Castetter
Cannabis Group

Unintended Consequences of a Novel Tax Structure

An Analysis of the Proposed THC Based Tax in New York

March, 2021

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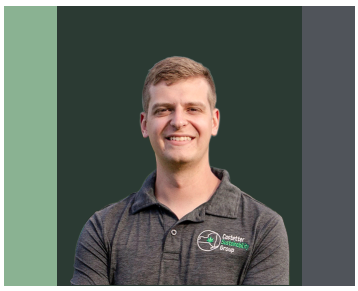
About the Authors

Castetter Cannabis Group

At CCG, we understand how difficult it can be to make decisions with regulations and compliance in constant flux. Lean on our experts to help guide your future plans with authentic insights from an unmatched understanding of New York's cannabis regulations.



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Kaelan has been in the New York hemp industry since 2015 as the founder of Sovereign Vines: America's Only Hemp Infused Wine, receiving the first issued hemp processor license in 2017. He was successful in arguing against federal rulings on the product.

Kaelan is also a co-founder of the New York Cannabis Growers & Processors Association, a group that is heavily involved in discussions around adult-use cannabis legalization and helped to write the Hemp Extract Bill during the 2019 legislative session.

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Jason focuses his practice on cannabis companies, startups, and small to mid-sized technology companies. He advises clients on various complex taxation and federal tax compliance issues affecting business owners within the cannabis industry.

As a member of the New York State Bar Association's Committee on Cannabis and a Cannabis Attorney, Jason has been at the forefront of New York's emerging cannabis law.

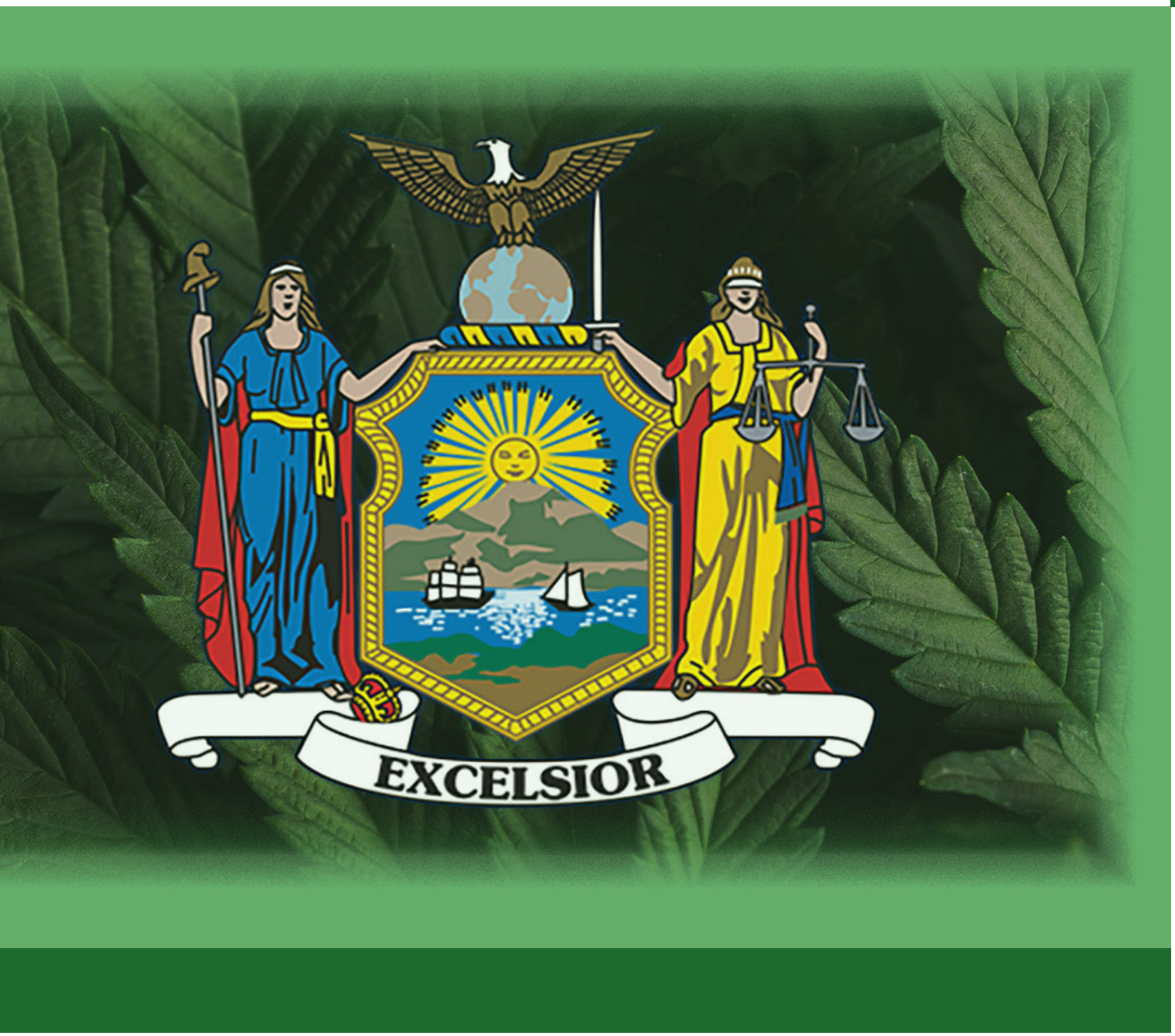
He has worked with New York legislators, providing analyses regarding taxation and licensing. Jason also volunteers time as legal advisor to Roc NORML, where he has become a thought leader in the industry.

