

Estimating Recreational Marijuana Tax Revenues in New Jersey

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Introduction

Over the past few decades, as citizens strongly reject higher taxes, states have sought alternative sources of revenue. One source of revenue is generated by the production and sale of marijuana for both medical and recreational uses. Despite federal law prohibiting the consumption of marijuana, 33 states and the District of Columbia have passed laws legalizing its production and sale in some form (Governing 2018). Thirty-two states have specifically legalized the production and sale of medical marijuana (National Conference on State Legislatures 2019). The US marijuana market is expected to reach \$47.3 billion in sales by 2027, an increase of \$38.1 billion from 2017 (Pellechia 2018).

In 2010, the state of New Jersey legalized marijuana for medical purposes with the passage of *S. 119 The Compassionate Use Medical Marijuana Act*. More recently, Phil Murphy, the current governor, has advocated legalizing marijuana for recreational use. In November 2018, the New Jersey State Senate and Assembly judiciary committees voted to advance legislation that would legalize recreational marijuana. Although no action on the bill has yet been taken by the full legislature, approval is expected.

The purpose of this research paper is to estimate revenues that would be generated for New Jersey if legislation legalizing the cultivation and sale of recreational marijuana is approved. No other issues or opinions pertaining to legalizing recreational marijuana are addressed in this brief.¹

Estimating Revenue Impact of Legalizing Marijuana

Estimates of revenues generated in New Jersey as a result of legalizing recreational marijuana are made based on a comparison state model using data from Colorado, a state that legalized marijuana for recreational use in 2012, and has a number of demographic characteristics similar to those of New Jersey.² Table 1 below shows characteristics that are similar in the two states.

Characteristic	Colorado	New Jersey
% Adult Population	77.5	78.0
% High School Degree	91.9	89.2
% of Pop. With a Bachelor's Degree	37.5	38.7
% Poverty Rate	10.0	10.3
Per Capita Income	\$34,845	\$39,069

Source: <https://www.census.gov/quickfacts/fact/table/nj,nh,co/PST045218>

In our analysis, we use several data sources from Colorado, including the annual marijuana tax reports prepared by the Colorado Department of Revenue (*Impact of Marijuana...* 2018) and the *Report of Marijuana Market Size and Demand* by the University of Colorado (Orens et. al. 2018). We also use the estimation of marijuana users by state from the National Survey on Drug Use and Health (NSDUH 2017).

Step 1: Defining the Tax Base, i.e. what is being taxed. Federal law defines marijuana as "...the flowers, leaves, stems, and germinating seeds of the cannabis plant and any products made from those parts of the plant, regardless of whether they contain THC³" (Vanderbilt University Law School 2017). For tax purposes, the State of Colorado defines marijuana-related products as marijuana flower equivalents (MFE). In 2017, the sales of MFE in Colorado, at an average price of raw MFE at \$2.17 per gram, totaled 301.7 metric tons, of which 208.6 metric tons were for recreational use (Orens et. al. 2018).

Step 2: Estimating Spending Per User. Data from Colorado were used to estimate spending per user in New Jersey. In 2017, the annual average consumption of recreational marijuana for Colorado users was 214.5 grams.⁴ Annual average spending per user was estimated at \$863.92 (see the table in the Appendices).

Step 3. Estimating tax collections. The Colorado Department of Revenue reported that annual sale tax collections generated by legalized marijuana spending in fiscal years 2016 to 2018 were \$67.1 million, \$98.4 million and \$167.2 million, respectively. Part of the variation in annual sales tax collections is explained by the different sales tax rates (10% in FY 2016 & 2017; 15% in FY 2018).

Estimating Taxes from Legalizing Marijuana in New Jersey

We assume that the average annual consumption of marijuana by Colorado users and the average annual spending by Colorado users of marijuana and will be similar in New Jersey. Based on this

assumption, we estimate New Jersey sale taxes, excise taxes, and license fees generated by legalizing recreational marijuana.

(1) Sales Taxes

Sales taxes are paid at the final point of sale by the purchaser. The seller, in turn, remits sales tax revenues to the governing authority. Sales taxes imposed on marijuana vary across the states both in rates and in types of taxes levied. For example, in the state of Washington, the general sales tax rate applies to marijuana sales. In Colorado, the general sales tax on all tangible personal property is 2.9%. Starting July 1, 2017, with the exception of medical marijuana, retail marijuana and retail marijuana products have been exempt from this tax. Instead, there is a 15% specific sales tax, the "Retail Marijuana Sales Tax," imposed on all sales of retail marijuana. Following Colorado's example, we apply a specific sales tax rate on marijuana and estimate the revenues generated using three different rates (10%, 12% and 15%). In all of the calculations, we assume a saturated market defined as the point in which the market is operating at maximum capacity. That is, there is a sufficient amount of product being produced, distributors, and a sufficient number of outlets that sell the product.

