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Shocks to Aggregate Demand and Aggregate Supply in the Midst of COVID-19

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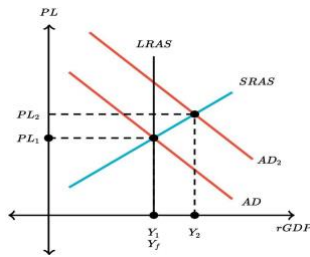
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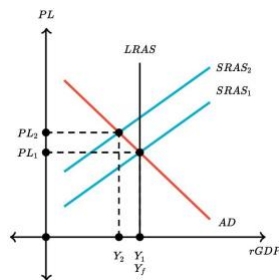
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Due to COVID-19, America has recently experienced changes to the AD-AS relationship. Stay-at-home order effects ranged from furloughing workers to closing all non-essential job locations. The Coronavirus changed both the amount of goods and services distributed and the consumer demand in cities all over America. In response to the pandemic, the U.S. economy has suffered a negative demand shock and an adverse supply shock. This necessitated for the Federal government to implement policies such as the stimulus check and small business loans to reverse the effects of these shocks, in addition to the monetary policy of stabilizing the inflation rate.

According to macroeconomics, a shock that shifts the aggregate demand curve is called a demand shock and a shock that shifts the aggregate supply curve is called a supply shock. The effect of these two implications are shifts of aggregate demand and aggregate supply from natural levels. Shocks to aggregate demand is anything that reduces money demand: the velocity of money. Policies that the Federal government can implement to move the aggregate demand back to its natural level is increasing/decreasing the velocity of money or “skillfully controlling the money supply” (Mankiw 287). For this chart, an increase in the velocity of money moves the aggregate demand curve to the right, which increases output and price level. When the government reduces the velocity of money, the aggregate demand curve will shift back to its original state. Source: Khan Academy



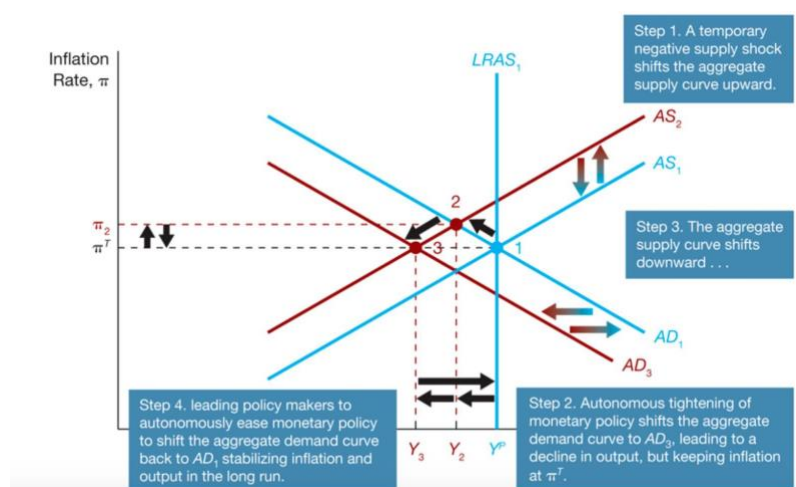
A supply shock affects the cost of producing goods and services (and the charging price). This shock is divided into adverse and favorable supply shocks; adverse supply shocks push costs and prices up, while favorable supply shocks bring them down. If aggregate demand remains constant but the supply shock causes the price level to rise, the economy experiences stagflation (falling output and rising price levels). To fix supply shocks, a policymaker has to influence aggregate demand. In the graph below, increased regulation has caused the SRAS to shift downward, increasing prices and lowering output.



