Medical Marijuana Dispensary Locations Across Oklahoma

DEPARTMENT OF AGRICULTURAL ECONOMICS

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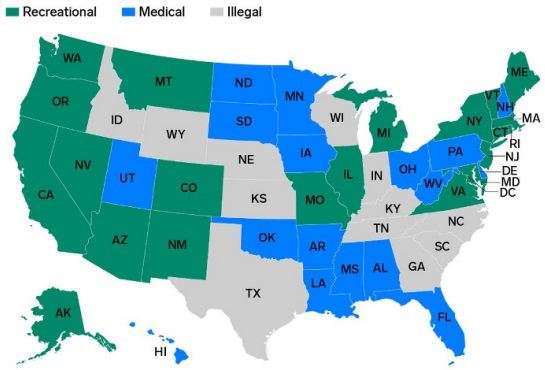

Figure 1: Legal Status of Marijuana Across U.S. States, 2022 (Berke et al., 2022)

Introduction

Marijuana (also known as cannabis) was prohibited for any use in the state of Oklahoma before 2018, despite a growing acceptance of the medicinal and recreational marijuana industry by other states across the nation. Figure 1 shows that while most of the western U.S. has made recreational cannabis legal, several of Oklahoma's neighboring states still do not have any type of legalized marijuana. State Question 788, which passed with 57% approval in 2018, legalized medical marijuana and created the Oklahoma Medical Marijuana Authority (OMMA) to regulate the industry. Since that time, medical marijuana activity has exploded across Oklahoma, with over 2,246 dispensaries, 7,787 growers, and 1,582 processors licensed as of September 2022 (Oklahoma Medical Marijuana Authority, 2022). This sudden change—from the state having no legal marijuana industry to becoming one of the leading producers in the nation—has made the topic of medical marijuana controversial.

The explosive growth seen in Oklahoma has both positive and negative aspects. These include significant boosts to local and state sales tax revenue (OMMA reports $̃80M per year in 2021 and 2022) but also concerns about overwhelming rural water systems and increases in crime. This fact sheet will look at where medical marijuana dispensaries chose to locate across Oklahoma as of late 2022, specifically focusing on county-level relationships between dispensaries per-capita and community quality of life indicators such as poverty, health, and crime. These aspects are particularly interesting because medical marijuana is often viewed as a more accessible and affordable substitute to traditional healthcare (Piper et al., 2017). However, a recent study found no evidence that race or income levels predicted medical marijuana dispensary locations in Maryland (Novak et al., 2021)).

The Regulatory Environment in Oklahoma

Oklahoma's marijuana industry differs from most other states because of the structure of the relevant laws and regulations. In states where recreational marijuana is legal, anyone over the age of 21 can walk into a dispensary, show a valid ID, and purchase many forms of marijuana. In states where only medical marijuana is legal, residents must have a state-issued patient card to enter and purchase from a dispensary. In Oklahoma, over 375,000 patient cards have been approved (Oklahoma Medical Marijuana Authority, 2022), which is roughly 10 percent of the total population. In Oklahoma, the decision to award a card is exclusively up to the doctor, whereas other states typically require documentation of qualifying conditions (Monies, 2020). It is also much easier to become a licensed seller of medical marijuana (i.e. open a dispensary) in Oklahoma. The entry cost is significantly lower than surrounding states, and initially the demand was high. Until a moratorium was put

The findings communicated in this article are derived from the authors' analyses and do not necessarily represent the views of the Department of Agricultural Economics.

into place in August of 2022, the cost of an application fee for a medical dispensary license was only $2,500 in the state of Oklahoma. For comparison, similar costs in Arkansas and Colorado are $7,500 and require proof of at least $100,000 in liquid assets. This resulted in over 2,000 licensed dispensaries in Oklahoma – more than twice the number in Colorado, which has a larger population and has had legal recreational marijuana since 2014 (Demko, 2020).