Executive Summary

Two Competing Proposed Tax Structures

New York is on a track to legalize the adult-use of cannabis, opening a marketplace that is estimated to be worth **$3.7 billion**[1] in the first year. Not only would the Empire State be the 2nd highest populated state to legalize, but the state attracts millions of tourists each year for its culture, food, and natural environments. New York City is also the financial capital of the world while housing one of the most sophisticated illicit cannabis markets.

Suffice to say, legalization is monumental not just for residents but as an opportunity to export a model globally that promotes equity, small business growth, innovation, and public health. In developing a regulatory structure that will shape the entire industry, how the product is taxed could be one of the most consequential policy decisions to be made. Taxation affects consumer behavior, pricing, supply chain architecture, and could decide who will benefit most.



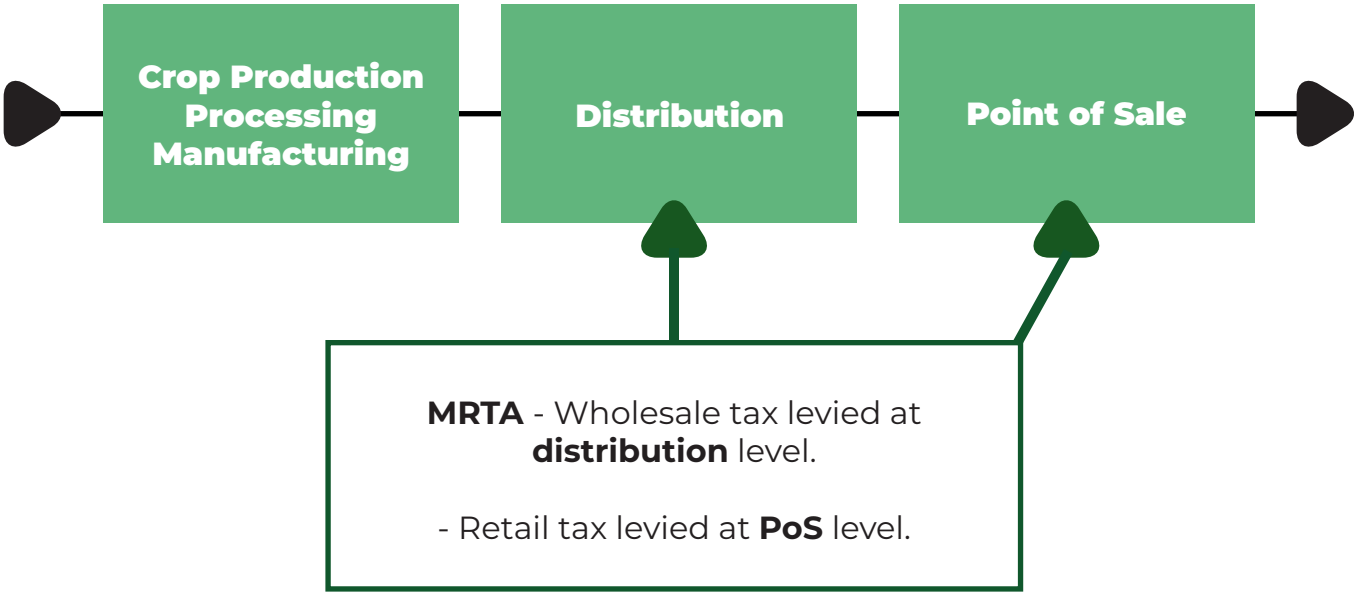
As of now, there are 14 other states that have legalized cannabis sales to adults, yet none have implemented the type of tax system proposed by Governor Andrew Cuomo.

