CRAFT BREWERY LOCATION

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WHERE SHOULD YOU LOCATE YOUR NEW BREWERY?

Increasing interest in craft brewing.

Do you want to start your own brewery? How can you raise your chances of success?

Find neighborhoods that are underserved by breweries: given their market characteristics, they should have more breweries than they currently have.

WHERE SHOULD YOU LOCATE YOUR NEW BREWERY?

To identify which cities "should" have a high number of breweries, focus on

- High average incomes
- Large number of jobs per person
- High levels of education
- High population and housing density
- Enough younger people
- Enough of a craft-beer culture to generate a critical mass of interest.

DATA

Get data from

- Foursquare
- The Bureau of the Census

Limitations

- The biggest limitation of this study is that it relied on a free version of Foursquare, which limits to 50 results per search. In practical terms, this means that we only get 50 breweries per MSA. The obvious solution is to redefine the geographical area to be a zip-code or a census-tract.
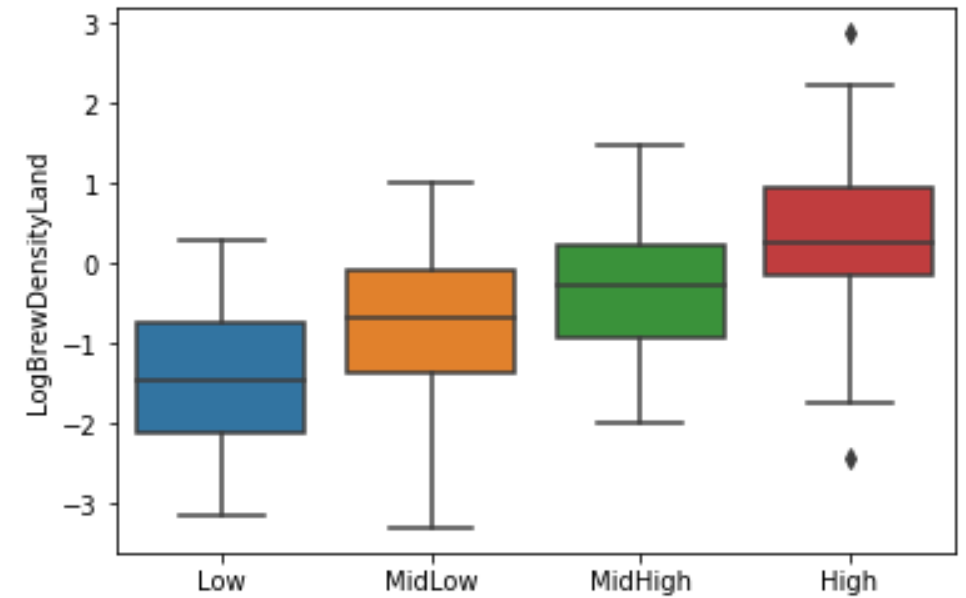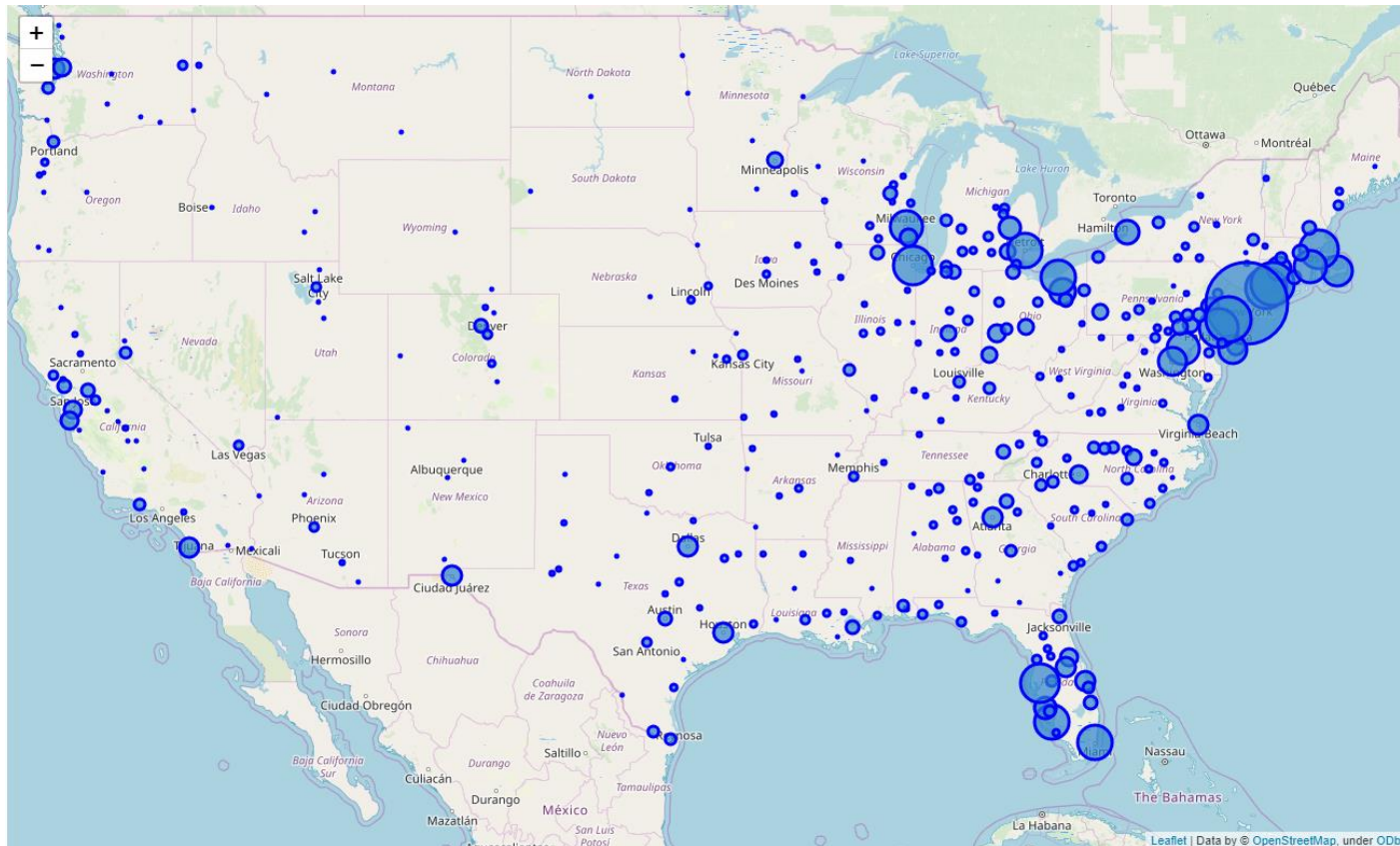
Calculate

