

How the economic health of the United States during COVID-19 compares to that of other pandemics

Principal Investigators: Charlie Mrkvicka, Catherine Peterson, Emily Wurst
(ewurst@wisc.edu)

Group 19

Since the outbreak of COVID-19 in the United States, uncertainty about the country's economic health due to business closures and imposed stay-at-home orders has been a concern for many Americans. In this project, we examine and compare various economic health indicators, such as the unemployment rate and inflation rate, to better understand how they have been influenced during COVID-19 and other flu-like pandemics in American history: the Spanish Flu, H2N2, H3N2, and H1N1.

Our analysis showed that while many previous pandemics coincided with worsening economic indicators, other factors were at work that likely primarily caused these changes—not the pandemic itself. In contrast, COVID-19 seems to be the primary driver of the recent effects we have seen on economic indicators.

Data

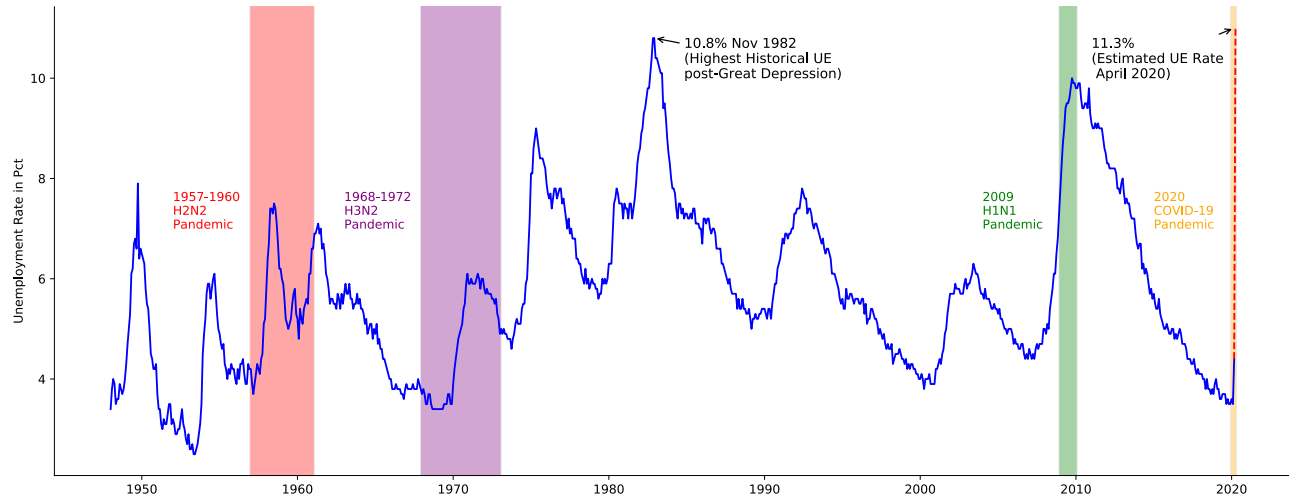
Our data sources include the Federal Reserve Bank of St. Louis (FRED), the Bureau of Labor Statistics (BLS), Department of Labor (DOL), and the Centers for Disease Control and Prevention (CDC). From FRED, we looked at data for the monthly United States' unemployment rate since 1938, the consumer price index, and real GDP. From the BLS, we pulled data on monthly unemployment rates on the state level. From the DOL we looked at the national weekly unemployment application projections. Finally, we used information from the CDC on the timeframes of the pandemics we analyzed and the estimated number of U.S. deaths for each pandemic.

Analysis

Interestingly, we see a spike in unemployment during each of the four pandemics that we have data for, as you can see in figure one, but this is not enough to say that the pandemics themselves were the cause. For instance, the 2009 H1N1 pandemic occurred at the same time as the Great Recession. However, this is very different for unemployment rates in March 2020 and the projections for April 2020. As of early May 2020, millions of people have been applying for unemployment because businesses are shutting down to prevent the spread of the virus. The DOL reports weekly unemployment application estimates, allowing for rough projections of April's unemployment rates equaling 11.3% if claims are divided by the working force. Many news sources including The New York Times, CNBC, and others also project April's unemployment rate to be anywhere from 11.3% to 16%. Even if the unemployment rate is at the

low end of the projections, at around 11%, that will be the highest unemployment rate in the United States in the past 70 years.

