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ECON-102-C

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The Great Recession vs. COVID-19

- **Introduction**

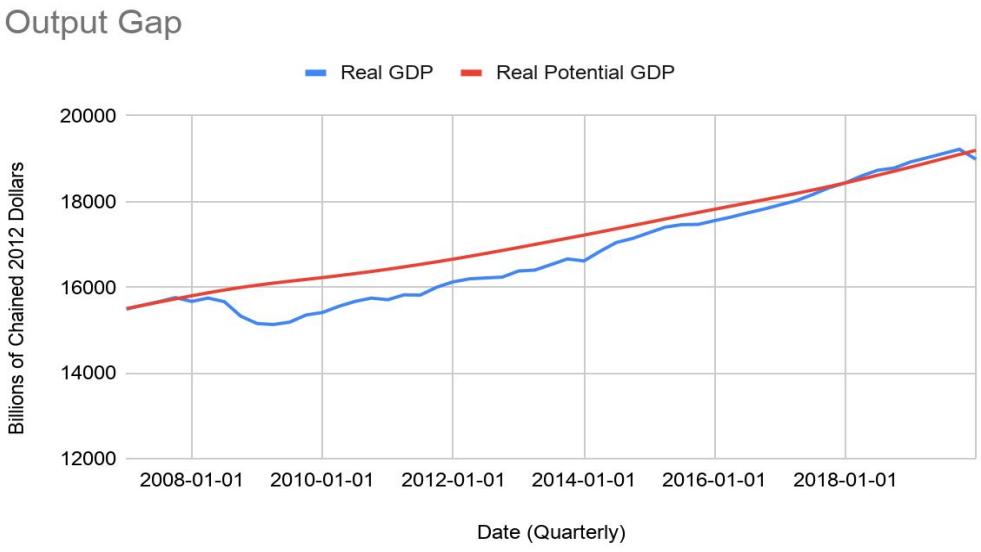
The COVID-19 pandemic is an ongoing event that is likely to have a lasting economic impact similar to the relatively recent Great Recession. I wanted to use economic theory to compare the impact the Great Recession had with the ongoing impact of the pandemic and its projected levels of impact. In particular, I want to see what warning signs showed in economic theory that indicated the Great Recession was coming and see if the pandemic is showing similar signs, indicating a recession is likely in the near future. Also, I want to see if the Fed has learned from the experience of the Great Recession and see how they are handling the pandemic.

- **Okun's Law and Output Gap**

The first economic theory we use to look at the impact of the Great Recession and the impact of the pandemic is Okun's Law and output gaps. Okun's Law describes a relationship between unemployment rate and gross domestic product. According to Okun's Law, as unemployment rises, there is a decrease in the GDP of a country. We use Okun's Law to look at the output during the two events and as well as use it to calculate the output gap for expected levels of unemployment due to the COVID-19 pandemic.

Before explaining what an output gap is, it is important to understand what Potential GDP actually is. Potential GDP estimates the highest level of output of an economy and assumes that the economy has achieved full employment. (Krugman, 2019). It is also important to understand what is meant by “full employment”. Full employment is defined as when “...all available labor resources are being used in the most efficient way possible” (Chappelow, 2019). Summarizing, we have that potential GDP is the measure of output when there is zero unemployment.

Now with this knowledge we can understand what an output gap is. An output gap is the difference between the real GDP and the potential GDP of an economy (Majaski, 2019). A negative output gap indicates that the real GDP is below the potential GDP and a positive output gap indicates that the real GDP is higher than the potential GDP (Majaski, 2019). We use output gaps to understand how both the Great Recession and the pandemic caused changes in the output of the US.



