

Nevada Cannabis Association

ECONOMIC IMPACT ANALYSIS

February 2023

Submitted by:



HIGH PEAK STRATEGY

Submitted to:



NEVADA
CANNABIS
ASSOCIATION



High Peak Strategy LLC

Spencer Cohen, PhD
Principal and Founder
9604 8th Ave NE
Seattle, WA 98115

www.highpeakstrategy.com

EXECUTIVE SUMMARY

Nevada voters passed a ballot initiative in 2000 authorizing the sale of medical marijuana, but the first medical dispensary did not open until 2015. The following year, in 2016, voters approved Ballot Question 2, the “Initiative to Regulate and Tax Marijuana Like Alcohol,” legalizing the sale of recreational marijuana. The first recreational dispensaries opened in July 2017. Since then, the industry has grown to become a major contributor of economic activity and tax revenues for the State of Nevada.

This study evaluates the size, breadth, geographic scope, and economic impacts of the regulated recreational cannabis industry in Nevada, assesses policy and regulatory challenges faced by cannabis businesses in the state, and provides data to help determine whether there is a need to issue more dispensary licenses at this time.

The Cannabis Industry is Large and Supports Broad-based Economic Impacts

Since cannabis was legalized for recreational use, the industry has become a major source of economic activity and tax revenues for the State of Nevada. In 2021, the industry directly supported **12,900 jobs** across the state (based on an annual average) and **more than \$1.0 billion in final sales**, representing a 27% increase in real terms (i.e., inflation adjusted) from a year earlier, and 67% growth since 2018. **However, through the first ten months of 2022, recreational cannabis sales were down 16% (nominal dollars) compared with the same ten months in 2021.** Through the first four months of fiscal year 2023, sales are down 19.5%.

Factoring upstream supply chain transactions and cannabis worker household spending, the industry supported a **total economic impact** statewide of **18,800 jobs** and more than **\$2.0 billion** in business sales. **These positions also provide much higher compensation than the statewide average.** Wages for hourly staff typically start around \$17/hour but can be upwards of \$25/hour, and managers may earn more than \$100,000 annually. These positions often also include supplemental benefits, such as healthcare and 401ks. By comparison, the minimum wage in Nevada in 2022 is between \$9.50/hour and \$10.50/hour (depending on whether benefits are provided).

However, the decline in sales in 2022 will result in a lower annual economic impact, with total business activity declining statewide from \$2.0 billion to \$1.7 billion, based on full calendar year 2022 projections.

The Cannabis Industry Drives Tax Revenues

In calendar year 2021, **cannabis wholesale and retail excise taxes generated nearly \$160 million to state coffers.** Adjusted for inflation, cannabis excise taxes increased 24% over 2020. However, excise taxes declined 3.4% on a *fiscal year* basis in fiscal year 2022 (the twelve-month

period ending on June 30, 2022), from \$157.8 million to \$152.3 million. Through the first ten months of 2022, combined wholesale and retail tax revenues are down 12.2%, or 17.3% for the first four months of the 2023 year-over-year (nominal dollars).

In addition to excise taxes, the cannabis industry is also a large source of state sales tax revenue. In calendar year 2021, total sales taxes from retail sales (for adult-use recreational and medical cannabis) summed to **\$71.4 million**.

Fees and taxes generated by the cannabis industry support public services. In fiscal year 2022, **cannabis sales resulted in \$147 million for the state's K-12 education budget**. Local governments received \$5 million from the wholesale cannabis excise tax. Local taxes paid on operations, based on retail sales, totaled \$22.4 million in the counties of Clark and Washoe in fiscal year 2022.

The Business Climate is Increasingly Difficult for Cannabis Businesses to Operate Profitably

IRS Code Section 280e prohibits these businesses from deducting “ordinary and necessary” business expenses, after reducing the cost of goods sold. Under a climate of declining industry sales, many of these businesses are operating at a net loss after paying federal, state, and local taxes. Cannabis businesses face numerous challenges specific to the Nevada market that further inhibit business profitability.

Below are the most pressing issues these businesses face in Nevada.

- **Businesses desire a more constructive, collaborative relationship with the Cannabis Compliance Board.** Licensees seek education and consistency in enforcement to ensure all licensed operations are in compliance with the existing rules while also not compromising the financial viability of the legal, regulated cannabis industry.
- **CCB fines and charges can be unpredictable and large, eroding profitability.** These include large civil penalties fines, summing to \$1.1 million already through July 2022 year-to-date, and time-and-effort charges which summed to \$1.7 million in fiscal year 2022, out of an agency budget of \$10.5 million a year. These charges are far more than the CCB's own projections. Contesting civil fees also entails legal and administrative costs borne by the company, which can cost in the tens of thousands of dollars.
- **Illegal market.** Despite the legalization of cannabis, recent reports and research show that unregulated, unlicensed cannabis businesses remain quite active. These sellers can evade taxes and fees levied on legal, regulated cannabis businesses, giving them a significant advantage in pricing and taking market share from legal businesses. The continued presence of the illegal market impairs the profitability and economic viability of regulated, legal cannabis businesses.

- **Use of a fair market value calculation detached from actual prices.** The fair market value calculation does not track—and is often much higher than—actual wholesale prices, resulting in businesses paying a much higher effective wholesale tax rate. This calculation uses lagged data, does not differentiate between levels of quality, and does not capture market fluctuations in the price of cannabis. There are also concerns that the state’s fair market value calculation is inflated by the widespread inclusion of taxes in the reported wholesale price. The result is a fair market value sometimes 60-80% above the actual wholesale value, or even higher.
- **Declining sales.** Cannabis sales have been in decline, due in part to a maturing market and shifting consumption patterns coming out of the pandemic. Declining sales have reduced the profitability of many cannabis businesses.

Insufficient Demand for New Licenses

The current economic, tax, and regulatory environment is not amenable to issuing more dispensary licenses currently. In fiscal year 2021, the cannabis industry averaged \$12.7 million per active dispensary. However, **in fiscal year 2022, the combined effects of more licenses and declining sales resulted in the average sales per active license decreasing by 18%, to \$10.4 million.**

If there are no new licenses issued for the rest of 2022 and sales remain flat in fiscal year 2023, sales per active dispensary license in fiscal year 2023 would further decline an additional 8%. **However, if fiscal year 2023 sales follow the same rate of decline as the first four months of the fiscal year, sales per active dispensary license would decline 21%, or a cumulative decline from fiscal year 2021 to fiscal year 2023 of 35%.**

These losses will furthermore materialize in a regulatory and taxation environment that disadvantages existing, legal cannabis businesses, adversely impacting future investments and hiring in the industry.

Executive Summaryi

Introduction1

Cannabis Industry Sales, Jobs, and Income2

Economic and Fiscal Impacts10

Challenging business and regulatory climate.....14

Wholesale Tax Fair Market Value Calculation.....17

Illegal Market21

Assessing Demand for Additional Licenses22

Summary and Conclusions27

Appendix.....28

Sources30

INTRODUCTION

Nevada voters passed a ballot initiative in 2000 authorizing the sale of medical marijuana, but the first medical dispensary did not open until 2015. The following year, in 2016, voters approved Ballot Question 2, the “Initiative to Regulate and Tax Marijuana Like Alcohol,” legalizing the sale of recreational marijuana. The first recreational dispensaries opened in July 2017. Since then, the industry has grown to become a major contributor of economic activity and tax revenues for the State of Nevada. Cannabis can only be purchased legally from state-licensed retail dispensaries, which are regulated by the Nevada Cannabis Compliance Board.

The cultivation, production, testing, distribution, and final sale of recreational and medical cannabis products represents an extensive supply chain. Businesses throughout these nodes also purchase equipment, packaging, and various other inputs from suppliers in Nevada. Collectively, these activities support broad-based economic development at the local level, including jobs, income, and local demand for consumer goods, dining, entertainment, and other types of household consumption.

This study provides a quantitative assessment of the size, breadth, geographic scope, and economic impacts of the regulated recreational cannabis industry in Nevada. This report also assesses policy and regulatory challenges faced by cannabis businesses in the state, and whether there is sufficient demand to issue more dispensary licenses at this time while preserving the economic and financial viability of existing, incumbent cannabis businesses.

Findings will be used to highlight the significant and expanding role of the cannabis industry in Nevada’s economy and advocate for policies to support ongoing vitality of the industry in the state.

Data and Methods

This report leverages quantitative and qualitative sources and materials. These include, but are not limited to, data on production and licenses, from the Nevada Cannabis Compliance Board, sales and tax revenues from the Nevada Department of Taxation, and employment and wage data from the U.S. Bureau of Labor Statistics and U.S. Bureau of Economic Analysis. Economic impacts are computed using the Nevada state version of IMPLAN, an input-output model. Data summaries were augmented with interviews, research in other states, reports, and news stories, among other sources, to provide a complete picture of the activities and key issues and concerns within the industry.

Organization of Report

The remainder of this report is organized as follows:

- **Direct industry activities.** Jobs, income, revenues, production, and other leading indicators of the cannabis in Nevada, including, when possible, breakouts by industry segment.
- **Economic and fiscal impacts.** Additional jobs, income, business sales, and tax revenues supported through upstream business-to-business transactions and household consumption.
- **CCB fines and fees.** The scale and impact of fines and fees on cannabis businesses.
- **Wholesale tax fair market value.** Review of the methods used to assess and apply the wholesale excise tax.
- **Illegal market.** Discussion of the continued presence and challenges created by unlicensed cannabis businesses.
- **Determining the demand for more licenses.** Data-based assessment of the market demand for more licenses, and the effect this may have on existing cannabis retail dispensaries.
- **Summary and conclusions.** Review of key findings and takeaways.

CANNABIS INDUSTRY SALES, JOBS, AND INCOME

The recreational cannabis industry is organized as a supply chain. At its foundation are growers, including many farming operations across the state. Some growers also have processing operations, whereas others sell their raw product, in the form of flower or pre-roll content, to separate businesses for processing or directly to dispensaries. Economic value is created throughout the supply chain, including in cultivation, packaging, rolled joints, edibles, and other types of consumer products, and the testing and transport of these goods.

Licenses and Business Operations

As of January 2023, there were 765 licenses for medical and recreational cannabis. There were 346 licenses held for medical cannabis (**Exhibit 1**). Recreational licenses summed to 419 (**Exhibit 2**). Recreational cannabis licenses represented 55% of all licenses, of which the largest license type was for cultivation (151), followed by production (109) and retail dispensary (99). According to Nevada state law, businesses can own a combination of four of the five licenses, but cannot own a laboratory license and any other license type. Most recreational and medical cannabis licenses are collocated, meaning a business can own both a recreational and medical license and operate as the same business and location.