Research Motivation

Cannabis operations now outnumber wheat and cotton farms across Oklahoma, bringing into question their impact on local communities (Romero, 2021). Dispensaries have also sprung up across the state, changing the nature of many downtowns and shopping districts across both urban and rural areas. There are both positive and negative aspects associated with this growth. On the positive side, the industry brings in thousands of jobs that are sorely needed in many Oklahoma communities (Romero, 2021). The change has also led to fewer marijuana possession charges, reducing the pressure on the state's prison challenges. On the other hand, some studies have found that medical marijuana liberalization results in a decrease in labor productivity (Albino, 2017; Sabia and Nguyen, 2018). Albino found that medical marijuana liberalization resulted in a small but clear negative influence on labor productivity. These results were mostly limited to certain sectors such as mining, construction, and food service, while other sectors were unaffected Albino (2017). Similarly, Sabia and Nguyen (2018) found that medical marijuana laws led to lower wages for young men.

The general question this fact sheet seeks to answer is, "Where are Oklahoma marijuana dispensaries choosing to locate?" Figure 2 shows the density of dispensaries along the Texas border, a state where medical marijuana is not legal. We hypothesize that dispensaries may be proliferating in areas with higher rates of uninsured or disabled residents, higher crime rates, and closer proximity to state borders.

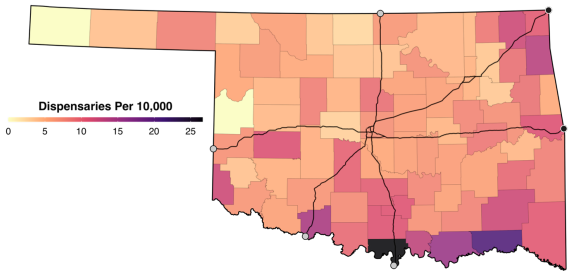

Figure 2: Locations of Licensed Dispensaries in Oklahoma (Oklahoma Medical Marijuana Authority, 2022)

Data and Methods

The data for this study comes from a variety of publicly available sources. The main source of information came from the 2022 list of licensed marijuana businesses provided by the Oklahoma Medical Marijuana Authority (OMMA). The OMMA Verify website provides a detailed list of Oklahoma's licensed growers, processors, dispensaries, transporters, testing laboratories, waste disposal facilities, education facilities, and research facilities. Each entry includes the city and county where the license was awarded. We focus on the number of dispensaries in each county, presented as a per-capita measure. This data was merged with county-level demographic data from the 2020 American Community Survey (ACS) compiled by the U.S Census Bureau, crime data from the Oklahoma State Bureau of Investigation's (OSBI) Uniform Crime Reporting, and labor force data from the Bureau of Labor Statistics (BLS). Table 1 displays the summary statistics for the variables gathered across Oklahoma's 77 counties. The OMMA does not provide data on the number of medical patient cards per county.

We first use simple correlations to document whether the variables listed above are positively or negatively related to the per-capita number of dispensaries. However, some of these variables may be related: for example, the percentage of the population with a bachelor's degree is likely related to the percentage without insurance. A basic ordinary least squares (OLS) regression analysis allows us to isolate the impact of each characteristic on the number of dispensaries, while accounting for the fact that other characteristics may also be influential.

Results

Figures 3 to 6 show simple correlations between the per-capita number of dispensaries and several of the variables in Table 1 Generally, they show positive relationships – suggesting that, as hypothesized, dispensaries are more likely to locate in places with higher rates of uninsurance, disability, and crime.

The slopes of the lines and the associated goodness of fit (R^2) measure in Figures 3 to 6 show the direction and strength of each variable's relationship with the number of per-capita dispensaries. For example, Figure 3 shows that a 1-percentage point increase in the disability rate is associated with 0.41 more dispensaries per capita. Alternatively, a 1-percentage point increase in the uninsurance rate is associated with 0.23 more dispensaries per capita (Figure 4). The R^2 value is also higher for the disability scatterplot, suggesting that this variable is more closely related to dispensary location than is the

