



The Nelson A. Rockefeller Center at Dartmouth College

The Center for Public Policy and the Social Sciences

**The Class of 1964 Policy Research Shop**  
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**LEGALIZING MARIJUANA IN VERMONT**

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*A Spectrum of Economic Possibilities*

Presented to the Vermont House Committee on Ways and Means

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TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b>	<b>1</b>
<b>1. INTRODUCTION</b>	<b>1</b>
<b>2. PURPOSE STATEMENT</b>	<b>1</b>
<b>3. METHODOLOGY</b>	<b>1</b>
<b>4. BACKGROUND</b>	<b>2</b>
4.1 VERMONT HOUSE AND SENATE BILLS, FEBRUARY 2015	2
4.2 TAX PLANS	2
4.2.1. <i>Price (Ad Valorem) Base</i>	3
4.2.2. <i>Simple Weight Base</i>	4
4.2.3. <i>Actual THC Potency Base</i>	4
<b>5. TAX PLANS IN ACTION: STATE COMPARISONS</b>	<b>4</b>
5.1 TAX COLLECTION	4
5.1.1. <i>Colorado</i>	5
5.1.2. <i>Washington</i>	5
5.1.3. <i>Oregon</i>	5
5.1.4. <i>Alaska</i>	5
5.2 REVENUE ALLOCATION	6
5.2.1 <i>Colorado</i>	6
5.2.2 <i>Washington</i>	7
5.2.3 <i>Oregon</i>	7
5.3 REVENUE GENERATED SO FAR	7
<b>6. MARKET AND REVENUE PROJECTIONS FOR VERMONT</b>	<b>8</b>
<b>7. ADDITIONAL CONSIDERATIONS</b>	<b>10</b>
7.1 BANKING	10
7.2 BLACK MARKET	11
7.2.1. <i>Evidence From Colorado</i>	12
7.3 LAW ENFORCEMENT COSTS	14
7.3.1. <i>Colorado: Health Care and Law Enforcement</i>	14
7.3.2. <i>Vermont: Current Law Enforcement Costs</i>	14
7.4 TOURISM: POTENTIAL FOR ADDITIONAL FINANCIAL GAINS	15
7.4.1. <i>Colorado</i>	15
7.4.2. <i>Vermont</i>	15
<b>8. CONCLUSION</b>	<b>16</b>
<b>APPENDICES</b>	<b>17</b>
<b>REFERENCES</b>	<b>19</b>



## **EXECUTIVE SUMMARY**

Marijuana legalization is a prominent matter in politics today. While 23 states have legalized use of the entire plant for medicinal marijuana, only four (and Washington, D.C.) have legalized the use of recreational marijuana for people ages 21 and older. This report contextualizes the financial implications of recreational marijuana legalization by highlighting possible tax plans. It compares tax plans in Alaska, Colorado, Oregon, and Washington, but focuses on Colorado and Washington since their markets are already open. This report presents legislators with considerations for crafting an optimal tax plan: costs and ease of tax base implementation; size of the recreational market; projected tax revenue for Vermont; tax collection and allocation mechanisms; and additional financial implications including black market activity and law enforcement costs.

### **1. INTRODUCTION**

Vermont is now considering becoming the fifth state in the nation to legalize recreational marijuana. Though many issues arise with the possibility of legalization, Representative Janet Ancel, Chair of the House Committee on Ways and Means, has enlisted the help of The Nelson A. Rockefeller Center's Policy Research Shop to investigate taxation. Any attempt at legalization must include an in-depth analysis of an array of financial considerations. In addition to taxation strategies, it is also crucial to consider secondary implications of legalization including: banking limitations, black market prevalence, law enforcement costs, and tourism revenue. With this report, we provide the information necessary for the House of Representatives Committee on Ways and Means to design the most appropriate and effective tax plan for recreational marijuana use in the State of Vermont.

### **2. PURPOSE STATEMENT**

Our primary research question is: What are the tax plans, and their financial implications, that Vermont could consider when deciding A) whether to legalize recreational marijuana, and B) how to craft and implement a plan designed to suit the state's needs? To answer this question we outline plans utilized by the four states that have already legalized recreational marijuana, along with how they collect taxes and allocate funds. Lessons learned from legalization in Colorado are intended to alert Vermont legislators to additional factors that may not have previously been considered. Furthermore, we examine Vermont's current market demand, a variety of potential market and tax revenue projections, and additional financial externalities.

### **3. METHODOLOGY**

In order to achieve these objectives, we conduct a comparison of different tax plans, in theory and in practice, across the four states (Alaska, Colorado, Oregon, and Washington) where recreational marijuana is legal. Since Alaska and Oregon have not established



recreational marijuana markets, our analysis predominately focuses on Colorado and Washington. We include state-specific information from an array of media sources, including local newspapers and online marijuana community websites. Lastly, we use Vermont marijuana-use and population data for persons 21 and up along with percentage and weight-based tax options to generate possible revenue projections for Vermont.

## **4. BACKGROUND**

### **4.1. VERMONT HOUSE AND SENATE BILLS, FEBRUARY 2015**

On February 18, 2015, David Zuckerman introduced a bill regarding the regulation and taxation of marijuana to the Senate Committee on Judiciary. Senate Bill 95 proposes an excise tax of \$40 per ounce for marijuana flowers, \$15 per ounce for any other forms of marijuana, and \$25 for each immature plant sold by a cultivator. The bill also outlines tax revenue distribution to the following: “initiatives focusing on public education about the safety risks of alcohol, tobacco, and marijuana; evidence-based criminal justice programs and substance abuse treatment services; law enforcement; municipalities that have marijuana establishments in their jurisdictions, the Youth Substance Abuse Safety Program, and academic and medical research on marijuana.”<sup>1</sup> The House introduced a similar bill to its Judiciary Committee on February 24, 2015.

### **4.2. TAX PLANS**

There is a continuum of tax plan options available for the taxation of recreational marijuana. When designing a plan for Vermont, legislators should weigh the costs and benefits of existing options. Depending on the base and tax level, one plan may be more or less advantageous in its ability to achieve specific financial and social goals such as revenue generation or black market reduction. Vermont must decide its fiscal objectives and develop the most efficient plan given the state’s resources and other factors including the size of the black market.