Exhibit 1. Active Cannabis Licenses and Businesses by Category of Activity, Nevada, January 2023

Category	Count	Share
Recreational		
Dispensary	99	13%
Distribution	50	7%
Cultivation	151	20%
Production	109	14%
Laboratory	10	1%
Subtotal	419	55%
Medical		
Dispensary	67	9%
Distribution	0	0%
Cultivation	157	21%
Production	112	15%
Laboratory	10	1%
Subtotal	346	45%
Total	765	

Source: Nevada Cannabis Compliance Board (2023b).

Note: many of the above licenses are collocated (medical and recreational). For example, in January 2023, there were 100 active dispensary licenses, including 66 that were medical and recreational collocated licenses, 33 stand-alone recreational dispensaries, and one stand-alone medical dispensaries.

These figures do not include tribal licenses, which are not counted in the total license figures reported by the CCB. Pursuant to NRS 233.250, the Governor may enter into agreements (known as compacts) with tribal governments regarding the coordination and cross-jurisdictional administration of state and tribal government laws relating to the use of cannabis.

There are currently 13 agreements between the State of Nevada and tribal governments. Under these compacts, tribal governments may open dispensaries, cultivation, and production facilities and are subject to their own internal oversight and regulation. Tracking of products may be done either in the tribes' or the states' tracking system, available to state review upon request. If tribal entities sell products to licensees, then the product testing and packaging requirements of the Nevada Cannabis Compliance Regulations (NCCR) must be met. Tribes are not subject to the state's excise or sales taxes, or local jurisdiction licensing fees. Tribes instead impose a tribal tax equal to the amount of state tax. This tax is not imposed if the sale is between two tribal entities (such as tribal cultivation and a tribal dispensary) or tribal customers.

While there are 13 compacts between the state and tribal governments, these agreements do not limit the number of licenses or facilities that a government may operate. Additionally, as noted above, the total number of

tribal facilities is not reported by the CCB. There are an estimated 10 tribal dispensaries currently open in Nevada.

Exhibit 2. Recreational Cannabis Licenses by Category, January 2023

Category	Description	Count
Cultivation Facility	Licensed to cultivate (grow), harvest, and package cannabis; to have cannabis tested by a testing facility; and to sell cannabis to retail cannabis stores, to cannabis product manufacturing facilities, and to other cultivation facilities, but not to consumers.	151
Distributor	Licensed to transport cannabis from a cannabis establishment to another cannabis establishment. For example, from a cultivation facility to a retail store.	50
Product Manufacturing Facility	Licensed to purchase cannabis; manufacture, process, and package cannabis and cannabis products; and sell cannabis and cannabis products to other product manufacturing facilities and to retail cannabis stores, but not to consumers. Cannabis products include things like edibles, ointments, and tinctures.	109
Testing Facility/Laboratory	Licensed to test cannabis and cannabis products, including for potency and contaminants.	10
Retail Store	Licensed to purchase cannabis from cultivation facilities, cannabis and cannabis products from product manufacturing facilities, and cannabis from other retail stores; can sell cannabis and cannabis products to consumers.	99
Consumption Lounges	Lounges include those to be built onto existing, licensed retail operations as well as independent lounges that can enter into a contract with a retailer to purchase and prepare ready-to-consume marijuana products for resale.	40
Total		459

Source: Nevada Cannabis Compliance Board (2023b).

**The above counts do not include tribal licenses.*

Clark County is home to 70 recreational dispensary licenses, equal to 71% of recreational dispensary licenses, in close proportionality to the county's share of the statewide population (74%). Washoe County is home to 17 retail dispensary licenses, equal to 17% of all retail dispensary licenses issued statewide. Clark and Washoe counties combined represented 91% of all cannabis taxable sales in fiscal year 2022 (**Exhibit 3**).

Exhibit 3. Recreational Dispensaries, Nevada, by County, January 2023

County	Recreational Dispensaries	Share of Recreational Dispensaries	Share of State Population	Share of Market Fiscal Year 2022
Clark County	70	71%	74%	78%
Washoe County	17	17%	15%	13%
<i>Subtotal</i>	87	88%	89%	91%
Nye County	2	2%	2%	
Elko County	2	2%	2%	
Carson City	2	2%	2%	
Lyon County	2	2%	2%	9%
Humboldt County	2	2%	1%	
White Pine County	1	1%	0%	
Storey County	1	1%	0%	

Sources: Nevada Cannabis Compliance Board (2023b); Nevada Department of Taxation (2022b); U.S. Census Bureau (2022).

Vertical Integration and Supply Chains

As of January 2023, there were 110 unique businesses with at least one cannabis license in Nevada. Of these, 34 held dispensary, cultivation, and production licenses, or 31% of all unique businesses holding cannabis licenses. A total of 38 businesses, or 35% of all businesses, held a dispensary license and either a cultivation and/or production license. There were only seven businesses that held only a dispensary license, and 48 that held either a cultivation license and/or production license, but not a dispensary license (**Exhibit 4**).

Exhibit 4. Unique Business Counts by Business Structure, January 2023

Category	Count	Share
Dispensary + Production + Cultivation	34	31%
Dispensary + Production	1	1%
Dispensary + Cultivation	3	3%
Dispensary Only	7	6%
Cultivation + Production	32	29%
Cultivation Only	15	14%
Production Only	1	1%
Lab	11	10%
Distributor Only	6	5%
Total	110	100%

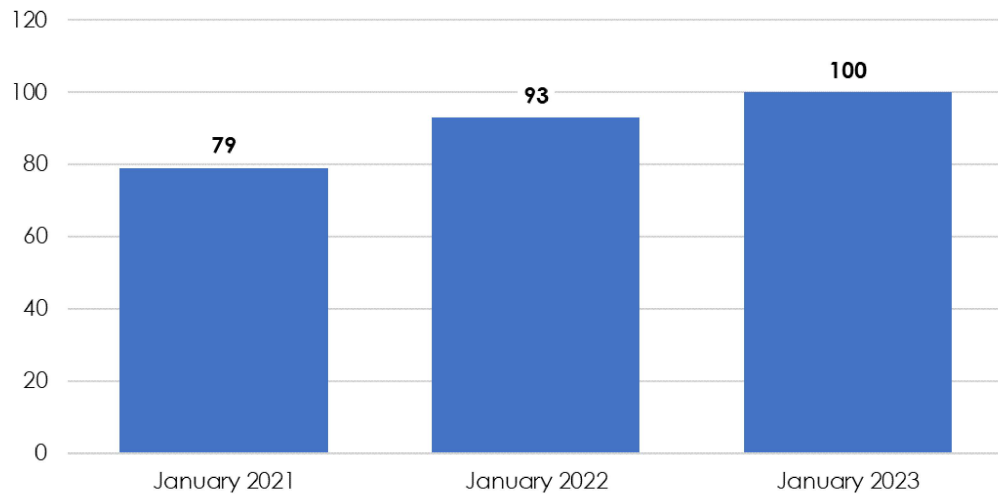
Sources: Nevada Cannabis Compliance Board (2023b); High Peak Strategy LLC (2023).

"Unique businesses" include holding companies that own multiple registered licensee businesses.

As of January 2023, there were 100 active dispensary licenses, including 66 that were medical and recreational collocated licenses, 33 stand-alone recreational dispensaries, and one stand-alone medical dispensaries. Active dispensaries have grown substantially in recent years, from an average of 79 in January 2021 to 93 January 2022 to 100 in January 2023 (**Exhibit 5**).

Exhibit 5. Active Cannabis Dispensary Licenses, January 2021, January 2022, and January 2023

Active Licenses



Source: Nevada Cannabis Compliance Board (2023a).

Note: the counts above include dispensaries with colocated medical and recreational licenses. The dispensary count treats a site with both types of licenses as one dispensary, not two.

In addition to cannabis license holders, there are numerous other businesses providing necessary goods and services for the production, processing, and sale of cannabis products. These include hydroponic systems, grow lights, irrigation and water supplies, generators, growing accessories, soil amendments and nutrients, packaging materials, pest management, and various ingredients for edible products. There are also many cannabis support services, such as security, consulting, insurance, accounting, financial services, real estate, and delivery. Many of these supplies and services are available and purchased from vendors within Nevada, supporting additional jobs and income.

Business Revenues

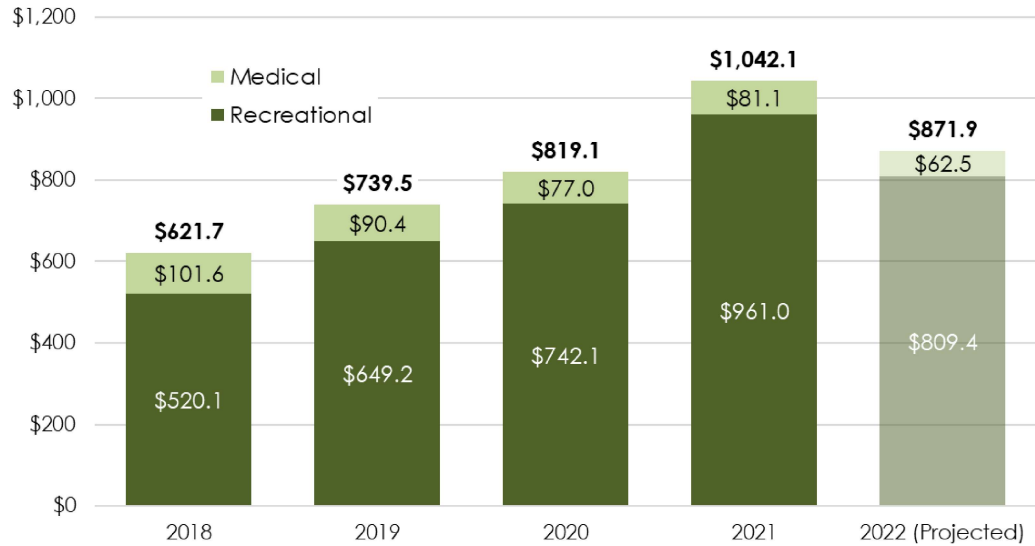
In calendar year 2021, state licensed cannabis businesses generated more than **\$1.0 billion** in gross final consumer sales, of which \$961.0 million was in the recreational consumer market. This represented a 27% increase in real terms (i.e., inflation adjusted) from a year earlier, and 67% growth since 2018. Medical sales generated an estimated \$81 million in sales in 2021. **However, through first ten months of 2022, recreational cannabis sales were down 16% (nominal dollars) compared with the first ten months of 2021.** For the fiscal year ending June 30, 2022, annual sales declined 4% (Nevada Cannabis Compliance Board, 2022a).¹ In the first

¹ The cost of goods in the cannabis sector averages approximately 50% of gross revenues. This estimate is based on financial reports for publicly traded companies and interviews.

four months of fiscal year 2023, sales on a nominal basis are down 19% compared with the first four months of fiscal year 2022.

