Jose Diaz

PHY 203

Economic Impact of COVID-19

The world at its current stake is in crisis due to this new pandemic called corona virus or COVID-19. At this moment the country most affected by this is the United States with 747,806 confirmed cases, 66,900 people that have recovered form it, and 39,425 people have died from it. The United States have implemented this new "stay at home" law which indicates that citizens should stay at home quarantining and only go outside for essential items. This law has been proven to work to reduce the amount of people getting the virus but what happens to the economy when this law is implemented and people don't know when this law is going to be over or when this virus is going to be controlled.

In order for us to have an idea of what could happen in we came up with different cases of this new outbreak, those scenarios are described as follows: looking at the economy without a pandemic happening, basically the economy we had before the pandemic outbreak. Then looking at the economy with one pandemic outbreak which is what we are experiencing now, and finally looking at a possible case of more than 1 pandemic happening at the same time. These cases are also going to be analyzed with different economic decisions we're going to look at these cases with federal stimulus given to citizens, no federal stimulus, and incrementing the stimulus from 2 trillion dollars which is the stimulus in place in this current time and what would happen to the economy if the government increases the stimulus to 4 Trillion and to 6 Trillion Dollars.

I would like to introduce some terms that are going to be described later, and also to give some statistics of the current economic status of the United States such as unemployment, GDP(gross domestic product) ratio, and inflation over the years where something around the same magnitude of this pandemic occurred and at then we'll compare it with our cases.

1930s: Great Depression:

GDP Growth (1930): -8.5%, (1931): -6.4%, (1932): -12.9%

Inflation rate (1930): -6.4%, (1931): -9.3%, (1932): -10.3%

Unemployment rate (1930): 8.7%, (1931): 15.9%, (1932):23.6%

2001: Bush tax cuts and 9/11 terrorists' attacks:

GDP Growth: 1.0%

Inflation rate: 1.6 %

Unemployment rate: 5.7%

2009: Great Recession, Financial Crisis, jobless benefits extended:

GDP Growth: -2.5%, Inflation rate: 2.7%, Unemployment rate: 9.9%

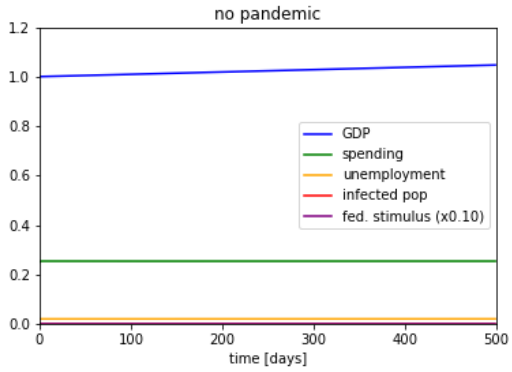
Before I discuss the information collected in this model, there are some equations that were thought in order to get to the values of this research and, in order to understand them I will explain the variables in the equations:

- Unemployment rate = Policy (shelter at home vs normal) + f_ (infected people) + spending effect
- Spending = Policy (shelter at home vs normal) + federal stimulus + α* f_ (infected people + β* f_ (deceased)
- $d/dt\ GDP = (5\% - unemployment) * GDP + (spending - 20\%) * GDP - 2\% * GDP$

Some things we must understand from these equations is that the more infected individuals we have the unemployment rate will go up, and the stricter policies are implemented, the stronger the impact on the economy will be. Stay at home policy increases unemployment by about 1 million per day (0.33%). The average GDP from 2010-2019 is 2.28%, an ideal GDP for a country is 2-3% so we've been having a good GDP over the last 9 years. The current national debt is $24,473,700,000,000 increasing every second, and our current GDP is $21,501,900,000,000 decreasing every second. The federal stimulus pack for the aid of the coronavirus is of $2 trillion. According to the most recent forecast for GDP at the Federal Open Market Committee meeting, "GDP growth will slow to 2.0% in 2020 from 2.2% in 2019." (Amadeo). Of our GDP $1,278,499,200,000 are invested in Health Care, plus $2 trillion for fighting this pandemic. In the spending formula we can see that we have two variables which are α and β, and they represent the rate of infected people and the rate of deceased people respectively.

Presentation of Data

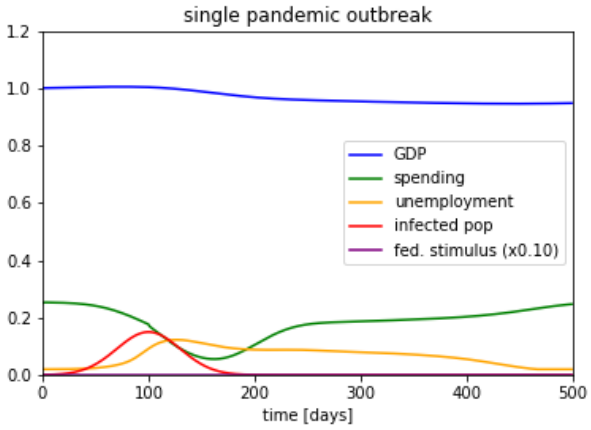
CASE 1:



The first case takes a look at the United States without the pandemic outbreak happening, and as expected the data is flat, we can see the GDP increasing by just a few but other than that it looks like a really steady economy, as it should be. The statistics for the case are:

Annual change in GDP: 3.41%
Avg. annual spending: 25.35%
Avg. annual unemployment: 2.02%

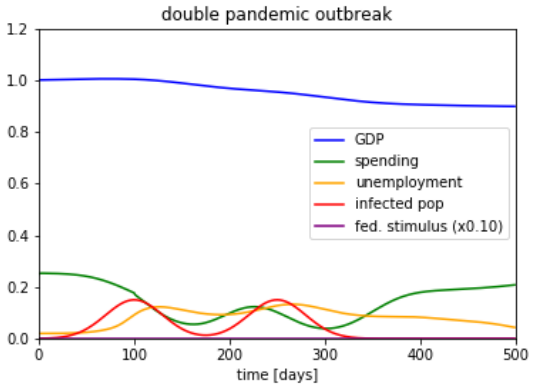
CASE 2:



This case looks at the economy when there is a pandemic outbreak, however there is no federal stimulus, as we can see in the graph GDP decreases and then stays steady, unemployment increases and then it looks like after a period of time it comes back and stays steady, spending decreases but then it comes back to steady, and all of these are affected by the infected population. The statistics in this model are:

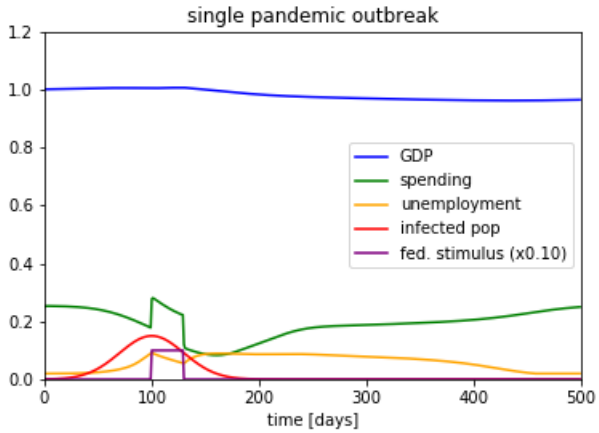
Annual change in GDP: -5.14%
Avg. annual spending: 16.72%
Avg. annual unemployment: 7.49%

CASE 3:



This case looks at the economy when there is a double pandemic outbreak, and when there is not federal stimulus offered, GDP decreases and then stays steady, and it looks like for spending, and unemployment there are two bumps where they both increase and then decrease twice and then spending increases once again and unemployment decreases as well. Statistics for this case are: **Annual change in GDP**: -9.01%, **Avg. annual spending**: 12.56%, **Avg. annual unemployment**: 8.74%

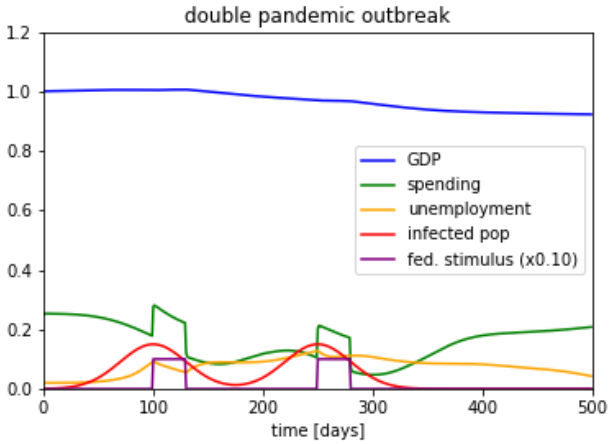
CASE 4:



This case looks at the economy with a pandemic outbreak, and in addition of the federal stimulus, the graph increments are sharper and it looks like with the federal stimulus the values come back to steady faster, statistics for this case are:

Annual change in GDP: -3.62%
Avg. annual spending: 18.32%
Avg. annual unemployment: 6.74%

CASE 5:



This case looks at the economy when there is a double pandemic outbreak with the federal stimulus, and it looks like the spending and unemployment decrease and increase twice, and then stays steady. Statistics are:

Annual change in GDP: -6.54%
Avg. annual spending: 15.23%
Avg. annual unemployment: 7.78%

CONCLUSION

Comparing the data we got from the models to the data from times of recession, we can see that even with a double pandemic the GDP is -6.54 meanwhile for the Great Depression is -12.9 so that is a good thing, since we are not going to expect the economy to be as bad as the Great Depression was but when we only have one pandemic outbreak with or without federal stimulus we should expect the economy to be worse than it was in 2009 with the Great Recession, and this is one of the things we should be worrying about. As looked in the model's data we can see that adding the federal stimulus is the best interest for the government and the economy since both the GDP and Unemployment rate are higher without the federal stimulus. For this data to be more accurate we could've had real-life data presented but that would be too complex for the level of research we developed. The models do a good job at estimating the results in each scenario, but It could be more accurate with some more data and careful measurements.

Work Cited

Amadeo, Kimberly. “What Will the Economy Do in 2020 and Beyond?” *The Balance*, The Balance, 4 Apr. 2020, www.thebalance.com/us-economic-outlook-3305669.