Fall 2022

SIMULATING ADULT USE RETAIL LICENSE CAPS & MARKET OUTCOMES IN RHODE ISLAND

CANNABIS POLICY SIMULATION LAB

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This case study is independent research from Cannabis Public Policy Consulting (CPPC) and is not sponsored by the state of Rhode Island. For questions or comments related to this case study, please reach out to mslade@cannabispublicpolicyconsulting.com

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Introduction

Cannabis Policy Simulation Lab: Solving Cannabis Policy Questions with Data Science

The Cannabis Policy Simulation Lab is a joint database between CPPC's quarterly Regulatory Determinants of Cannabis Outcomes Survey (RDCOS) outcomes and state cannabis policies, and policy-adjacent factors. Together, these data sets provide an avenue for the examination of cannabis policy impacts on important cannabis health and market outcomes. Examples of policies simulated in the Cannabis Policy Simulation Lab include, but is not limited to the following state-specific variables:

- Overall jurisdiction (illegal, medical only, or medical & adult use)
- Tax policies (e.g., cultivation excise tax, cannabis business tax, etc.)
- Type of medical qualifying conditions by state
- Cannabis dispensaries per capita and per geographic area
- Driving under the influence laws
- Presence of legal medical and adult use delivery
- Duration of time (months) since implementation of medical cannabis laws and since implementation of adult use laws.

The Cannabis Policy Simulation Lab includes zip-code specific economic and socioeconomic data that is updated to control for community-level socioeconomic factors. Post-stratification weighting is leveraged using external population data on sociodemographic similar to those procedures discussed in Hammond et al., 2020.

Background

One of the chief concerns among state cannabis regulatory agencies is tracking the amount of illicit cannabis consumed in their state relative to regulated cannabis. For example, CPPC has conducted illicit use analyses for multiple such state agencies. Understanding illicit cannabis patterns at a state-level provides state regulators with information that informs risk mitigation policies and enabling policies that are fair to industry stakeholders.

Preliminary analyses within and across U.S. states suggest that greater consumption of illicit cannabis (grams) is associated with more problematic cannabis use and greater frequency of attending a hospital in the past year for a cannabis-related issue.

These findings highlight the possibility that illicit cannabis use may serve as a bridge between industry, state cannabis regulatory agencies, and public health officials wherein all stakeholders may benefit from reduced illicit use at state and potentially even national levels.

However, given the lack of data on proportions of illicit/regulated cannabis use, and due to recent evidence from studies demonstrating a potential negative impact of high-density dispensary placement in California, it stands to reason that there may be individual differences by state, and there may be a point at which the number of

It is therefore critical to develop initial insights into the point at which adding additional dispensaries fails to noticeably reduce the illicit market, which in turn may relate to greater risks of cannabis-related harms, and overburden state regulatory agency administrations with little added benefit to industry stakeholders.

dispensaries becomes so great the adding additional dispensaries may increase the risk for problematic cannabis use and/or other negative cannabis-related outcomes. Further, added dispensaries only serves to increase administrative burdens to state regulatory agencies as well.

To begin to address this question, we examined aggregated state-level data of 19 states from the Regulatory Determinants of Cannabis Outcomes Survey (RDCOS). Our preliminary analysis showed that lower ratios of dispensaries per capita (i.e., less availability of legal dispensaries per capita) was associated with significantly greater state percentages of total cannabis that is illicit.

These findings, like the figure below on pg. 4, were based on the results of a preliminary linear regression model. This model was used to first predict (extrapolate) the percentage of total cannabis in the state of Rhode Island that was illicit, using the initial multiple regression model equation. Higher populations per dispensary were associated with a greater percent of cannabis that was illicit ($R2 = .22$, $p = .04$). On page 4, we detail potential outcomes that may occur given the likely increasing number of dispensaries soon to open upon the implementation of adult use cannabis in Rhode Island. Notably, Rhode Island has set a "license cap" such that no more than 24 adult use dispensaries may be added to the existing three medical dispensaries (i.e., capped at 27 dispensaries). If a U-shaped public health curve is assumed, wherein harms (y-axis) are minimized at medium regulated dispensary densities (x-axis), then it would be prudent to find the middle of that U-curve. The below simulations provide a preliminary model of such an effort.