Data from Fred:
https://fred.stlouisfed.org/series/GDPC1
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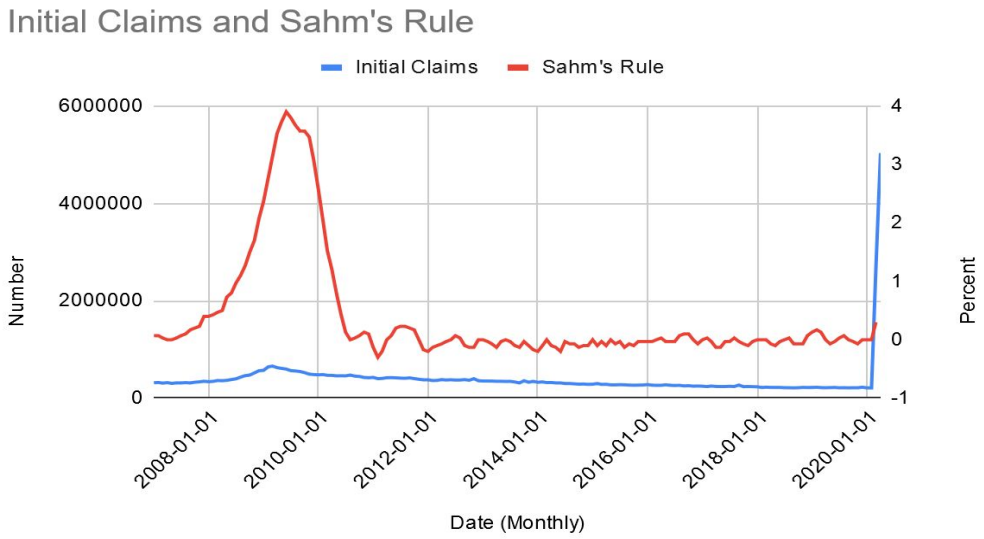
The above graph has two lines, one for the Real GDP and one for the Real Potential GDP of the US from 2007 to 2020. From these lines we can see the negative output gap from around 2008 till 2018 which was caused by the Great Recession and what could be the start of a negative output gap from the pandemic. A negative output gap can be indicative of their being spare capacity in the economy (Jahan, 2013). This means that the economy is not at full employment during the gap. In the great recession, unemployment reached roughly 10% (Chart Book, 2019). The pandemic has caused unemployment as well and the longer the quarantine goes on for the higher the unemployment rate will be. Below is a table of potential unemployment rates that could be reached due to the pandemic and the output gaps caused by them.

	Percentage of Output Gap
u = 13%	-17.12%
u = 25%	-41.12%
u = 32%	-55.12%

As we can see from the table, if the unemployment rate hits any of these numbers, the economy is going to be in bad shape. This would lead to an output gap larger than the US has ever seen. The largest output gap during the Great Recession was -9.37% and even this would look relatively small to any of these estimates. Depending on the length of the quarantine, the pandemic could become one of the worst economic events in US history.

- **Initial Claims and Sahm Rule**

The Initial Jobless claims is a statistic that is reported weekly by the US Department of Labor that counts the number of people filing to receive unemployment insurance benefits (Kagan, 2020). As seen in the below graph, the blue line indicates the Initial Jobless Claims in the United States from the Great Recession till now. According to FRED, “the Sahm rule identifies signals related to the start of a recession when the three-month moving average of the national unemployment rate (U3) rises by 0.50 percentage points or more relative to its low during the previous 12 months.”



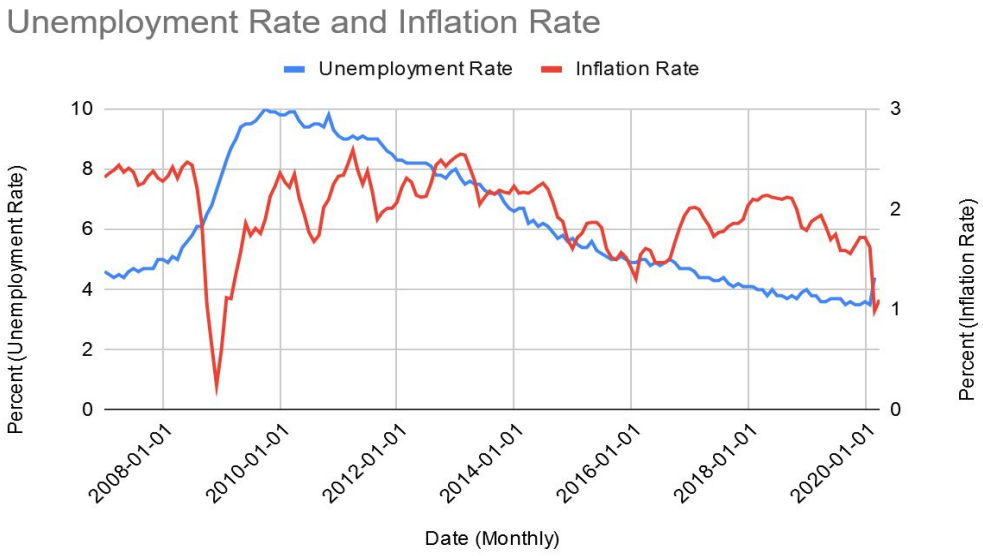
Data from Fred:
https://fred.stlouisfed.org/series/ICSA
https://fred.stlouisfed.org/series/SAHMREALTIME