Exhibit 6. Recreational and Medical Cannabis Sales, Nevada, Calendar Years 2018-2021 and Projected for 2022, Mils 2021 \$

Millions 2021 \$

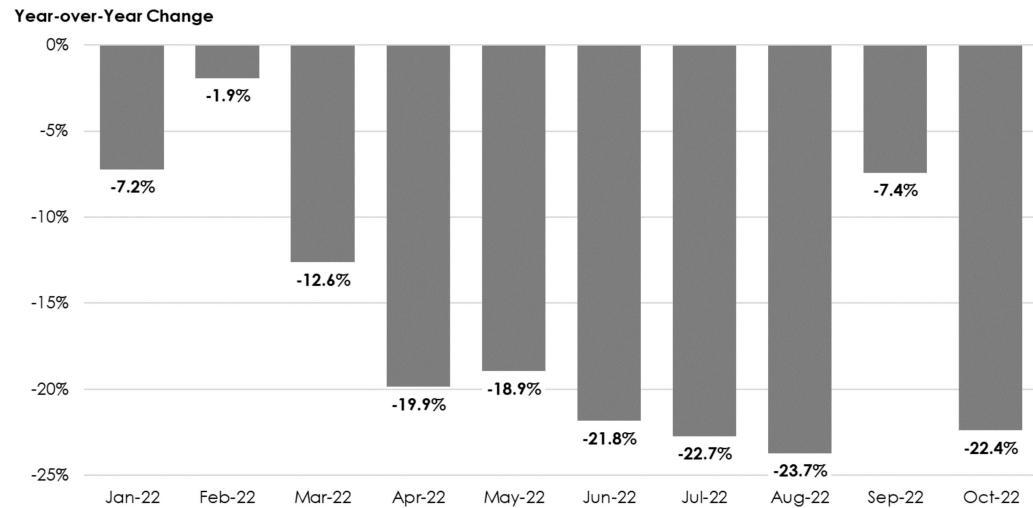


Sources: State of Nevada Department of Taxation (2022b); U.S. Bureau of Economic Analysis (2022); High Peak Strategy LLC (2022).

Note: recreational use cannabis sales based on dividing reported total retail excise tax by 10%.

Every month in 2022, through October (latest available month as of this analysis), has shown a year-over-year decline in sales in nominal terms. The steepest monthly year-over-year decline occurred in August, with a 23.7% decline compared with August 2021 (**Exhibit 6**).

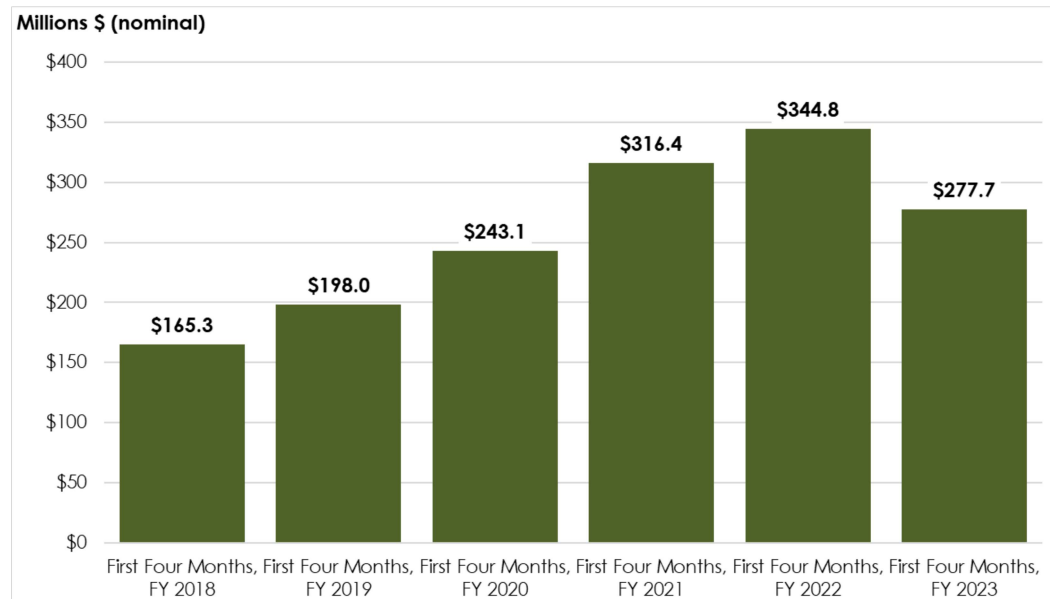
Exhibit 7. Taxable Sales, Recreational and Medical Cannabis Dispensary Sales, Year-over-Year Change by Month, Based on Nominal Dollars



Source: State of Nevada Department of Taxation (2022b).

Through the first four months of fiscal year 2023, sales (on a nominal basis) declined 19.5% compared with the first four months of fiscal year 2022 (**Exhibit 8**).

Exhibit 8. Taxable Sales, Recreational and Medical Cannabis Dispensary Sales, First Four Months of Each Fiscal Year (2018-2023)



Source: State of Nevada Department of Taxation (2022b).

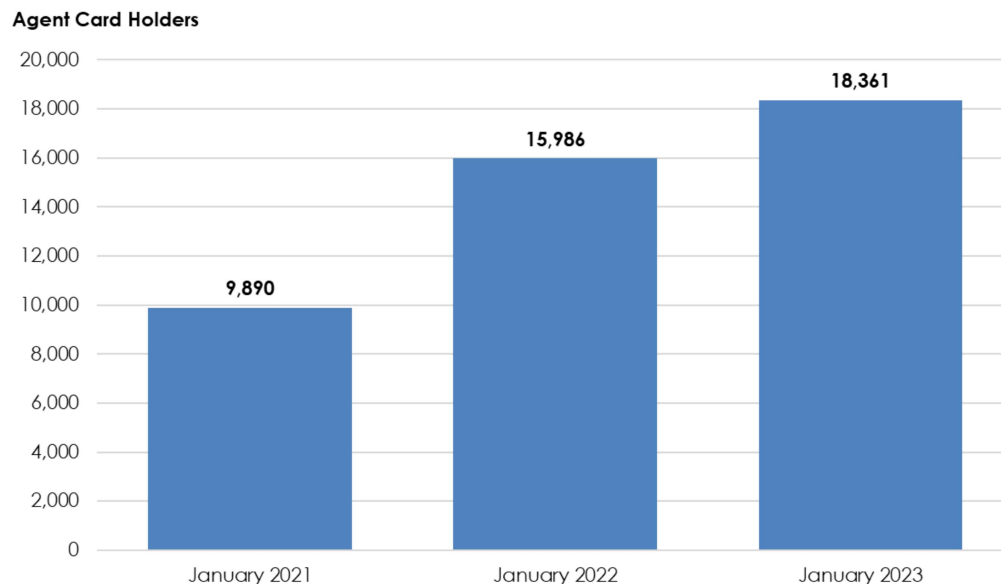
Sales per active license

According to the CCB, in January 2023 there were 100 active dispensary licenses, including collocated recreational and medical licenses. In January 2021 and January 2022, there were 79 and 93 active dispensary licenses, respectively. Sales per active dispensary license in fiscal year 2021 totaled \$12.7 million. However, **sales per active license in fiscal year 2022 fell 18%**, to \$10.4 million, owing to the combined effect of declining sales and more licenses.

Employment and Wages

As of January 2023, there were 18,631 holders of cannabis establishment agent cards; an increase over 15,986 holders as of January 2022, which in turn was a 62% increase over the same period in 2021 (**Exhibit 9**).

Exhibit 9. Nevada Cannabis Agent Card Holders, January 2021, January 2022, and October 2022



Sources: Nevada Cannabis Compliance Board (2021; 2022b; 2023c).

Of the January 2022 total,² 724 were industry executives, with the remainder employees and contractors of cannabis businesses (Nevada Cannabis Compliance Board, 2021; 2022b). Card holders serve as a useful proxy for total employment, since all individuals associated with a cannabis business in the state must apply for and receive an agent card. Agent cards must be renewed every two years; the total reported number thus

² Detailed occupational and demographic breakouts for agent card holders are only available for January of each year with the release of a demographic report by the CCB.

represents a fairly accurate list of active employees and owners of cannabis businesses.³

Based on this data, we estimate an *annual average for all 2021* across the cannabis industry of **12,900 jobs**.⁴ These workers earned an estimated total income, including wages and salaries, budtender tips, and supplemental benefits of **\$452.8 million** in 2021.

There are a variety of occupations, and concomitant wage levels, across the cannabis industry in Nevada. Some of the most common positions include store associates, master growers, cultivation associates, production technicians, and logistics coordinators, in addition to administrative staff and company executives. Based on interview feedback, most positions at cannabis businesses are full-time and annual, as opposed to part-time and/or seasonal. Wages for hourly staff typically start around \$17/hour but can be upwards of \$25/hour, and managers may earn more than \$100,000 annually. These positions often also include supplemental benefits, such as healthcare and 401ks. By comparison, the minimum wage in Nevada in 2022 is between \$9.50/hour and \$10.50/hour (depending on whether benefits are provided), well below the typical hourly wage for cannabis workers (U.S. Department of Labor, 2022).

ECONOMIC AND FISCAL IMPACTS

Cannabis businesses further support economic activity through upstream business-to-business transactions (indirect effect) and spending of cannabis and supplier worker earnings on household goods and services (induced effect). Indirect impacts include purchases of various supplies, equipment, and services necessary for the cultivation, packaging, processing, and sale of cannabis products. Examples include pumps, tubing, sealants, soil treatments, HVAC systems, lighting systems, packaging materials, gases for the extraction process, hardware for vape cartridges, water, and electricity. The purchase of these supplies creates additional jobs and economic activity among other businesses located in Nevada.

These two effects—indirect and induced—are measured as additional revenues, jobs, and income, and combined are referred to as “total economic impacts.” These impacts are based only on those purchases—by businesses and employees—made within Nevada; the remainder are treated as imports, either domestic or foreign, and do not spur additional economic activity in the state. The primary tool for assessing these broader economic impacts was the IMPLAN Nevada model, an input-output model custom-built to

³ According to the Nevada Cannabis Compliance Board agent card application instructions, “Pursuant to NRS 678B.390 and 678B.340, effective July 1, 2020, the cost of an agent card is \$150 per category and each card is valid for 2 years” (Nevada Cannabis Compliance Board, 2022).