What was initially included as part of the Governor's proposal implements a complex system of both percentage and THC percent-based taxation. Levied at the wholesale level, this new way of taxing based on the percentage of THC present in the final product will result in high retail prices that will be uncompetitive with neighboring states and the illicit market. A static excise tax will have a disproportionate impact on small businesses by highly incentivizing large-scale production. We found that this system could also result in hundreds of millions in tax calculation errors based on industry accepted measuring uncertainty.

Overall, the THC based tax proposal could spell disaster for a nascent industry in a state reeling from historic economic losses by adding a layer of unnecessary complexity and costs. In this analysis we will touch on ways the that novel approach could affect all levels of the supply chain and obfuscate the vision for a world leading cannabis industry.

Structure of Taxes

In considering a potential tax regime it is important to understand how taxes are computed under a given structure.



Compounding Taxes

In the MRTA, taxes are levied at two separate points: excise taxes on wholesale and then again at point of sale. Because the tax is calculated twice, the effect is a compounding or a "tax-on-a-tax". This departs from the United States approach to taxing goods – we generally apply taxes only at the point of sale.

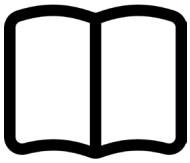
However, in Europe, a Value Added Tax ("VAT") is used which layers on taxes at every level of production, e.g., a tax is paid by a retailer and collected by the manufacturer, and the retail customer pays a tax collected by the retailer. So, if there was a 10% tax at three levels of production, the effect of the tax isn't 30%. Instead, because of compounding, compound, the effective tax is about 33% which may seem like a small difference but in the context of a multi-billion dollar adult-use cannabis market could be very significant.

The U.S. does not apply a VAT tax model in order to keep the cost of goods competitive, particularly where demand is elastic and there are available alternatives. In the case of an adult-use cannabis marketplace, evidence shows that this a ceiling or maximum amount consumers will pay for products in a dispensary before shifting their business to the illicit market – as explained further in this report when discussing the reasons why lower effective tax rates have historically driven higher total revenues.

The final MRTA is a combination of two previous versions of Adult-use cannabis legislation.

Old MRTA

- Proposed by Assembly Majority Leader Crystal Peoples-Stokes and Senator Liz Krueger.
- Allocates all tax revenue, with 50% going to a community grants reinvestment fund.
- Creates a new Cannabis Control Board, nominated by the Governor but approved by the Senate, with authority over the Office of Cannabis Management, a State Cannabis Advisory Board, and Chief Equity Officer.
- Allows municipalities to opt-out of cannabis sales.
- Imposes a percent-based tax at the wholesale level.



