best data available (before a recently adopted minor tax reform law and increased enforcement efforts) show that \$8.7 billion worth of products are still purchased on the black market and that potentially 75% of the market is still controlled by unlicensed dealers.²⁴ This resulted in leaders in many localities such as Sonoma County and San Francisco suspending or lowering their local taxes in hopes that this would allow legal operators to more effectively compete with the black market.²⁵ Other states with equally high or complicated tax regimes, like Washington, have similarly seen their illicit markets continue to thrive.²⁶

We need to look no farther than Michigan to see the opposite: substantial progress toward undermining the illicit market. The Great Lakes State has chosen to impose a more reasonable and less complicated tax burden on its market that includes a 10% excise tax and the state's standard 6% sales tax.²⁷

Data from 2020 – the state's first with a legal market – show that it collected over \$31 million in tax revenue from excise taxes alone and that regulated and legal providers had already been able to capture more than 60% of the market share.²⁸ The state's monthly sales in the regulated market have grown by nearly 3.5 times since then, and regulated

providers have presumptively taken even greater market share from illicit providers.²⁹ Other similarly low-tax states appear to have been able to achieve similar market share outcomes.³⁰

Factors such as levels of enforcement against illicit providers, overall regulatory burden, and many others could also impact the ability of the legal market to take customers away from illicit providers so this case study is not meant to indicate that tax rates alone resulted in this difference in market capture by legal providers in each state. These additional factors are hard to control for in any analysis given the inability to complete an apples-to-apples comparison of these metrics.³¹

Conclusion

States have taken in billions of dollars in tax revenue from taxing cannabis. These sums may not be a strong enough rationale on their own for a state to choose its cannabis policies. For example, there is a strong chance that the substitution between cannabis and alcohol or tobacco could result in a net loss in tax revenue for some states as more continue to legalize the substance.³² The findings in this report instead should be considered alongside other tradeoffs reported in the series so far and those still to be reported in the near future.



Appendix A: State tax revenue from *adult use* cannabis

	2020	2021	2022	2023
Alaska	\$24,213,296	\$30,054,250	\$28,690,918	\$29,477,517
Arizona		\$158,843,750	\$232,994,497	\$259,225,477
California	\$1,135,451,706	\$1,361,747,183	\$1,115,967,422	\$1,082,452,368
Colorado*	\$387,480,110	\$423,486,053	\$325,103,684	\$274,121,043
Connecticut				\$4,675,642
Illinois	\$52,783,471	\$317,074,562	\$466,816,883	\$451,868,765
Maine	\$1,156,878	\$12,362,620	\$25,329,536	\$35,593,347
Maryland*				\$29,880,000
Massachusetts	\$13,949,000	\$112,370,000	\$156,669,000	
Missouri				\$19,612,880
Montana			\$18,816,673	
Nevada	\$105,180,947	\$157,751,596	\$152,334,798	\$133,091,547
New Jersey			\$20,139,645	\$41,889,891
New Mexico*			\$36,684,235	\$67,440,312
New York			\$120,000	\$3,600,000
Oregon	\$133,150,349	\$178,262,488	\$170,572,100	\$142,088,093
Vermont			\$1,660,000	\$14,970,000
Washington	\$469,200,000	\$555,400,000	\$511,100,000	\$464,500,000
Totals	\$2,322,565,757	\$3,307,352,502	\$3,262,999,391	\$3,054,506,882

*See endnotes for an explanation of different methodologies in certain states.

Appendix A (cont.): State tax revenue from *medical use* cannabis

	2020	2021	2022	2023
Arizona		\$64,056,474	\$43,336,728	\$28,824,796
Arkansas	\$21,267,554	\$33,181,375	\$32,072,444	
Hawaii	\$2,023,138	\$2,568,947	\$2,428,035	\$2,588,588
Illinois	\$14,158,140	\$23,855,125	\$20,867,784	\$23,795,035
Louisiana	\$1,200	\$26,576	\$0	\$385
Maine	\$16,455,953	\$21,045,871	\$17,459,662	\$15,808,725
Mississippi*				\$8,012,198
Missouri		\$2,024,672	\$10,778,767	\$16,422,920
Montana	\$3,871,936	\$6,319,828	\$5,595,671	
New York			\$15,000,000	\$11,600,000
North Dakota	\$268,021	\$778,928	\$1,016,396	\$1,101,958
Ohio	\$6,680,571	\$17,752,352	\$24,581,149	\$27,220,431
Oklahoma*	\$120,812,537	\$149,439,503	\$125,369,058	\$117,629,108
Pennsylvania	\$10,724,455	\$26,780,463	\$35,488,781	\$32,915,140
Totals	\$196,263,505	\$347,830,114	\$334,174,787	\$287,188,223

*See endnotes for an explanation of different methodologies in certain states.

