An Economic Analysis of Beer: The Supply & Demand of Breweries in Vermont

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Motivation & Research Objective

- Vermont has the most breweries per capita in the US.
- Research Question: To assess the influence of sociodemographic and geographic variables on the presence of breweries in Vermont.

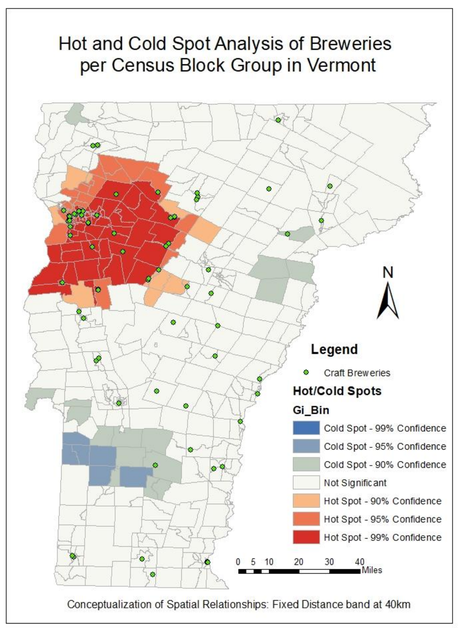
Prior Research

Breweries have been found to be significant contributors to local economic growth.
The factors that have been found to relate to the presence of breweries are:

- High income, education and quality of life
- A larger white population
- Progressive political views
- A younger population

There is some evidence for the spatial clustering of breweries.

Clustering



- There is one major hot spot centered on Burlington

Data

- Used data gathered from the American Community Survey, 2011 5-year estimates
- Data on breweries is from Infogroup and our own research
- Data on Roadways is from the US Census Bureau TIGER dataset.
- Unit of analysis: Block Groups

Regression

Linear OLS method

$$\left(\frac{Breweries}{Population} x1000\right)_i = \beta_1\, Dist.Road + \beta_2(Socioeconomic) + \beta_3(Transportation) + \beta_4(Education) + \beta_5(Demographic)$$

1. Distance to Road (only) in regression
2. All variables in regression
3. All variables except those with high multicollinearity (vif > 7)

Summary Statistics by Block Group

Variable	Mean	Std.Dev.
Breweries Per Capita	.224	.774
Distance to Road	1.099	1.109
% Fem Bachelor	21.593	11.669
% Male HS Grad	34.571	14.282
% Male HS Drop	6.859	6.124
% HH Inc 30-50k	20.447	8.432
% Fam HH Poverty	11.435	9.2
% Fam HH	63.387	13.698
% Hispanic	1.392	2.068

Observations = 522

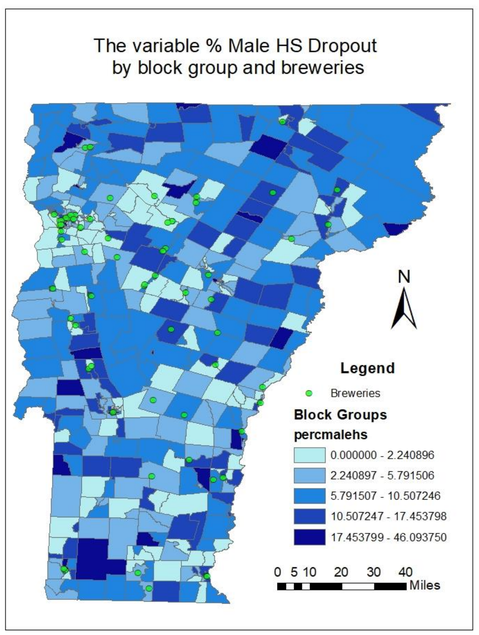
Controls

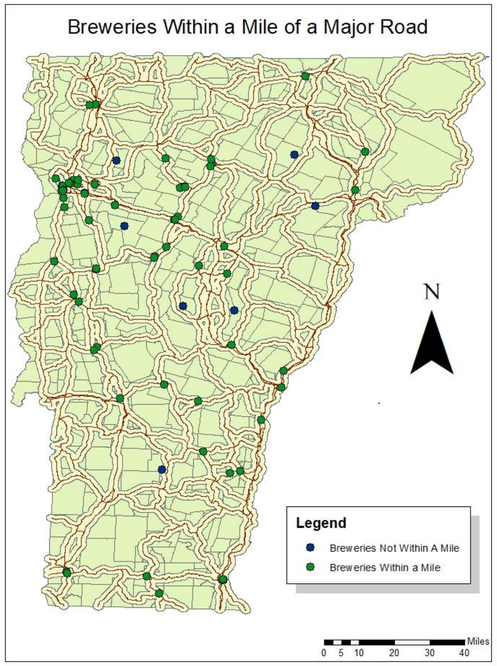
- Control variables include racial categorization, other household income bins, gender, household type, education, method of transportation, public assistance, employment, and poverty percentage.

Results

	(1) Breweries Per Capita	(2) Breweries Per Capita	(3) Breweries Per Capita
Distance to Road	-0.0484	0.00514	0.00508
	(0.0305)	(0.0332)	(0.0329)
% Fem Bachelor		-0.0129**	-0.0141***
		(0.00505)	(0.00495)
% Male HS Grad		-0.00794*	-0.00707
		(0.00447)	(0.00443)
% Male HS Drop		-0.0237***	-0.0229***
		(0.00705)	(0.00702)
% HH Inc 30-50k		0.0130**	0.00788*
		(0.00559)	(0.00467)
% Fam HH Poverty		0.00825	0.0117**
		(0.00591)	(0.00509)
% Fam HH		-0.00372	-0.00670**
		(0.00412)	(0.00331)
% Hispanic		0.0368**	0.0362**
		(0.0169)	(0.0168)
N	522	521	521
R^2	0.005	0.141	0.136
Adj. R^2	0.003	0.087	0.087

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$





Data Courtesy of Keenan Marchesi

Conclusions

- The variables we chose do not explain much of the variation in the presence of breweries in Vermont.
- There is clustering of breweries around Burlington.
- Over 90% of breweries are found within a mile of a major road. However, the variable distance from roads was not significant in the regressions.
- Percent of females with a bachelor's degree is negatively correlated at a high significance level, as well as percent of males who are high school dropouts.
- Percent Hispanic was found to be positively correlated at a high significance level.
- We are concerned about whether results from Vermont are translatable to the broader United States due to its small and homogenous population.