CRTA

- Proposed by Governor Andrew Cuomo
- All tax revenue is deposited in the General Fund with a $100 million social equity fund created over five years.
- Creates a new Cannabis Control Board appointed by the Governor and an Office of Cannabis Management.
- Allows only counties, Yonkers, and New York City to opt-out of cannabis sales.
- Imposes a THC based tax at wholesale, retail surcharge, and sales tax.

THC Based Tax... a Novel Idea?

A tax related to a product or plant's THC content has only been adopted by one of the 14 states who have legalized cannabis for adult-use, **Illinois.** Under their framework, cannabis is also taxed twice – a wholesale tax and then again at retail with both a state mandate charge and municipal taxes. However, the state mandated retail rate is tiered depending on the level of THC in the final product (sort of).

Illinois Rate	THC %
10%	<35% (Most all flower)
20%	All infused edibles
25%	>35% (Applies mostly to concentrates)

As you can see, in practicality the framework creates tax classes that are guided by THC percent but mainly applies to different categories of products (flower, edibles, and concentrates).

In New York, the THC based taxation proposed in the MRTA is completely tied to the product's THC percent and the rates differ based on product category. This approach has never been tried before on cannabis nor any other consumer goods that we've been able to find.

NY MRTA	Rate
Flower Tax Rate (per milligram THC)	**$0.005**
Concentrate Tax Rate (per milligram THC)	**$0.008**
Edible Tax Rate (per milligram THC)	**$0.03**
State Excise Tax	**9.00%**
Local Taxes	**4.00%**

Complexity

This novel approach also presents unique challenges for both entrepreneurs and the State when it comes to the calculation and collection of taxes.

Challenge 01 - Measure of Uncertainty

The MRTA calls for the calculation of "total THC" when it relates to taxes and labeling. This means that analytical tests must show a conversion of THCa (acidic form of the molecule) using the accepted formula of THCA * 0.877 + Δ9 THC.

Only accredited and certified labs would be able to perform these analyses andwhen reporting the results, these labs also include a measure of uncertainty similar to a margin of error. This is standard practice and even required by the USDA for hemp production. Because the product is taxed by the milligram, requiring an accurate report of total THC to the tenths of a percent, the Measure of Uncertainty (MU) could cause differing or inaccurate calculation of tax due. These inaccuracies could easily lead to millions of dollars of underpaid or overpaid tax and disputes over the final tax depending on the analytical testing lab used. Each lab reports it's own MU based on its equipment and process.

Using as an example, a fictitious cultivator named Jack who produced **1,000 pounds** of a single strain of cannabis that tested at **17.40% total THC** with an industry standard **Measure of Uncertainty of 5%.**

(See Example 1 on next page)

Excise Tax Due = $394,938.24

At +5% MU - Excise Tax Due = **$414,684.15**

At -5% MU - Excise Tax Due = **$375,191.33**

Range of error = $39,493.82

For context, common estimates place the total need for cannabis grown roughly at one million pounds. If you were to extrapolate the above example to all one million pounds, the potential for error would be **$39 million annually.**

Cultivator: Farmer Jack
Strain: Jack Herer
Strain THC %: 17.40%
THC % MU: +/- 5%
Yield: 1000 Pounds a Grow Period

Example 1

Challenge 02 - Sampling

Let's assume that for simplicity, Jack is one of New York's most skilled cultivators and can produce a pound of cannabis for each plant grown. To end up with one thousand taxable pounds, he had to harvest, dry, cure, then trim a thousand plants. As cannabis matures, the plant produces THC and other cannabinoids – reaching a peak at the end of the growing cycle. However, maturation begins at the top and results in uneven levels of THC present in the flowers depending on how close to the top they were located when harvested. Further, even within the same strain, plants are known to experience genetic drift – resulting in differing levels of cannabinoids at maturity across plants. These variables can mean that single grams of flower throughout Jack's 1,000 pound taxable batch may report widely different levels of THC. In fact, because of this many states require that adult-use flower report a range of THC to the consumer. Assuming a modest variation of 3% throughout Jack's 1,000 pound harvest, the range of error would be **$258,752.64.**

If we were to again extrapolate to 1 million pounds, the potential for error would be **$258 million dollars**. That is – the state could stand to **under or over collect $258 million dollars** based on conservative assumptions of the variations on THC level in cannabis plants and testing. Of course, this is a basic example but shows the high levels of variability connected to taxing on THC percent when it come calculations.