⁴ There were 9,890 cannabis agent cardholders in January 2021 and 15,986 in January 2022 (Nevada Cannabis Compliance Board, 2021; 2022b). The annual average count for 2021 was estimated by taking the average, or midpoint, of these two values and rounding to the nearest 100 jobs.

reflect the unique intra- and inter-industry transactions and household spending within the Nevada state economy.⁵

Economic Impacts

In 2021, the Nevada cannabis industry supported a statewide economic impact of **18,800 jobs, \$788.7 million in labor income**, and more than **\$2.0 billion in business output (Exhibit 10)**. For every job directly employed in the cannabis industry, an additional 0.5 jobs were supported through indirect and induced impacts elsewhere in the state economy, or a jobs multiplier of 1.5. Each dollar in direct cannabis final consumer sales is associated with nearly an additional dollar of business output elsewhere in the economy, or a multiplier of 1.9. **Based on sales declines through October 2022, the total 2022 annual economic impact of the cannabis industry is projected to decline to \$1.7 billion in business activity.**

Exhibit 10. Statewide Economic Impacts of the Nevada Cannabis Industry, 2021

	Direct	Indirect	Induced	Total
Employment	12,900	2,700	3,200	18,800
Labor Income (mils \$)	\$452.8	\$148.1	\$187.8	\$788.7
Output (mils \$)	\$1,042.1	\$422.5	\$555.1	\$2,019.7

Sources: IMPLAN Group LLC (2022); High Peak Strategy LLC (2022).

Note: direct impacts above include all workers and wages directly tied to cannabis businesses, even though some of these workers are employed among businesses that are suppliers and/or in vertically integrated businesses that both do retail and cultivate and/or produce, and would typically be considered "indirect." The inclusion of these workers and wages under direct is to illustrate the scale of these cannabis business-employed workers. Indirect impacts have been revised down to reflect this adjustment.

⁵ In this report, we treat all cannabis businesses as "direct" to provide a consistent picture of the sector and its employment and sales footprint, even though cultivators and producers are suppliers, and would thus traditionally be considered "indirect" activities. To avoid double-counting of impacts, we removed the inclusion of cultivator and producer activities from the indirect jobs, labor income, and output estimates. Induced impacts are also adjusted accordingly. In this study, we model the gross margins generated among retailers, excluding the cost of goods. Using this method, we treat almost the entire ecosystem of licensed cannabis operations as "direct." We do discount revenues generated among producer goods sold to processors and retailers to avoid double-counting.

Fiscal Impacts

In calendar year 2021, cannabis wholesale and retail excise taxes generated nearly \$160 million in state revenues (**Exhibit 11**). Adjusted for inflation, cannabis excise taxes increased 24% over 2020. However, excise taxes declined 3.4% on a *fiscal year* basis in fiscal year 2022 (the twelve-month period ending on June 30, 2022), from \$157.8 million to \$152.3 million (Nevada Department of Taxation, 2022b). There are several possible explanations for the decline. These include an expanding number of recreational opportunities outside the home, competing with cannabis consumption; and eroding of personal income due to unprecedented inflation.

Fees and taxes generated by the cannabis industry support public services. NRS 372A.290 directs all revenue from the 10% retail cannabis excise tax into the State Education Fund (SEF). Additionally, revenues from the wholesale cannabis excise tax are also disbursed to the SEF, local governments, and regulatory operations. In fiscal year 2022 (ending June 30, 2022), **cannabis sales resulted in \$147 million for the state's K-12 education budget**, based on \$89 million from the retail excise tax and \$63 million from a share of the wholesale cannabis excise tax. Local governments received \$5 million from the wholesale cannabis excise tax (Nevada Cannabis Compliance Board, 2022).

Cannabis businesses also paid more than \$4.0 million in establishment licenses and renewal fees in FY 2022. In FY 2023, through November (first five months of the fiscal year), these fees summed to nearly \$3.7 million, equal to 91% of payments in all of FY 2022. Agent card registration fees totaled \$1.5 million in FY 2022 and \$1.0 million through the first five months of FY 2023 (State of Nevada, 2022). Local jurisdictions collected \$29.0 million in excise taxes from cannabis retail sales in fiscal year 2022.⁶

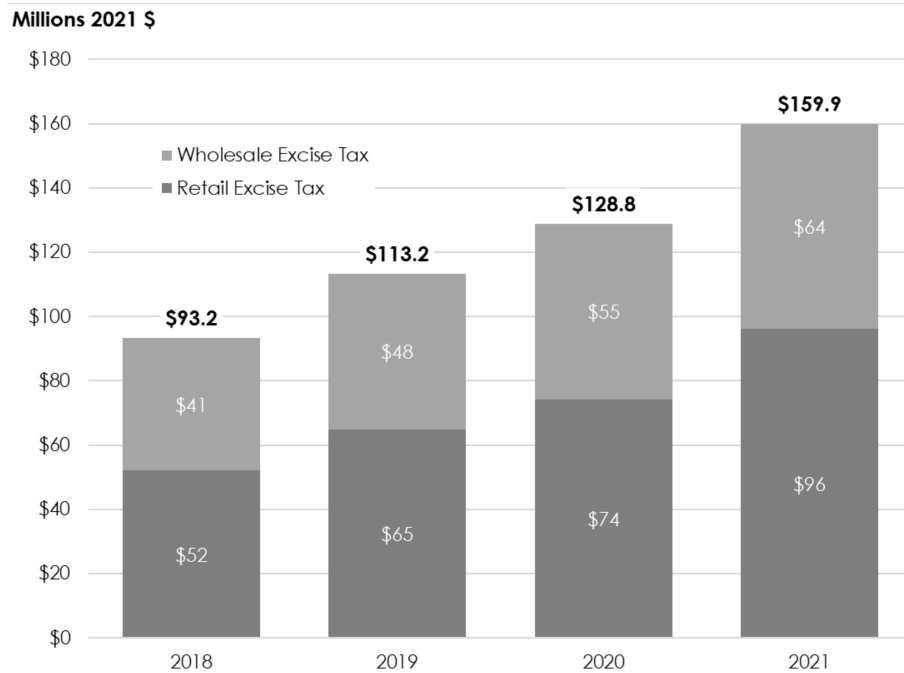
In addition to excise taxes, the cannabis industry is also a large source of state sales taxes. In calendar year 2021, total sales taxes from retail sales (for adult-use recreational and medical cannabis) summed to **\$71.4 million**.⁷

In addition to state taxes, businesses pay local taxes on operations. In fiscal year 2022, the counties of Clark and Washoe combined represented more than 91% of all reported cannabis retail sales. These sales in turn supported \$22.4 million in local taxes, based on an average rate of 3%. There are also interjurisdictional licenses and fees that are a *de facto* tax on operators.

⁶ Estimate based on 3% county licensing fee charge applied to gross receipts.

⁷ The sales tax rate in Nevada is 6.85%. Medical cannabis purchasers are exempt from the retail excise tax but must still pay the standard state sales tax.

Exhibit 11. Cannabis Wholesale and Retail Excise Taxes, Nevada, 2018-2021, Mils 2021 \$, Based on Calendar Year



Sources: State of Nevada Department of Taxation (2022b); U.S. Bureau of Economic Analysis (2022); High Peak Strategy LLC (2022).

According to a recent study by authors at the Tax Policy Center (2022), Nevada ranks third in the United States for cannabis excise taxes per capita (\$48), behind Washington and California (**Exhibit 12**). Nevada's cannabis excise taxes contributed 1.7% of the state's total tax revenue in fiscal year 2022.

Exhibit 12. Cannabis State Excise Taxes, Fiscal Year 2022

State	Total (mils \$)	Per capita (\$)	Share of state tax revenue (%)
Alaska	\$28.9	\$39	1.2%
Arizona	\$132.8	\$18	0.6%
California	\$774.4	\$20	0.3%
Colorado	\$353.7	\$61	1.7%
Illinois	\$466.8	\$37	0.8%
Maine	\$18.2	\$13	0.3%
Massachusetts	\$156.7	\$22	0.4%
Michigan	\$163.5	\$16	0.4%
Nevada	\$152.3	\$48	1.7%
Oregon	\$170.6	\$40	1.0%
Washington	\$517.0	\$67	1.5%

Source: Auxier & Airi (2022).

CHALLENGING BUSINESS AND REGULATORY CLIMATE

The current business climate for cannabis in Nevada is fraught with challenges that, in many cases, impair the profitability and financial viability of legal, regulated cannabis businesses.⁸

Businesses we spoke with desire a strong, constructive relationship with the state regulator. However, many viewed the current regime for auditing and administration fines and charges to be onerous and, in the case of “time-and-effort” fees, unpredictable, capricious, and difficult to account for in budgeting. The uncertainty associated with CCB fines discourages business expansion and investment, thus inhibiting the economic and fiscal benefits of the industry to the State of Nevada.

Civil Fines and Penalties

The Nevada Cannabis Compliance Board stipulates five categories of violations subject to a monetary fine, relating to operations, public health and safety, taxation, production, and sales (Nevada Cannabis Compliance Board, 2022d). In fiscal year 2021, the CCB collected \$1.9 million in civil penalties; this compares with CCB projection of \$116,000 (Nevada Legislature, 2021).

Civil penalties decreased to \$944,146 in fiscal year 2022. However, this amount was reduced from much higher initial penalties levied against cannabis businesses. Businesses that contest these fines incur large, non-deductible expenses, such as legal fees. Through the first five months of fiscal year 2023, civil penalties collected have already reached \$730,146 (State of Nevada, 2022).

Cannabis businesses interviewed for this study expressed strong support for the existing rules. However, many interviewees are frustrated at the seemingly erratic and excessively punitive nature of enforcement.

Businesses desire a more constructive, collaborative relationship with the CCB that ensures all licensed operations are in compliance with the existing rules while also not compromising the financial viability of the legal, regulated cannabis industry.

Below are some of the concerns shared by these businesses regarding CCB enforcement and fines:

- Small infractions can result in significant fines.
- Cost of overregulation and inconsistent enforcement, e.g., changes in packaging requirements, arbitrary and capricious enforcement of regulations, and employee turnover among inspectors.
- Infractions previously undetected, even if quite small, are compounded, resulting in a large fine borne by the business.

⁸ The CCB was created by AB 533 in 2019. In 2020, the state’s cannabis program was transferred from the Department of Taxation to the CCB. The CCB has four divisions: licensing, inspection & audit, investigations, and enforcement.

- The legal and administrative fees associated with contesting a fine are significant and sometimes prohibitively high.
- The CCB does not have policies in place that encourage self-reporting by licensees.
- The CCB does not have a track record of enforcing the rules on illegal businesses. Cannabis businesses feel that the CCB disproportionately audits and fines legal businesses for oftentimes seemingly small infractions, and not devoting adequate resources (with other state agencies) to investigate and prosecute unlicensed businesses.