The states of Alabama, Alaska, California, Connecticut, Delaware, Florida, Maryland, Massachusetts, Minnesota, Nevada, New Hampshire, New Jersey, New Mexico, Oregon, Utah, Vermont, Virginia and Washington were excluded because they do not impose a tax on medical cannabis products. Colorado is excluded here because the state can provide only a combined tax revenue figure for both its adult use and medical markets. Additional states, such as Michigan, were excluded because they are unable to provide the data even with a public records request and West Virginia was excluded because it provides multiple different revenue totals from multiple official government sources.

Appendix B: State adult use cannabis tax methodologies

	Legal in	Type	Method	Rate	Time
Washington	2012	excise	sale price	37%	retail
		sales	sale price	6.5%	retail
Colorado	2012	excise	weight & market rate	15%	cultivation
		excise	sale price	15%	retail
		sales	sale price	2.9%	retail
Alaska	2014	excise	weight	\$1 to 50/ounce	cultivation
Oregon	2014	excise	sale price	17%	retail
California	2016	excise	sale price	15%	retail
		sales	sale price	7.25%	retail
Nevada	2016	excise	weight & market rate	15%	cultivation
		excise	sale price	10%	retail
		sales	sale price	6.85%	retail
Maine	2016	excise	sale price	10%	retail
		excise	weight	\$94 to 335/pound	cultivation
		excise	quantity	\$0.30/seed \$1.50 to 35/plant	cultivation
Massachusetts	2016	excise	sale price	10.75%	retail
		sales	sale price	6.25%	retail
Michigan	2018	excise	sale price	10%	retail
		sales	sale price	6%	retail
Illinois	2019	excise	sale price	7%	cultivation
		excise	potency & sale price	10 to 35% (depends on THC level)	retail
		sales	sale price	6.25%	retail
Montana	2020	excise	sale price	20%	retail
Vermont	2020	excise	sale price	14%	retail
		sales	sale price	6%	retail
Arizona	2020	excise	sale price	16%	retail
		sales	sale price	5.6%	retail
New Jersey	2020	excise	weight	\$1.24/ounce	cultivation
		sales	sale price	6.625%	retail

Appendix B (cont.): State adult use cannabis tax methodologies

	Legal in	Type	Method	Rate	Time
New Mexico	2021	excise	sale price	12%	retail
		sales	sale price	5%	retail
Connecticut	2021	excise	potency	\$0.00625/ mg THC (plant materials)	retail
				\$0.0275/mg THC (edible products)	retail
				\$0.009/mg THC (all others)	retail
		sales	sale price	6.35%	retail
New York	2021	excise	75% of sale price	9%	wholesale
Virginia	2021	<i>No market established</i>			
Rhode Island	2022	excise	sale price	10%	retail
		sales	sale price	7%	retail
Maryland	2022	excise	sale price	9%	retail
Missouri	2022	excise	sale price	6%	retail
		sales	sale price	4%	retail
Minnesota	2023	excise	sale price	10%	retail
		sales	sale price	6.875%	retail
Delaware	2023	sales	sale price	15%	retail
Ohio	2023	excise	sale price	15%	retail
		sales	sale price	5.75%	retail



Jeremiah Mosteller is an attorney and criminal justice policy expert who is a visiting fellow at the Badger Institute. He also serves as a policy director at Americans for Prosperity, where he supports the organization's efforts to advance policies that expand freedom and opportunity in 36 states and Congress. Mosteller leads a team of policy experts who focus on policies that advance public

safety, border security, free speech, and national security. As part of this role, Mosteller has worked with conservatives across the country to shape state and federal marijuana policies that respect conservative principles like low taxes, free markets, competition, federalism, and the rule of law.

Mosteller is part of a team at the Badger Institute with varying and sometimes conflicting personal perspectives and affiliations working together to review existing academic literature on the ramifications of marijuana legalization in other states. The goal of our reports is to be as objective and thorough as possible and simply synthesize what others have found. We encourage feedback and suggestions from anyone who thinks we may have missed any relevant findings. The Badger Institute has not taken a position on legalization in any form and may or may not do so in the future.

