

# Analyzing Retail Sales through Product and Industry Classifications

**By: James Miller, Cole Ballard, Nathaniel Van Schyndel, and Gavan VanOver**

We are Dev10 associates with Genesis 10 and for our capstone project we are focusing on retail services. More specifically, we are looking at various retail datasets that covers data that ranges from as early as 1960 up to as recently as 2022 and attempting to answer the following questions:

1. How have sales changed over time?
  - a. What kind of trends can be observed over time?
2. What industries are the biggest by sales?
3. Are there relationships between macroeconomic principles and retail sales?
4. Can we use previous data to predict future trends in retail sales?

After looking at those broader questions we would like to focus on more specific questions for the 2017 census, such as:

5. How do product sales compare when sold in different types of establishments? (This would be looking at something like candy sales or alcohol sales and seeing how their sales compare when sold at like a gas station vs a grocery store or some other location.
  - a. Which products vary the most by industry?
  - b. Which industries tend to perform better?
  - c. Which products sold the most in 2017

For the first four questions we will be using these datasets:

- Monthly Retail Trade Report, <https://www.census.gov/retail/index.html>
  - Monthly Census data from 1992 to 2020 listing the total retail sales broken down by NAICS codes
  - Accessed on: August 2, 2022
- Consumer Price Index (CPI) United States, <https://www.kaggle.com/datasets/sfctrkl/consumer-price-index-cpi-united-states>
  - Provides the monthly Consumer Price Index for the US since the beginning of 1960
  - Accessed on: June 29, 2022
- Macroeconomics US, [https://www.kaggle.com/datasets/denychaen/us-macro?select=US\\_MACRO110522.csv](https://www.kaggle.com/datasets/denychaen/us-macro?select=US_MACRO110522.csv)
  - The original dataset provides over 258 different macroeconomic measures for each month since the beginning of 1960
  - Accessed on: June 29, 2022

For the product and industry-based question:

- All Sectors: Products by Industry for the U.S.,  
<https://data.census.gov/cedsci/table?q=ECNNAPCSPRD2017.EC1700NAPCSPRDIND&n=N0600.44&tid=ECNNAPCSPRD2017.EC1700NAPCSPRDIND&hidePreview=true>
  - 2017 Census data broken down by both product codes and industry codes.  
Provides different measures such as the number of establishments and the amount of sales revenue
  - Accessed: June 29, 2022