Challenge 03 - Planning

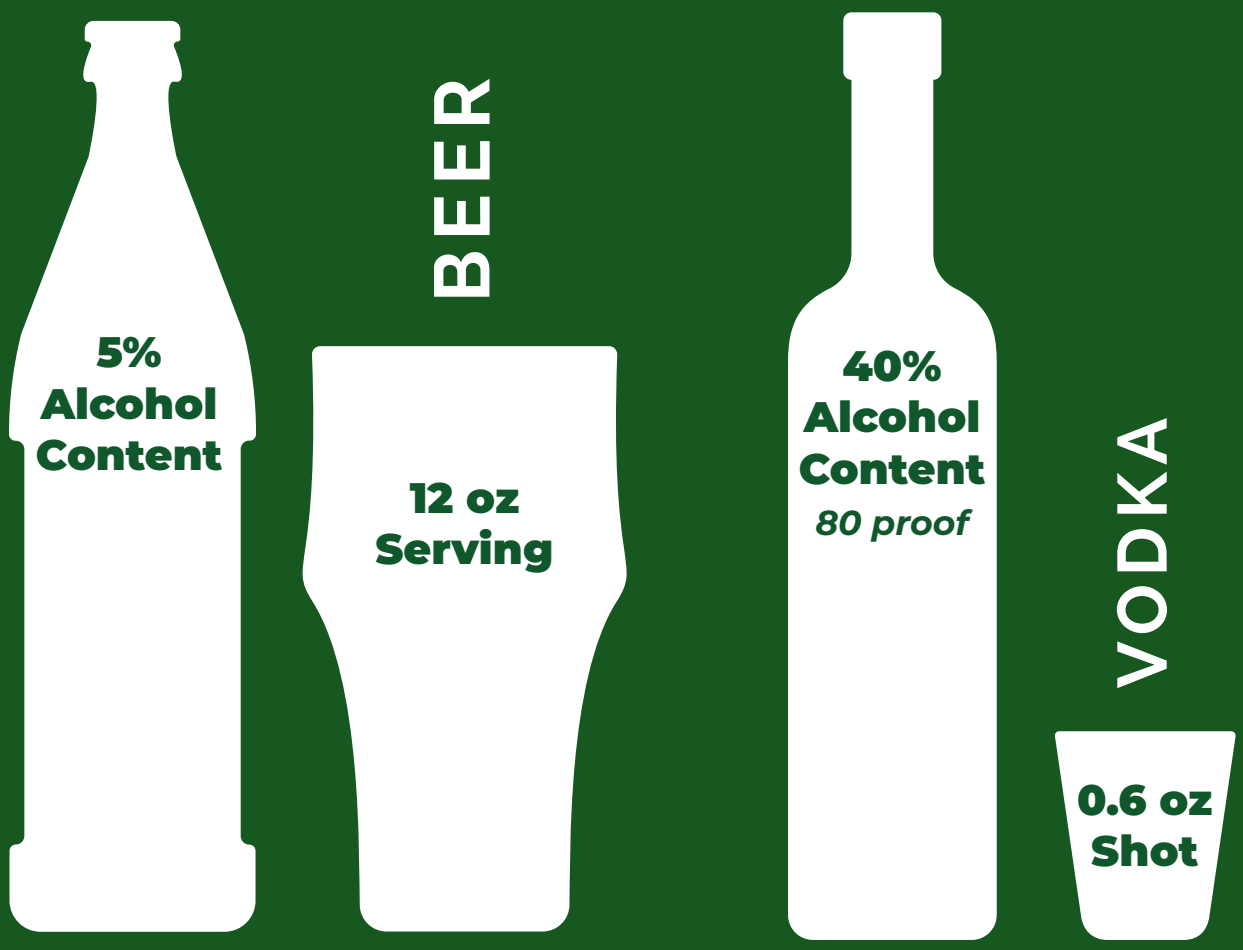
While THC has an effect on the final price of a product – it doesn't directly correlate to the milligram as the proposed tax does. Many qualities such as the plant's terpene profile (smell and taste), visual appeal, and popularity drive the end price and demand. When cultivators are deciding which genetics to grow and when, the final level of reported THC would be critical in that decision making. And while a skilled grower may be able to confidently estimate yield, the THC percentage officially reported would be very difficult to predict. This may also result in decisions by cultivators that are detached from market response in order to best save on taxes, including leaving their flower less trimmed to lower THC levels.