Figure 1: US Unemployment Rate during Pandemics 1948-2020



In figures two and three, we see a clear difference in the magnitude of the unemployment rate on the state level. First, the unemployment rates we have seen at the beginning of the COVID-19 pandemic pale in comparison to those of H1N1, however, as previously noted, H1N1 occurred during the Great Recession. We also see a shift in which states faced the highest unemployment rates. Notably, while New York has reported nearly 300,000 cases of COVID-19, its unemployment rate as of March 1 is not as high as Louisiana's, which has reported 28,000 cases. This indicates that there is not yet a clear relationship between the COVID-19 pandemic and unemployment by state, at least as of the most recent unemployment report.

Figure 2: Mean Unemployment by State During H1N1 Pandemic (5/1/2009 - 8/1/2010)

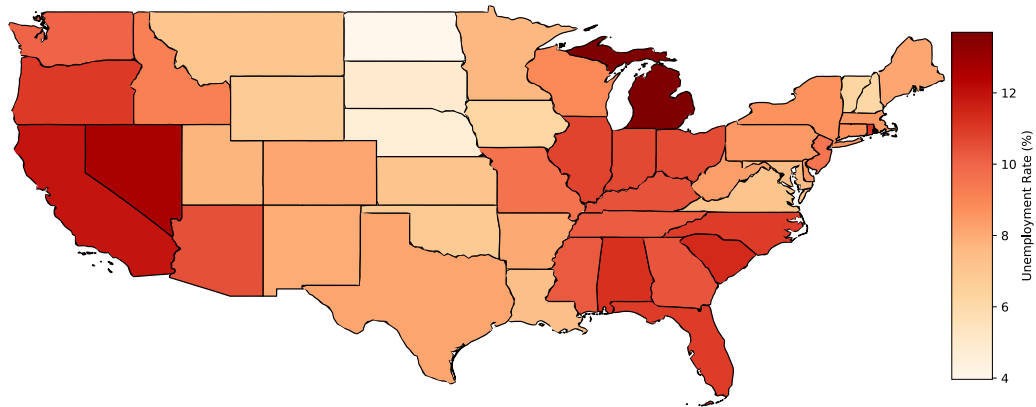
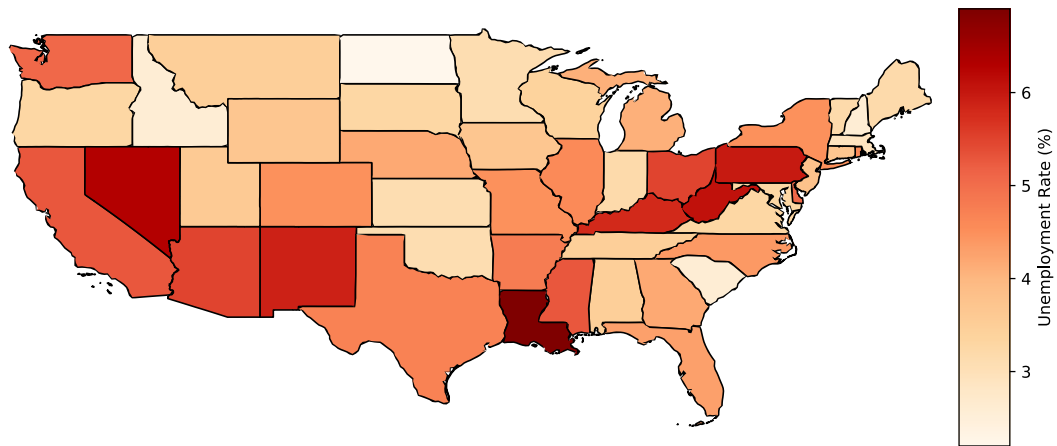
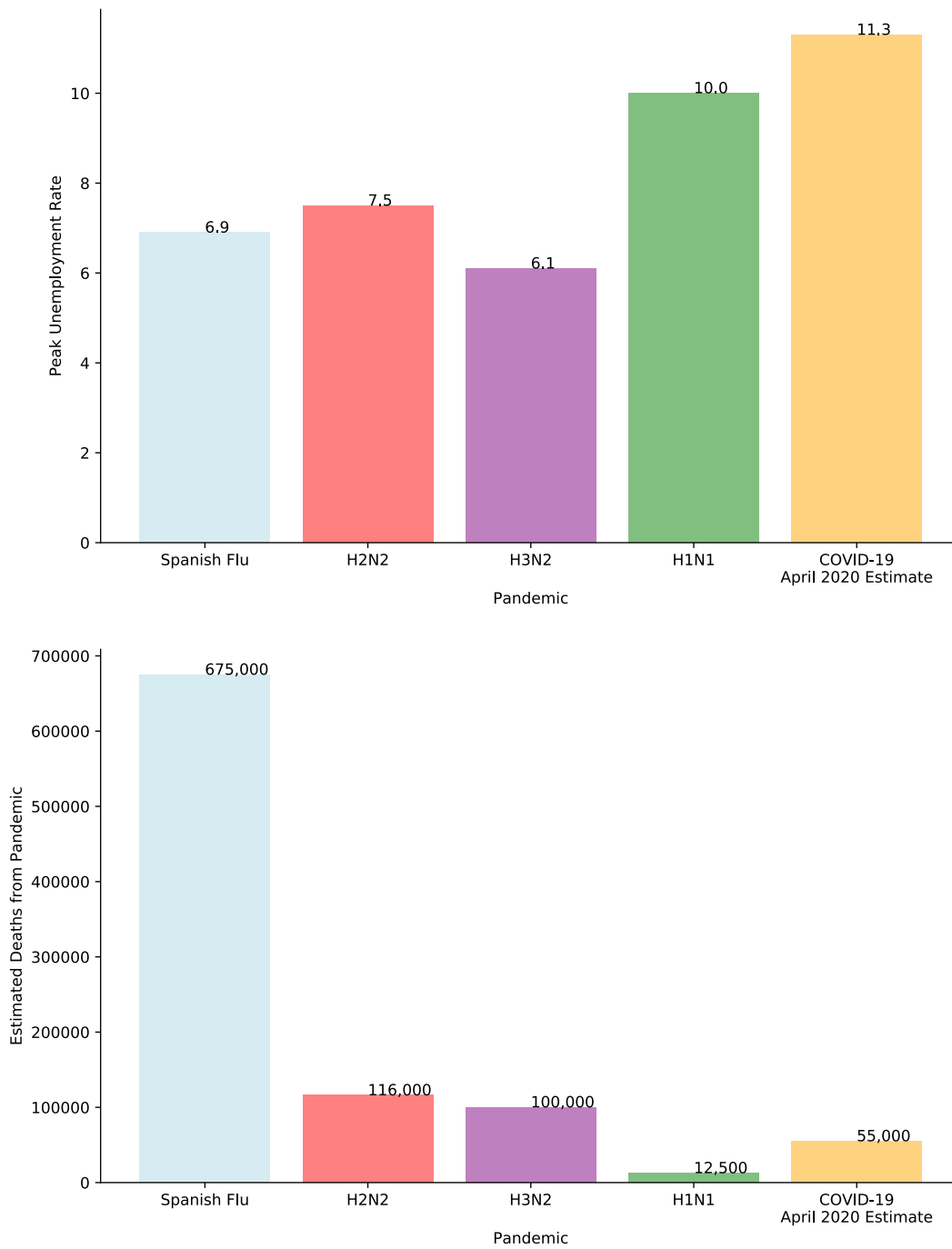