Table 1: Descriptive Statistics for Oklahoma Counties

Variable	Average	Maximum	Minimum	Source
Dispensaries per 10,000 population	6.6	24.7	0.0	OMMA (2022)
Uninsured (%)	15.5	26.0	9.9	ACS (2020)
Poverty (%)	16.7	26.8	7.4	ACS (2020)
Disabled (%)	19.0	28.9	7.9	ACS (2020)
Bachelor's Degree or more (%)	19.6	39.1	9.6	ACS (2020)
Total Arrests per 10,000 population	165.1	440.6	8.0	OSBI (2021)
Drug Arrests per 10,000 population	28.8	96.8	0.0	OSBI (2021)
Labor Force Participation Rate (%)	56.1	69.5	42.0	BLS (2022)
Distance (in miles) to Nearest Interstate Highway Border Crossing	66.8	155.2	0.0	Authors' GIS calculations

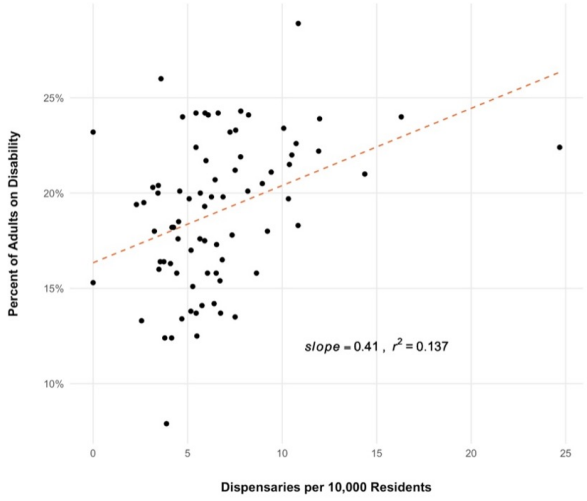

Figure 3: Relationship Between Dispensary Density and Disability

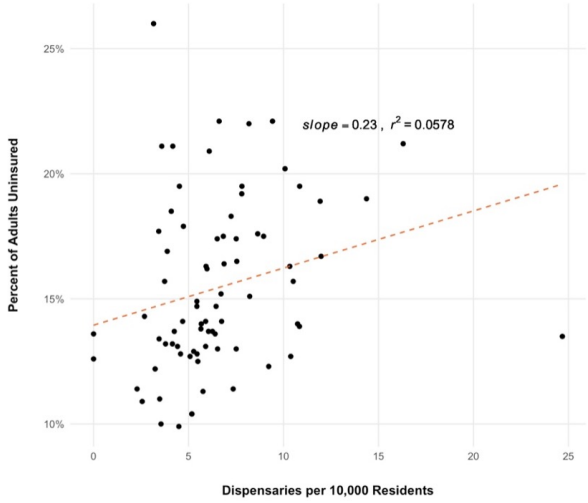

Figure 4: Relationship Between Dispensary Density and Uninsured Rate

uninsurance rate. Figures 4 and 5 show that there are also positive relationships between the number of dispensaries per capita and per capita crime; they also display a reasonable amount of explanatory value (R^2 value of 0.187 for drug arrests versus 0.137 for disability).

The regression results in Table 2 show that when other variables such as poverty and education are accounted for, only disability rates are positively associated with more dispensaries (model (1)). This relationship with disability rates remains, although diminished, when distances to nearby states are taken into account (models (2) and (3)). As expected, distance to the nearest interstate crosses into another state is negative and significant, so counties that are further away from other states have fewer dispensaries per capita. This suggests that proximity to other states is a consideration for potential dispensaries – and particularly for those states where medical marijuana is still illegal (TX and KS), since the coefficient on distance in Model (3) is larger than that for Model (2). Finally, the relationship with disability disappears when the model accounts for crime rates (Model (4)), and total crime rates are marginally and positively associated with per-capita dispensaries. The addition of crime rates improves the amount of variation explained by the model (R^2 = 0.329 in Model (4) vs. 0.207 in Model (3)), suggesting that dispensaries may be locating in areas with higher crime rates.

