

Impact of COVID-19 on the New South Wales, Queensland and Victorian Retail Sector

The COVID-19 pandemic and consequencing lockdown periods have had a significant impact on the daily lives of all Australians. The Retail Industry has been hit particularly hard with changes to the nature of trading and decreased traffic having significantly impacts. Certain sectors within the broader Retail Industry have adapted more easily to these changes, or due to demand have experienced periods of growth and success, which will also be discussed in the analysis.

Analysis Goals

Our project centers around determining the far reaching impact the Australian COVID-19 situation has had on the Retail Industry. Some key points for investigation in this project include;

1. Correlation between lockdown dates vs retail sales (specifically by industry)
2. Looking at successful and unsuccessful industries and industries sub groups and determining any correlations with covid-19 cases and consequential lockdown measures.
3. Number of cases compared to revenue/turnover by state
4. Future predictions of retail sales inline with covid-19 case numbers

Dataset Summary

All of the data sets were downloaded in .xls format which then required converting into .csv files where the Pandas read_file.to_csv function was utilized.

1. turnover_industry_nominal.xls
2. turnover_industry_percentage.xls
3. turnover_state_nominal.xls
4. Turnover_state_percentage.xls
5. Time_series_covid19_confirmed_global.xls

All files excluding the time_series_covid19_confirmed_global.csv file had the same format headings in the first 9 rows of the files. Each file had the following rows names for each head. The number of observations, series end (1/04/2021), series start (1/04/1982), frequency (monthly), collection month (1) and unit (\$ millions) all remained the same throughout the retail datasets. The data type of each file would be either FLOW or Percentage depending on the file. And each file had three series types, original seasonal, and trend adjusted values.

Lockdown dates and severity information:

<https://grattan.edu.au/news/australias-covid-19-response-the-story-so-far/>

<https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-travel-and-restrictions>

Excel (XLS) to CSV Python conversion:

https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.read_excel.html

Techniques

- Linear Regression for predicting retail turnover based on number of cases (separated by state)
- Correlation matrices to compare states, industries, months with covid-case numbers

Project Plan

As a group we plan to touch-base at least once a week to reevaluate the workload and overall success, adjusting as necessary.

Proposal Due (5%)	Due Week 8 26/09
Analysis Goal 1 and 2 Complete	Week 10 7/10
Analysis Goal 3 and 4 Complete	Week 12 21/10
Video Prepared	Week 12 23-24/10 Weekend
Project Notebook (15%)	Due Week 13
Project Video (10%)	Due Week 13

Prior Work

Data was fetched from

<https://www.abs.gov.au/statistics/industry/retail-and-wholesale-trade/retail-trade-australia/latest-release#data-download>