

Predicting a Recession in the United States using Data Science

A UVA Data Science Case Study by Harrison Listen, May 2023



Prompt:

As a college student looking for job opportunities after college, you are concerned about the prospects of a recession. According to the National Bureau of Economic Research, graduating in a recession leads to a 9% annual loss in earnings, and these hits do not disappear until about 10 years after graduation. To mitigate your fear, you are going to put your data science abilities to the test so that you can prepare for the impact of a recession. The research question you are tasked to explore is the following: Is the United States economy, based on available economic indicators, heading towards a recession this upcoming year? Currently, the year in focus is 2023, but you can adapt the question to predict 2024, 2025, and subsequent periods once economic data becomes available.

Data:

To gather your data, you will employ the extensive Bureau of Economic Analysis (BEA) website. Once clicking on the “Interactive Data” tab, you can scroll through their different offerings. The data includes industry level breakdowns of production in the United States and other unique metrics, so you have the option to download the datasets that you believe will be the best predictors of a recession (Hint: for the data, you will probably find your analysis easier if you choose variables that are measured as an annual percent change). Once gathering the data, you have the option to clean it in excel, as a csv within R, or however you prefer.

Deliverable:

Create a model using time-series economic data from the BEA to predict whether there will be a recession in 2023 (or a subsequent year if performing the analysis in the future). To illustrate your findings, make a slideshow. The presentation should include the motivation behind your project, the data preparation, the model plan, and your results and conclusions.

References

- [1] M. Nesvinsky, “The Career Effects of Graduating In A Recession,” *National Bureau of Economic Research*, November 2006. [Online]. Available: <https://www.nber.org/digest/nov06/career-effects-graduating-recession#:~:text=Graduating%20in%20a%20recession%20leads,about%20ten%20years%20after%20graduation>.