Time-and-Effort Charges

Licensees regularly receive bills from the CCB for so-called “time-and-effort” charges. Oftentimes, these involve CCB auditors charging businesses to conduct unscheduled audits and gather information some businesses consider central to the CCB’s roles and responsibilities, and therefore should not be chargeable as an extra expense borne by the audited business. The CCB charges audited businesses at a rate of \$111/hour. **These charges are unpredictable and difficult to account for in annual budgeting, thus introducing a significant amount of uncertainty into business operations.**⁹

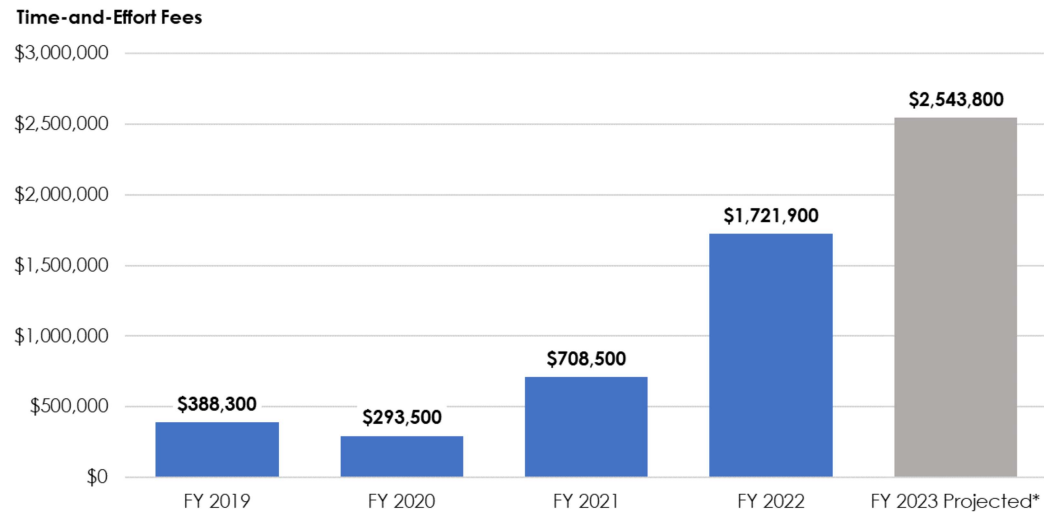
As illustrated above, the cannabis industry is a large source of economic wealth generation, including the provision of wages that are well above the state average. However, this uncertainty has an inhibiting effect on cannabis business profitability, potentially deterring future investments and growth.

Under Nevada Revised Statutes (NRS) 678B.390(3)(d), there is statutory authority for the Board to charge fees for “actual costs” for processing license applications. However, there is no statutory authority for the CCB to charge fees to licensees for the cost of CCB staff time for routine inspections and oversight activities. Under most regulatory frameworks, the industry regulatory is funded by taxes and licensing fees, which are predictable and correlated with the size of the industry, and not from unpredictable fees.

The CCB projected time-and-effort billings to total \$293,600 in fiscal year 2022, but actual charges summed to \$1.7 million, out of an agency annual budget of \$10.5 million (Rindels, 2022; Nevada Legislature, 2021; State of Nevada, 2022). Time-and-effort charges increased nearly 500% between fiscal year 2020 and fiscal year 2022 and may reach \$2.5 million for FY 2023 based on the current trend (**Exhibit 13**). The average number of active licenses between fiscal years 2021 and 2022 increased 18%, whereas time-and-effort fees grew 143%.

⁹ In July 2022, the CCB revised time-and-effort charges. According to the CCB: “Effective July 1, 2022, travel to and from a cannabis establishment will be billed at half (1/2) the standard rate. Additionally, effective August 1, 2022, general correspondence from cannabis establishments resulting in follow up from CCB agents not related to ongoing audits, inspections, investigations, or approvals will not be billed” (Nevada Cannabis Compliance Board, 2022).

Exhibit 13. Nevada Cannabis Compliance Board Time-and-Effort Charges, Fiscal Years 2018-2023 (projected), Nominal \$



Sources: Nevada Joint Interim Standing Committee on Revenue (2022, p. 50); Rindels (2022).

*Based on the first four months of FY 2023 and projected for the remaining eight months.

Note: values have been rounded to the nearest 100.

Impact on Business Profitability

The combined effect of the above charges (fines and time-and-effort charges) is to weaken the profitability and economic viability of cannabis businesses. Because cannabis has yet to be legalized at the federal level, these businesses are not able to write-off many of the typical business costs that entities in other industries can itemize and deduct from their tax liability. For example, one firm we spoke with made time-and-effort charges and fine payments—after successfully contesting and reducing a civil penalty—equal to 5% of net revenues before tax. Another firm incurred nearly \$50,000 in time-and-effort charges in fiscal year 2022 alone, equal to more than one full-time worker.

Other firms highlighted the already very high effective combined federal and state tax rates (upwards of 60% for some) that do not account for true net revenues, but only revenues net of cost of goods sold.

WHOLESALE TAX FAIR MARKET VALUE CALCULATION

The wholesale market tax (WMT) in Nevada is levied based on what is called a “fair market value.” According to the Nevada Department of Taxation (2022a), fair market value is defined as the price that a “buyer would pay to a seller in an arm’s length transaction for cannabis in the wholesale market.”

The concept of fair market value is to ensure that vertically integrated businesses, i.e., those with cultivation, production, and/or retail, pay the same wholesale tax for within-firm product transfers as do standalone cultivators who sell to unaffiliated either producers or retailers. There are nine categories of wholesale transactions subject to fair market value calculations, such as small buds (by pound), flowers (by pound), trim (by pound), and pre-rolls (per unit). The method for computing the fair market value is based on cannabis cultivator transactions recorded by the CCB’s seed-to-sale tracking system.¹⁰

There are several key issues with this calculation. First, there is a **significant time lag**—at least one full quarter—between the data used for computing the fair market value and the actual, current market price, the difference of which can be quite large.

Second, the fair market value **does not differentiate between levels of quality**. For example, high potency cannabis flower can command prices of between \$1,800 to \$2,000 per pound, whereas bulk cannabis with less potency will earn roughly half of this (Rindels, 2022).

Third, the fair market value is held constant over a six-month period. It thus **does not capture market fluctuations in the price of cannabis**, which can be quite substantial. For example, between January and June 2022, the fair value market of cannabis flower was \$2,462 per pound; for the remainder of 2022, the fair market value was \$2,074, but has been reduced (as of January 2023) to \$1,944. (Nevada Department of Taxation, 2022e). Over the January-to-June-2022 six-month period, actual monthly average wholesale prices ranged between \$1,590 and \$1,240 (Nevada Department of Taxation, 2022c).

Lastly, sales data reported by cultivators (and used to compute the fair market value) **oftentimes include the tax obligation on top of the actual wholesale transaction**. According to interviewees, this issue continues to persist, resulting in the fair market value computation being

¹⁰ The fair market value is computed based on transactions recorded in the state’s seed-to-sale tracking system. According to the Nevada Department of Taxation, “[sales] that were labeled as internal transfers, samples, displays, promos, testers, or trials were removed as these are not considered to be typical arm’s length transactions between buyers and sellers in a wholesale market.” Prices are standardized, such as by pound of flower. The computation also removes outliers from the dataset, defined as standardized prices less than 15% or more than 500% of the previous fair market value at wholesale. The fair market value is then based on the median of the standardized price per pound or per unit after internal transfers, samples/promos (Nevada Department of Taxation, 2022a).

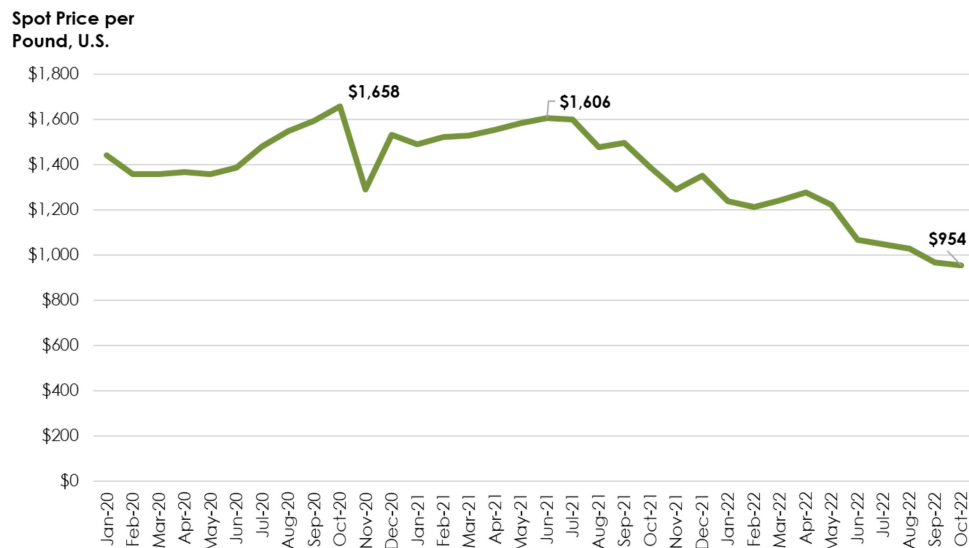
based on the fully loaded transaction amount, including the wholesale excise tax, thereby **generating an inflated estimate**.

Comparing Wholesale Fair Market Value and Actuals

Recent data suggests actual wholesale cannabis prices nationally are well below the fair market value calculation. For example, the forward price for one pound of cannabis flower is \$950. The U.S. spot index for cannabis in March was \$1,237 per pound (Green Growth CPAs, 2022). Many businesses interviewed for this study indicated real wholesale prices for cannabis flower in Nevada of between \$800 and \$1,000, well below the value they are being taxed on.

Cannabis remains a highly fragmented market, with no interstate commerce in the sale of cannabis flower. Nonetheless, price changes in the U.S. spot market for cannabis per pound provide useful context for the recent volatility in prices. For example, in June 2021, the national spot market price for cannabis flower was \$1,606 per pound, but has since fallen to just \$954 per pound, consistent with feedback from cannabis businesses in Nevada on the decline in prices over time (**Exhibit 14**).