Endnotes

- 1: See Appendix A (data for Montana and Massachusetts was excluded because they were unable to fulfill our public records request in time for publication); See also Carl Davis & Mike Hegeman, *Cannabis Taxes Outraised Alcohol by 20 Percent in States with Legal Sales Last Year*, Institute on Taxation and Economic Policy (2022), <https://itep.org/cannabis-taxes-outraised-alcohol-by-20-percent-in-states-with-legal-sales-last-year/>.
- 2: See Appendix A.
- 3: See Appendix A.
- 4: Census Bureau, Table 2. *State Tax Collections Detailed Table: US and States: 2023*, U.S. Department of Commerce (April 2024), <https://www.census.gov/data/tables/2023/econ/stc/2023-annual.html> (showing that states received \$2.2 billion in revenue from sports betting, \$8.4 billion from alcohol sales, and \$17 billion from the sales of tobacco products).
- 5: Census Bureau, *supra* note 4.
- 6: See Appendix B; See generally Adam Hoffer, *Does Your State Tax Recreational Marijuana?*, Tax Foundation (2023), <https://taxfoundation.org/state-recreational-marijuana-taxes-2023>; Carol Kokinis-Graves, *State by state sales tax on cannabis*, Wolters Kluwer (2023), <https://www.wolterskluwer.com/en/expert-insights/whole-ball-of-tax-multistate-sales-tax-on-cannabis>.
- 7: See generally Richard Auxier & Nikhita Airi, *The Pros and Cons of Cannabis Taxes*, Tax Policy Center (2022), <https://www.taxpolicycenter.org/publications/pros-and-cons-cannabis-taxes/full>.
- 8: Emmanuelle Auriol, et al., *Weeding out the dealers? The economics of cannabis legalization*, 216 J. Econ. Behav. Org. 62 (2023) (finding that demand for adult use cannabis products is elastic to different severities based on the state in question); Christopher Mace, et al., *Marijuana Taxation and Imperfect Competition*, 73 Nat'l Tax J. 545 (2020) (finding that every 1% increase in the price of cannabis will reduce demand for cannabis products from legal suppliers by 1.85%); Michael Amlung, et al., *Price elasticity of illegal versus legal cannabis: a behavioral economic substitutability analysis*, 114 Addiction 112 (2019) (finding that the price of both illegal and legal cannabis impacts its level of consumption, noting that the existence of illegal products adds 13% of the price elasticity in the legal market); Adam J. Davis, et al., *The price elasticity of marijuana demand: evidence from crowd-sourced transaction data*, 50 Empirical Econ. 1171 (2016) (finding that the demand for legal cannabis products is elastic and impacted by price); But see Brett Hollenbeck & Kosuke Uetake, *Taxation and market power in the legal marijuana industry*, 52 RAND J. Econ. 559 (2021) (finding that “demand is relatively inelastic for the category as a whole” in Washington’s cannabis industry); See also Keaton Miller & Boyoung Seo, *The Effect of Cannabis Legalization on Substance Demand and Tax Revenues*, 75 Nat'l Tax J. 107 (2021) (finding that a 1% increase in cannabis taxation in Washington would only increase revenue collected by between 0.23-0.25% given elasticity of demand); Benjamin Hansen, et al., *Getting into the Weeds of Tax Invariance*, National Bureau of Economic Research (2021), <https://www.nber.org/papers/w23632>.
- 9: Samantha Goodman, et al., *Reasons for Purchasing Cannabis From Illegal Sources in Legal Markets: Findings Among Cannabis Consumers in Canada and U.S. States, 2019–2020*, 83 J. Studies Alcohol Drugs 392 (2022) (finding that price was the number one reason people were purchasing cannabis from the illicit versus legal market); See also Jason Childs & Jason Stevens, *The state must compete: Optimal pricing of legal cannabis*, 62 Canadian Public Admin. 656 (2019) (“We find that under a range of policy objectives and other circumstances, the socially optimal pricing strategy is for the legal market price to be dramatically lower than the illicit market price.”); See also Hollenbeck, *supra* note 8 (finding that companies pass through all of the increased cost to consumers, including taxes paid throughout the supply chain).
- 10: Hollenbeck, *supra* note 8 (finding that every \$1 in additional tax revenue costs private companies \$0.82 in profit and \$1.58 in consumer welfare).
- 11: Hollenbeck, *supra* note 8 at 564-566.
- 12: Hollenbeck, *supra* note 8 at 582.
- 13: In fact, some economists argue that the presence of a robust and preexisting illicit market for cannabis makes any tax on legal cannabis products imprudent if a state seeks to substantially eradicate illegal products. See e.g. Jason Childs & Jason Stevens, *A cannabis pricing mistake from California to Canada: government can't tax cannabis optimally*, 28 Applied Econ. Letters 779 (2020).
- 14: Other factors like convenience and available legal supply can also impact the market share of a legal regulated market based on prior studies. A prior report in this series explored how cannabis legalization interacts with the consumption of alcohol, tobacco, and other illegal substances. See Jeremiah Mosteller, *Policy Brief: Legalizing cannabis likely means more disordered, harmful use, other states show*, Badger Institute (2024), <https://www.badgerinstitute.org/policy-brief-legalizing-cannabis-likely-means-more-disordered-harmful-use-other-states-show/>.
- 15: Jeremiah Mosteller, *Marijuana legalization and the impact on crime*, Badger Institute (2023), <https://www.badgerinstitute.org/what-research-shows-about-marijuana-legalization-and-rates-of-use/>.

