

## **CLOROX Datafest 2020**

### **Coronavirus and Unemployment**

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Data sources:

- [Bureau of Labor Statistics April Unemployment](#)
- [Bureau of Labor Statistics historical unemployment](#)
- [Yahoo! Finance](#)

[Code in GitHub](#): see final .rmd file for more details

#### **Unemployment and the Stock Market**

This analysis compares the stock market trend in relation to unemployment rates between the recession of 2008 and the current economic crisis associated with the coronavirus in 2020. For the recession, we looked at the economic years of 2008-2009, while we looked at the first four months of economic data for 2020.

From the graphs, it appears as if the 2020 economic cycle is a more extreme version of 2008, but they both seem to follow the same general pattern: there is a drastic drop, followed by a resurgence in the stock market *even as the unemployment rate continued to increase*, showing that this strange pattern which occurred during the coronavirus pandemic appeared as well during the 2008 Recession. Now, the 2020 stock market is a more extreme version of this, with the unemployment rate increasing at a much more drastic level than the 2008 Recession. It appears that, in 2008, as the rate at which the unemployment rate increase peaked (i.e. the steepest change), the stock market hit bottom, and from there the market recovered. In 2020, we perhaps have hit the bottom; if we have, then the stock market may follow a similar pattern. Nonetheless, the two situations differ: one was caused by internal fragility (the housing collapse), whereas the other was caused by external constraints (coronavirus). Only the coming months will be able to tell us if the rate of unemployment rate increase has peaked and if the economy will begin to resettle and move forward again, and the stock market will respond quickly to the news regarding the economic situation if things deteriorate very quickly.

#### **Unemployment Rate by Race**

We compared the unemployment rate of three racial groups, White, Asian, and Black, using [graphic visualizations](#) and hypothesis tests. We found that historically, the Black unemployment rate is statistically significantly higher than both White and Asian. When comparing the unemployment rate from the recession in 2008 to 2020, we found that none of the racial group's unemployment rates were statistically significant. We believe this is because the spike in unemployment is only recent as of April and after more time and the collection of more data, the 2020 unemployment rate will prove statistically significantly higher than in 2008. Lastly, we compared the unemployment rate in 2020 between each racial group and found none of the differences to be statistically significant. From this, we can conclude that the lead up to the 2020 recession is similar to that of the 2008/2009 recession.

#### **Unemployment by Education Level**

We also analyzed the relationship between education level and unemployment rate during times of recessions. These bar graphs show the average unemployment rate by education level for each year 2008 to 2020. This time range displays the effects of the recession of 2008 and 2009 and the recovery time. There were large spikes with the recession taking years to restabilize around the natural rate. As expected, the average unemployment rate decreases with each increase in education level. At the onset of Covid-19, we see a similar spike but since it is so early in the year, it is hard to see the exact effects but we can expect to see a similar spike and recovery depending on the length of this recession.