Exhibit 14. U.S. Spot Price per Pound of Cannabis, Nominal USD, End of Each Month, January 2020 to October 2022

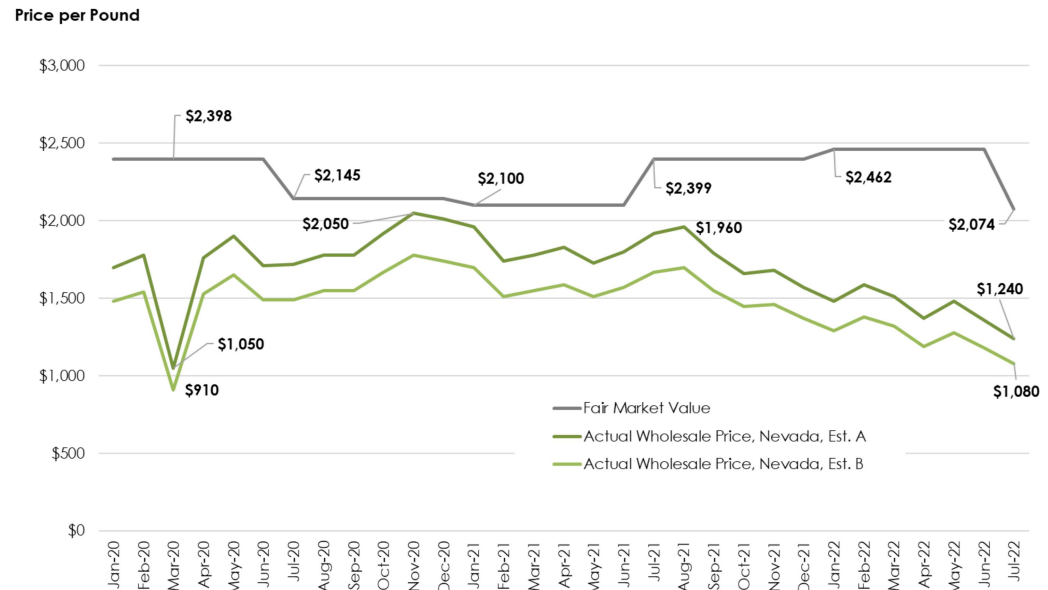


Source: New Data Leaf Services, LLC (2022).

Within the State of Nevada, the weighted average wholesale price of cannabis flower and buds, per pound, peaked at slightly more than \$2,000 in late 2020. Since a more recent peak of \$1,960 in August 2021, the price has declined to \$1,240 as of July 2022, based on the latest available data (**Exhibit 15**); interviewees and news reports have suggested the price has further declined through November 2022. The weighted average wholesale price for cannabis flower and buds has consistently been below the fair market value calculation used by the Nevada Department of Taxation. This

difference has widened significantly over the past two years, from just \$95 in November 2020 to \$1,102 in June 2022 (**Exhibit 16**).

Exhibit 15. Monthly Average Wholesale Price per Pound and Fair Market Value, “Marijuana Flowers/Buds,” Nevada, 2020-2022

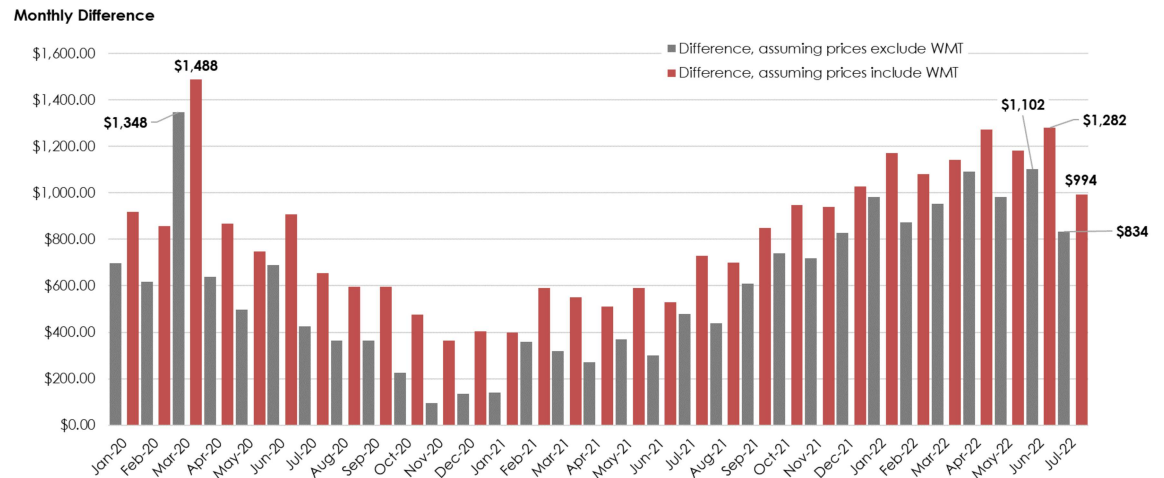


Source: Nevada Department of Taxation (2022c; 2022d).

Note (a): Estimate A treats the wholesale value as not inclusive of the wholesale tax, whereas Estimate B assumes all report transactions include the 15% wholesale tax, and thus remove this tax.

Note (b): the fair market value is based on median value calculation. The estimates above are based on the mean, or average, price, due to data granularity. Estimates also do not remove outliers, which would further reduce the estimated actual price, further illustrating the large discrepancy between the fair market value and actual prices.

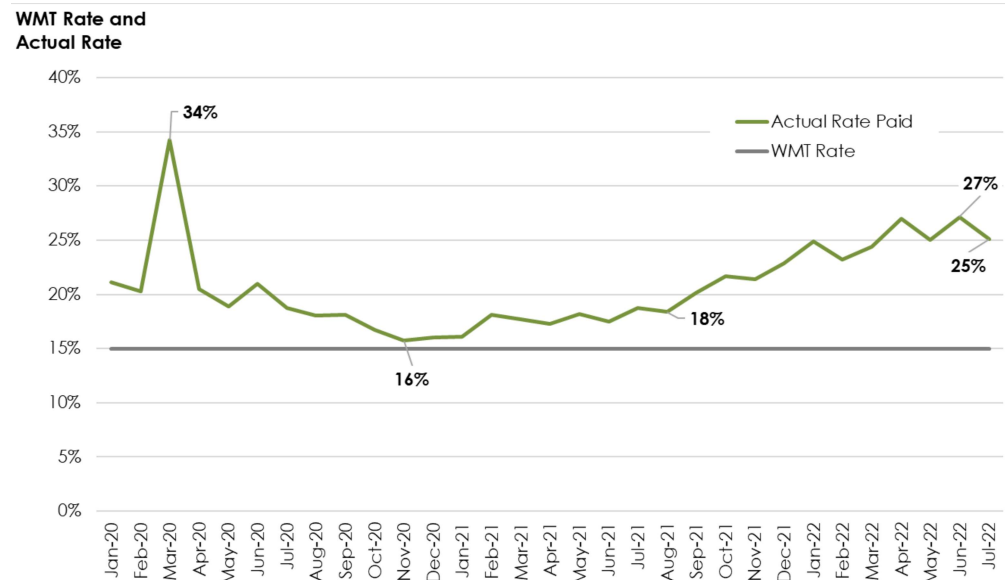
Exhibit 16. Monthly Difference Between Fair Market Value and Actual Average Wholesale Average Price per Pound, “Marijuana Flowers/Buds,” Nevada, 2020-2022



Source: Nevada Department of Taxation (2022c; 2022d).

When prices fall, as they have recently, cultivators are taxed based on a fair market value that is upwards of 100% higher than the actual wholesale price. This difference—between actual wholesale prices and fair market value—results in these businesses effectively paying a wholesale tax rate closer to 30%, not the 15% based on fair market value (**Exhibit 17**).

Exhibit 17. Monthly WMT Rate and Actual WMT Rate Based on Actual Sales Value, “Marijuana Flowers/Buds,” Nevada, 2020-2022

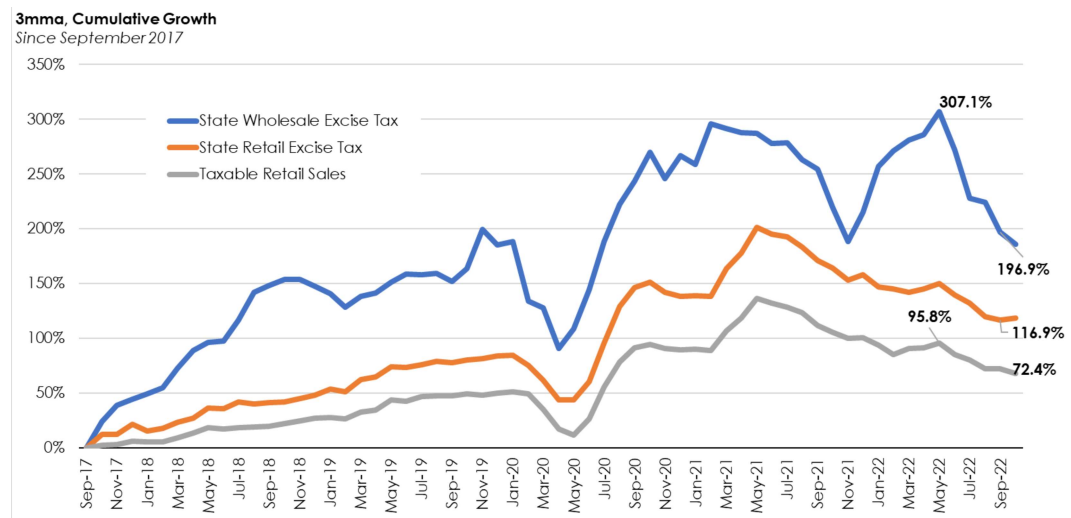


Source: Nevada Department of Taxation (2022c; 2022d).

Estimates based on reported transactions. If we assume all (or most) reported transactions implicitly include the wholesale excise tax, the actual effective tax rate would be even higher.

The discrepancy between actual sales and the fair market value has contributed to a phenomenon whereby tax revenues have increased at a faster rate than sales. For example, as of May 2022, monthly wholesale tax revenues grew more than 300% compared with September 2017, based on a three-month moving average (3mma), as compared with 96% for taxable retail sales (**Exhibit 18**). All values have since fallen precipitously, though growth in WMT sales remains nearly two and a half times overall retail sales.

Exhibit 18. Cumulative Change Since September 2017 in Monthly Wholesale Excise Tax, Retail Excise Tax, and Taxable Retail Sales, Three-Month-Moving-Average (3mma)



Source: Nevada Department of Taxation (2022b).

ILLEGAL MARKET

Data on the illegal market, by its very nature, can be very elusive. However, there is ample anecdotal evidence that unlicensed cannabis businesses continue to thrive in Nevada, especially in urban areas such as Las Vegas and surrounding communities. For example, in April 2020 Nevada law enforcement broke up a 5,700-cannabis plant operation worth \$9 million; officials estimated the facility was producing up to \$20 million over the course of a year (Solis, 2021).

Illegal market activities occur across multiple avenues. The most common form of illegal sales is from dealers directly to customers, including the use of websites and social media platforms (especially Instagram). Unlicensed sellers regularly advertise delivery to the Las Vegas resort corridor, which licensed businesses are prohibited from doing. There are also unlicensed brick-and-mortar retail outlets that oftentimes operate unmolested by law

enforcement, and so-called “pop-up shops” that operate out of warehouses.¹¹

Authorities have also seized illegally grown cannabis from outdoor operations, oftentimes in remote rural or mountainous regions. Most recently, law enforcement confiscated nearly 8,800 pounds of illegally grown cannabis in Lincoln County (Lilly, 2022).

