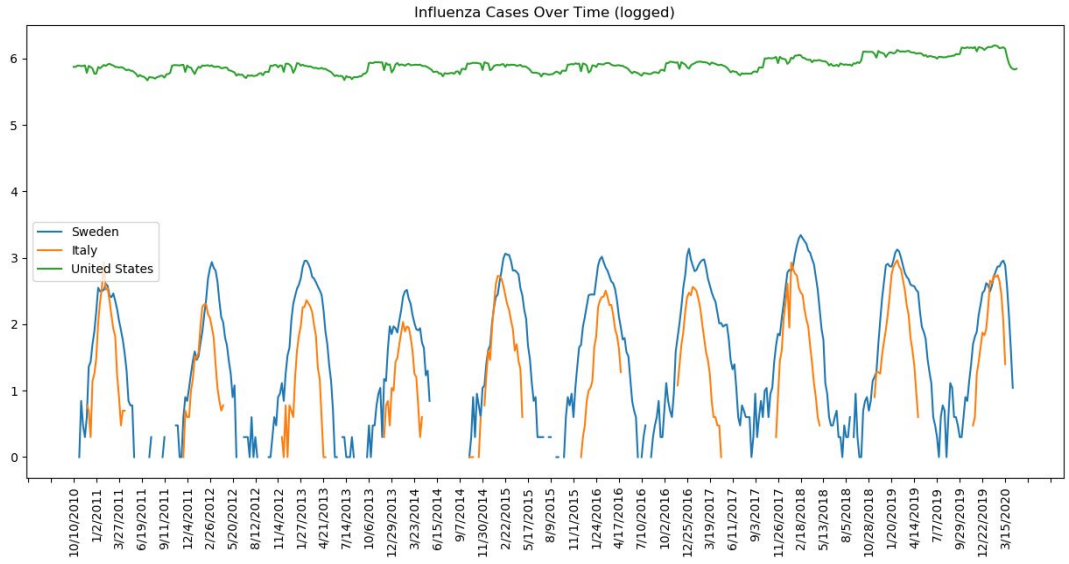
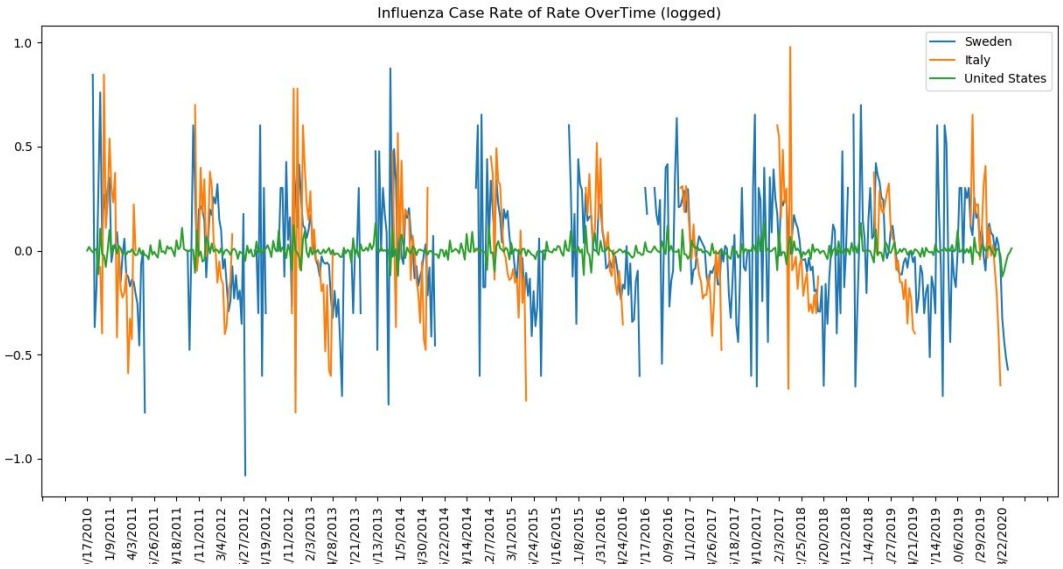
Summary:

This week, we normalized and then differentiated our data over time for the U.S., Italy, and Sweden. As can be seen in our graphs below, we then proceeded onto comparing the rates between these three countries over time. Even after normalizing our data, we found that the U.S. had a significantly higher number of cases. This can be due to its significantly larger population. We also noted that whereas there are weeks in Sweden and Italy where there doesn't appear to be a constant increase in specimens each week, the U.S. is constantly finding more positive specimens on a weekly basis.