These two were chosen in this analysis to try to understand whether a recession is likely in the near future due to the COVID-19 pandemic. As we can see above, recently the Initial Jobless Claims saw a huge spike that dwarfs anything seen during the Great Recession. There has been a slight rise in the Sahm Rule recently but I think that this spike in jobless claims will continue for some time as the pandemic continues to last. This will lead to a large increase in the unemployment rate which will mean that

the Sahm Rule will increase as well. It is likely that the Sahm Rule will rise by 0.50 percentage points in the near future indicating that a recession has begun.

- **Phillips Curve**

The Phillips Curve is an economic concept that was developed to show that inflation and unemployment have a stable and inverse relationship, meaning as one goes up the other goes down (Chappelow, 2020). Since the Great Recession was a period of high unemployment and the COVID-19 pandemic is likely to cause high unemployment, the Phillips Curve allows us to compare how these two periods of high unemployment have influenced the inflation rate.



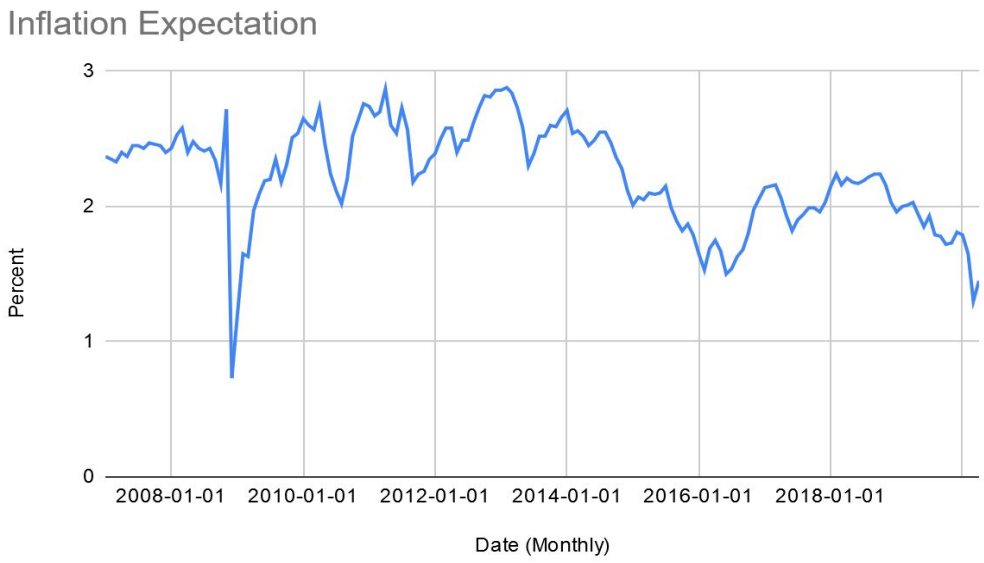
Data from Fred:
https://fred.stlouisfed.org/series/UNRATE
https://fred.stlouisfed.org/series/T10YIE

Above is a graph on the Unemployment Rate and the Inflation Rate from the time of the Great Recession until now, the COVID-19 pandemic. As we can see, during the Great Recession there was a large increase in the Unemployment Rate up to roughly 10% and during that increase, the inflation rate plummeted at first but then crept back up. Looking towards the

now, we can see that the Inflation Rate did see a drop recently and the Unemployment Rate increased slightly. Since this is only the beginning of the pandemic it is likely that the Unemployment rate will continue to rise and we will see something similar to the Great Recession. The Unemployment Rate will rise quickly and the Inflation Rate will plummet but then as the pandemic is handled and restrictions are lifted the Unemployment Rate will drop and the Inflation Rate will rise as well.