In a 2015 report, the RAND Corporation outlines eight possible tax bases, as seen in Figure 1.<sup>2</sup> The chart provides a general overview of the bases, as well as advantages and disadvantages of each option. Our report focuses on the three most common bases: simple weight, price, and potency. States that have already legalized recreational marijuana employ the simple weight and price bases, while the federal government taxes alcohol with a potency base.



Figure 1: Tax Bases<sup>3</sup>

Item	Prevention of After-Tax Price Collapse	Swiftness of Initial Tax Assessment	Potential for Gaming	Simplicity	Start-Up Costs to Administer	Ongoing Costs to Administer	Revenue Maximization as Industry Evolves	Federal Conflict
Simple weight	Low	Fast	Low	High	Medium	Low	Low	Ordinary
Price	Very low	Fast	High unless transfer pricing is solved	High if transfer pricing is solved	Low	Low if transfer pricing is solved	Low	Ordinary
Potency	Low	Slow	Low, eventually	Low	High	High	High	Labs need state involvement
Different weight rates for bud and trim	Low	Medium	High	Low	Medium	Medium	Medium	Ordinary
CW: Different weight rates for raw and concentrates	Low	Medium	Low	High	Medium	Low	Medium	Ordinary
CP: Raw by weight, concentrates by potency	Low	Slow	Low, eventually	Low	High	High	Better than medium	Labs need state involvement
Claimed-THC alternative minimum tax	Low	High	High	High	Low	Low	Medium	Ordinary
Square feet	Low	Fast	Low	High	Low	Low	Medium	Ordinary
Electricity add-on	No	Fast	Low	High	Low	Low	Low	Ordinary
Monopoly (for comparison)	Yes	N/A	No	High	High	Medium to High	High	Extraordinary

NOTE: CW = concentrate by weight (concentrates are taxed at a high weight-based rate). CP = concentrate by potency.

Before deciding which tax plan is most appropriate for the state, legislators will want to determine the underlying goals of legalization and taxation. Each plan offers its own priorities and consequences; thus some are appropriate for achieving certain goals over others.

#### 4.2.1. Price (Ad Valorem) Base

A 'Price Base' or 'Ad Valorem' tax plan uses the price of the product, as determined by the market and market forces, to determine the tax. Instead of setting a flat rate across all variations and qualities of products, the price system assigns a percent rate at which each product is taxed according to its market value.<sup>4</sup> For example,  $x$  percent excise tax on marijuana would be  $x$  percent of whatever the market decided that product was worth. Colorado, Oregon and Washington use this system to tax recreational marijuana, while Vermont uses this plan on chewing tobacco and liquor (in addition to the six percent state sales tax). Of the tax bases, Ad Valorem is the easiest to organize and implement mainly because it does not necessitate equipment or indexing. Additionally, it alleviates regressivity; favoring lower priced products, as cheaper products will have an absolute lower tax than the same quantity of a more expensive product.<sup>5</sup> This base is disadvantageous because it can create room for taxpayers to finesse the system through bundling, the practice of packaging multiple products that would otherwise require various tax rates as one product, with one price and consequently, a lower tax. Bundling allows sellers to gain market advantages by increasing profits and offering discounts. Not only would this lead to revenue losses for the state, it would also threaten regulatory controls on the drug. That said this might not pose a threat since Vermont already has extensive anti-bundling tax rules in place.<sup>6</sup>



#### *4.2.2. Simple Weight Base*

A ‘Simple Weight Base’ tax plan uses the weight of the product as the foundation on which to organize the tax. A flat tax rate is set and applied per designated weight amount, for example  $x$  dollars per ounce of marijuana. Alaska has implemented this system for the taxation of recreational marijuana, while Vermont uses this model for cigarettes and other tobacco products.<sup>7</sup> When compared to the price-based system, simple weight provides a more stable revenue stream. Additionally, a weight-based system is easier to execute than a potency-based system, and has the potential to favor artisanal and organic products since luxury is not additionally taxed.<sup>8</sup> The weight base is harder to set-up than a price base, and problems can arise since weight is subject to moisture. Sellers may also be incentivized to dangerously maximize the amount of intoxicating materials in each gram. Low taxation rates may diminish this incentive, but lower rates would reduce revenue potential.<sup>9</sup>

#### *4.2.3. Actual THC Potency Base*

An ‘Actual THC Potency Base’ tax plan uses a lab-determined concentration of THC (percent per gram) as the foundation on which to tax. Similar to ‘Ad Valorem’ the tax is generally a percent rate, but instead of being assigned to the market value, it is assigned to the potency value of the product. The federal government uses this system to tax liquor based on alcohol content.<sup>10</sup> Currently, none of the states use the ‘Actual THC Potency Base’ for marijuana, but a Massachusetts Bill proposed in 2013 included the base. A major advantage of this base is that THC potency provides a better sense of resulting intoxication levels, although levels of intoxication also vary across users.<sup>11</sup> Unfortunately, the system requires more financial resources and organization than other bases.<sup>12</sup>

## **5. TAX PLANS IN ACTION: STATE COMPARISONS**

Currently, four states and one territory (Washington, D.C.) have legalized the use of recreational marijuana. Each locality has its own rules and regulations in place. We have chosen to exclude Washington, D.C. from our report due to the novelty and controversy of legalization in the nation’s capital.

### **5.1. TAX COLLECTION**

Tax collection is a critical consideration in designing a tax plan. Choosing how, when, and who to tax in the supply chain affects the potential to achieve a state’s financial goals. It is generally understood that the best way to collect an excise tax is to form a choke point in the supply chain, which entails having a small number of taxpayers and locations. The earlier taxes are collected in the chain, the lower the chance of leakage (the diversion of legal products into the black market before tax collection) out of the legal market.<sup>13</sup> Additionally, it is critical to ensure the tax collection system does not trump



other policy goals. Finally, it is important to examine how tax collection affects marijuana businesses, for example by implementing a collection mechanism that reduces the federal income tax burden.