- Brewery Density, as a proportion of the number of people (breweries per 100,000 people) and of the size of the city (breweries per 100 square miles).
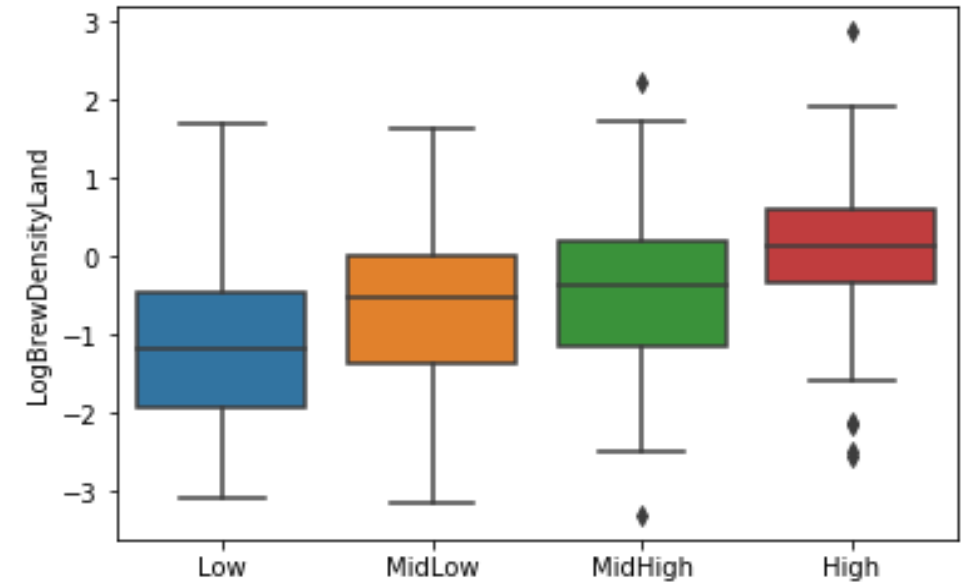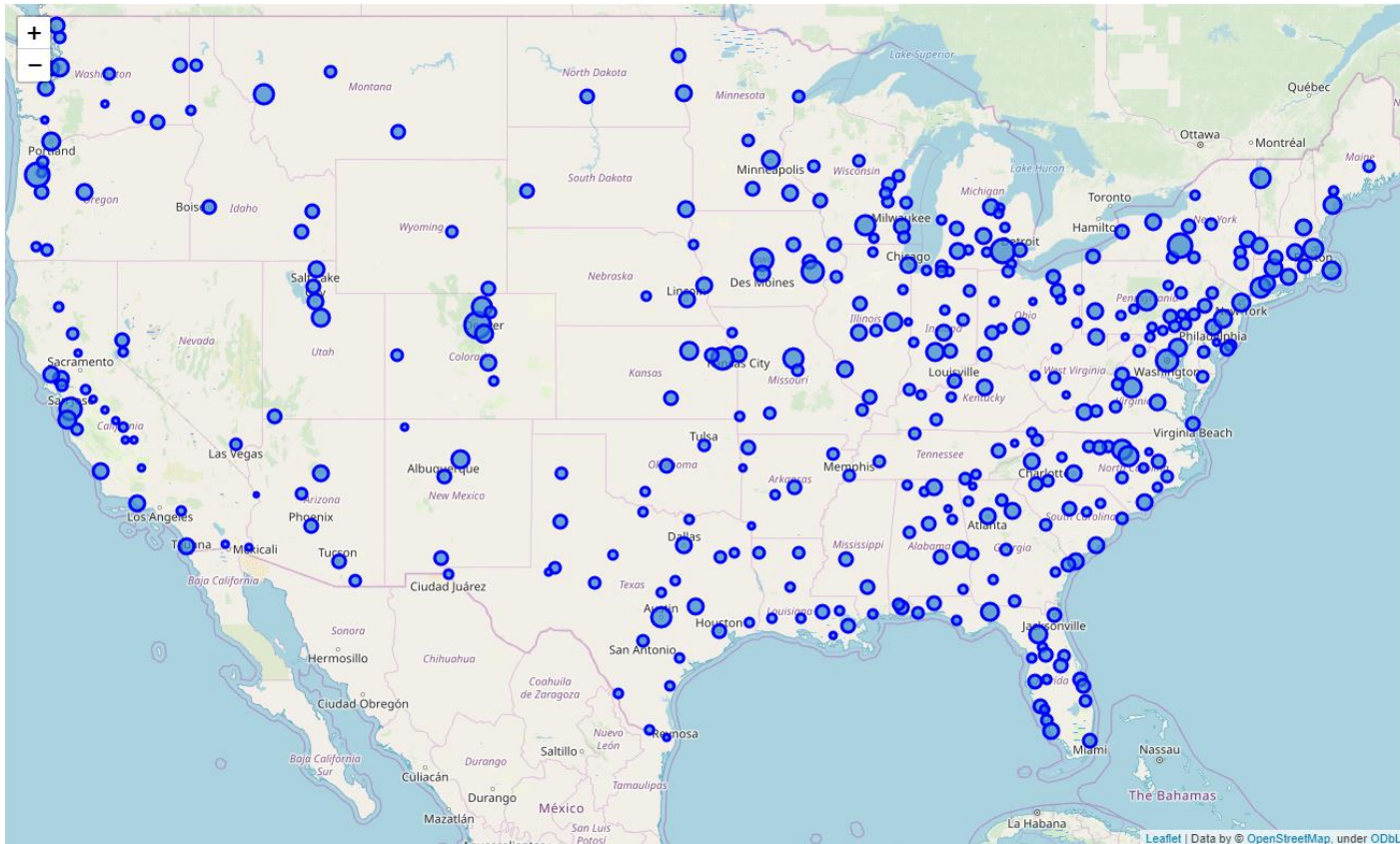
DENSITY OF BREWERIES PER 100 SQUARE MILES
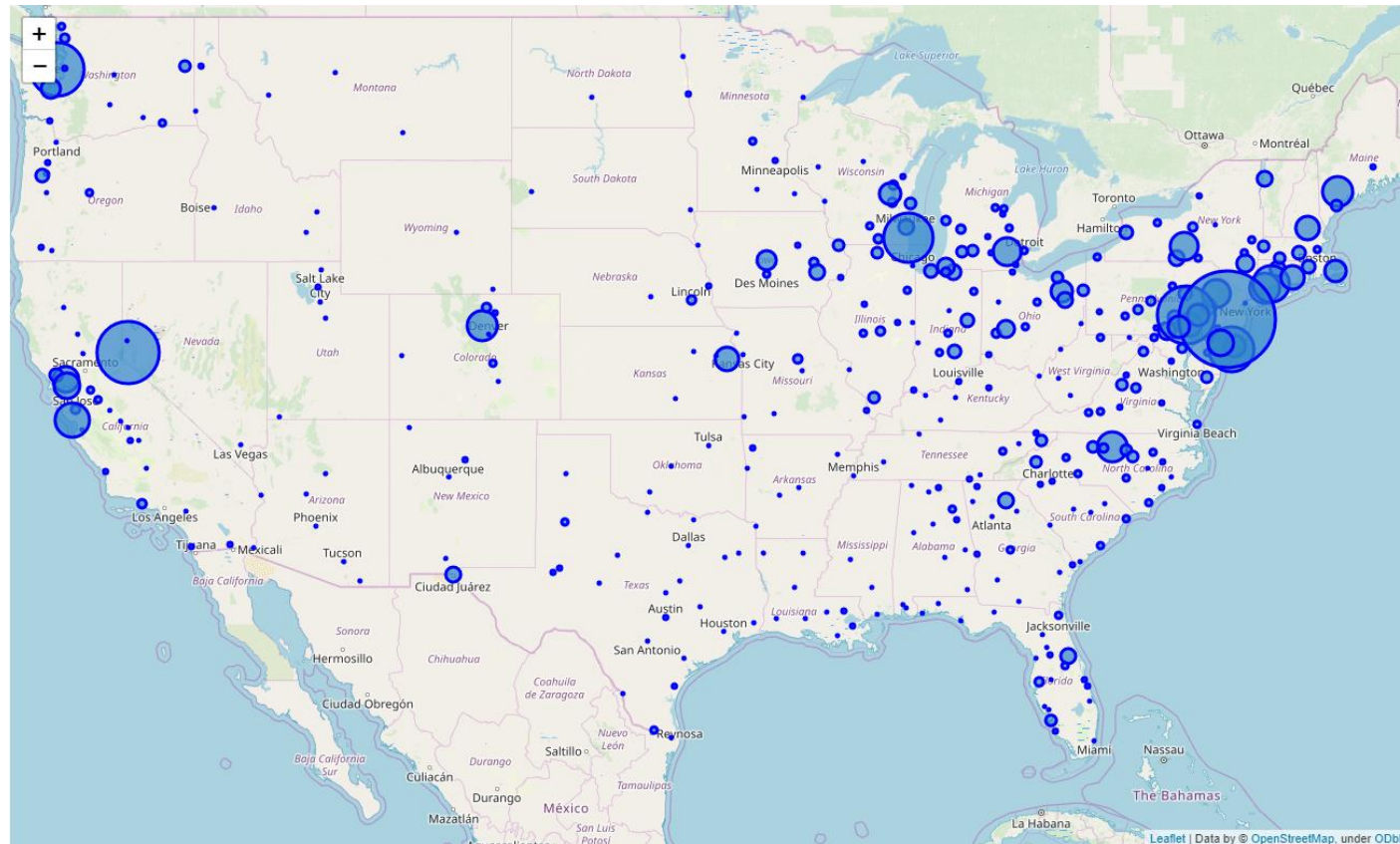
HOUSING DENSITY

