Trends in COVID-19 Data

A study of the correlation between UMD COVID-19 World Survey Data API indicators in Schengen Area countries

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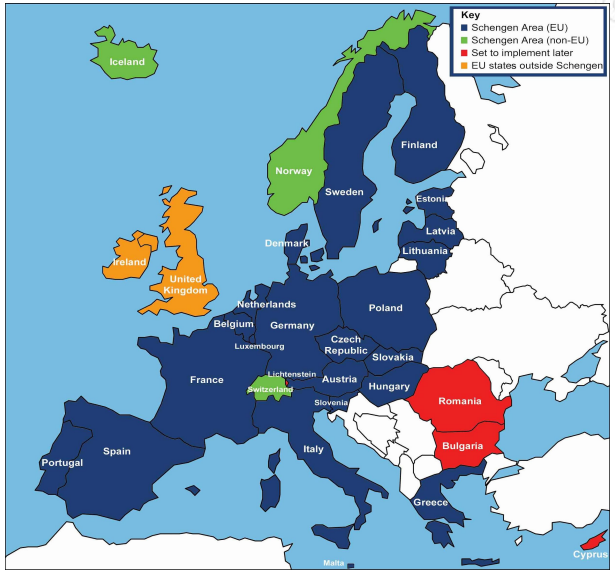
Problem Statement

1. For countries in the Schengen Area (the countries in Europe that have open borders with one another), does a spike in COVID-19 related indicators in one country correlate to a delayed spike in indicators in their neighboring countries?
2. Do the people's trust in government, trust in healthcare officials, and trust in the WHO, have an effect on the number of people willing to take a vaccine?
3. How do social behaviors (contact with someone outside your household) correlate to mask wearing habits, COVID-19 cases in the community, and financial worries?

Schengen Area

- Schengen Area consists of 26 countries, but the API only contained the following 19:
  - Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, and Switzerland.



Motivation

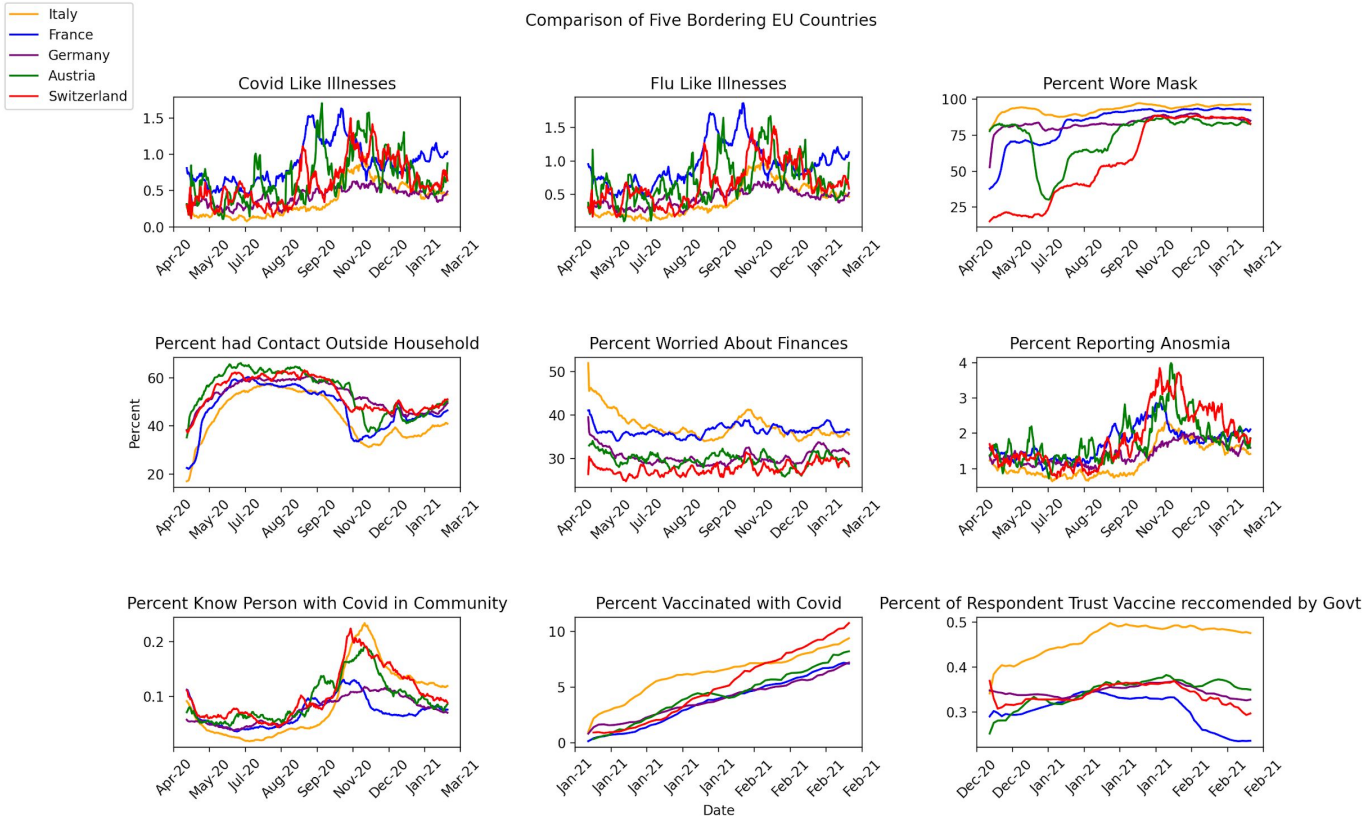
- Wanting to make an impact in the fight against COVID
- Ease impact and burden of disease that COVID-19 has left
- Help the general public, Public Health officials & world leaders

