

Economic Analysis of Colorado House Bill 17-1203

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Proposed Colorado House Bill 17-1203 permits counties and municipalities, subject to voter approval, to levy and collect special sales taxes on retail marijuana. This paper will analyze the purpose for special taxes on marijuana and determine who actually bears the cost of the taxes. The paper will discuss whether marijuana should in fact be subjected to further taxation.

According to HB17-1203, a county may only levy and collect an additional tax on marijuana if the citizens of the county have voted on and approved the tax. Due to Proposition AA regarding the State's right to levy additional taxes, the additional taxes enforced by counties and municipalities can be in the form of an additional sales tax or an excise tax. A sales tax is typically levied at the completion of a sale, while an excise tax is placed on the producer with the expectation that the producer recoups the tax by pricing it into the good.

Any additional tax must be applied to all retail marijuana sales within the county, including the municipalities that have not applied a municipal special tax at that time. If a municipality already approved special sales taxes, the county does not levy taxes within that municipality, unless there is an intergovernmental agreement regarding the collecting and the appropriations of the taxes.

Within markets for goods and services, the expectation is that given enough time, the most efficient level of output will be produced and consumed. An efficient solution is one that accounts for the consequences to third parties from the production or

consumption of a good. The economic argument for imposing new taxes on any good, in addition to a general sales tax, is that, in situations where individuals cannot reach an efficient price and output in the market for a good, levying taxes can push the market to socially efficient equilibrium.

To levy additional taxes on marijuana, it must be determined that there are additional social costs not accounted for at the current price and output level. The primary social costs of marijuana include the potential increase in healthcare costs, the environmental impact of the cultivation process, and decreases in education.

The health consequences, and subsequently the costs of potential health damages, are currently unclear due to the lack of long-term health studies of marijuana users. Marijuana use is associated with negative respiratory effects, such as chronic bronchitis and Bullous lung disease¹. Studies from the late 90's suggested that there is an increase in the likelihood of certain head and neck cancers as well as lung cancer². However, more recent studies have failed to confirm these results. As a result, from *An Epidemiologic Review of Marijuana and Cancer*, "There is currently no consensus on whether marijuana use is associated with cancer risk". Due to the lack of evidence suggesting causality and without consensus on the health risks, it is difficult to quantify the future health costs from marijuana onto society.

The concern with the environmental impact of the cultivation process is the disproportionate amount of energy that is needed to produce marijuana. This is a result of the large quantities of water and light required. However, these forms of energy have defined prices that the producers pay in order to consume. If marijuana pollution is a

¹ "Scientific literature review on potential health effects of marijuana use", *Retail Marijuana*

² "Marijuana use and increased risk of squamous cell carcinoma of the head and neck", *Cancer Epidemiology, Biomarkers & Prevention*, vol. 8, p. 9, 1999.

result of energy consumption, then marijuana producers should bear a social tax within the energy market as a consumer, not within the marijuana market as a producer.

Even though it is illegal to consume marijuana under the age of 21, there is evidence of increased usage among high school students following the legalization of marijuana in Colorado.³ Decreases in education can be related to the negative correlation between high-school graduation and marijuana usage, “a 10% increase in frequent marijuana use lowers the probability of graduation by 6.62%”(Ruggeri, 1999). Due to medical care, welfare payments, and criminal justice costs, it is estimated that the lifetime expense to the taxpayers of a high school dropout with no GED is approximately \$235,000. However, Colorado dropout rates have decreased each year since the legalization of recreational marijuana. The cost of lost education is high, but it is difficult to determine the extent to which marijuana usage directly leads to dropouts.

Despite the lack of evidence supporting direct causality between marijuana and health and educational externalities, it is likely that there is a modest level of social costs within the marijuana market. These marginal externalities include the irritancy of second hand smoke and potential productivity loss in users. Due to these social costs, the marijuana market with only a general sales tax is not at a socially efficient equilibrium. Consumption would be too high, and as a result, it is rational to place additional taxes in order to reduce consumption.

Next, it must be determined who should bear the incidence of the tax, as well as who actually bears the incidence. Because the majority of the negative externalities are results of the consumption of marijuana, it is rational for the majority of the incidence to land on the consumer.

³ “Marijuana use in Colorado”, *Colorado Department of Public Health and Environment, 2015*

To determine who actually bears the incidence, the elasticities of both supply and demand must be examined. Elasticity is the measure of a change in quantity as a result of change in price. The more elastic a good, the greater the expected change in quantity produced and demanded as a result of a price change. The group with the least elastic curve will bear the majority of the incidence. According to a 2001 study by R.L. Pacula, elasticity of demand for marijuana is relatively inelastic while supply is relatively elastic⁴. As a result, any tax burden will fall primarily on the consumer, as intended.

Because marijuana consumption does have modest social costs, a tax directed at consumers is logical. However, Colorado already has an additional tax on marijuana. In addition to a state sales tax of 2.9 percent, Colorado also has a ten-percent marijuana sales tax as well as a fifteen-percent excise tax⁵. To determine if further taxes are necessary it must be shown that the social costs outweigh the revenue from the existing marijuana-specific taxes.

In the 2016 fiscal year, Colorado collected \$120 million in marijuana tax revenue, up \$43 million from 2015. Colorado had slightly over 10,000 new non-GED dropouts in 2016. Although the evidence linking marijuana consumption to high school dropouts is weak, assume, as a worst-case scenario, that five percent of dropouts can be attributed to marijuana. If five percent of non-GED dropouts are a result of marijuana, with a lifetime social cost of \$235,000, the total social cost would be \$117.5 million. High school dropouts do incur a cost on society, but without stronger evidence establishing a casualty between marijuana consumption and dropouts, the true cost cannot be accurately determined.

⁴ Ruggeri, D. "Marijuana price estimates and the price elasticity of demand", *IJTEMT*, vol. 2, Issue. 3, 2013

⁵ "Marijuana tax data", *Colorado Department of Revenue*

Second, Colorado had a \$7 billion budget for Medicare, of which roughly 5% is used for cancer treatment⁶, translating to roughly \$350 million a year. Again, as a worse case scenario in the absence of conclusive data, assume 10% of the total cancer treatment was spent on patients who developed cancer as a result of consuming marijuana. The expense would only total \$35 million. The true future health costs cannot be accurately determined due to the uncertainty of the health consequences

If the purpose of further taxation were to bring the marijuana market to a socially efficient equilibrium, then additional taxes would not have this effect. Despite the uncertainty of future costs, it is very likely that the yearly revenue from the taxes currently in place will be greater than the yearly social costs within the market. As a result, there is no reason to subject marijuana to further taxation. In fact, potential tax reductions could have a more beneficial impact on society than tax additions.

If the purpose of additional taxes on marijuana is in order to increase tax revenue, then levying further taxes on marijuana consumption is logical. Modest tax increases would not result in major consumption decreases due to the inelastic demand for marijuana. However, counties and municipalities would be equally well off finding a lesser taxed good that has a similar inelastic demand curve to marijuana.

This bill does not directly call for raised taxes on marijuana. Instead, the bill permits counties and municipalities the right to raise taxes if the voters within those limits vote to do so. Due to large taxes currently in place on marijuana at the state level, any additional taxes would do more harm than good. As a result, voters should not be given the power to disrupt the marijuana market by voting to levy and collect additional taxes.

⁶ “State-level cancer treatment costs”, *US National Library of Medicine*, 2016.