We estimate New Jersey’s total marijuana sales based on the annual average spending per user in Colorado applied to the number of New Jersey users based on data from the National Survey on Drug Use and Health (NSDUH). NSDUH estimated the number of marijuana users in New Jersey was 832,000 in fiscal year 2016 (NSDUH, 2017). The data in Table 2 also include estimates for the number of persons who used marijuana in the past month and every month in 2016.

As Table 2 shows, at the 10% rate, estimated sales tax revenues would be: \$71.9 million; at 12% \$86.3 million; and at 15%, \$107.8 million. An additional estimate from the Tax Foundation indicates that New Jersey would generate \$148 million from marijuana sales at a 15% sales tax rate (2016) at full market saturation.

Table 2: Sales Tax Estimations for New Jersey			
NJ estimated users (18+) from NSDUH FY15 to 16	NJ Total 18+ user (person)	Est NJ Total Retail sales per year	Est NJ sales tax (15%)
using in the past year	832,000 (9.2%)	\$718,784,333	\$107,817,649.98
using in the past month	471,000 (5.2%)	\$406,907,958	\$61,036,194
perceived usage for every month	2,214,000 (24.6%)	\$1,912,726,579	\$286,908,987
NJ estimated users (18+) from NSDUH FY15 to 16	NJ Total 18+ user (person)	Est NJ Total Retail sales per year	Est NJ sales tax (12%)
using in the past year	832,000 (9.2%)	\$718,784,333	\$86,254,119.99
using in the past month	471,000 (5.2%)	\$406,907,958	\$61,036,194
perceived usage for every month	2,214,000 (24.6%)	\$1,912,726,579	\$286,908,987
NJ estimated users (18+) from NSDUH FY15 to 16	NJ Total 18+ user (person)	Est NJ Total Retail sales per year	Est NJ sales tax (10%)
using in the past year	832,000 (9.2%)	\$718,784,333	\$71,878,433.32
using in the past month	471,000 (5.2%)	\$406,907,958	\$61,036,194
perceived usage for every month	2,214,000 (24.6%)	\$1,912,726,579	\$286,908,987

Sales tax estimates will vary based on the tax rate applied, as well as the number of resident and non-resident purchases. Naturally, the number of non-resident purchases will depend, to a large degree, on the status of legalization in nearby states. Currently, no state that borders New Jersey has legalized recreational marijuana. In Colorado, according to Orens et. al. (2018), from 2015 to 2017, the average marijuana purchases by non-residents was around 9% of total recreational purchases (See Appendix for border state revenue estimates).

(2) Excise Taxes

Excise taxes are "...imposed on the first sale or transfer from a retail marijuana cultivation facility to a retail marijuana store or retail marijuana product manufacturing facility" (Colorado Department of Revenue 2018). They are commonly included in the cost of a product at the point of sale and the business owner is responsible for collecting and paying the tax to the appropriate governmental authority.

Similar to sales tax rates, there are different excise tax rates across the states where marijuana has been legalized, ranging from 37% in Washington to no taxes in Alaska. In Colorado, except when purchased for medical use, marijuana is subject to a 15% excise tax. Sales/transfers between licensed cultivations facilities are exempt from the tax. For New Jersey, we estimate excise tax revenues using 10%, 12% and a 15% tax rates. As shown in Table 3, assuming the same average price of raw MFE and the average consumptions per user in Colorado, we estimate that New Jersey will receive: \$38.8 million in excise taxes at the 10% rate; \$46.5 million at the 12% rate; and \$58.1 million in excise taxes at the 15% rate over the course of a year in which the market is saturated.

Table 3: Excise Tax Estimates			
2017 CO Total Consumption (g)	2017 CO consumption per user (g)	2017 CO total wholesales sales	2017 wholesales price/gram
208,600,000	214.50	\$453,068,073	\$2.17
Est NJ consumption (g)		Est NJ total wholesale sales	Est NJ Excise Tax (15% rate)
178,462,931		\$387,611,966	\$58,141,794.87
Est NJ consumption (g)		Est NJ total wholesale sales	Est NJ Excise Tax (12% rate)
178,462,931		\$387,611,966	\$46,513,435.90
Est NJ consumption (g)		Est NJ total wholesale sales	Est NJ Excise Tax (10% rate)
178,462,931		\$387,611,966	\$38,761,196.58
Table 4: License and Application Fee Estimates			
2017 CO License & Application	CO users (18+)	Est NJ user population (18+)	Est NJ License & Application Fees \$
\$8,791,351	972,500	832,000	\$7,521,238

(3) License and Application Fees

License and application fees are imposed by the state to cover the administrative costs of regulating the industry. In Colorado, separate licenses are required for each marijuana business type (medical or retail) and function, e.g., retail store or retail marijuana cultivation facility. We assume that the income from license and application fees will be associated with the number of marijuana users—more users will require more cultivation units and retail stores, that would generate more income from licenses and application fees. Our estimates are based on the number of users in Colorado adjusted for the number of users in New Jersey, assuming a similar fee schedule. Based on these assumptions, we estimate that \$7.5 million in licenses and application fees will be generated after the market is completely saturated (see Table 4).