This difficulty in accurately forecasting tax liability also creates difficulties for the State. Variability such as consumer habits, genetics, and sampling errors could dramatically shift revenues, resulting in unreliable forecasting.

"Promoting Temperance"

Why a novel approach to tax collection? The Governor's office has explained the proposed THC based structure is "*for the purposes of fostering and promoting temperance in consumption...,*"[1]. This theory most likely originated from data showing increasing alcohol excise taxes on products containing higher percentages of alcohol reduced consumption and the associated harms.[2] However, cannabis and alcohol are very different and it's unlikely that the novel tax structure would necessarily achieve its goals in "promoting temperance". Instead, it is likely that the structure would make some products much more expensive than others while driving more sales to the unregulated marketplace.

Unlike alcohol, where lower proof products require substantially more volumetric consumption, cannabis does not have the same type of relationship.



To put the volume of alcohol in a shot and a beer and the amount of THC in a vaporizer cartridge and cannabis flower into context, we assume the following:

1.5 oz of 80 proof liquor contains 0.6 oz of alcohol

VS.

12 oz of beer with 5% alcohol content contains 0.6 oz of alcohol,

An 80% 1-gram THC vaporizer cartridge contains 800 milligrams of THC per gram

VS.

One gram of 30% THC flower contains 300 milligrams of THC per gram.

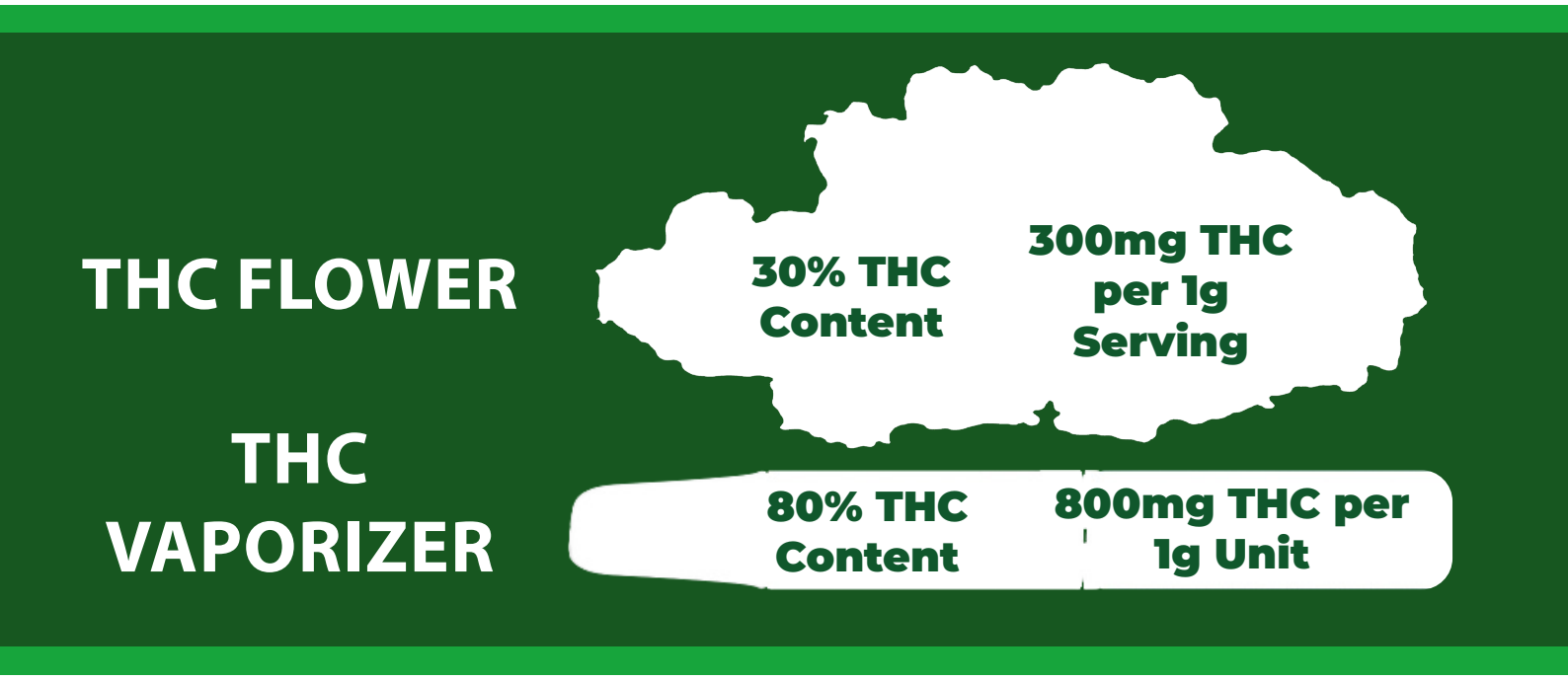
The equivalency of **a shot to a beer is 1:8,** whereas the equivalency of **a vaporizer cartridge to flower is 1:2.5**