Figure 3: Mean Unemployment by State During COVID-19 Pandemic (3/1/2020)



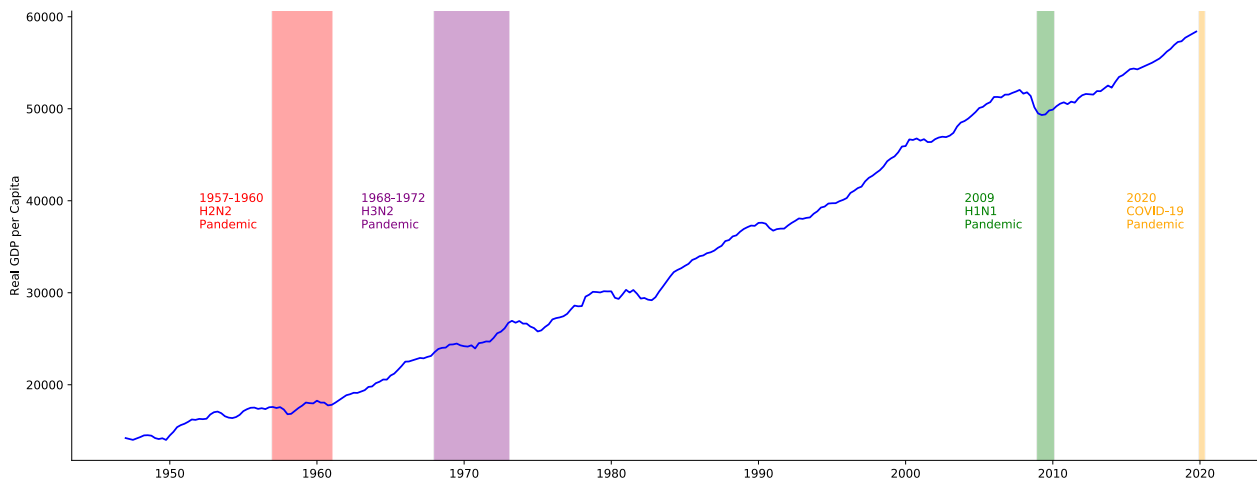
Keeping the idea of a relationship between the number of disease cases or deaths and the unemployment rate in mind, we also wanted to compare the peak unemployment rates during each pandemic to the number of estimated deaths in the United States. When using the estimated April unemployment rate, we see that while COVID-19 has thus far seen the second-lowest number of deaths, it will likely see the highest unemployment rate. Other than this observation, there is no clear relationship between the number of deaths and the unemployment rates of other pandemics.