#### *5.1.1. Colorado*

In Colorado, the 2012 passing of Amendment 64 legalized recreational marijuana use for those aged 21 and older. There, recreational marijuana has three taxes: 15 percent marijuana excise tax, 10 percent recreational marijuana special sales tax, and a 2.9 percent marijuana sales tax. The state collects marijuana taxes from retailers and producers, which are often one in the same since many businesses are vertically integrated.<sup>14</sup> As previously mentioned, Colorado uses tax collection to track marijuana supply from cultivation to retail. This system helps regulate leakage into the black market and ensures maximal revenue collection before inevitable leakage occurs.

#### *5.1.2. Washington*

In Washington, Initiative 502 legalized recreational marijuana for those aged 21 and over, and outlined a three-level 25 percent tax applied to producers, processors and retailers. Additionally, it subjected marijuana to Business and Occupation gross income, 6.5 percent sales, and multiple local sales taxes; creating an effective tax rate of about 44 percent. On July 1, 2015, the state transitioned to a single excise tax (imposed on customers) of 37 percent on all taxable sales of marijuana, marijuana concentrates, and marijuana-infused products.<sup>15</sup> House Bill 2136 proposed this tax reform, which also outlines an intent to share tax revenues with local jurisdictions to facilitate sales and promote public safety.<sup>16</sup>

#### *5.1.3. Oregon*

In Oregon, Measure 91 outlines the taxation plan for recreational marijuana. Initially, a freeze period in which no taxes were collected lasted from October 1, 2015 to January 3, 2016. For the remainder of 2016, there is a 25 percent tax on recreational marijuana that is sold in medical dispensaries. Eventually, the state intends to transition recreational sales from medical to recreational dispensaries. If a recreational dispensary system is established by 2017, recreational marijuana taxes will range from 17 to 20 percent.<sup>17</sup>

#### *5.1.4. Alaska*

In Alaska, citizens approved Ballot Measure 2 that lead to the establishment of a Marijuana Control Board to administer legalization. According to current regulations, marijuana cultivation facilities are slated to pay an excise tax of \$50 per ounce.<sup>18</sup> Recreational marijuana sales have yet to start since the Alaska Marijuana Control Board is currently in the process of establishing rules to govern marijuana-related entities. For this reason, we have chosen to exclude Alaska from the remainder of the report.



## 5.2. REVENUE ALLOCATION

Possibly the most critical feature of any tax plan is revenue allocation. Will revenue collected be added to the state’s General Fund or earmarked for specific programs? If it is earmarked, will revenue be designated to offsetting costs of legalization or to funding other avenues of state spending? Moving forward, it is critical to answer these questions as Vermont seeks to design an appropriate and effective tax plan. A summary of tax rates and revenue allocation for each of the four states that have already legalized recreational marijuana can be found below.

*Table 1: Tax Rate and Revenue Allocation*

State	Tax Rates	Revenue Allocation*
Colorado	15% Excise 10% Recreational 2.9% Marijuana Sales TOTAL: 27.9%	<ul style="list-style-type: none"> <li>• Make the Marijuana Industry Self-Sufficient</li> <li>• Marijuana Safety Campaign</li> <li>• Improve Public Schools</li> </ul>
Washington	37% Excise	<ul style="list-style-type: none"> <li>• Promote Public Safety</li> <li>• Facilitate Safe Market</li> </ul>
Oregon	25% Excise	<ul style="list-style-type: none"> <li>• Enforcement</li> <li>• Fund Schools</li> <li>• Promote Public Safety</li> </ul>
Alaska	\$50 Per Ounce	<ul style="list-style-type: none"> <li>• Still Being Legislated</li> </ul>

\*Items listed capture primary, but not all, revenue appropriations.

### 5.2.1. Colorado

Colorado’s primary financial goal is to have “the industry’s regulation pay for itself through licensing and tax revenues.”<sup>19</sup> In order to do so, the state’s marijuana taxes are earmarked to fund specific programs that further this goal. For 2015-2016, the state’s Marijuana Public Awareness Campaign received \$2.15 million, local law enforcement training received \$1.17 million, and the Governor’s office received \$190,097 for the formation and execution of the Governor’s Office of Marijuana Coordination.<sup>20</sup> Additionally, citizen willingness to vote in favor of the recreational marijuana Amendment was largely due to the added provision promising benefits to the public school system. Following the first year of implementation, \$18 million marijuana tax dollars were distributed to the Department of Education.<sup>21</sup> Once fully established, \$40





million of annual marijuana tax revenue will be earmarked for the Department of Education’s Building Excellent Schools Today program to construct and repair schools.<sup>22</sup>

### 5.2.2. Washington

In Washington, “marijuana excise taxes, license fees, penalties, forfeitures, and other moneys, income, or revenue received by the [Washington Liquor and Cannabis Board] from marijuana-related production and distribution activities” flow to the Dedicated Marijuana Account.<sup>23</sup> Dedicated Marijuana Account dollars are earmarked for: administration pertaining to the recreational marijuana program (no less than \$1.25 million per quarter), cost-benefit analyses, marijuana education initiatives, programs dedicated to prevention and reduction of substance abuse, research on the effects of marijuana use, school dropout prevention, and surveys of youth substance use.<sup>24</sup> Account revenue may also be distributed to the Washington General Fund.<sup>25</sup>

### 5.2.3. Oregon

In Oregon, state excise tax revenues are allocated as follows: 40 percent to the Common School Fund, 20 percent to the Mental Health Alcoholism and Drug Services account, 15 percent to State Police, 10 percent each to cities and counties to cover enforcement, and five percent to the Oregon Health Authority to fund alcohol and drug abuse prevention initiatives.<sup>26</sup>

## 5.3. REVENUE GENERATED SO FAR

The following is a snapshot of the financial situations in states with existing legislation. For the remainder of the report, we focus on only Colorado and Washington. These states were the first to legalize recreational marijuana; therefore, more is known about the effects of their policy implementation.

*Table 2: Revenue Generated in Colorado and Washington*

State	Year	Tax Rate	Revenue
Colorado	Jan-Dec 2014	15% Excise Tax 10% Special Sales Tax 2.9% Sales Tax	Recreational Tax Revenue: \$37,783,424
	Jan-Dec 2015		Recreational Tax Revenue: \$69,081,500
Washington	FY 2015	3-Level 25% Tax*	Recreational Tax Revenue: \$64,946,432

\*Future data for FY 2016 will be based on a single 37 percent excise tax (effective July 1, 2015).