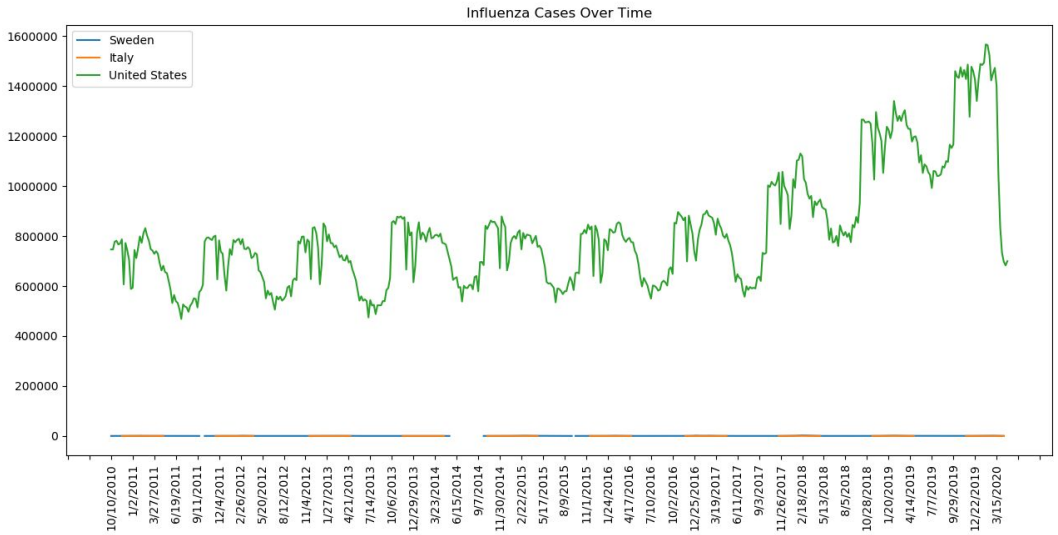


The number of cases per week from 2010-2020 for Sweden, Italy, and the U.S.[1]

[1] Source(s):
https://apps.who.int/flumart/Default?ReportNo=12 was utilized to find weekly influenza data for Italy and Sweden.
https://gis.cdc.gov/grasp/fluview/main.html was utilized to find weekly influenza data for the US.

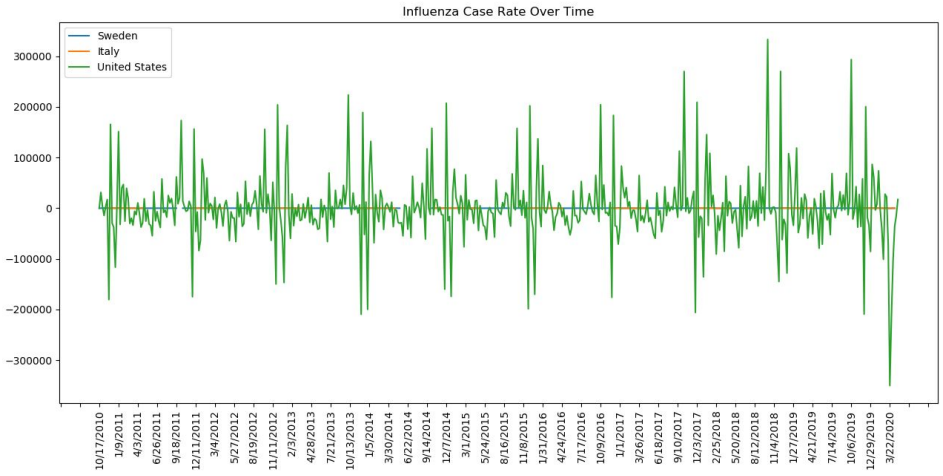


Infection Rate (first derivative of plot shown above) per week from 2010-2020 for the U.S., Italy, and Sweden[2]



Non-normalized graph for cases per week from 2010-2020 for Italy, Sweden, and the U.S.[3]

[2] Ibid.
[3] Ibid.



Non-normalized graph for rate of infection per week from 2010-2020 for Sweden, Italy, and the U.S.[4]

As of now, we are figuring out how to analyze the infection rate of COVID19 as a function of lockdown dates. We scaled the lockdown dates so that we could plot infection rates versus lockdown dates between all 50 states (and D.C. and Puerto Rico), and between the countries of Italy, Sweden, and the U.S.

The original intent was to confirm positive correlation between earlier lockdown dates and slower infection rates, but because of the unique circumstances for each state, we realized that this may not be true. To better analyze the effect of lockdown on infection rates, we will hence be performing a scatter plot of infection rates vs. lockdown date and then re-evaluating which regression would be best for our data analysis.

After completing this, we will also be analyzing infection rates vs. social distancing (between states) so that we can analyze how large of an impact social distancing has on reducing infection rates.

[4] Ibid.