The issue can best be explained by using an example:

If an alcohol consumer wanted to feel the effects of four serving sizes of alcohol (0.6 oz), the consumer could either drink four shots or have four beers; i.e., they could consume 6 oz of liquor (¾ of a cup) or 48 oz of beer (6 cups). It is without question easier to ingest 6 ounces instead of 48 ounces. So, taxing the higher concentration alcohol more disincentivizes the consumer from purchasing the liquor and instead purchase beer, which will be drunk slowly, thereby reducing overindulgence.

However, the same is not necessarily true for cannabis. Inhaling 2.5 puffs of cannabis flower, instead of one puff from a vaporizer, is unlikely to reduce the overall amount of cannabis consumed by the individual. Instead of consuming cannabis over a longer period of time, like what would happen when consuming four beers, 2.5 puffs of cannabis can be inhaled nearly as quickly as one puff of a vaporizer. Therefore, the cannabis consumer never faces the same type of restraint that promotes the reduction of consumption.

Like many other facets of the cannabis market, what works for alcohol does not necessarily work for cannabis because they are fundamentally different and require laws and regulations specific to the substance.



A Race to the Bottom

The proposed THC tax will be levied on the wholesale level so either the cultivator or contracted distributor will pay the calculated tax. Because the tax is "static" and not subject to change based on market conditions – it create an artificial price floor.

Essentially, the tax gets included into the cost of goods sold ("COGS") that is independent of the actual costs of production. This creates an imbalance in the industry where larger producers, benefitting from economies of scale, can create much lower cost products and therefore absorb the tax as a higher portion of their COGS even as prices fall.

As neighbors such as New Jersey and Massachusetts inevitably grow their cannabis markets and the in-state illicit trade continues to flourish, there will be enormous pressure on retailers to offer competitive pricing. As a result, cultivators will be expected to offer lower wholesale, yet their tax burden per pound stays the same. Large producers will be able to meet the lower prices while balancing the lower profit margins with volume. This will create an outsized advantage over craft cultivators who will be stuck at a set cost per pound, inflated by a static wholesale tax, and unable to be reduced without scaling.

If the taxes were calculated based on a percent of the sale value, as proposed in the old MRTA, the craft cultivator would have more flexibility to offer competitive pricing.

