

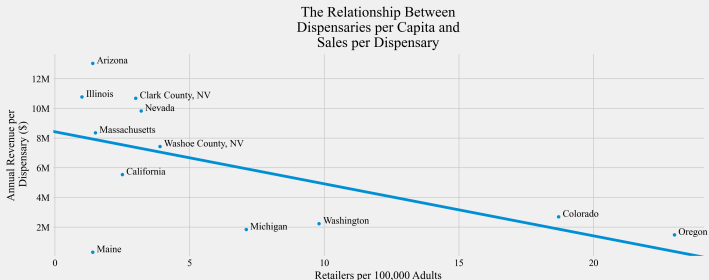


Cannabis Data Science

Meetup

December 22nd, 2021

Research Question: What is the relationship between dispensaries per capita and revenue per dispensary?



Data: Annual dispensary statistics for 12 observations in 2020.
Data Source: Nevada Cannabis Dispensary Market Overview Technical Memorandum.

The 10 Commandments of Forecasting

Silvia, J, Iqbal, A, et. al (2014), 'Economic and Business Forecasting'.

- 1 Know what you are forecasting.
- 2 Understand the purpose of forecasting.
- 3 Acknowledge the cost of the forecast error.
- 4 Rationalize the forecast horizon.
- 5 Understand the choice of variables.
- 6 Rationalize the forecasting model used.
- 7 Know how to present the results.
- 8 Know how to decipher the forecast results.
- 9 Use recursive methods.
- 10 Understand that forecasting models evolve over time.

Measuring Forecast Error

The out-of-sample root mean square error (RMSE) can quantify forecast error.

$$RMSE = \sqrt{\frac{1}{T} \sum (Y_{t+1} - \hat{Y}_{t+1})^2}$$

Panel Data

A panel has the form

$$X_{it}, \quad i = 1, \dots, N, \quad t = 1, \dots, T,$$

where i is the individual dimension and t is the time dimension.

A general panel data regression model is written as

$$y_{it} = \alpha + \beta' X_{it} + u_{it}$$

where

$$u_{it} = \mu_i + v_{it}$$

Estimation with a **fixed effects** or **random effects** model depends on assumptions about μ_i , the individual-specific, time-invariant effects.



Thank you for coming.

Take some time, discuss any conclusions drawn, and try to make some forecasts of your own!