In 2014, Colorado received roughly \$38 million in recreational marijuana tax revenue. That amount nearly doubled in 2015, reaching approximately \$70 million.<sup>27</sup> In fiscal year 2015, Washington received \$64.9 million in recreational marijuana tax revenue.<sup>28</sup>



## **6. MARKET AND REVENUE PROJECTIONS FOR VERMONT**

The following analysis estimates potential tax revenue for two distinct tax plans and multiple tax rates over an estimated range of market sizes. Table 3 outlines values used to calculate potential recreational marijuana market size and tax revenue in Vermont. In 2011-12, the Substance Abuse and Mental Health Services Administration estimated marijuana usage by Vermonters aged 21-24 to be between 21.45 percent and 33.18 percent, and between 10.73 and 16.07 percent for those 25 and up.<sup>29</sup> To calculate an estimated number of marijuana users we multiplied these percentages by the total population in both age groups, according to 2010 U.S. Census data. This range is between 51,883 and 77,210 individuals, which is a conservative figure.<sup>30</sup> In Vermont's State of the State address given on January 7, 2016, Governor Peter Shumlin reports the 2015 estimate for marijuana users to be over 80,000. That said our projections are relatively conservative since the high-end of the range we use is over 77,000 users.<sup>31</sup>

A report by the state of Washington found that the average marijuana consumer uses 2.17 ounces per year.<sup>32</sup> When applied to the numbers above, this number estimates marijuana consumption in Vermont between 112,586 and 167,546 ounces per year.

Figure 2 demonstrates the potential tax revenue using a percent price-based tax plan. The graph includes prospective percent tax rates over a range of market sizes in dollars. Figure 3 demonstrates the potential tax revenue using a weight-based tax plan, including prospective tax values per ounce of marijuana over a range of market sizes in ounces/year. Appendices A and B are the bias analysis tables used to generate each graph, providing the exact potential tax revenue values for each market size and tax rate.

For both projections, we multiplied tax rates by particular market sizes to yield potential tax revenues. That said, neither accounts for enforcement costs—revenue that would be used to enforce legal protocol and regulate the industry. Additionally, the projections do not consider the possibility of negative marginal returns--the point at which revenues start to decline despite a high tax rate and large market--a phenomenon that is likely attributed to the black market, which consumers deem a cheaper alternative. These considerations, although difficult to quantify, are important to keep in mind when determining a tax base and subsequent revenue allocation.



*Table 3: Estimated Marijuana Consumption for Vermont*

VT 21-24 Population (2010 Census)	25,438
VT 25+ Population (2010 Census)	427,943
TOTAL VT 21+ Population	453,381
21-24 Marijuana Usage (SAMHSA 2011-2012)	23.45% to 33.18%
25+ Marijuana Usage (SAMHSA 2011-2012)	10.73% to 16.07%
Estimated Marijuana Users in State of VT	51,883 - 77,210
Marijuana User's Average Annual Consumption	2.17 oz/year
Estimate Gross Marijuana Consumption in State of VT	112,586 oz - 167,546 oz/year
Range Pricing for 1 oz. of Marijuana	\$187.50 - \$367

*Figure 2: Projected Tax Revenue Given Various Percent Price Tax Plans and Estimated Marijuana Market Sizes*

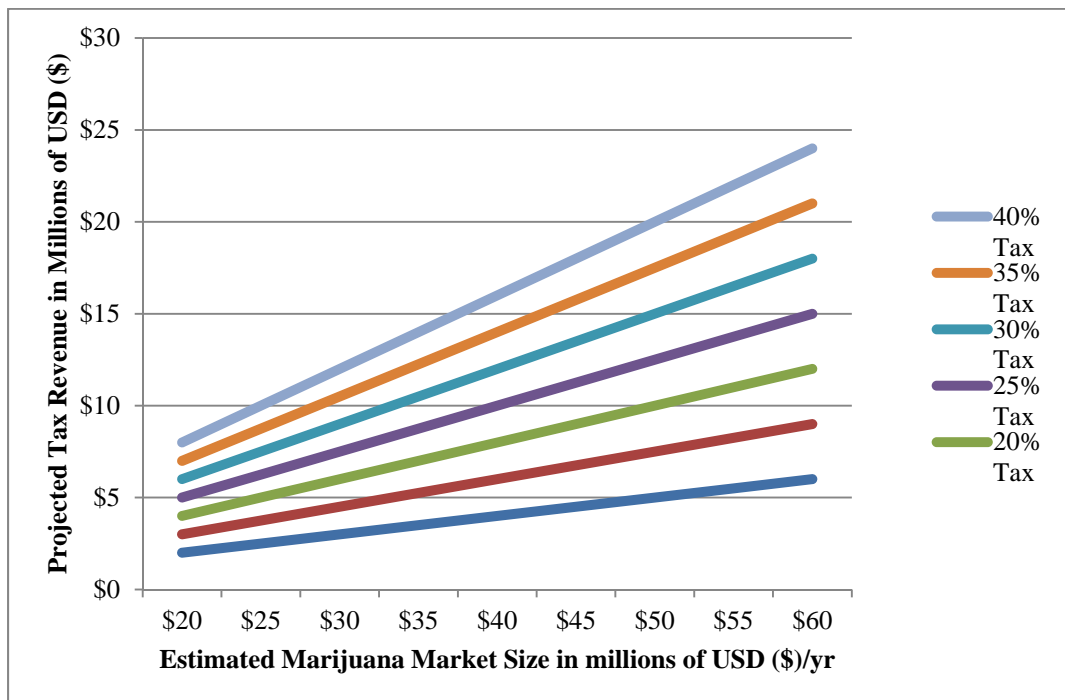
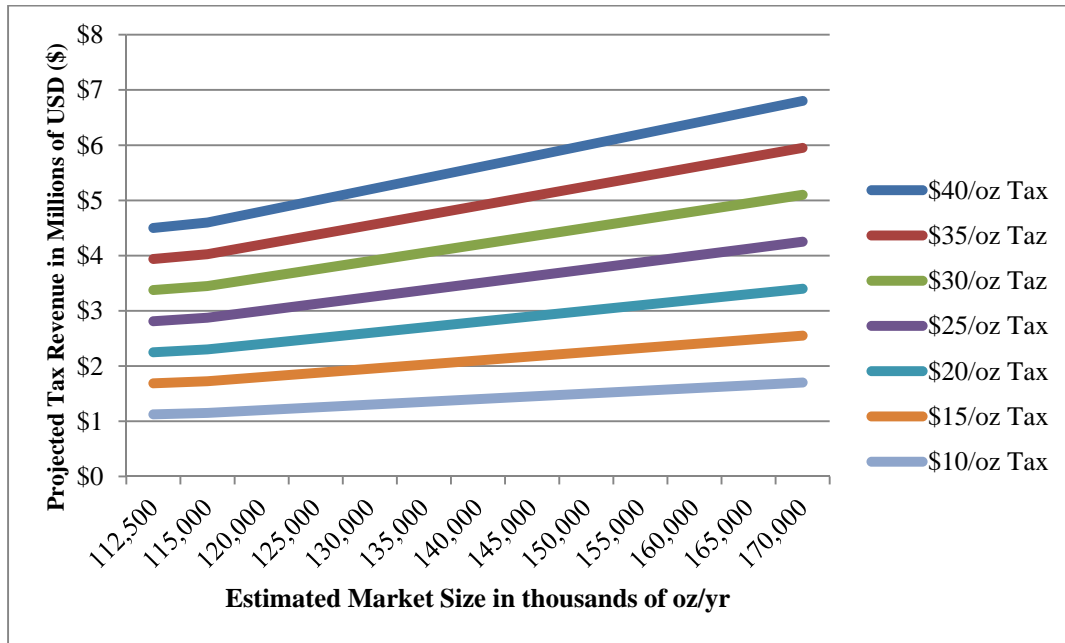