Discussion

The passage of medical marijuana in 2018 brought about a sizeable new industry to Oklahoma. By 2022, there were over 7,000 licensed growers and 2,000 licensed dispensaries across the state. The sudden eruption of medical marijuana facilities understandably left Oklahomans with questions, including "Where are these dispensaries most prominent – and why?". The results here demonstrate that the distribution of Oklahoma's dispensaries appears to be largely driven by proximity to neighboring states without access to medicinal marijuana. Simple correlations show that dispensaries are locating in areas with higher rates of uninsured persons, disability, and crime; however, once proximity to Texas /

Table 2: Regression Results for Dispensaries per 10,000 Population

	Dependent variable:			
	Dispensaries per 10,000 Residents			
	(1)	(2)	(3)	(4)
Percent Uninsured	0.182	0.336*	0.209	0.083
	(0.168)	(0.192)	(0.172)	(0.167)
Percent on Disability	0.312***	0.289**	0.250*	0.173
	(0.113)	(0.128)	(0.128)	(0.126)
Poverty Rate	-0.114	-0.138	-0.122	-0.117
	(0.121)	(0.120)	(0.119)	(0.111)
Percent w/Bachelor's or Higher		0.001	0.011	-0.069
		(0.087)	(0.087)	(0.085)
Distance to Nearest Interstate Hwy. Border		-0.022*		
		(0.011)		
Distance to Nearest TX/KS Interstate Hwy. Border			-0.031**	-0.026**
			(0.014)	(0.013)
Total Arrests per 10k				0.010*
				(0.006)
Drug Arrests per 10k				0.034
				(0.026)
Observations	77	77	77	77
R^2	0.152	0.199	0.207	0.329
Note:	*p<0.1; **p<0.05; ***p<0.01			

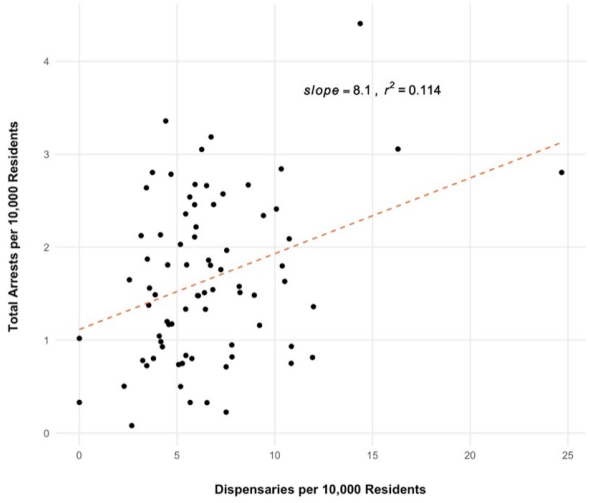

Figure 5: Relationship Between Dispensary Density and Total Arrest Rate (Oklahoma State Bureau of Investigation, 2022)

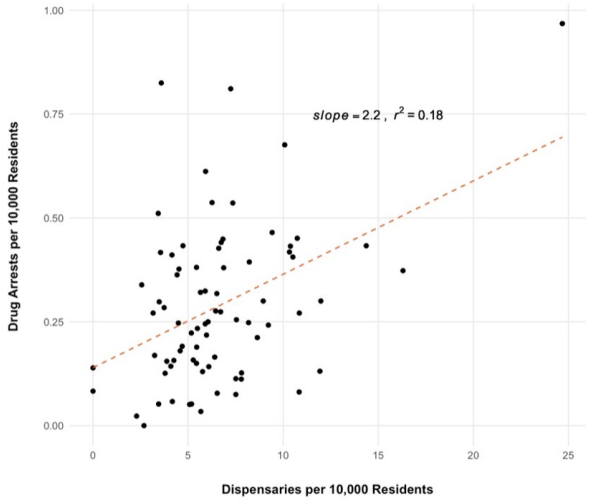

Figure 6: Relationship Between Dispensary Density and Drug Arrest Rate (Oklahoma State Bureau of Investigation, 2022)

Kansas is taken into account, only crime rates continue to be related.

The moratorium that was put into place in August 2022 ceased new dispensaries from appearing in Oklahoma for the time being. Should the moratorium be lifted, some of the evaluated factors may have predictive ability in determining where dispensaries choose to locate. A deeper dive into local tax revenue changes, labor force participation, and unemployment rates since the passing of State Question 788 are all potential avenues for future research which may provide insight into the tradeoffs associated with medical marijuana's legalization. Continuing to look forward, the locations of growing facilities and their impacts on rural community issues like local crime rates, water usage, and utility rates are topics that future researchers should analyze to inform residents of the pros and cons associated with the production stage of medical marijuana.

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