Figure 4: Peak Unemployment vs Deaths During Historic Pandemics



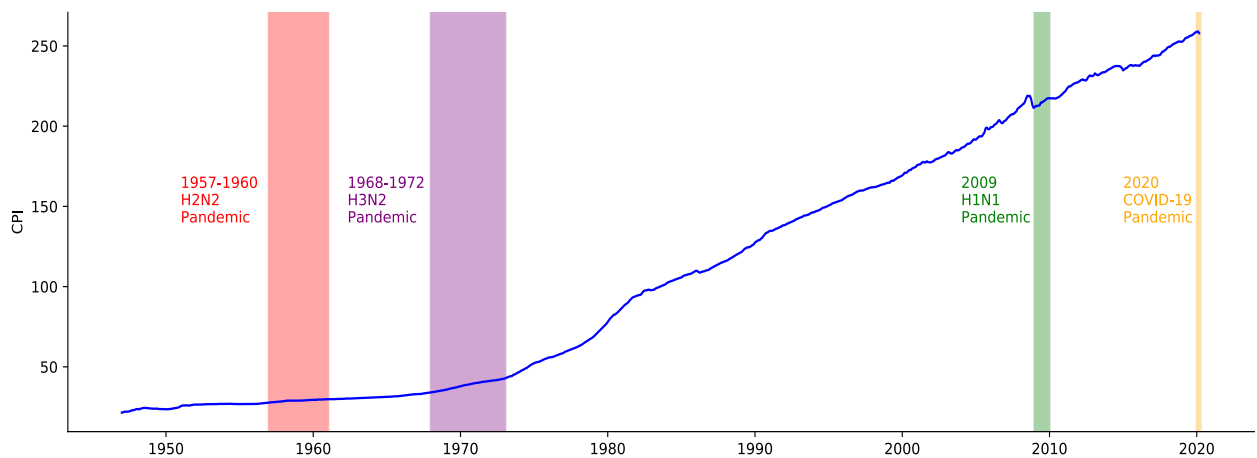
We also were interested in examining the real GDP per capita in Figure 5. While this is generally increasing over time in the U.S., we do often see slight dips in the curve, and each pandemic sees at least one. We do not yet have enough data for the COVID-19 pandemic to compare it to previous pandemics, but it will be interesting to see if there will be a decrease.

Figure 5: US Real GDP per Capita during Pandemics 1947-2019



As a final examination of an indicator of economic health, we wanted to know if the consumer price index (CPI) tends to fluctuate during pandemics in Figure 6. Again, we do not yet have enough data on the CPI during the COVID-19 pandemic, but previous pandemics have not indicated any sort of impact. While we do see a slight decrease during the H1N1 pandemic, we believe this is instead attributed to the Great Recession.

Figure 6: Consumer Price Index for All Urban Consumers: All Items in U.S. City Average during Pandemics 1947-2020



Conclusions and directions for future research

We learned that making a comparison of the economic health in the United States during COVID-19 versus that of other pandemics is challenging because of the many factors that can influence economic indicators. Without controlling for these factors, it is hard to accurately depict the impact the pandemics have had. Additionally, because COVID-19 still an ongoing situation in the U.S., our research is not a complete view of the U.S. economic health during the pandemic and serves to examine only the potential impacts of the pandemic we have seen thus far. That being said, we found that H1N1 and COVID-19 have had different impacts on which states experience severe unemployment rates, but the pandemics did not appear to have clear relationships with the other economic indicators we studied.

This type of examination will surely be a topic of research as the country continues to combat the pandemic and we will not be able to fully understand its true impact until the pandemic has passed. A similar project to ours with complete COVID-19 data, as well as more complete data from the 1917 Spanish Flu, would likely have interesting and insightful results.