Figure 3: Projected Tax Revenue Given Various Weight-Based Tax Plans and Estimated Marijuana Market Sizes



## 7. ADDITIONAL CONSIDERATIONS

### 7.1. BANKING

Operations in states with legalized medical or recreational marijuana have been stymied by denied access to the banking system, as banks have no assurances they will not be prosecuted under federal law for rendering the federally illegal financial services. Inability to access bank accounts, accept credit cards, or write checks results in a safety risk for businesses because they are left to operate with cash-only. Moreover, this adds a layer of complexity to tax collection.

Ambiguities regarding marijuana’s legal status at the federal level deny legal marijuana business access to banking services. This problem has brought about a bipartisan bill, the Marijuana Businesses Access to Banking Act of 2015 by Oregon’s Senator Jeff Merkley (D-OR), Senator Cory Gardner (R-CO), Senator Ron Wyden (D-OR), Senator Michael Bennet (D-CO), and Senator Patty Murray (D-WA).<sup>33</sup> The bill aims to create protections for depository institutions that provide financial services to marijuana-related businesses. As marijuana remains illegal under the U.S. Controlled Substances Act, both the Federal Reserve and National Credit Union Administration cite federal law in denying access.

Looking for a solution, Colorado chartered the Fourth Corner Credit Union with guidance on ways to handle marijuana revenue from the Treasury Department. The purpose of this



bank is to provide Colorado marijuana businesses access to financial services.<sup>34</sup> Federal legislation is needed to fully guarantee banking rights, and the Marijuana Businesses Access to Banking Act is a possible solution.

## 7.2. BLACK MARKET

The theoretical benefits of the legalization of recreational marijuana are twofold. By legalizing the drug, the black market and its related crimes should be subsequently minimized as an increasing share of the population shifts to the legal sphere. By taxing newly legitimate businesses, the state is able to generate a new source of revenue. Furthermore, the revenue may in turn neutralize the fiscal impact of legalization by paying for enforcement, and providing the means to fund additional government endeavors. Unfortunately, the benefits of reducing the black market and increasing tax revenue within the state are not positively correlated. Instead, there is a considerable trade-off between these two potential benefits of legalization.

Once the legislature determines goals of legalization and the most appropriate tax plan to achieve elected aims, the legislature should attempt to mitigate the plan's potential disadvantages. For example, if the state's goal is to reduce black market presence and subsequent negative consequences, the Committee on Ways and Means should consider a relatively low tax rate, which results in lower revenue generation. To fulfill this goal, the tax rate must be set below the point where potential buyers are de-incentivized to use the legal market due to higher costs than black market options. If taxes are not too onerous, the black market should lose customers and shrink because the opportunity cost of taking the illegal route is too high. While successful in shrinking the illegal market, a lower tax rate generates reduced yearly state revenue as compared to a relatively high tax rate, all else remaining equal. If the state decides to prioritize revenue generation, the tax plan should include a higher tax rate. Using this plan may come with the following cost: an increase in the size and power of the black market. If the tax rate is too high, it may undermine its own goal by incentivizing legal customers to turn back to the black market, simultaneously contributing to the black market *and* shrinking potential revenue for state use.

States with legal medical and/or recreational marijuana generally have been using the 'sales gap' method to keep track of the black market's size and activity. The 'sales gap' is estimated by subtracting the state's total estimated demand for marijuana from the actual size of the legal supply sold. This produces a general estimate through which a state can track the unmet demand and thus, the black market's size over time. In spite of this tool for approximation, it is still extremely difficult to measure the impact of legalization and taxation levels on the size and scope of the illegal market.



### 7.2.1. Evidence from Colorado

In Colorado, legalization and taxation of recreational marijuana in Colorado is framed as a means to create a new source of revenue for the state, specifically to pay for the policy's enforcement and to support and improve the public school system. Initially, Colorado also claimed that legalization would minimize the black market and benefit impoverished and minority populations who are disproportionately afflicted by the drug criminalization policy.