- **Inflation Expectations**

Inflation Expectations are the opinion of multiple sections of society, such as investors, bankers, central banks, workers, and business people, on the future rate of inflation (Inflation, 2020). These expectations of the future impact what people do today (Rich, 2019). For example, one may not invest in capital for their business or they may buy a house. This is all based on their expectations. If people expect inflation to decrease then they will most likely act on this belief and as a result they could cause inflation to lower almost like a self-fulfilling prophecy (Rich, 2019). For instance, a business might raise prices slower if they suspect the inflation to be lower or a worker may ask for a smaller raise. The biggest difficulty with dealing with Inflation Expectations is that it is not something that can exactly be measured or observed (Rich, 2019). This is relevant to both the Great Recession and the COVID-19 pandemic because the expectations people have during these crises will, for the most part, be negative. As mentioned earlier, even if we are not experiencing lower inflation people may have an expectation that it will be lower and as a result cause a lower inflation rate.



Data from Fred:
https://fred.stlouisfed.org/series/T5YIFR

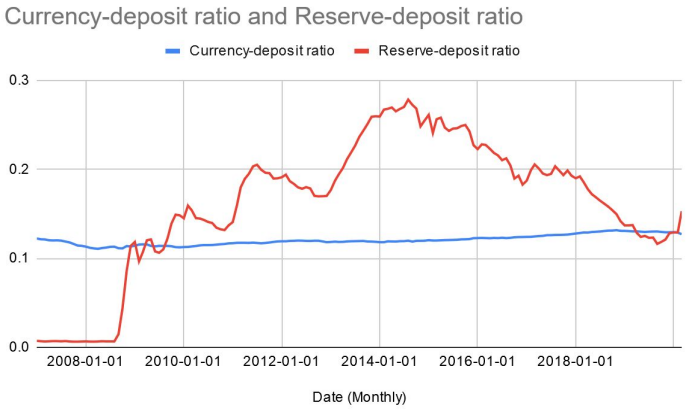
Above is a graph of the Inflation Expectations from the time of the Great Recession until recently during the current COVID-19 Pandemic. We can see that during the Great Recession there was a large drop in the Inflation Expectation. While it was a sharp plummet, the Inflation Expectation recovered relatively quickly from this event and returned to normal. Looking at the current times we can see that recently there has been a downward trend in the Inflation Expectation. It is likely that this downward trend will continue as quarantine continues on. This downward trend carries some amount of momentum with it and it is quite possible that even after the quarantine is over, Inflation Expectations could remain lower which would hurt the economy (Inflation, 2020). Comparing the two events it is clear to see that Inflation Expectations are following a similar pattern but time will tell if the Inflation Expectations after quarantine will rise quickly like they did after the Great Recession or remain low as I predict will be the case.

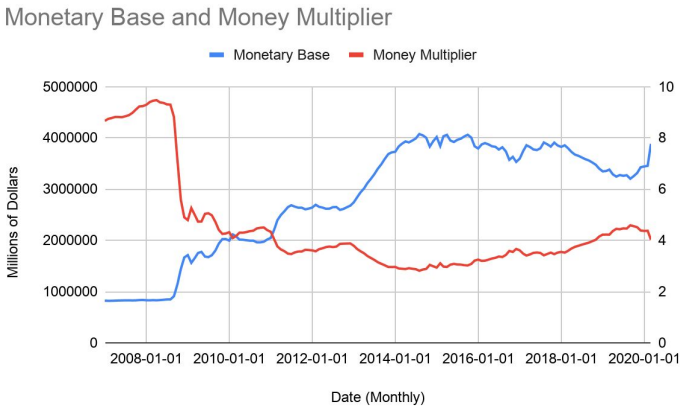
- **Money Multiplier and the Money Supply**