Data Acquisition

- UMD's COVID-19 World Survey Data API
  - Facebook survey data on 21 indicators
    - https://covidmap.umd.edu/api.html
  - Wrote program to generate links necessary to collect all data from API
    - Collected smoothed data to account for lasting symptoms
- Wrote programs to manipulate the datasets and graph them
- Created an aggregate dataset to represent the Schengen Area Countries as a whole

Data Analysis

Graphs for Q1



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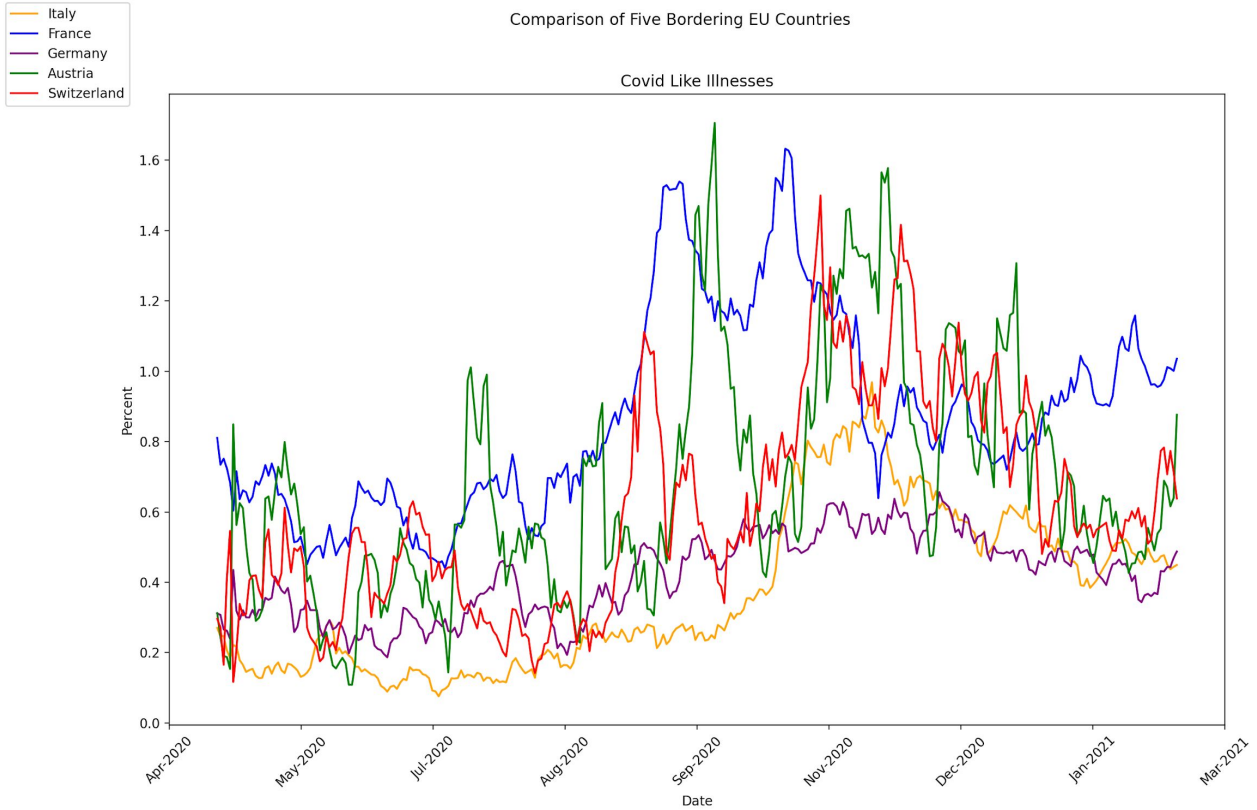
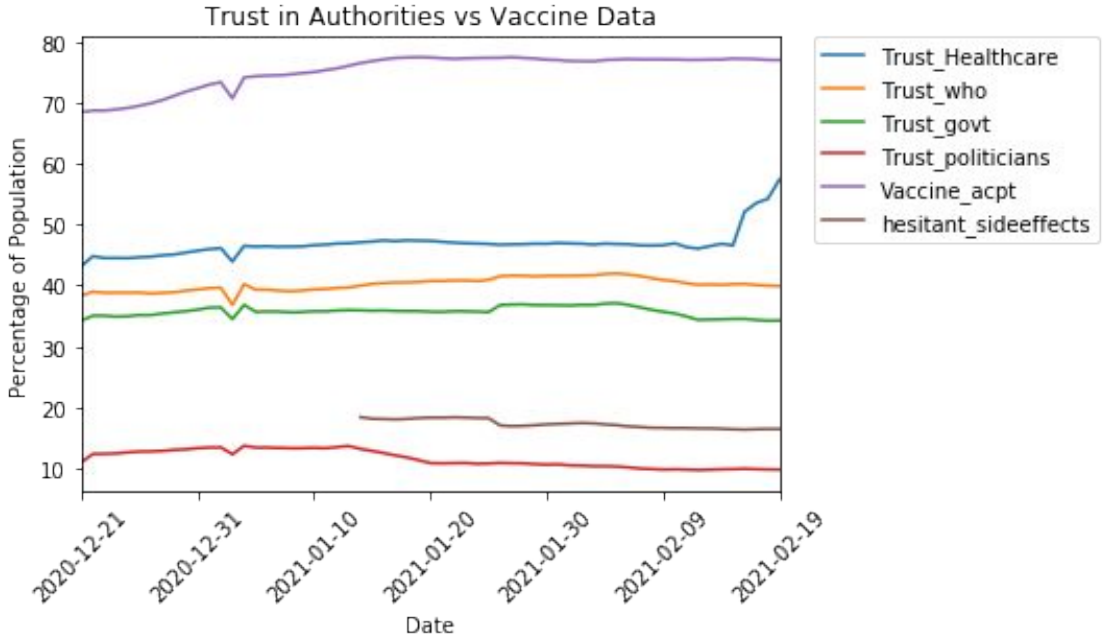