Given the multifaceted-nature of the state's policy goals, its 'success' is highly contested. It is undeniable that Colorado has effectively generated millions of dollars in revenue—so much so that on September 16, 2015, the state was awarded a tax holiday: one day without recreational excise and special sales taxes. The tax holiday was in accordance with Colorado House Bill 15-1367 that states: "If, for the fiscal year 2014-2015, fiscal spending is greater than twelve billion dollars or if the Revenue from retail marijuana taxes is greater than sixty-seven million dollars, then on September 16, 2015, the rate of tax imposed...[will be] reduced."<sup>35</sup>

Despite substantial revenue production and spending on education initiatives, many argue the tax rate levied on recreational marijuana pushes potential customers to the medicinal market (as the only tax on medicinal marijuana is the basic statewide sales tax of 2.9 percent) or to the black market. "Camouflaged amid the legal medicinal and recreational marijuana market, the ever-adaptable underground market thrives. Some in law enforcement and on the street say it may be as strong as it's ever been, so great is the unmet local and visitor demand," which will continue as long as there are state discrepancies and "as long as it's legal retail competition keeps prices high and is taxed by state and local government surpassing 30 percent."<sup>36</sup> In February 2015, Colorado Attorney General Cynthia Coffman commented that tax revenue generated from marijuana sales was "not worth it." She added, "The criminals are still selling on the black market... We have plenty of cartel activity in Colorado [and] plenty of illegal activity that has not decreased at all."<sup>37</sup>

Moreover, findings from the Tax Foundation indicate that in spite of millions of dollars of revenue generated, "tax collections in Colorado have fallen short of project revenue estimates."<sup>38</sup> This "revenue shortfall is due to incorrect projections about the switch from lower-taxed medical marijuana to higher-taxed retail marijuana."<sup>39</sup> For 2014, the Department of Revenue estimated, given the demand was 130 metric tons and the legal supply was 77 tons, that the grey market was supplying 36 tons while the black market was responsible for seven tons or six percent of the total demand.<sup>40</sup>

Notwithstanding that the black market is growing and revenue production is falling short, many state officials and supporters still assert that it is too early to evaluate the net influence on the black market. Instead, arguing that more time is needed for the market to adjust and for positive impacts to be realized. "The vast majority of the state's medical



and recreational marijuana stores are living up to stringent state rules...[as] stores have sold marijuana to hundreds of thousands of customers without incident... [In 2014,] marijuana supporters [noted] that violent crimes in Denver—where the bulk of Colorado’s pot retailers are—[were] down... The number of robberies from January through April fell by 4.8 percent from the same time in 2013, and assaults were down by 3.7 percent. Overall, crime in Denver is down by about 10 percent.”<sup>41</sup> Additionally, *The Washington Post* reveals that Mexican marijuana farmers who sell to the US black market are suffering from a significant decrease in the wholesale price of marijuana as a result of legalization.<sup>42</sup> Terry Nelson, a former federal agent, agrees that legalization is hurting the cartels, noting: “The cartels are criminal organizations that were making as much as 35-40 percent of their income from marijuana. They aren’t able to move as much cannabis inside the US now.”<sup>43</sup> Moreover, to further de-incentivize Colorado residents and tourists from turning back towards the black market, the state is set to lower its 10 percent retail tax to eight percent by July 2017.<sup>44</sup>

The policy is also criticized for not advancing the position of disadvantaged populations as its supporters promised. “In this light, taxation is seen as a blunt instrument of exclusion, driving precisely the groups most prosecuted in the war on drug further into the arms of the black market where they remain at risk for arrest or robbery.” In one Denver dispensary, a \$30 purchase of one-eighth of the Trinity strain of cannabis includes \$7.38 in state and local taxes—a near 33 percent rate. As Larisa Bolivar, one of the city’s most well-known proponents of decriminalizing marijuana and opening a free market, puts it: “That seven bucks buys someone lunch... ‘It’s simple,’ she says. ‘A high tax rate drives black market growth. It’s an incentive for risky behavior.’”<sup>45</sup> Since the impoverished minority population can’t afford the high tax rates on legal marijuana they often turn back to the black market and thus have the highest risk of legal consequences. If anything, this policy has only benefitted white, upper-class individuals with little risk of being caught. This creates problematic class-based cleavages in terms of whom legalization and taxation benefits.

Colorado has not only lost tax revenue to the black market, but to legal private growth and subsequent illegal sales of the personally grown products—the grey market. With the legalization of personal marijuana plants, the state has lost in-state business and therefore is becoming increasingly reliant on tourist consumption. Instating restrictions or simply prohibiting personal marijuana plant ownership may mitigate this issue.



### 7.3. LAW ENFORCEMENT COSTS

#### 7.3.1. *Colorado: Health Care and Law Enforcement*

Colorado legislators and state officials report “increased law enforcement, regulation and health care costs” resulting from the legalization of recreational marijuana. The aforementioned federal illegality of marijuana forces the state industry to run predominantly on cash.<sup>46</sup> That said, marijuana clinics have been subjected to robbery and even kidnappings of sales clerks that warrant previously unneeded attention from law enforcement. The lack of an instrument, such as a breathalyzer for determining alcohol intoxication levels, for confirming the presence of marijuana in a driver’s system is also problematic. Lastly, law enforcement reports increased costs resulting from responses to Colorado residents who circulate marijuana to states where the drug is illegal.

In regards to health care, emergency room visits have increased due to complications from consuming marijuana-infused candy.<sup>47</sup> This has been a problem for adults and children who inadvertently consume treats they assume are ordinary candies. In an attempt to curb accidental ingestion and as per earlier legislation, the workgroup for Colorado House Bill 14-1366 developed a standardized symbol—“a diamond shape containing the letters THC along with an exclamation point”—to print or stamp on all marijuana edibles.<sup>48</sup> Marijuana-infused drinks and other products that cannot be stamped must contain 10 or less milligrams of THC. Manufacturers have until October 2016 to make necessary changes. In addition to manufacturing limits, restrictions on consumers have also been implemented. Effective January 2016, Colorado residents are allowed to buy a maximum 80 servings of edibles and out-of-state visitors a maximum of 20 per single transaction.<sup>49</sup>

Outcomes in Colorado demonstrate a need to develop marijuana-specific emergency response and regulatory systems as well as provide proper law enforcement training (i.e., how to spot and respond to individuals under the influence of marijuana) *prior* to legalization.