2017 CO License & Application Fees \$	CO users (18+)	Est NJ user population (18+)	Est NJ License & Application Fees \$
\$8,791,351	972,500	832,000	\$7,521,238

Summary

We estimate that New Jersey would collect between \$118.2 million and \$173.5 million per year after recreational marijuana is legalized and when the market is fully saturated. This estimate includes funds collected from sale taxes, excise taxes, as well as license and application fees. Also, the state could potentially collect additional revenue from the three states that border New Jersey (see Appendix). We do not expect that the legalization of marijuana in New Jersey would generate the maximum amount of revenue indicated in the model from any of these border states, as previous research indicates that roughly 9% of recreational marijuana sales are generated from out of state users.

The accuracy of our estimates is based on the accuracy of our assumptions related to the tax rates and the number of users included in our calculations. We also point out the following limitations to our estimates.

- (1) Number of Users. Since the estimated number of users according to the NSDUH failed to address users who are over 21 years of age, which is the legal age to smoke cigarettes in the US, the accuracy of the aforementioned estimations should be decreased.
- (2) Our estimates are based on a saturated market assumption. Hence, it is not reasonable to assume that market saturation will occur in year one of legalization.
- (3) Actual tax revenues will depend on competition from other states and the natural environment for cultivation. That is, actual tax revenues could change with competition from adjacent states (i.e. New

York, Delaware and Pennsylvania have not legalized recreational marijuana). The natural environment for cultivation in New Jersey may also generate a different industrial pattern, such as higher cultivation costs and more expensive land resources.

(4) Finally, this study only estimated three types of tax revenues directly associated with the legalization of recreational marijuana. It does not consider indirect revenues. For example, if the number of visitors from adjacent states is high, revenues generated by hotels, restaurants and other entities would increase. Conversely, law enforcement agencies may have to augment the number of law enforcement officers, thus increasing the costs of regulation.

Endnotes

¹ This brief should not be construed as a statement by the author advocating for the use of or the passage of a law legalizing marijuana in any form. This brief is merely a revenue estimation model and should be used strictly for that purpose.

² One of the significant differences between New Jersey and Colorado is the percentage of the Black population. New Jersey's black population is 15% compared to 4.5% in Colorado. Population density in New Jersey is also much higher at 1,195.5 per square mile versus 48.5 per square mile in Colorado. However, the comparison between the Hispanic population is very similar. According to the US Census, in 2018, New Jersey's Hispanic population was 20.4% compared to 21.5% in Colorado (www.census.gov/quickfacts/fact/table/nj.co/PST045218).

³ Vanderbilt University Law School. <https://my.vanderbilt.edu/marijuanalaw/2017/10/the-odd-legal-status-of-cbd-under-federal-law/>

⁴ We use the average number of users during this three-year period (2016-18) to create our estimate for average user spending.

Sources

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Appendices

Appendix: Estimation of Sales Taxes in Colorado			
State sales tax revenue from Marijuana	FY 16	FY 17	FY 18
Collected sales tax from Marijuana	\$67,094,524	\$98,425,253	\$167,186,831
Total sales (tax rate: 15% in FY 18; 10% in FY 16&17)	\$670,945,240	\$984,252,530	\$1,114,578,873
Total sales for local residents	\$610,560,168	\$895,669,802	\$1,014,266,775
Average local users (18+) from NSDUH from FY15 to 16 (persons)	972,500		
Average spending per user (from FY16 to FY18)	\$863.92		

Appendix: Other Sale Tax Estimates (potential markets)			
NY Estimation	NY Total 18+ user (person)	NY Total Retail sales per year	NY tax revenue (15%) from residents
using in the past year	2316000 (11.7%)	\$2,000,846,774	\$300,127,016
using in the past month	1520000 (7.7%)	\$1,313,163,686	\$196,974,553
perceived usage for every month	4389000 (22.1%)	\$3,791,760,142	\$568,764,021
DE Estimation	NY Total 18+ user (person)	DE Total Retail sales per year	DE tax revenue (15%) from residents
using in the past year	95000 (9.9%)	\$82,072,730	\$12,310,910
using in the past month	66000 (6.9%)	\$57,018,950	\$8,552,842
perceived usage for every month	195000 (20.3%)	\$168,465,078	\$25,269,762
PA Estimation	NY Total 18+ user (person)	PA Total Retail sales per year	PA tax revenue (15%) from residents
using in the past year	1314000 (10.3%)	\$1,135,195,449	\$170,279,317
using in the past month	831000 (6.5%)	\$717,920,410	\$107,688,061
perceived usage for every month	2442000 (19.1%)	\$2,109,701,132	\$316,455,170