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16: Joohun Han, et al., *Does sin tax on the legal market facilitate the illicit market? An ex-ante assessment on the US cannabis market*, 1 J. Agricultural Applied Econ. Assoc. 1 (2024) (finding that an extra 10% excise tax on cannabis products transfers a significant amount of legal provider sales to the illicit market); Michael Sofis & Mackenzie Slade, *Future Adult Use Cannabis Demand & Predictive Modeling A Behavioral Economic Study*, Cannabis Public Policy Consulting (2023), https://mgaleg.maryland.gov/meeting_material/2023/scr%20-%20133174234517847255%20-%20Market%20Study%20Report_01052023.pdf (finding that price is the most important factor for consumer choosing regulated sources over illicit sources of cannabis and that the regulated market will be able to capture 9% more market share at a 10% versus 30% excise tax rate); Geoff Lawrence, *The Impact of California Cannabis Taxes on Participation within the Legal Market*, Reason Foundation (2022), <https://reason.org/policy-study/the-impact-of-california-cannabis-taxes-on-participation-within-the-legal-market> (finding that California cannabis consumers spend much less on legal cannabis than in other states and that reduction of the state's tax burden will allow legal providers to better compete with the illicit market); Michael Sofis, *Simulating Market Outcomes of Cultivation Tax Removal in California*, Cannabis Public Policy Consulting (2022), <https://www.cannabispolicyconsulting.com/wp-content/uploads/2022/09/Simulating-Market-Outcomes-of-Cultivation-Tax-Removal-in-California.pdf> (estimating that removal of California's cultivation tax will shift 1.3% of illicit cannabis product demand to regulated sources); MPG Consulting, *New Mexico Legalization and Cultivation Capacity Analysis*, MPG Consulting (2021), <https://www.rld.nm.gov/wp-content/uploads/2022/06/MPG-Consulting-2021-Report.pdf> (estimating that New Mexico's regulated cannabis market can capture 99% of the consumer demand with five years with the state's proposed regulatory scheme, a 12% excise tax, and a 5% to 9.3125% gross receipts tax); Gabriel Petek, *How High? Adjusting California's Cannabis Taxes*, Legislative Analyst's Office (2019), <https://lao.ca.gov/Publications/Report/4125/1000> (finding that reducing the tax imposed in California's adult use cannabis market will reduce the amount of illicit cannabis products sold but noting that they "cannot quantify the extent of this effect" given the available data); See also Auriol, *supra* note 8 (finding an "eviction price" of \$98 per ounce will force illicit providers out of the market and increase demand for legal cannabis products by 53% to 91%); Childs, *supra* note 13.

17: Han, *supra* note 16.

18: Lawrence, *supra* note 16 (this tax burden is over two and a half times the production cost and is also 170% and 320% higher than the tax burden in Colorado and Oregon respectively).

19: Lawrence, *supra* note 16.

20: Sofis, *supra* note 16; MPG Consulting, *supra* note 16.

21: Cal. Code Regs. Tit. 18, § 3700 (2023); California Department of Tax and Fee Administration, *Tax Rates – Special Taxes and Fees*, California Department of Tax and Fee Administration (2023), <https://www.cdtfa.ca.gov/taxes-and-fees/tax-rates-stfd.htm>.

22: A.B. 195, 2022 Reg. Sess. (Cal. 2022).

23: Department of Cannabis Control, *86% of Californians who consume cannabis believe it is important to shop legally*, Department of Cannabis Control (2024), <https://cannabis.ca.gov/2024/02/86-of-californians-who-consume-cannabis-believe-it-is-important-to-shop-legally/>.