#### 7.3.2. *Vermont: Current Law Enforcement Costs*

In a report published in 2015, the RAND Corporation provides estimates for marijuana enforcement (arrest and jurisdiction-related) costs as well as profit generated following decriminalization effective July 2013. For fiscal year 2014, “the State of Vermont spent between \$1 million and \$1.3 million enforcing laws against marijuana...but also collected approximately \$200,000 in marijuana-related fines and surcharges.”<sup>50</sup>

Although revenue generated through fines and surcharges will likely decrease following legalization, tax revenues can be used to fund enforcement efforts. Additional costs related to monitoring producers, processors, and retailers would need to be calculated. That being said, Colorado, Oregon, and Washington allocate a portion of revenues to





enforcement, so it should be assumed that Vermont could implement similar mechanisms.

#### 7.4. TOURISM: POTENTIAL FOR ADDITIONAL FINANCIAL GAINS

##### *7.4.1. Colorado*

The legalization and taxation of recreational marijuana can create positive, fiscal externalities for the state, chief among them: increased tourism and related profits. Economists note that the economic impact of marijuana tourism is larger than just additional recreational marijuana sold and tax revenue collected, as it does not include visitor spending on hotels, restaurants, or paraphernalia.<sup>51</sup>

Colorado has leveraged its own unique geographic and market advantages to attract more tourists and related-profits to the state. Towns like Breckenridge, Colorado brought in around \$8.8 million in marijuana sales in 2014. The Department of Revenue for the state estimated that 90 percent of these sales came from tourists, with revenues from these sales going directly to early childhood education, law enforcement, and mental health services.<sup>52</sup> Colorado has also taken advantage of ski tourism and its intersection with marijuana tourism, in order to generate large amounts of revenue to support the ski towns year-round. This model could easily be replicated in Vermont. Recreational Marijuana Legalization has the strong potential to invigorate the tourism economy in the State of Vermont just as it did in Colorado.<sup>53</sup>

##### *7.4.2. Vermont*

As is, the tourism sector in Vermont brings in \$3 billion of economic activity each year and supports 30,000 Vermont workers, providing hundreds of millions of tax dollars to support state and local government programs.<sup>54</sup> Recreational marijuana led tourism growth in the state of Vermont has the potential to further expand the industry. As the first possible state to legalize recreational marijuana on the East Coast, Vermont could likely become a regional hub for recreational marijuana use, its location serving as a comparative advantage within the East Coast tourism industry.



## **8. CONCLUSION**

This report presents the financial implications of recreational marijuana legalization in Vermont. It provides background tax base and collection information, as well as preliminary data findings and implications of legalization in Colorado and Washington. Lastly, it provides marijuana market and tax revenue projections along with additional considerations for Vermont if the state were to legalize recreational use. Moving forward, legislators will have to weigh the costs and benefits of each tax plan in order to develop an ideal model for Vermont. As evidenced in Colorado, if a bill is passed, legislators would have to be flexible in adapting any future plan to account for implications of legalization that arise in the state along the way.



APPENDIX A

Table 4: Projected Tax Revenue Values Given Various Percent Price Tax Plans and Estimated Marijuana Market Sizes

Revenue/Yr. (Mkt x Tax)	MARGINAL TAX RATES (Percent of Price of Marijuana)														
	0.05	0.075	0.1	0.125	0.15	0.175	0.2	0.225	0.25	0.275	0.3	0.325	0.35	0.375	0.4
Estimated Market In \$	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000
\$22,500,000	\$1,125,000	\$1,687,500	\$2,250,000	\$2,812,500	\$3,375,000	\$3,937,500	\$4,500,000	\$5,062,500	\$5,625,000	\$6,187,500	\$6,750,000	\$7,312,500	\$7,875,000	\$8,437,500	\$9,000,000
\$25,000,000	\$1,250,000	\$1,875,000	\$2,500,000	\$3,125,000	\$3,750,000	\$4,375,000	\$5,000,000	\$5,625,000	\$6,250,000	\$6,875,000	\$7,500,000	\$8,125,000	\$8,750,000	\$9,375,000	\$10,000,000
\$27,500,000	\$1,375,000	\$2,062,500	\$2,750,000	\$3,437,500	\$4,125,000	\$4,812,500	\$5,500,000	\$6,187,500	\$6,875,000	\$7,562,500	\$8,250,000	\$8,937,500	\$9,625,000	\$10,312,500	\$11,000,000
\$30,000,000	\$1,500,000	\$2,250,000	\$3,000,000	\$3,750,000	\$4,500,000	\$5,250,000	\$6,000,000	\$6,750,000	\$7,500,000	\$8,250,000	\$9,000,000	\$9,750,000	\$10,500,000	\$11,250,000	\$12,000,000
\$32,500,000	\$1,625,000	\$2,437,500	\$3,250,000	\$4,062,500	\$4,875,000	\$5,687,500	\$6,500,000	\$7,312,500	\$8,125,000	\$8,937,500	\$9,750,000	\$10,562,500	\$11,375,000	\$12,187,500	\$13,000,000
\$35,000,000	\$1,750,000	\$2,625,000	\$3,500,000	\$4,375,000	\$5,250,000	\$6,125,000	\$7,000,000	\$7,875,000	\$8,750,000	\$9,625,000	\$10,500,000	\$11,375,000	\$12,250,000	\$13,125,000	\$14,000,000
\$37,500,000	\$1,875,000	\$2,812,500	\$3,750,000	\$4,687,500	\$5,625,000	\$6,562,500	\$7,500,000	\$8,437,500	\$9,375,000	\$10,312,500	\$11,250,000	\$12,187,500	\$13,125,000	\$14,062,500	\$15,000,000
\$40,000,000	\$2,000,000	\$3,000,000	\$4,000,000	\$5,000,000	\$6,000,000	\$7,000,000	\$8,000,000	\$9,000,000	\$10,000,000	\$11,000,000	\$12,000,000	\$13,000,000	\$14,000,000	\$15,000,000	\$16,000,000
\$42,500,000	\$2,125,000	\$3,187,500	\$4,250,000	\$5,312,500	\$6,375,000	\$7,437,500	\$8,500,000	\$9,562,500	\$10,625,000	\$11,687,500	\$12,750,000	\$13,812,500	\$14,875,000	\$15,937,500	\$17,000,000
\$45,000,000	\$2,250,000	\$3,375,000	\$4,500,000	\$5,625,000	\$6,750,000	\$7,875,000	\$9,000,000	\$10,125,000	\$11,250,000	\$12,375,000	\$13,500,000	\$14,625,000	\$15,750,000	\$16,875,000	\$18,000,000
\$47,500,000	\$2,375,000	\$3,562,500	\$4,750,000	\$5,937,500	\$7,125,000	\$8,312,500	\$9,500,000	\$10,687,500	\$11,875,000	\$13,062,500	\$14,250,000	\$15,437,500	\$16,625,000	\$17,812,500	\$19,000,000
\$50,000,000	\$2,500,000	\$3,750,000	\$5,000,000	\$6,250,000	\$7,500,000	\$8,750,000	\$10,000,000	\$11,250,000	\$12,500,000	\$13,750,000	\$15,000,000	\$16,250,000	\$17,500,000	\$18,750,000	\$20,000,000
\$52,500,000	\$2,625,000	\$3,937,500	\$5,250,000	\$6,562,500	\$7,875,000	\$9,187,500	\$10,500,000	\$11,812,500	\$13,125,000	\$14,437,500	\$15,750,000	\$17,062,500	\$18,375,000	\$19,687,500	\$21,000,000
\$55,000,000	\$2,750,000	\$4,125,000	\$5,500,000	\$6,875,000	\$8,250,000	\$9,625,000	\$11,000,000	\$12,375,000	\$13,750,000	\$15,125,000	\$16,500,000	\$17,875,000	\$19,250,000	\$20,625,000	\$22,000,000
\$57,500,000	\$2,875,000	\$4,312,500	\$5,750,000	\$7,187,500	\$8,625,000	\$10,062,500	\$11,500,000	\$12,937,500	\$14,375,000	\$15,812,500	\$17,250,000	\$18,687,500	\$20,125,000	\$21,562,500	\$23,000,000