PROPORTION OF 25+ YEAR OLDS WITH AT LEAST A BACHELOR'S

MODEL TO BE ESTIMATED

$Log\ of\ BrewDensityLand =$

β_0
$+\beta_1 JobsPopulation\ Ratio$
$+\beta_2\%\ of\ over25\ with\ more\ than\ Bachelor's$
$+\beta_3 HousingDensity$
$+\beta_4 BarsDensityLand$
$+\epsilon$

RESULTS

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                        OLS Regression Results
==============================================================================
Dep. Variable:        LogBrewDensityLand   R-squared:                       0.641
Model:                              OLS   Adj. R-squared:                  0.637
Method:                   Least Squares   F-statistic:                     161.0
Date:                  Tue, 25 Jun 2019   Prob (F-statistic):           6.52e-79
Time:                         13:07:33    Log-Likelihood:                 -389.11
No. Observations:                   366   AIC:                             788.2
Df Residuals:                       361   BIC:                             807.7
Df Model:                             4
Covariance Type:              nonrobust
==============================================================================
                        coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const                -6.8808      0.448    -15.349      0.000      -7.762      -5.999
Jobs-Population Ratio  0.6623      0.570      1.161      0.246      -0.459       1.784
LogEducation           0.9601      0.181      5.303      0.000       0.604       1.316
LogHousingDensity      0.3953      0.049      8.068      0.000       0.299       0.492
LogBarsDensityLand     1.0570      0.068     15.573      0.000       0.924       1.191
==============================================================================
Omnibus:                      24.925   Durbin-Watson:                   2.026
Prob(Omnibus):                 0.000   Jarque-Bera (JB):               28.506
Skew:                         -0.617   Prob(JB):                     6.46e-07
Kurtosis:                      3.590   Cond. No.                        93.1
==============================================================================