24: Tom Adams, et al., *California: Lessons from the World's Largest Cannabis Market*, arcview Market Research (2020), https://bdsa.com/wp-content/uploads/2019/08/2019_BDS_California_CIB_Exec_Summ_Final_With_A.pdf; See also Lawrence *supra* note 16; Department of Cannabis Control, *Unified Cannabis Enforcement Taskforce (UCETF)*, Department of Cannabis Control (2024), <https://cannabis.ca.gov/about-us/about-dcc/unified-cannabis-enforcement-taskforce-ucETF/> (reporting that the task force has seized nearly \$400M in illicit cannabis since its creation in 2022); Los Angeles Times Editorial Board, *Californians overwhelmingly supported legalizing marijuana. Why is it still a mess?*, Los Angeles Times (2021), <https://www.latimes.com/opinion/story/2021-12-26/editorial-californians-overwhelmingly-supported-legalizing-marijuana-so-why-is-it-still-a-mess-five-years-later>; Alexander Nieves, *California's legal weed industry can't compete with illicit market*, Politico (2021), <https://www.politico.com/news/2021/10/23/california-legal-illicit-weed-market-516868>.

25: See e.g. Tony Lange, *California County to Lower Cannabis Cultivation Tax as Outdoor Flower Price Drops to \$277 Per Pound*, Cannabis Business Times (2024), <https://www.cannabisbusinesstimes.com/news/sonoma-california-cannabis-tax-outdoor-wholesale-price-pound/>; KPIX 5, *San Francisco Suspends Cannabis Tax To Combat Illegal Marijuana Sales*, CBS SF Bay Area (2021), <https://sanfrancisco.cbslocal.com/2021/12/01/san-francisco-suspends-cannabis-tax-to-combat-illegal-marijuana-sales/>.

26: See e.g. Natalie Fertig, *'Talk About Clusterf---': Why Legal Weed Didn't Kill Oregon's Black Market*, Politico (2022), <https://www.politico.com/news/magazine/2022/01/14/oregon-marijuana-legalization-black-market-enforcement-527012>; Martin Kaste, *Despite Legalization, Marijuana Black Market Hides In Plain Sight*, NPR (2018), <https://www.npr.org/2018/05/16/610579599/despite-legalization-marijuana-black-market-hides-in-plain-sight>.

27: Appendix B; See also David Lyden & Jacob Johnson, *Michigan Based Cannabis Legal Group Breaks Down Recreational Marijuana Taxes*, 9&10 News (2019), <https://www.9and10news.com/2019/12/09/michigan-based-cannabis-legal-group-breaks-down-recreational-marijuana-taxes/>.

28: Michigan Department of Treasury, *Treasury: First Adult-Use Marijuana Payments Distributed to Michigan Municipalities, Counties*, State of Michigan (2021), https://www.michigan.gov/treasury/0,4679,7-121-1755_1963-553542--,00.html; Anderson Economic Group, *Michigan Cannabis Market Growth and Size*, Anderson Economic Group (2021), available at <https://www.andersoneconomicgroup.com/michigan-cannabis-market-growth-and-size/>.

29: Cannabis Regulatory Agency, *Monthly Statistical Reports*, Michigan Department of Licensing and Regulatory Affairs (2024), available at <https://www.michigan.gov/cra/resources/cannabis-regulatory-agency-licensing-reports/cannabis-regulatory-agency-statistical-report> (showing that Michigan's

December 2023 cannabis sales were \$276.7 million compared to only \$61.6 million in December 2020).

30: Michael Sofis & Mackenzie Slade, *Maine Office of Cannabis Policy Cannabis Markets & Associated Outcomes - Survey Findings and Implications*, Advocates for Human Potential (2022), <https://www.maine.gov/dafs/ocp/sites/maine.gov.dafs.ocp/files/inline-files/Maine%20OCP%20AHP%20Report%2006-22.pdf> (showing that 64% of the cannabis market in Maine had been captured by legal sources).

31: For example, levels of enforcement are very difficult to estimate because any specific data on enforcement levels is not uniformly reported by states and any national source providing proxy data such as number of arrests for marijuana crimes would include data covering the many local communities opting out of state law changes.

32: See Jeremiah Mosteller, *Cannabis use disorder, the gateway question and legalization*, Badger Institute (2024), <https://www.badgerinstitute.org/policy-brief-legalizing-cannabis-likely-means-more-disordered-harmful-use-other-states-show/>.

Appendix A: notes and sources for adult-use revenue

The states of Delaware, Minnesota, Ohio and Rhode Island were excluded because their markets had not begun operations in 2023. Additional states, such as Michigan, were excluded because they are unable to provide the data even with a public records request. The sums provided are from calendar year 2023 unless the state only provides a fiscal year figure.

Alaska: Tax Division, *Marijuana Tax: Annual Report Data*, Alaska Department of Revenue (2024), <http://www.tax.alaska.gov/programs/programs/reports/AnnualData.aspx>.

