

Is it Greener on the Other Side of the Stateline? The Marketability of U.S. States in the Cannabis Industry

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Introduction

- The partial or fully legalization of the cannabis industry at the state level has led to an increase of cannabis operated businesses being establish, and to the emergence of a new industry



Problem Statement

- Each state's government has established their own set of standards and regulations that may be more relax and stricter than other states
- The cannabis market for a specific state could be perceived as riskier to enter, while others have the opportunity for industry growth and market potential



Research Question

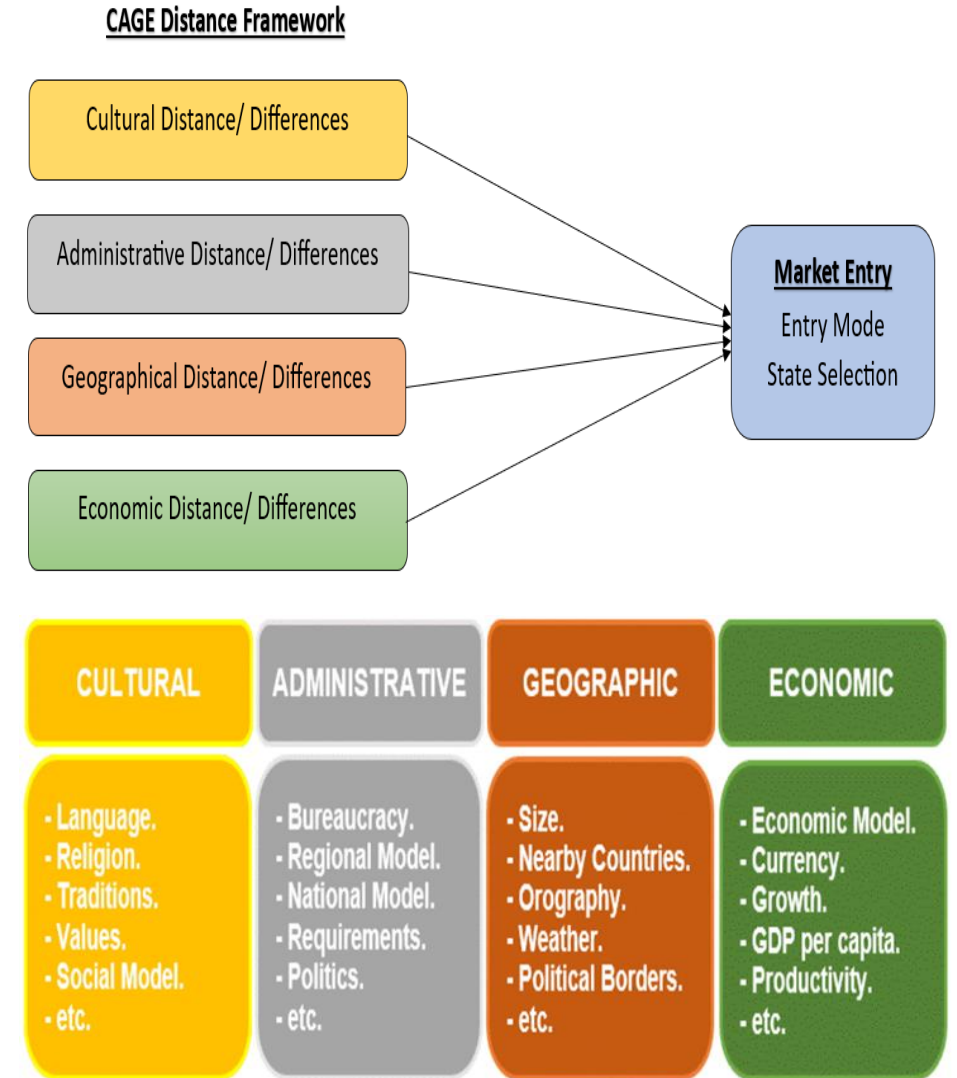
- What are the determining factors for major corporations or cannabis entrepreneurs to enter the cannabis industry in a state?



Theoretical Framework

The Cage Distance Framework:

- The theoretical framework of the CAGE Distance Framework will be applied to explain the mechanisms of unevenness of growth, acceptance, and the difference/distance in the cannabis industry at the sub-national level.
- Used to explore and explain how variations across states and regions influence the market selection/ entry process of corporations and entrepreneurs



CAGE Distance Framework

Theoretical Framework (cont.)

Literature Review

Cage Distance Framework

- Ghemawat's Cage Distance Framework is an international business methodology that looks at the different dimensions of Cultural, Administrative, Geographical, and Economic distance as a way of assessing the influence and impact on a company's opportunities in a foreign market. (Ghemawat, 2001) The Cage Distance Framework is utilized by systematically evaluating the differences and distances between expanding and emerging economies. (Ghemawat and Altman, 2016; Ghemawat, 2001)
- This Framework "Can be extended from the country level and can be applied to the industry level in each country" (Ghemawat, 2007), state, or industry. The Ghemawat's CAGE Framework, at the industry level, can be adaptable in various types of applications. (Ghemawat, n.d.)