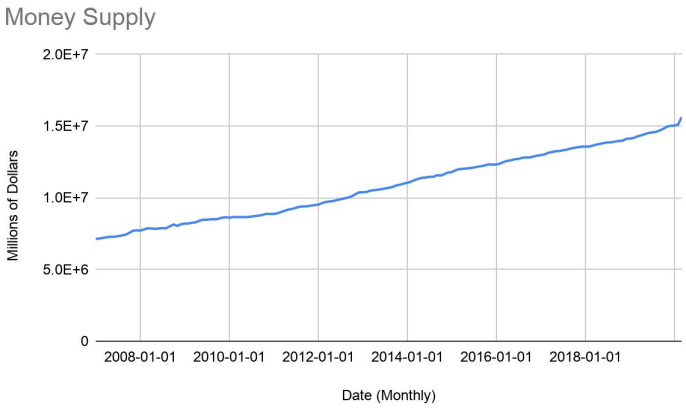
The Money multiplier is made up of two components. It is made up from the Currency-Deposit ratio and the Reserve-Deposit ratio. The formula to calculate the Money multiplier is

$$mm = \frac{cu+1}{cu + res}$$

where “mm” is the Money Multiplier, “cu” is the Currency-Deposit ratio, and “res” is the Reserve-Deposit ratio. Before going any farther, it is important to understand what these ratios that make up the Money multiplier are. The Currency-Deposit ratio shows the amount of currency that people hold as a proportion to the aggregate deposits (Currency, n.d.). An increase in the Currency-Deposit ratio would result in a decrease in the Money Multiplier. The Reserve-Deposit ratio is similar where it is the reserves held as a proportion to the aggregate deposits. Similarly, if you increase the Reserve-Deposit ratio, the Money Multiplier decreases. The Money Multiplier is the degree in which the Money Supply is impacted by a change in the deposits (Agarwal, 2020). It identifies how the Money Supply increases or decreases when the deposits increase or decrease (Agarwal, 2020). Now what is the Money supply? The Money supply is the product of the Monetary Base with the Money multiplier, where the Monetary Base is “...the total amount of a currency that is either in general circulation in the hands of the public or in the commercial bank deposits held in the central bank's reserves” (Chen, 2020). Now knowing this information we can understand the graphs below.







Data from Fred:
https://fred.stlouisfed.org/series/CURRSL
https://fred.stlouisfed.org/series/TOTRESNS
https://fred.stlouisfed.org/series/DPSACBW027SBOG
https://fred.stlouisfed.org/series/BOGMBASE

We can see the relationship between the various variables involved in determining the money supply, as well as how the Fed handled these events. The goal

of the Fed is to keep money supply growing or relatively constant, the Fed does not want to see a decrease in the money supply. From the first graph we can see that the Currency-Deposit ratio has remained relatively during the Great Recession and we can also see that the Reserve-Deposit ratio rose significantly extending even after the Great Recession. This would mean that the Money Multiplier would decrease. We can see this in the second graph that it did indeed decrease. To counteract this decrease, the Fed stepped in and increased the Monetary Base so that Money Supply would not be impacted by this decreasing Money Multiplier. From the third graph we can see that the Fed was successful and during the Great Recession the Money Supply did not decrease. Looking at the current time period we can already see the signs of this same action taking place. The Reserve-Deposit ratio is increasing and as a result the Money Multiplier has started to decrease. The Fed has already started reacting to this by increasing the Monetary Base and as a result the Money Supply has not decreased due to the pandemic but actually a slight increase. The Fed has clearly learned from their experience with the Great Recession and have acted at the first sign of the Money Supply might decrease due to the pandemic. Going forward, if the Fed continues to do as well as they have it is likely that the Money Supply will survive the COVID-19 pandemic unscathed even if the US enters a recession.

- **Conclusion**

  It is clear through all this analysis that the early economic impact of the COVID-19 pandemic is similar to the Great Recession of the earlier 2000s. There is already a developing output gap and if the expected levels of unemployment are reached, the output gap could be one of the worst in US history. The recent jobless

claims have seen an unprecedented spike and this surge of unemployment is likely to be detected by the Sahm Rule, just like the Great Recession was, which will indicate that a recession has begun or likely to occur soon. The Phillip's Curve shows that an increase in unemployment occurred in the Great Recession and because of the inverse relation, the Inflation Rate plummeted and we are likely to see the same happen with the pandemic. The Inflation Expectations of people were low during the Great Recession and it is likely that the same will happen during the COVID-19 pandemic but seeing whether people's expectations change quickly is a matter of time. The Fed has learned from their experience with the Great Recession and is already putting policy in place to make sure that the Money Supply does not decrease during the pandemic. While the pandemic has many people worried, the Fed looks prepared to handle the economic fallout of social distancing and ensure that the economy makes it through this crisis in the best shape possible.

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