Arizona: Arizona Department of Revenue, *Arizona Marijuana TPT and Excise Taxable Sales and Tax Collections, by Period Covered*, Arizona Department of Revenue (2024), available at <https://azdor.gov/reports-statistics-and-legal-research/marijuana-tax-collection>.

California: California Department of Tax and Fee Administration, *Cannabis Tax Revenues*, California Department of Tax and Fee Administration (2024), <https://www.cdfta.ca.gov/dataportal/dataset.htm?url=CannabisTaxRevenues>.

Colorado: Colorado Department of Revenue, *Marijuana Tax Reports*, Colorado Department of Revenue (2024), <https://cdor.colorado.gov/data-and-reports/marijuana-data/marijuana-tax-reports> (reflects combined total of tax revenue for medical and adult use cannabis sales).

Connecticut: Department of Revenue Services, *Annual Reports*, Department of Revenue Services (2024), <https://portal.ct.gov/drs/drs-reports/annual-reports/departement-of-revenue-services-annual-reports> (reflects only six months of tax revenue for 2023).

Illinois: Illinois Department of Revenue, *Monthly Collections Remitted to the State Comptroller*, Illinois Department of Revenue (2024), <https://tax.illinois.gov/research/taxstats/collectioncomptroller.html>.

Maine: Department of Administrative and Financial Services, *Monthly cannabis taxable sales statewide and adult use tax revenue*, Maine Revenue Services (2024), available at <https://www.maine.gov/revenue/taxes/tax-policy-office/sales-tax-reports>.

Maryland: This sum reflects the total sales occurring in the state from July 2023 to December 2023 multiplied by the state's excise tax rate of 9%. The state does not currently report its tax revenue directly. See Maryland Cannabis Administration, *MCA Medical and Adult-Use Cannabis Data Dashboard*, Maryland Cannabis Administration (2024), <https://cannabis.maryland.gov/Pages/Data-Dashboard.aspx>.

Massachusetts: Massachusetts Department of Revenue, *DOR Annual Reports*, Massachusetts Department of Revenue (2024), available at <https://www.mass.gov/lists/dor-annual-reports>.

Missouri: Missouri Department of Revenue, *Financial and Statistical Report: Fiscal Year Ended June 30, 2023*, Missouri Department of Revenue (2024), available at <https://dor.mo.gov/revenue-annual-financial-report/>.

Montana: Montana Department of Revenue, *Biennial Reports*, Montana Department of Revenue (2024), available at <https://mtrevenue.gov/dor-publications/biennial-reports/>.

Nevada: Department of Taxation, *Cannabis Statistics and Reports*, Department of Taxation (2024), [https://tax.nv.gov/Publications/Cannabis Statistics and Reports/](https://tax.nv.gov/Publications/Cannabis%20Statistics%20and%20Reports/).

New Jersey: Cannabis Regulatory Commission, *Cannabis Sales Totals*, Cannabis Regulatory Commission (2024), <https://www.nj.gov/cannabis/resources/reports-stats-info/>.

New Mexico: This sum reflects the total sales occurring in the state from April 2022 to December 2023 multiplied by the state's 12% excise tax rate and 5% sales tax rate. See Regulation and Licensing Department, *Cannabis Reporting Online Portal*, Regulation and Licensing Department (2024), <https://crop.rld.nm.gov/sales.html>; Taxation and Revenue Department, *Cannabis Excise Tax*, Taxation and Revenue Department (2024), <https://www.tax.newmexico.gov/businesses/cannabis-excise-tax/>.

New York: Office of Cannabis Management, *2023 Annual Report*, Office of Cannabis Management (2024), available at <https://cannabis.ny.gov/reports?>

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keyword=Annual; Office of Cannabis Management, *2022 Annual Report*, Office of Cannabis Management (2023), available at <https://cannabis.ny.gov/reports?keyword=Annual>.

Oregon: Department of Revenue, *Oregon Marijuana Tax Statistics: Accounting Information*, Department of Revenue (2024), available at <https://www.oregon.gov/dor/gov-research/Pages/default.aspx>.

Vermont: Department of Taxes, *Cannabis Excise Tax Statistics*, Agency of Administration (2024), <https://tax.vermont.gov/data-and-statistics/cannabis-excise-tax>.

Washington: Washington State Liquor and Cannabis Board, *Annual Report 2023*, Washington State Liquor and Cannabis Board (2024), available at <https://lcb.wa.gov/about/annual-report>; Washington State Liquor and Cannabis Board, *Annual Report 2022*, Washington State Liquor and Cannabis Board (2023), available at <https://lcb.wa.gov/about/annual-report>; Washington State Liquor and Cannabis Board, *Annual Report 2021*, Washington State Liquor and Cannabis Board (2022), available at <https://lcb.wa.gov/about/annual-report>; Washington State Liquor and Cannabis Board, *Annual Report 2020*, Washington State Liquor and Cannabis Board (2021), available at <https://lcb.wa.gov/about/annual-report>.