Effect on the Consumer

Taxes will be a key factor in the final retail price of cannabis products. Using standard industry markups and wholesale pricing, we modeled out how the tax proposals would result in prices on the shelves.

Final MRTA

Flower Tax Rate (per milligram THC)	**$0.005**	Collected by Distributor
Concentrate Tax Rate (per milligram THC)	**$0.008**	Collected by Distributor
Edible Tax Rate (per milligram THC)	**$0.03**	Collected by Distributor
State Excise Tax	**9.00%**	Collected by Retailer
Local Taxes	**4.00%**	Collected by Retailer
Retail Markup	**100%**	

Product	Amount in Grams	THC Percentage	THC in Milligrams	Wholesale Cost	Cost to Dispensary	Final Price with Tax	Effective Tax Rate
Flower	1	20%	200	$4.74 /g [3]	$5.74	$12.98	36.82%
Cartridge	1	80%	800	$19.60	$26.00	$58.76	49.90%
20 Gummies	-	-	100	$8	$11.00	$24.86	55.38%

Old MRTA

Excise Tax	**18%**	Collected by Distributor
Local Tax	**4%**	Collected by Retailer
Retail Markup	**100%**	

Product	Amount in Grams	THC Percentage	THC in Milligrams	Wholesale Cost	Cost to Dispensary	Final Price with Tax	Effective Tax
Flower	1	20%	200	$4.74 /g [4]	$5.79	$11.58 [5]	22%
Cartridge	1	80%	800	$19.60	$23.91	$47.82	22%
20 Gummies	-	-	100	$8	$9.76	$19.52	22%

State	Product	Cultivation Tax	Excise Tax	Retail Tax	Final Retail Cost	Effective Tax Rate
CA	20% Flower	$0.33/g	15%	12.75%	$13.19	38.95%
CO	20% Flower	-	15%	15%	$12.55	32.25%
IL	20% Flower	7%	10%	10%	$12.18	28.40%
MA	20% Flower	-	-	20%	$11.39	20%
NJ	20% Flower	5% [6]	$60/ounce [7]	9% [8]	$15.47	63.07%
NV	20% Flower	-	15%	18%	$12.88	35.70%
OR	20% Flower	-	-	17%	$11.10	17%
WA	20% Flower	-	37%	-	$13.00	37%

Applying the same assumptions and using data from other legal states, we find that the old MRTA comes in to be much more competitive and closer to our eastern neighbors in Massachusetts. Importantly, our estimates have New Jersey with a much higher retail price than in New York – which could have the effect of driving business to the Empire State.

The final MRTA tax rates, even without a distributor, results in a retail price at least **27% more** than those in Massachusetts.

Additionally, the increased tax rate on concentrates and edibles creates unsustainably high prices. For example, the median price of a 1-gram cartridge in Colorado is $46.[9] The final MRTA creates a price at retail for a 1-gram cartridge that is nearly 33% more than the amount (**$58.76**). The high price of caping products further threatens public health as illicit vaporizer cartridges can be sold as low as **$30** per gram. While there is a substantial risk to consumers who obtain illicit vaporizer cartridges, the **200% increase** in price on the regulated market could be a high enough disincentive to keep many consumers purchasing from regulated retailers.

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Endnotes

1 Briefing Book | NYS FY 2022 Executive Budget https://www.budget.ny.gov/pubs/archive/fy22/ex/book/briefingbook.pdf

2 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3735171/

3 Using the average of the prices of a pound of "average" cannabis from CA, CO, IL, MA, NV and WA

4 Using the average of the prices of a pound of "average" cannabis from CA, CO, IL, MA, NV and WA

5 These numbers are calculated assuming there is no required use of a 3rd party distributor. If 3rd party distributor is required, the price jumps to $15.63 per gram at retail.

6 A 1% to 2% tax can be charged by localities for each transfer between cultivator, processor, distributor and retailer.

7 Assuming price per ounce is less than $200.

8 7% Sales tax plus 2% locality tax on retail transfer.

9 LeafLink Wholesale Cannabis Pricing Guide 2020.