Simulation

Present Day: 3 Dispensaries

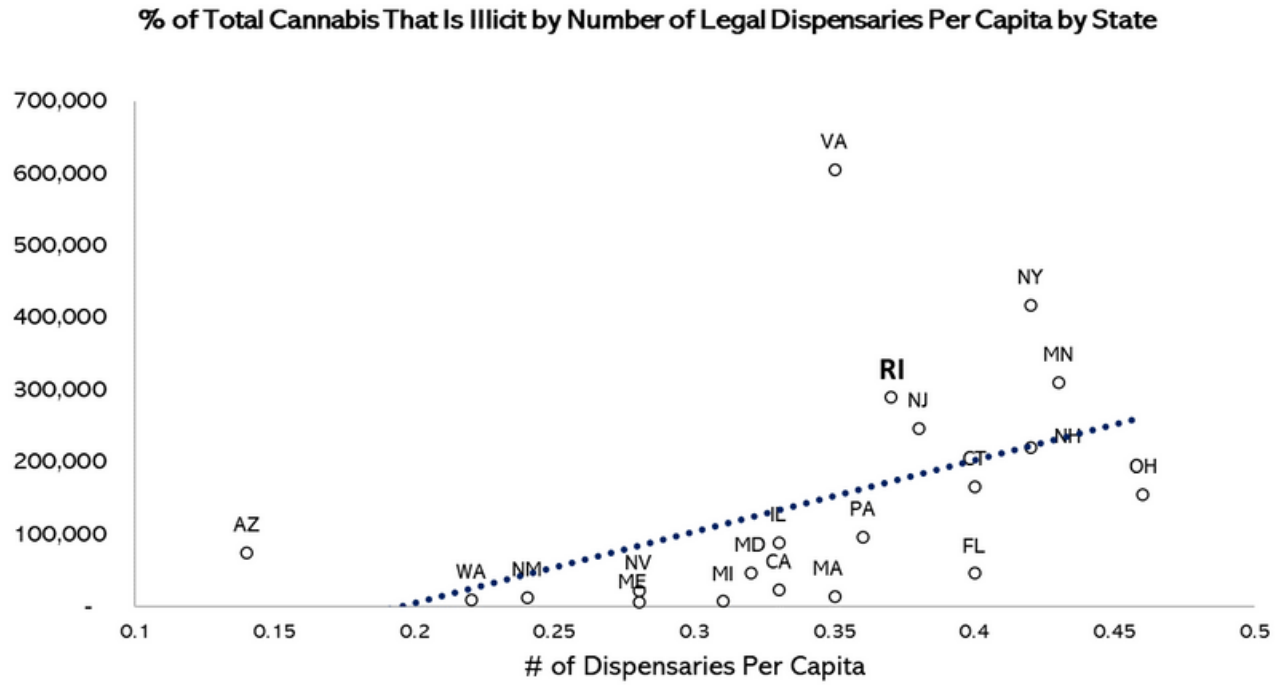
The graph below shows the current day prediction of Rhode Island's percentage of cannabis that is illicit, 37.4% as a function of the number of dispensaries per capita using the aforementioned regression model.

If Adult Use is Implemented and There are 6 Total Dispensaries in Rhode Island

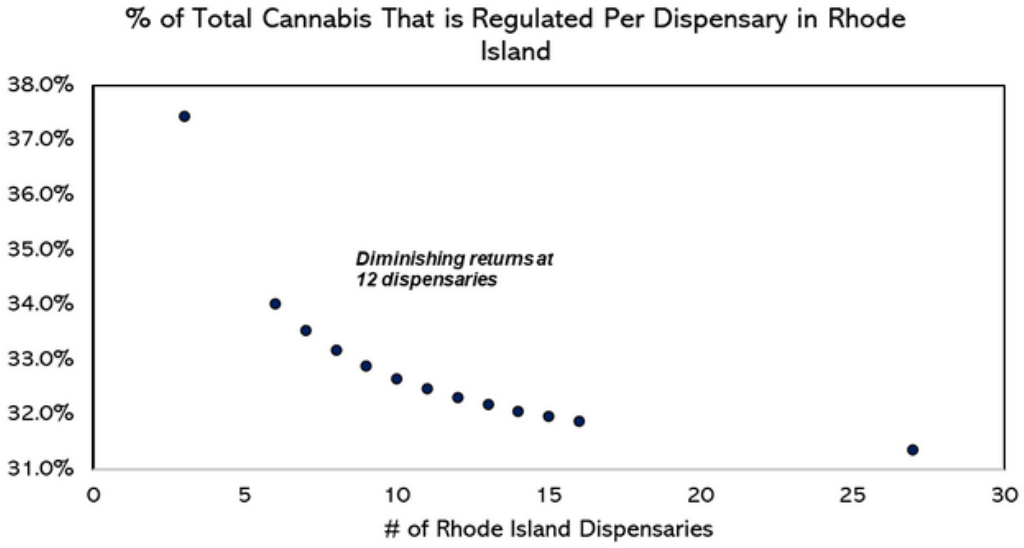
As shown in the graph below, Rhode Island's percentage of cannabis that is illicit dropped from 37.4% to 34% when assuming there were six instead of three dispensaries.

If Adult Use is Implemented and There are 27 Total Dispensaries, or the Capped Number of Dispensaries in Rhode Island is Reached

Finally, with a total of 27 dispensaries, which is the maximum amount of dispensaries that will be allowed in Rhode Island upon implementation of adult use cannabis, the percent of total cannabis that is illicit will drop only about 1%, from 32.3% to 31.4%. This suggests marked diminishing returns.



The figure below shows a more detailed examination of these preliminary findings. Specifically, it shows the association between adding a dispensary in Rhode Island and the anticipated result with the percentage of cannabis which is illicit. As the graph demonstrates, the relative value of each added dispensary demonstrates a nonlinear decrease in value such that each dispensary added is associated with a smaller reduction in the amount of illicit cannabis use. Moreover, a a preliminary cutoff point can be established at 12 dispensaries because the transition from 12 to 13 dispensaries is the first transition at which there is less than two tenths of a percent change in the percent of cannabis that is regulated. In other words, the 27 dispensary cap set by Rhode Island is likely larger than is necessary, and may increase the risks of cannabis-related harms and administrative burden at the state level.



Further research is needed that includes illicit states, even large samples, and prospective analyses using multiple time points of data from the RDCOS in order to validate these findings (anticipate Fall/Winter 2022 from CPPC). In the event that these findings are indeed validated, the implications of this initial demonstration would be that Rhode Island's license cap rule may end up allowing for approximately 15 more dispensaries than the optimal number of dispensaries (12) as it relates to mitigating illicit cannabis use. In the future, if fully validated, such findings may be used to identify optimal tradeoff points for policies such as license caps in terms of how the addition of each dispensary might simultaneously impact or predict negative cannabis outcomes and regulatory outcomes such as illicit use.

Better Data.
Better Policy.
Better Outcomes.

For more information about this simulation, please contact CPPC.

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