Illegal operations compete directly with legal, regulated cannabis shops, and with significant cost and price advantages. These outlets are not subject to the strict health & safety regulations applied to legal outlets. They do not incur many of the costs borne by legal cannabis businesses, notably state and federal taxes, payroll taxes, licensing, testing, and various other mandatory expenses, nor do they collect state excise and sales taxes paid by the consumer.

As a result, illegal outlets are far more price competitive, able to reduce their prices while remaining profitable and taking market share away from legally operating businesses. These illegal operations are also able to source their product through unregulated channels, such as low-cost cannabis flower illegally imported across state lines, notably California, which recently experienced a supply glut. These unlicensed operations are not subject to oversight and fines, unlike legal cannabis businesses, and are able to significantly undercut legal, regulated retail dispensaries on price.

ASSESSING DEMAND FOR ADDITIONAL LICENSES

Cannabis businesses, facing significant financial and economic hurdles, are now experiencing a decline in sales, and there is no indication this trend will reverse soon. Adding more dispensaries introduces greater competition during a time of reduced sales and combined with a still-thriving illegal market and tax and regulatory regime that is impairing cannabis business economic viability.

There are currently 30 licenses that have not yet been activated. Moreover, tribal governments currently have 13 agreements with the state that do not include limits on the number of dispensary or cultivation licenses. These many yet-to-be-activated licenses will further increase the total number, and outside the limits imposed by the CCB. There is also insufficient available data to fully understand the scale and impact of these operations, which are important inputs into determining the issuance of new licenses.

This section reviews key issues shaping cannabis business profitability.

¹¹ According to a report commissioned by the Nevada Cannabis Association, a pop-up shop is where “[an] individual or group of promoters would rent a warehouse, usually in an industrial area, and set up tables to sell their illegal cannabis as if it was a farmers’ market. The group would then advertise their underground market to the Las Vegas community through Instagram” (RLW Consulting, LLC, 2022).

Disadvantageous Tax Liabilities, Compliance Costs, and Profitability Challenges

Cannabis businesses are subject to a much higher effective federal tax rate compared to many other sectors of the economy. Cannabis is still federally classified as an illegal “schedule 1 drug,” alongside heroin and methamphetamines. IRS Code Section 280e prohibits these businesses from deducting “ordinary and necessary” business expenses, after reducing the cost of goods sold. Various other business costs—central to running a business—cannot be itemized, including marketing and advertising expenses, accounting fees, 24-hour security services, and legal services. This puts cannabis businesses at a unique disadvantage compared with other industries competing for consumer spending, such as alcohol. Many cannabis businesses have reported an effective federal tax rate of between 40% and 60% of true net profits.¹²

Added to these costs, cannabis businesses face regulatory compliance costs that are unpredictable and difficult to account for in budgeting, notably time- and effort charges and civil penalties.

Declining Sales

Sales among cannabis dispensaries have declined in 2022. October 2022 YTD taxable cannabis retail sales totaled \$738.2 million; a 16% decline compared with the first ten months of 2021 (\$882.3 million). There have been at least seven (7) Nevada cannabis businesses that have gone into receivership in recent years. While the exact reasons vary by business, overall declining sales have certainly contributed.

Part of this decline in sales may be attributed to the **maturation of the cannabis market**. Typically, as a market matures, greater economies of scale and an increase in market entrants creates downward pressure on prices. For example, in Colorado, the average price of cannabis flower has declined from \$1,876 per pound in January 2014, when the recreational sales began, to \$709 per pound in July 2022 (Auxier & Airi, 2022, pp. 14-15). According to cannabis-data firm BDSA, the retail price of a gram of marijuana nationally fell 13%, to \$9.43, in the third quarter of 2022, “the steepest fall ever seen for marijuana in a 12-month period” (Kary, 2022).

Sales declines may also be driven by **shifting consumer spending behavior** since the peak of the pandemic; individuals are shifting disposable income more to other goods and services as the pandemic wanes, such as on restaurants and travel. Recent high inflation has furthermore eroded consumer purchasing power, adversely impacting recreational sales (Hiltz, 2022).

According to interviewees, there remains a significant influx of unregulated cannabis in the market, often from California. The illegal market is creating

¹² By comparison, the average federal corporate tax rate nationwide is 21%.

additional downward pressure on prices and adversely affecting legal, regulated cannabis sales.¹³

¹³ See, for example, Downs (2021).

Sales per Dispensary Has Decreased and Projected to Further Decline in Fiscal Year 2023

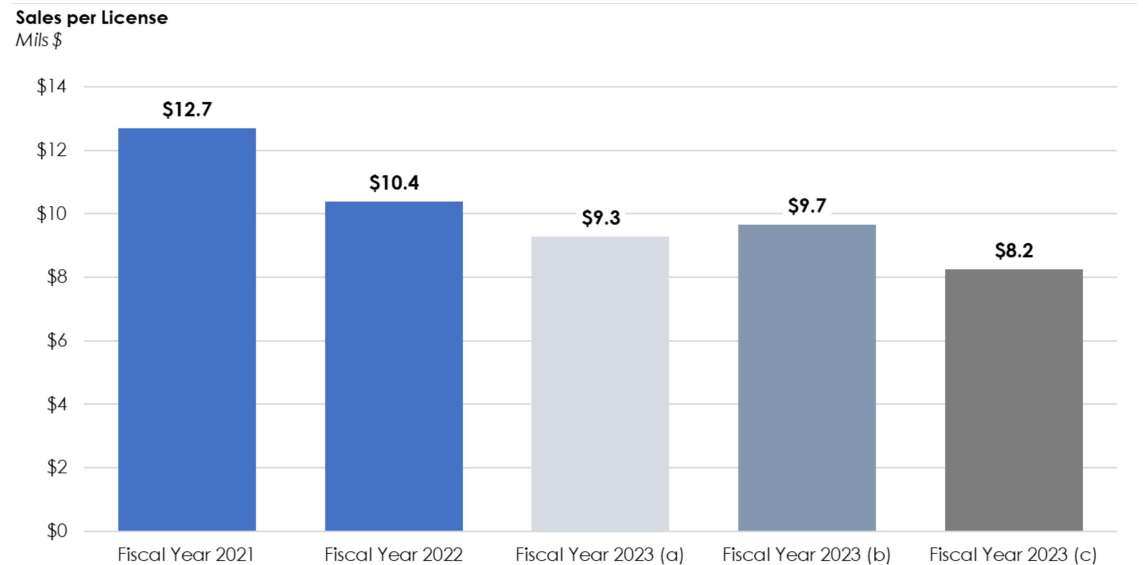
In fiscal year 2021, the cannabis industry averaged \$12.7 million per active license. However, **in fiscal year 2022, the combined effects of more licenses and declining sales resulted in the average sales per active dispensary decreasing by 18%, to \$10.4 million.**¹⁴

As of January 2023, there were 100 active dispensary licenses (including those with both active medical and recreational licenses). If there are no new licenses issued for the rest of 2022 and sales remain flat in fiscal year 2023, i.e., the same as in fiscal year 2022, sales per active dispensary license in fiscal year 2023 would further decline an additional 8%. However, if sales in fiscal year 2023 fall at the same rate as they did in fiscal year 2022, sales per active dispensary would decline 11%, or a cumulative decline from fiscal year 2021 to fiscal year 2023 of 27%. **A third scenario projects fiscal year 2023 sales based on the first four months of sales for fiscal year 2023 (latest available data) compared with the same period in fiscal year 2022, yielding a negative growth rate of 21%, or 35% cumulative drop in sales per active dispensary license since fiscal year 2021 in nominal dollars.**

Estimates are presented in **Exhibit 19** below, including the three scenarios for fiscal year 2023. These sales declines are also mismatched with business costs, many of which do not adjust with changes in sales, or, due to inflation, are increasing.

¹⁴ The CCB does not report historic data on licenses per month. However, existing documents and studies reported 79 active dispensary licenses in January 2021 and 93 in January 2022. Because January 1 each year is the midpoint of the fiscal year (ending June 30), we used these counts as the denominator in computing fiscal year sales per dispensary, acknowledging that license counts were lower in the prior six months and higher in the latter six months of the fiscal year.

Exhibit 19. Estimated Sales per Active Dispensary by Fiscal Year, 2021-2023



Sources: Nevada Cannabis Compliance Board (2023a); Nevada Department of Taxation (2022b); High Peak Strategy LLC (2022).

Note: the counts above include dispensaries with colocated medical and recreational licenses. The dispensary count treats a site with both types of licenses as one dispensary, not two.

The above estimates are hypothetical but help to illustrate the profound impact more licenses in an environment of declining sales will have on existing businesses. These losses will furthermore materialize in a regulatory and taxation environment that disadvantages existing, legal cannabis businesses, adversely impacting future investments and hiring in the industry.

SUMMARY AND CONCLUSIONS

Findings from this report illustrate the large economic benefits associated with the cannabis industry in Nevada, but also the constrained business climate these firms operate within. In 2021, the industry supported a total economic impact of 18,800 jobs and more than \$2.0 billion in business revenues across the state. Cannabis businesses typically pay wages well above the state average, and often include supplemental benefits.

In calendar year 2021, cannabis wholesale and retail excise taxes generated nearly \$160 million in state revenues. Adjusted for inflation, cannabis excise taxes increased 24% over 2020. However, excise taxes declined 3.4% on a *fiscal year* basis in fiscal year 2022 (the twelve-month period ending on June 30, 2022), from \$157.8 million to \$152.3 million. In fiscal year 2022 (ending June 30, 2022), cannabis sales resulted in \$147 million for the state's K-12 education budget, based on \$89 million from the retail excise tax and \$63 million from a share of the wholesale cannabis excise tax. Local governments received \$5 million from the wholesale cannabis excise tax.

Despite these large benefits, the industry is facing several important headwinds. Sales for all of 2022 per license are expected to decline 22% over 2021, due to both declining sales volumes and an increase in the number of dispensaries. Businesses are also constrained by a difficult regulatory environment, including unpredictable time-and-effort charges and fines that in fiscal year 2022 totaled \$2.7 million. The wholesale market excise tax liability is based on a fair market value calculation that is historically above (and often significantly above) actual wholesale transaction prices, creating a large tax burden on licensed operators. These businesses also must compete with a still active and at times thriving illegal market, further eroding business profitability.

In fiscal year 2021, the cannabis industry averaged \$12.7 million per active license. However, in fiscal year 2022, the combined effects of more licenses and declining sales resulted in the average sales per active dispensary decreasing by 18%, to \$10.4 million. Sales per active dispensary in fiscal year 2023 may decline a further 8-11%, based on recent trends.

The current business environment in Nevada creates significant challenges for incumbent, licensed cannabis businesses. The issuance of new dispensary licenses may further impair business profitability under the current state tax and regulatory regime.