Italy
France
Germany
Austria
Switzerland
Comparison of Five Bordering EU Countries
Covid Like Illnesses
Percent
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
Apr-2020
May-2020
Jul-2020
Aug-2020
Sep-2020
Nov-2020
Dec-2020
Jan-2021
Mar-2021
Date

Insights from Analysis Q1

- Overall similar trends
- Switzerland slow to inforce mask wearing
- Italy was ahead in covid vaccine administration and second dose
- France currently is higher in CLI trends

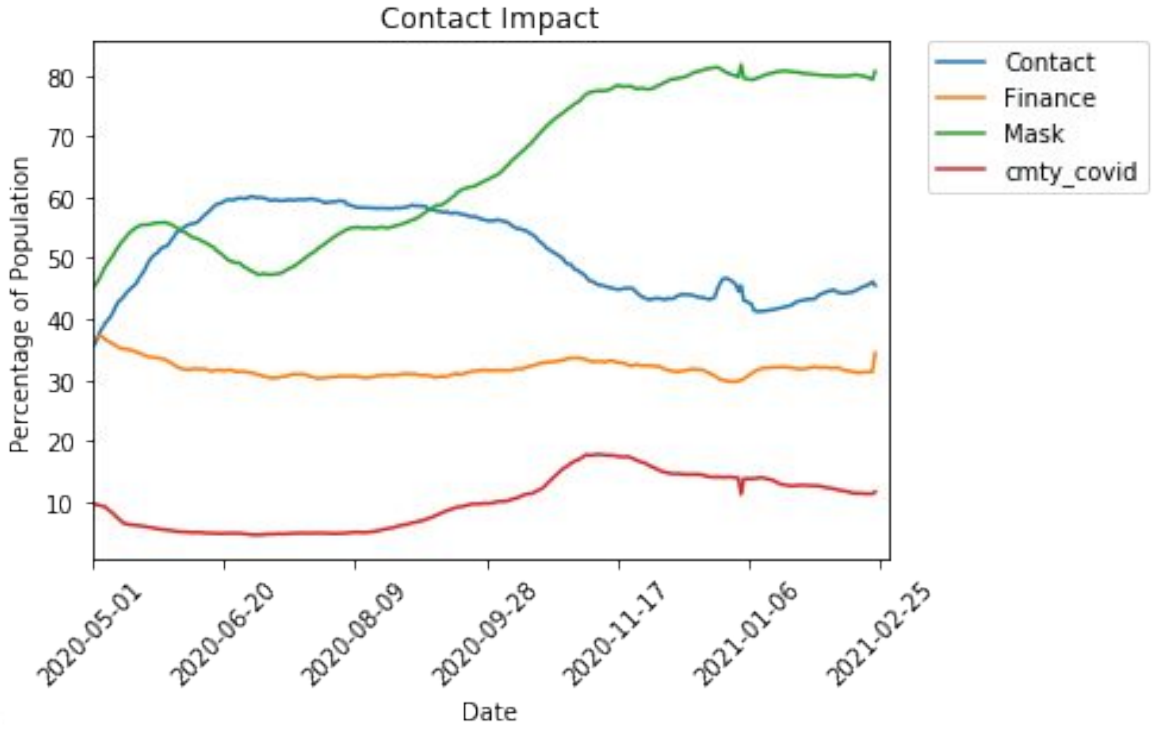
Graphs for Q2



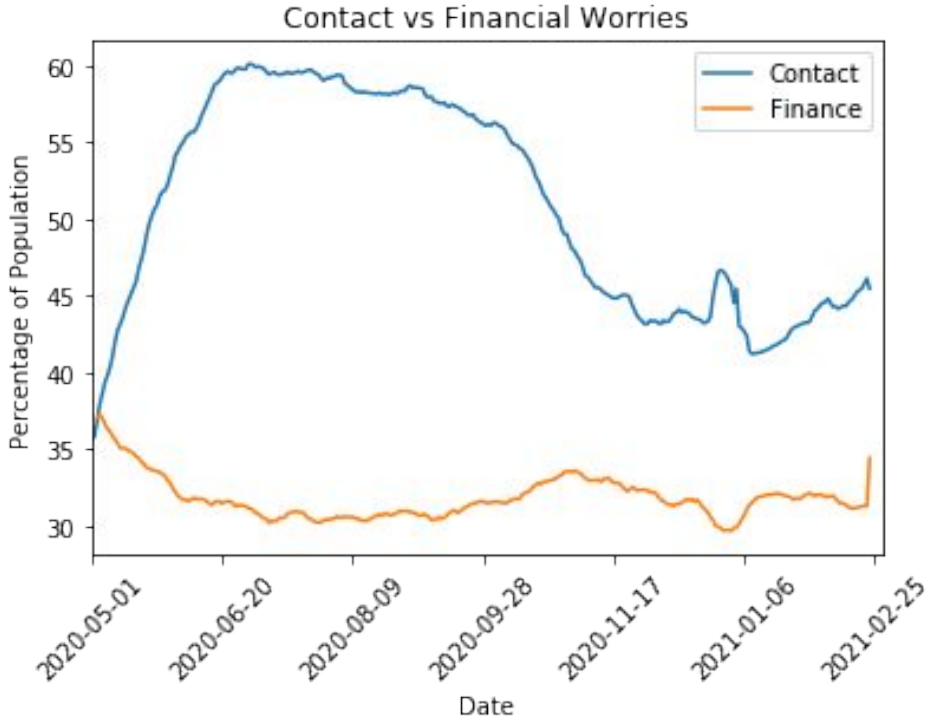
Insights from Analysis Q2

- Residents of the Schengen Area place a low level of trust in their politicians, and a significantly higher level of trust in healthcare professionals.
- Dip in trust levels in early January
  - Uncertain as to why, possible data inconsistencies

Graphs for Q3



Graphs for Q3



Insights from Analysis Q3

- Mask usage decreased over the summer months while contact with people outside the house increased
- No notable increase in COVID-19 cases in the community over summer months despite more risky behavior
- People tend to worry about finance less when they are more social

Impact of Analysis

- Leaving Schengen Area borders open may contribute to COVID-19 spikes in neighboring countries due to travel
    - Causation vs Correlation
- Trust in healthcare has no correlation to rate of people who would not get a vaccine, but trust in government does
- People have less worries when the weather is warm and they have more social interaction

Conclusion

- What could we do in the future to improve this analysis?
- What data would be useful to collect?
- How can COVID-19 data be further used to make a difference?

Questions?