Warnings:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
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Education, housing density, and the existence of other night-life establishments are strong predictors of the presence of craft breweries.
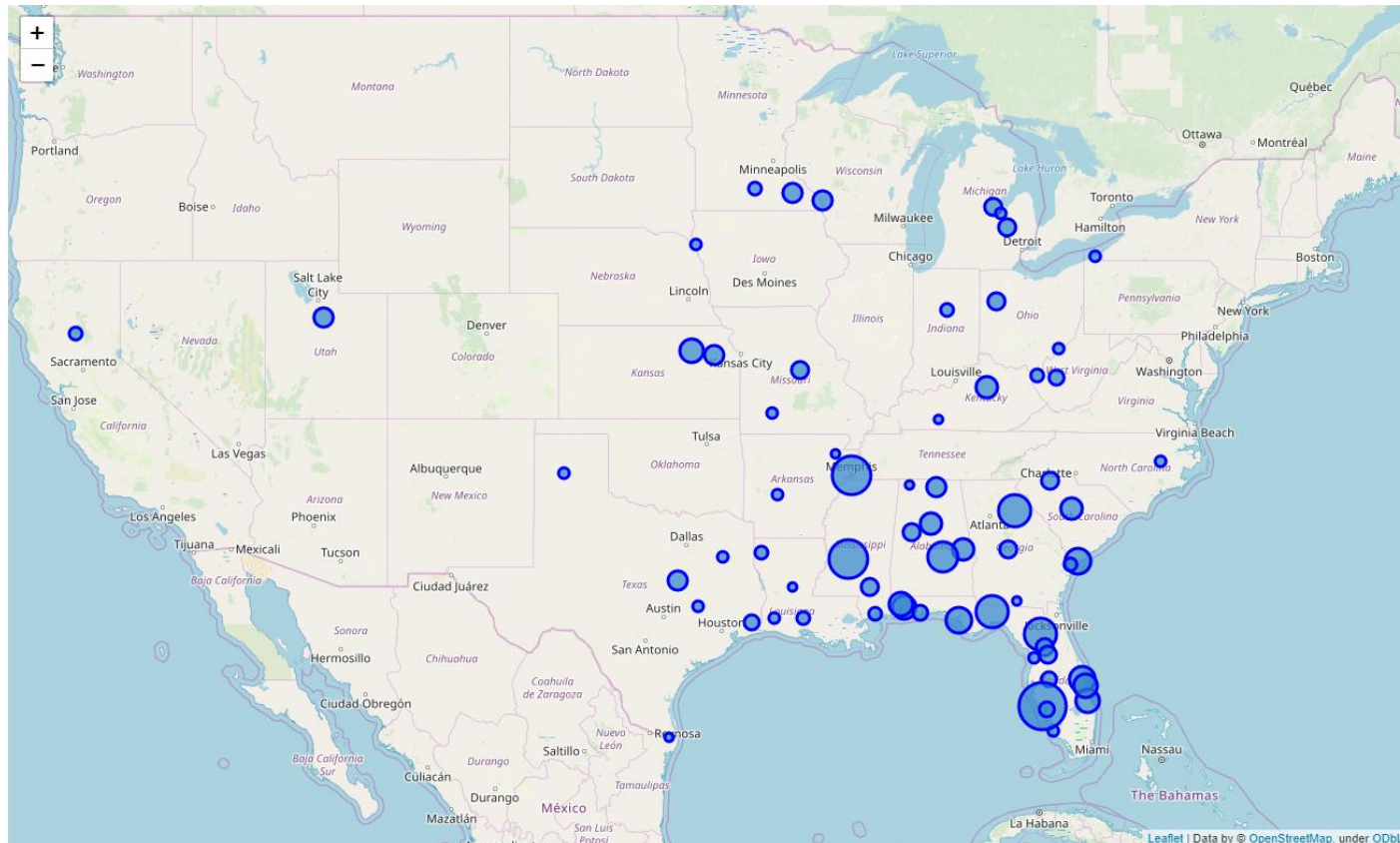
MISSING BREWERIES

$Missing\ Breweries$

$= (Predicted\ BrewDensityLand - BrewDensityLand) * \dfrac{LandArea}{100}$

The above regression is used to predict the number of breweries a Metropolitan Statistical Area *should* have. That number is then compared with the number of breweries the MSA does have in order to come up with an estimate of the number of breweries the MSA would be able to support profitably.

RESULTS

The majority of "missing breweries" are located in the Southeast.

This map identifies the MSAs that have at least 4 "missing breweries" but fewer than 20 actual breweries.

RESULTS

GeoName	Missing Breweries	Existing Number of Breweries
North Port-Sarasota-Bradenton, FL	21.94	5
Jackson, MS	18.48	1
Memphis, TN-MS-AR	18.37	7
Gainesville, FL	15.48	7
Tallahassee, FL	15.16	6
Athens-Clarke County, GA	14.57	4

CONCLUSIONS

What are the determinants of craft brewery location in metropolitan statistical areas of the United States? Where should you locate your brewery?

Income, jobs, age, and gender are generally poor predictors, while housing (and population) density and educational attainment tend to predict brewery location fairly well.

We identified nearly 70 MSAs that would provide fertile ground for new-brewery location.