APPENDIX

Appendix A. Summary of Data Sources

This report makes intensive use of multiple data sources. These include the following:

- **Nevada cannabis licenses data.** Updated monthly by the Nevada Cannabis Compliance Board (CCB). The data is reported by licensee business name, type of license, and county.
- **Nevada cannabis taxes.** Published monthly by the Nevada Department of Taxation, reporting monthly wholesale and retail excise taxes collected and taxable sales reported by adult-use retail stores and medical dispensaries.
- **Demographic survey data on agent card holders.** In January 2021 and January 2022, the CCB released detailed demographic data from a survey of active agent registration card holders within Nevada's cannabis industry. The reports also included the total number of active agent card holders at each period.
- **State-by-state cannabis tax data.** Drawing on findings published by the Tax Policy Center, MJ Daily, and other sources.
- **U.S. Census Bureau.** Data on output/worker ratios, averages wages in related industries, and population counts per county.
- **IMPLAN.** Input-output model for the Nevada state economy.

Appendix B. Interviews

We spoke with nine individuals representing cannabis businesses for this project, including standalone dispensaries, vertically integrated businesses, and two multi-state operators. Individuals we spoke with held leadership positions in each business, such as CEO or president. Interviews covered a wide range of topics, including business operations, payroll, supply chains, business climate, and tax and regulatory issues.

Appendix C. Input-Output Modeling Explanation

Input-output modeling is a technical approach that estimates additional spillover effects of a modeled direct economic activity through two mechanisms: 1) upstream, supplier chain business-to-business transactions, referred to as "indirect" effects; and 2) the spending of employment-based income earned among workers in direct and indirect activities on household goods and services, referred to as "induced." Together, the sum of direct, indirect, and induced impacts is referred to as the "total economic impact" All impacts are measured in jobs, labor income (wages & salaries plus supplemental benefits), and business output, or what is more commonly described as sales or revenues.

Input-output models are static models that measure a discrete single-period change in the economy, e.g., the increase or decrease in aerospace sales. The direct impact being modeled is called final demand, and may represent

or be composed of household consumption, investment, exports, and government spending. In the case of the cannabis industry in this analysis, only the gross margins of retail are used for economic impact modeling, with the cost of goods distributed among businesses upstream, allowing us to treat the production, processing, and retail of cannabis in its entirety as a direct activity.

IMPLAN was the primary analytic tool for this analysis. This model is based on an input-output table that is developed to characterize the inter- and intra-industry transactions and final demand of the Nevada state economy.

SOURCES

- Auxier, R., & Airi, N. (2022, September 28). The Pros and Cons of Cannabis Taxes. Washington D.C. Retrieved from The : https://www.taxpolicycenter.org/sites/default/files/publication/164269/pros_and_cons_of_cannabis_taxes_0.pdf
- Downs, D. (2021, December 2). *California is growing more legal cannabis than it can sell*. Retrieved from Leafly: <https://www.leafly.com/news/industry/california-pot-supply-glut-2021>
- Green Growth CPAs. (2022, March 22). *Wholesale Flower Price Update Q1 2022 -- Cannabis Benchmarks*. Retrieved from <https://greengrowthcpas.com/wholesale-cannabis-flower-price-q1-2022/>
- Hiltz, J. (2022, August 12). *What We Can Learn from the 7% Decline in Consumer Spending*. Retrieved from mg magazine: <https://mgmagazine.com/business/retail-merchandise/what-we-can-learn-from-the-7-decline-in-consumer-spending/>
- IMPLAN Group LLC. (2022). IMPLAN [2019 Nevada State Model]. Huntersville, NC, USA.
- Kary, T. (2022, December 19). *Cheap Weed Has Become a Big Problem in the Pot Industry*. Retrieved from Bloomberg: <https://www.bloomberg.com/news/newsletters/2022-12-19/cheap-marijuana-is-a-big-problem-for-cannabis-companies>
- Lilly, C. (2022, October 10). *Nevada State Police busts illegal marijuana grow site worth \$7.8M*. Retrieved from Fox 5 KVVU-TV: <https://www.fox5vegas.com/2022/10/10/nevada-state-police-busts-illegal-marijuana-grow-site-worth-78m/>
- Nevada Cannabis Compliance Board. (2021, January 29). *Demographic Report of Nevada's Cannabis Industry*. Retrieved from CCB: <https://ccb.nv.gov/wp-content/uploads/2021/02/FINAL-012921-CCB-Demographic-Study.pdf>
- Nevada Cannabis Compliance Board. (2022). *Cannabis Agent Card*. Retrieved from Nevada Cannabis Compliance Board: <https://ccb.nv.gov/industry/#item-2>
- Nevada Cannabis Compliance Board. (2022, September 30). *CCB/DoT Release Annual Cannabis Taxable Sales Data*. Retrieved from <https://ccb.nv.gov/wp-content/uploads/2022/09/CCB-DoT-Release-Annual-Cannabis-Taxable-Sales-Data-FY22-for-release.pdf>
- Nevada Cannabis Compliance Board. (2022, July 29). *Time-and-Effort Update*. Retrieved from <https://ccb.nv.gov/wp-content/uploads/2022/07/072922-Time-And-Effort-Update.pdf>
- Nevada Cannabis Compliance Board. (2022a, September 30). *CCB/DoT Release Annual Cannabis Taxable Sales Data*. Retrieved from CCB: <https://ccb.nv.gov/wp-content/uploads/2022/09/CCB-DoT-Release-Annual-Cannabis-Taxable-Sales-Data-FY22-for-release.pdf>

- Nevada Cannabis Compliance Board. (2022b, January). *Demographic Study 2022*. Retrieved from <https://ccb.nv.gov/wp-content/uploads/2022/03/CCB-Demographic-Study-2022-Final.pdf>
- Nevada Cannabis Compliance Board. (2022d, July 21). Regulation 4: Disiplinary and Other Proceedings Before the Board. Carson City, NV. Retrieved from https://ccb.nv.gov/wp-content/uploads/2022/07/Reg-4_v072122.pdf
- Nevada Cannabis Compliance Board. (2023a, January). *Statistics & Analysis*. Retrieved from <https://ccb.nv.gov/media/#item-3>
- Nevada Cannabis Compliance Board. (2023b, January 9). *List of Active Cannabis Licensees*. Retrieved from <https://ccb.nv.gov/wp-content/uploads/2022/11/Active-License-List-080922.xlsx>
- Nevada Cannabis Compliance Board. (2023c, January 26). *Demographic Report of Nevada's Cannabis Industry*. Retrieved from <https://ccb.nv.gov/wp-content/uploads/2023/01/CCB-Demographic-Study-2023-Final.pdf>
- Nevada Department of Taxation. (2022a, January). *Fair Market Value at Wholesale of Cannabis*. Retrieved from [https://tax.nv.gov/uploadedFiles/taxnvgov/Content/Forms/Fair%20Market%20Value%20at%20Wholesale%20Summary%20-%20Jan%2022%20\(002\).pdf](https://tax.nv.gov/uploadedFiles/taxnvgov/Content/Forms/Fair%20Market%20Value%20at%20Wholesale%20Summary%20-%20Jan%2022%20(002).pdf)
- Nevada Department of Taxation. (2022b, December 23). *Cannabis Statistics and Reports*. Retrieved from https://tax.nv.gov/Publications/Cannabis_Statistics_and_Reports/
- Nevada Department of Taxation. (2022c, November 4). Public records request -- monthly sales data by license type (cultivation, production, retail cannabis store). Carson City, NV.
- Nevada Department of Taxation. (2022d). *Wholesale Cannabis Tax Return*. Retrieved from [https://tax.nv.gov/uploadedFiles/taxnvgov/Content/Forms/WMT_FMV%207.22%20t hru%2012.22\(1\).pdf](https://tax.nv.gov/uploadedFiles/taxnvgov/Content/Forms/WMT_FMV%207.22%20t hru%2012.22(1).pdf)
- Nevada Department of Taxation. (2022e). *Wholesale Cannabis Tax Return*. Retrieved from [https://tax.nv.gov/uploadedFiles/taxnvgov/Content/Forms/WMT_FMV%207.22%20t hru%2012.22\(1\).pdf](https://tax.nv.gov/uploadedFiles/taxnvgov/Content/Forms/WMT_FMV%207.22%20t hru%2012.22(1).pdf)
- Nevada Joint Interim Standing Committee on Revenue. (2022, March 23). Carson City, Nevada. Retrieved from <https://www.leg.state.nv.us/App/InterimCommittee/REL/Document/27059>
- Nevada Legislature. (2021, June 21). *Budget 4207 - CCB - Marijuana Regulation & Control Acct.* Retrieved from <https://www.leg.state.nv.us/App/NELIS/REL/81st2021/Budget/6993/Text>
- New Data Leaf Services, LLC. (2022, Various). *U.S. Cannabis Spot Index*. Retrieved from Cannabis Benchmarks: https://www.cannabisbenchmarks.com/2022/10/?post_type=reports&report-category=united-states
- Rindels, M. (2022, August 2). *Cannabis businesses frustrated by \$111-per-hour bills for state regulator tasks*. Retrieved from The Nevada Independent:

- <https://thenevadaindependent.com/article/cannabis-businesses-frustrated-by-111-per-hour-bills-for-state-regulator-tasksefbfbc>
- Rindels, M. (2022, September 2). *Quirks of cannabis tax formula mean heavy burden for Nevada cultivators as prices drop*. Retrieved from The Nevada Independent: <https://thenevadaindependent.com/article/quirks-of-cannabis-tax-formula-mean-heavy-burden-for-nevada-cultivators-as-prices-drop>
- RLW Consulting, LLC. (2022). *Illicit Market Report*. Las Vegas: Nevada Cannabis Association.
- Solis, J. (2021, January 13). *Marijuana is legal in Nevada, but illegal market is still huge, officials say*. Retrieved from Nevada Current: <https://www.nevadacurrent.com/2021/01/13/marijuana-is-legal-in-nevada-but-illegal-market-is-still-huge-officials-say/>
- State of Nevada. (2022, December). *Statewide Revenue Summary by Revenue Ledger*. Retrieved from Openbudget.nv.gov: <http://openbudget.nv.gov/OpenGov/ViewActualDetail.aep?fiscalYear=2023&filter=nuII&type=Rev&view=Object&objectTypeCode=OF&departmentCode=27&divisionCode=270&budgetAccountCode=4207>
- U.S. Bureau of Economic Analysis. (2022). Implicit Price Deflator [A191RI1Q225SBEA]. Washington D.C. Retrieved May 6, 2022
- U.S. Census Bureau. (2022). DP05 ACS DEMOGRAPHIC AND HOUSING ESTIMATES . Washington D.C.
- U.S. Department of Labor. (2022). *State Minimum Wage Laws*. Retrieved from Wage and Hour Division: <https://www.dol.gov/agencies/whd/minimum-wage/state>