Appendix A: notes and sources for medical-use revenue

Arizona: Arizona Department of Revenue, *Arizona Marijuana TPT and Excise Taxable Sales and Tax Collections, by Period Covered*, Arizona Department of Revenue (2024), available at <https://azdor.gov/reports-statistics-and-legal-research/marijuana-tax-collection>.

Arkansas: Email from Scott Hardin at the Arkansas Department of Finance and Administration to Jeremiah Mosteller (Nov. 6, 2023) (on file with author).

Hawaii: Kenneth S. Fink, *Annual Report: Medical Cannabis Dispensary Licensing System*, Department of Health (2023), https://www.capitol.hawaii.gov/reportstoleg/reportuploads/AnnualReportontheEstablishmentandRegulationofMedicalCannabisProductionCentersandDispensaries,2023_12-29-2023-0.pdf.

Illinois: Illinois Department of Revenue, *Monthly Collections Remitted to the State Comptroller*, Illinois Department of Revenue (2024), <https://tax.illinois.gov/research/taxstats/collectionscomptroller.html>.

Louisiana: Department of Revenue, *Annual Tax Collection Report 2022-2023*, Department of Revenue (2024), available at <https://revenue.louisiana.gov/NewsAndPublications/Publications>; Department of Revenue, *Annual Tax Collection Report 2020-2021*, Department of Revenue (2024), available at <https://revenue.louisiana.gov/NewsAndPublications/Publications>.

Maine: Department of Administrative and Financial Services, *Monthly cannabis taxable sales statewide and adult use tax revenue*, Maine Revenue Services (2024), available at <https://www.maine.gov/revenue/taxes/tax-policy-office/sales-tax-reports>.

Mississippi: Mississippi Department of Revenue, *Annual Report Fiscal Year 2023*, Mississippi Department of Revenue (2024), available at <https://www.dor.ms.gov/statistics> (reflect only six months of revenue given the launch date of the state's medical market but also includes fee revenue for licenses).

Missouri: Missouri Department of Revenue, *Financial and Statistical Report: Fiscal Year Ended June 30, 2023*, Missouri Department of Revenue (2024), available at <https://dor.mo.gov/revenue-annual-financial-report/>; Missouri Department of Revenue, *Financial and Statistical Report: Fiscal Year Ended June 30, 2022*, Missouri Department of Revenue (2023), available at <https://dor.mo.gov/revenue-annual-financial-report/>; Missouri Department of Revenue, *Financial and Statistical Report: Fiscal Year Ended June 30, 2021*, Missouri Department of Revenue (2022), available at <https://dor.mo.gov/revenue-annual-financial-report/>.

Montana: Montana Department of Revenue, *Biennial Reports*, Montana Department of Revenue (2024), available at <https://mtrevenue.gov/dor-publications/biennial-reports/>.

New York: Office of Cannabis Management, *2023 Annual Report*, Office of Cannabis Management (2024), available at <https://cannabis.ny.gov/reports?keyword=Annual>; Office of Cannabis Management, *2022 Annual Report*, Office of Cannabis Management (2023), available at <https://cannabis.ny.gov/reports?keyword=Annual>.

North Dakota: Email from Bryan Bittner at the North Dakota Office of State Tax Commissioner to Jeremiah Mosteller (March 12, 2024) (on file with author).

Ohio: Email from Kenneth Frey at Ohio Department of Taxation to Jeremiah Mosteller (March 13, 2024) (on file with author).

Oklahoma: Includes sums collected for local sales taxes given data limitations, which can be up to 7% but are on average less than 4.5%. See Oklahoma Medical Marijuana Authority, *Licensing and Tax Data*, Oklahoma Medical Marijuana Authority (2024), <https://oklahoma.gov/omma/about/licensing-and-tax-data.html>.