**APPENDIX B**

Table 5: *Projected Tax Revenue Values Given Various Weight-Based Tax Plans and Estimated Marijuana Market Size*

Revenue/Yr (Mkt x Tax) Estimated Market Size (Oz/Yr)	MARGINAL TAX RATES (Price per Ounce of Marijuana)						
	<u>\$10</u>	<u>\$15</u>	<u>\$20</u>	<u>\$25</u>	<u>\$30</u>	<u>\$35</u>	<u>\$40</u>
112,500	\$1,125,000	\$1,687,500	\$2,250,000	\$2,812,500	\$3,375,000	\$3,937,500	\$4,500,000
115,000	\$1,150,000	\$1,725,000	\$2,300,000	\$2,875,000	\$3,450,000	\$4,025,000	\$4,600,000
117,500	\$1,175,000	\$1,762,500	\$2,350,000	\$2,937,500	\$3,525,000	\$4,112,500	\$4,700,000
120,000	\$1,200,000	\$1,800,000	\$2,400,000	\$3,000,000	\$3,600,000	\$4,200,000	\$4,800,000
122,500	\$1,225,000	\$1,837,500	\$2,450,000	\$3,062,500	\$3,675,000	\$4,287,500	\$4,900,000
125,000	\$1,250,000	\$1,875,000	\$2,500,000	\$3,125,000	\$3,750,000	\$4,375,000	\$5,000,000
127,500	\$1,275,000	\$1,912,500	\$2,550,000	\$3,187,500	\$3,825,000	\$4,462,500	\$5,100,000
130,000	\$1,300,000	\$1,950,000	\$2,600,000	\$3,250,000	\$3,900,000	\$4,550,000	\$5,200,000
132,500	\$1,325,000	\$1,987,500	\$2,650,000	\$3,312,500	\$3,975,000	\$4,637,500	\$5,300,000
135,000	\$1,350,000	\$2,025,000	\$2,700,000	\$3,375,000	\$4,050,000	\$4,725,000	\$5,400,000
137,500	\$1,375,000	\$2,062,500	\$2,750,000	\$3,437,500	\$4,125,000	\$4,812,500	\$5,500,000
140,000	\$1,400,000	\$2,100,000	\$2,800,000	\$3,500,000	\$4,200,000	\$4,900,000	\$5,600,000
142,500	\$1,425,000	\$2,137,500	\$2,850,000	\$3,562,500	\$4,275,000	\$4,987,500	\$5,700,000
145,000	\$1,450,000	\$2,175,000	\$2,900,000	\$3,625,000	\$4,350,000	\$5,075,000	\$5,800,000
147,500	\$1,475,000	\$2,212,500	\$2,950,000	\$3,687,500	\$4,425,000	\$5,162,500	\$5,900,000
150,000	\$1,500,000	\$2,250,000	\$3,000,000	\$3,750,000	\$4,500,000	\$5,250,000	\$6,000,000
152,500	\$1,525,000	\$2,287,500	\$3,050,000	\$3,812,500	\$4,575,000	\$5,337,500	\$6,100,000
155,000	\$1,550,000	\$2,325,000	\$3,100,000	\$3,875,000	\$4,650,000	\$5,425,000	\$6,200,000
157,500	\$1,575,000	\$2,362,500	\$3,150,000	\$3,937,500	\$4,725,000	\$5,512,500	\$6,300,000
160,000	\$1,600,000	\$2,400,000	\$3,200,000	\$4,000,000	\$4,800,000	\$5,600,000	\$6,400,000
162,500	\$1,625,000	\$2,437,500	\$3,250,000	\$4,062,500	\$4,875,000	\$5,687,500	\$6,500,000
165,000	\$1,650,000	\$2,475,000	\$3,300,000	\$4,125,000	\$4,950,000	\$5,775,000	\$6,600,000
167,500	\$1,675,000	\$2,512,500	\$3,350,000	\$4,187,500	\$5,025,000	\$5,862,500	\$6,700,000
170,000	\$1,700,000	\$2,550,000	\$3,400,000	\$4,250,000	\$5,100,000	\$5,950,000	\$6,800,000



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