CAGE

Examine the influencing factors of U.S. states' social and political acceptance; and cultural, administrative, geographical, and economic differences that impacts companies market selection and market entry into the cannabis industry.

Independent Variables:

Culture

(States' behavioral acceptance)

Percentage of U.S. adults that have used cannabis within the past year in 2022

Cultural Differences

Administrative

(State's legal acceptance)

The state legal status of medical or recreational marijuana use

Administrative Differences

Geographic

(Geographical region)

Distance between the company's home state and destination state

Geographical Differences

Economy

(State's economic wealth)

States 2022 GDP per capita

Economic Differences

Variables

Dependent Variables

(Entry or No entry)

A company choosing to enter or not enter a state's cannabis market

Rank	Company Name	Enter a State (Yes/No)	Code
1	Jazz Pharmaceuticals	yes	1
2	Curaleaf Holdings	yes	1
3	Trulieve Cannabis	yes	1
4	Green Thumb Industries	yes	1
5	Cresco Labs	yes	1
6	Verano Holdings	yes	1
7	Tilray	yes	1
8	Group	yes	1
9	Columbia Care	yes	1
10	Growgeneration	yes	1
11	Canopy Growth	yes	1
12	Ayr Wellness	yes	1
13	Ascend Wellness Holdings	yes	1
14	International	yes	1
15	Terrascend	yes	1
16	Jushi Holdings	yes	1
17	Ianthus Capital Holdings	yes	1
18	Wm Technology	yes	1
19	Aurora Cannabis	yes	1
20	Greenlane Holdings	yes	1
21	High Tide	yes	1
22	Marimed	yes	1
23	4Front Ventures	yes	1
24	Irwin Naturals	yes	1
25	Hexo	yes	1

Controls Variables

- States' average market growth
- Company size

States	States' Average MKT Growth (in million USD)
Alabama	0
Alaska	422.49
Arizona	467.4933333
Arkansas	391.1666667
California	297.8386207
Colorado	184.1568421
Connecticut	700.5633333
Delaware	290.77
Florida	462.1346667
Georgia	541.215
Hawaii	0
Idaho	0
Illinois	377.4541667
Indiana	0
Iowa	0
Kansas	391.1666667
Kentucky	0.67
Louisiana	0
Maine	513.5325
Maryland	502.5809091
Massachusetts	433.2188235
Michigan	295.01875
Minnesota	893.56
Mississippi	422.49
Missouri	241.815

Rank	Company Name	2021 Revenue (in million USD)
1	Jazz Pharmaceuticals	3,094.24
2	Curaleaf Holdings	1,195.99
3	Trulieve Cannabis	937.98
4	Green Thumb Industries	893.56
5	Cresco Labs	821.68
6	Verano Holdings	737.85
7	Tilray	628.37
8	Hydrofarm Holdings Group	479.42
9	Columbia Care	460.08
10	Growgeneration	422.49
11	Canopy Growth	414.97
12	Ayr Wellness	357.61
13	Ascend Wellness Holdings	332.38
14	Village Farms International	268.02
15	Terrascend	210.42
16	Jushi Holdings	209.29
17	Ianthus Capital Holdings	203.02
18	Wm Technology	193.15
19	Aurora Cannabis	176.52
20	Greenlane Holdings	166.06
21	High Tide	144.45
22	Marimed	121.46
23	4Front Ventures	104.57
24	Irwin Naturals	100.34
25	Hexo	98.71

Hypotheses and Methodology



- **H1** - The higher the acceptance/legitimacy of cannabis industry in a state, the more companies will enter a state's cannabis market
- **H2** - U.S. states' culture, administrative, geographic, and economic factors will each have a significant impact on the number of companies entering the cannabis market

Analysis:

- Quantitative: One-way ANOVA, Tukey HSD Test, multi-linear stepwise regression, and Bivariate Pearson Correlations analysis

Data Collection:

- Historical records within the past 15 years
 - State's cannabis regulatory agency
 - PEW Polls
 - news articles
 - business journals
 - cannabis business journals
 - the States Labor Statistics
 - The United States Census

Analysis

Market Entry:

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Market Entry Yes/No Code_DV (Master Code)	Between Groups	6.126	4	1.531	9.102	<.001
	Within Groups	15.984	95	.168		
	Total	22.110	99			
Company Size Based on Revenue (in million USD) 2021 (Company Size_CV)	Between Groups	1641924.845	4	410481.211	3.218	.016
	Within Groups	12119015.758	95	127568.587		
	Total	13760940.603	99			

Results

- Market Entry shows there was a significant effect, $F(4, 95) = 9.102$, $p < .001$, indicating a significant difference in market entry among the groups
- Company Size Based on Revenue in 2021, there was also a significant effect, $F(4, 95) = 3.218$, $p = .016$
- Results suggests that both market entry and company size based on revenue are significantly associated with the variables tested

Analysis

Market Entry:

Tukey HSD Multiple Comparisons

Dependent Variable	(I) Headquarter Region Code (Master Code)	(J) Headquarter Region Code (Master Code)	Mean Difference (I-J)	Sig.
Market Entry Yes/No Code_DV (Master Code)	0 (International)	1 (Northeast)	-.516*	.006
		2 (South)	-.516	.114
		3 (Midwest)	-.516	.114
		4 (West)	-.516*	<.001
	1 (Northeast)	0 (International)	.516*	.006
		2 (South)	.000	1.000
		3 (Midwest)	.000	1.000
		4 (West)	.000	1.000
	2 (South)	0 (International)	.516	.114
		1 (Northeast)	.000	1.000
		3 (Midwest)	.000	1.000
		4 (West)	.000	1.000
	3 (Midwest)	0 (International)	.516	.114
		1 (Northeast)	.000	1.000
		2 (South)	.000	1.000
		4 (West)	.000	1.000
	4 (West)	0 (International)	.516*	<.001
		1 (Northeast)	.000	1.000
		2 (South)	.000	1.000
		3 (Midwest)	.000	1.000
Company Size Based on Revenue (in million USD) 2021 (Company Size_CV)	0 (International)	1 (Northeast)	-231.2	.369
		2 (South)	-184.5	.854
		3 (Midwest)	-525.4*	.041
		4 (West)	58.6	.970
	1 (Northeast)	0 (International)	231.2	.369
		2 (South)	46.6	.999
		3 (Midwest)	-294.3	.647
		4 (West)	289.8	.272
	2 (South)	0 (International)	184.5	.854
		1 (Northeast)	-46.60	.999
		3 (Midwest)	-340.9	.661
		4 (West)	243.2	.730
	3 (Midwest)	0 (International)	525.4*	.041
		1 (Northeast)	294.3	.647
		2 (South)	340.9	.661
		4 (West)	584.1*	.030
	4 (West)	0 (International)	-58.6	.970
		1 (Northeast)	-289.8	.272
		2 (South)	-243.2	.730
		3 (Midwest)	-584.1*	.030

Results

- Market Entry, significant mean differences were observed between headquarter region codes
 - 0 (International) and 1 (Northeast) (-.516, $p = .006$),
 - 0 (International) and 4 (West) (-.516, $p < .001$),
 - 1 (Northeast) and 0 (International) (.516, $p = .006$)
- Company Size Based on Revenue, a significant mean difference was noted between headquarter region code
 - 0 (International) and 3 (Midwest) (-525.447, $p = .041$)
 - 3 (Midwest) and 4 (West) (584.086, $p = .030$)

Analysis

CAGE:

Correlations

		DV_Number of Companies Enter a State	CV_States' Average MKT Growth (in million USD)"	IV_Adult Use (Culture). Percentage of U.S. adults that have used cannabis within the pa	IV_States Legal Status (Administrat ive). Code	IV_States Headquarter Region_(Geogr aphic). Code	IV_State GDP (Economy). Nominal GDP per capita 2022
DV_Number of Companies Enter a State	Pearson Correlation	1					
CV_States' Average MKT Growth (in million USD)"	Pearson Correlation	.203	1				
IV_Adult Use (Culture). Percentage of U.S. adults that have used cannabis within the pa	Pearson Correlation	.347*	.226	1			
IV_States Legal Status (Administrative). Code	Pearson Correlation	.491**	.412**	.710**	1		
IV_States Headquarter Region_(Geographic). Code	Pearson Correlation	.050	-.317*	.155	-.046	1	
IV_State GDP (Economy). Nominal GDP per capita 2022	Pearson Correlation	.386**	.218	.205	.283*	-.017	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Results

Number of Companies Entering a State (DV):

o Positively correlated with:

- Percentage of U.S. adults who have used cannabis within the past year (IV_C) ($r = .347, p = .013$).
- States' Legal Status (IV_A) ($r = .491, p < .001$).
- State GDP (IV_E) ($r = .386, p = .006$).

o Not significantly correlated with:

- States' Headquarter Region (IV_G) ($r = .050, p = .728$).

Conclusion

The data and statistical analysis supports the hypotheses

Market Entry

- The findings suggest that market entry is influenced by the location of the company's headquarters with specific regions showing higher propensities for market entry
- Company Size Based on Revenue showed a significant mean difference between the headquarter regions, with companies in the Western region being significantly larger

CAGE

- The results suggest that states with higher percentages of adult cannabis users, favorable legal statuses for cannabis use, and higher nominal GDP per capita tend to attract more companies

Additional Research

Market Entry

- Types of companies within the cannabis industry in the United States.
- RQ1: Are certain cannabis sectors better for market entry?
- H1: Sectors with fewer requirements to establish a cannabis company have a higher number of companies entering that sector of the cannabis market

CAGE

- Religion as a Culture measure will help to strengthen the findings of how states' culture would influence a cannabis business entering that state
- RQ2: Does a states' religious affiliation impact the views of cannabis companies in selecting a state for market entry?
- H2: US states' that are less religiously conservative has a higher market entry of cannabis companies entering that state

Expected Contributions



- Demonstrate the international business theory of CAGE Distance Framework can be applied at the micro-jurisdiction/ subnational level with each state having enough variation in the dimension of culture, administrative, geography, and economy to function as their own foreign market
- Illustrate the CAGE Distance Framework will help explain the variation of market entry selection of location and method

Thank you