Pennsylvania: Department of Revenue, *Report of Revenue and Receipts: Month Ending June 30, 2023*, Department of Revenue (2024), available at <https://www.revenue.pa.gov/News%20and%20Statistics/ReportsStats/RevenueReceipts/Pages/default.aspx>; Department of Revenue, *Report of Revenue and Receipts: Month Ending June 30, 2022*, Department of Revenue (2023), available at <https://www.revenue.pa.gov/News%20and%20Statistics/>

[ReportsStats/RevenueReceipts/Pages/default.aspx](https://www.revenue.pa.gov/News%20and%20Statistics/ReportsStats/RevenueReceipts/Pages/default.aspx); Department of Revenue, *Report of Revenue and Receipts: Month Ending June 30, 2021*, Department of Revenue (2024), available at <https://www.revenue.pa.gov/News%20and%20Statistics/ReportsStats/RevenueReceipts/Pages/default.aspx>; Department of Revenue, *Report of Revenue and Receipts: Month Ending June 30, 2020*, Department of Revenue (2021), available at <https://www.revenue.pa.gov/News%20and%20Statistics/ReportsStats/RevenueReceipts/Pages/default.aspx>.

Appendix B: notes and sources for state adult-use cannabis tax methodologies

These products may also be subject to local sales taxes that are beyond the scope of this report.

Some states call what is historically considered an excise tax a “sales” tax, but we are going to consider any additional or special tax — or in simpler terms a “sin tax” — that is not uniformly applied to many or all products in the state an excise tax.

Washington: Wash. Rev. Code §69.50.535 (2024); 82.08.020 (2024); 82.08.9998 (2024).

Colorado: Colo. Rev. Stat. § 39-26-106 (2024); 39-28.8-202 (2024); 39-28.8-302 (2024).

Alaska: Alaska Stat. § 43.61.010 (2024); 15 A.A.C. § 61.100 (2024).

Oregon: Or. Rev. Stat. § 475B.705 (2024).

California: Cal. Rev. & Tax. Code § 34011 (2024); California Department of Tax and Fee Administration, *Detailed Description of the Sales & Use Tax Rate*, California Department of Tax and Fee Administration (2024), <https://www.cdtfa.ca.gov/taxes-and-fees/sut-rates-description.htm>.

Nevada: N.R.S. § 372A.290 (2024); Department of Taxation, *Components of Sales and Use Tax Rates*, State of Nevada (2024), available at https://tax.nv.gov/Publications/Sales_and_Use_Tax_Publications/.

Maine: 36 M.R.S. § 1811 (2024); § 4923 (2024).

Massachusetts: A.L.M. GL ch. 64N, § 2 (2024); ch. 64H, § 2 (2024).

Michigan: MCLS § 205.52 (2024); 333.27963 (2024).

Illinois: 410 I.L.C.S. § 120/2-10 (2024); 705/60-10 (2024); 705/65-10 (2024).

Montana: MCA § 15-64-102 (2024).

Vermont: 32 V.S.A. § 7902 (2024); § 9771 (2024).

Arizona: A.R.S. § 42-5452 (2024); Arizona Department of Revenue, *Transaction Privilege and Other Tax Rate Tables*, Arizona Department of Revenue (2024), available at <https://azdor.gov/business/transaction-privilege-tax/tax-rate-table>.

New Jersey: N.J. Stat. § 54:47F-1 (2024); Division of Taxation, *Social Equity Excise Fee (SEEF)*, Department of the Treasury (2024), <https://www.nj.gov/treasury/taxation/cannabis/recreational/seef.shtml>; Division of Taxation, *Cannabis Businesses*, Department of the Treasury (2024), available at <https://www.nj.gov/treasury/taxation/cannabis/recreational/seef.shtml>.

New Mexico: N.M. Stat. Ann. § 7-42-3 (2024); New Mexico Taxation and Revenue Department, *Information for Cannabis Industry*, New Mexico Taxation and Revenue Department (2024), available at <https://www.tax.newmexico.gov/businesses/cannabis-excise-tax/>.

Connecticut: Conn. Gen. Stat. § 12-330ll (2024); 12-408 (2024); *see also* Department of Revenue Services, *Cannabis Tax Information*, Department of Revenue Services (2024), <https://portal.ct.gov/drs/taxes/cannabis/cannabis-tax>.

New York: N.Y. C.L.S. Tax § 493 (2024) (new 9% excise tax is in effect on June 1st and previously the state had a potency-based tax).

Rhode Island: R.I. Gen. Laws § 44-18-7 (2024); 44-18-18 (2024); 21-28.11-13 (2024).

Maryland: Md. Tax-General Code Ann. § 11-104(k) (2024); 11-245 (2024).

Missouri: Mo. Const. Art. XIV § 2 cl. 6 (2024); R.S.Mo. § 144.020 (2024).

Minnesota: Minn. Stat. § 295.81 subd. 2 (2024); 297A.62 (2024).

Delaware: 4 Del. C. § 1382 (2024).

Ohio: H.B. 86 (Ohio 2023) (proposed § 5739.27 included in legislation when it passed); O.R.C. § 5739.02 (2024).