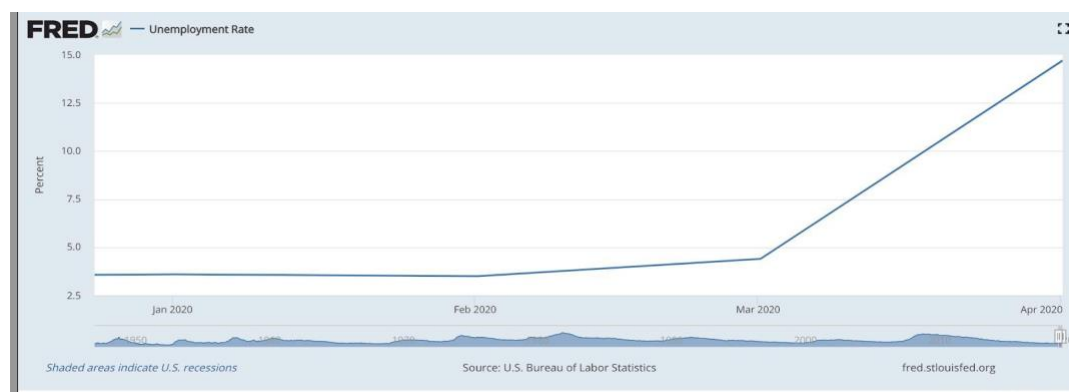
Source: Khan Academy

More specifically, the government may implement stabilization policies, which are actions that “reduce the impact of short run economic fluctuations” (Mankiw 290). This includes monetary policy to combat adverse supply shocks. The government responds based on if the supply shock is temporary or permanent. To a permanent supply shock, the government may stabilize inflation or not react. The LRAS will shift inward and if the government does nothing, the SRAS will continue shifting up. When the economy goes back to long-run equilibrium, output will fall and inflation will rise. If the government stabilizes inflation, while the LRAS shifts inward and SRAS shifts up, tightening the monetary policy shifts the aggregate demand to the left. This results in inflation staying the same in the long run and output falling. If it is temporary, such as this Corona pandemic, the government can stabilize inflation in

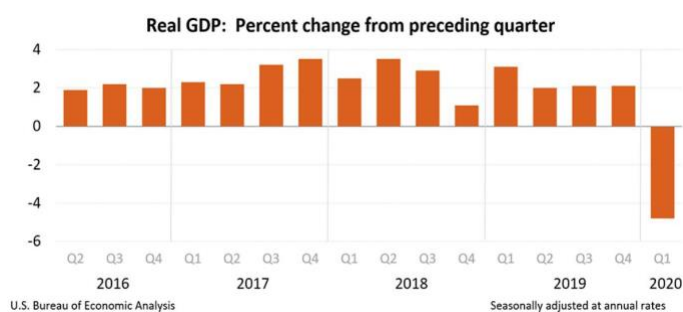
the short run, stabilize economic activity in the short run, or not react. If the government does not react, while the SRAS shifts upward, increasing inflation and decreasing output temporarily, it eventually will return back to equilibrium in the long run. If the government chooses to stabilize inflation in the short run, while the SRAS will shift upward, tightening monetary policy shifts the AD curve inward and stabilizes both inflation and output in the long run (see graph below). If the government chooses to stabilize output in the short run, while the SRAS curve will shift upward, the government will choose lax monetary policy to shift the AD curve outward as well. While output will be stabilized, the inflation will rise in the long run. Source: UCSB Economics Department



The biggest supply shock to the American labor force was the stay at home orders that implemented all non essential businesses to temporarily close. For example, New York Governor Andrew Cuomo, Illinois Governor Jay Pritzker, California Governor Gavin Newsom and New Jersey Governor Phil Murphy all called for only essential businesses such as grocery stores, food delivery, banks, and public transit, to continue in their workspace (Clukey and Goldman 2020). This led to the unemployment rate to jump from 3.5% in February 2020 to 14.7% in April 2020 (see graph below).

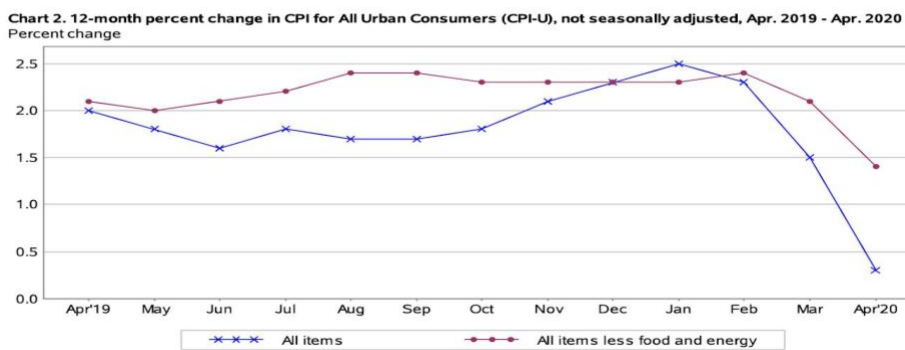


Because there is now a barrier for many companies to produce goods and services, the American economy was struck with an adverse supply shock, which pushed prices up. This is evident by higher prices of hand sanitizer, masks, clorox wipes, toilet paper, and tissues. Boxes of one hundred masks in Brooklyn are sold from fifty dollars to seventy dollars, which were available for just fifteen dollars on Amazon in February (Brown 2020). Output (Y) is lower because businesses cannot distribute nor produce their goods in the same manner. The chart below, from the Bureau of Economic Analysis, shows the decrease of GDP in the first quarter.



The current demand shock occurred because of the “fundamental contraction in [the] ability to produce goods and services” (Taddei 2020). In other words, this is an aftereffect of the supply shock. People do not see incentive in purchasing goods and services because other options have become unavailable as well. Michael Maiello from *Chicago Booth Review* provides the example that because gyms are closed, people do not see the incentive to buy sportswear from companies such as LuluLemons

and Underarmour. The effect of the demand shock is lower prices and lower output. Though at first, prices went up overall, the demand shock brought prices lower. This shock has contributed to the lower velocity of money, as people are not purchasing as much as before. Investment is also down; Elon Musk's stock has dropped below 800 due to California forbidding companies from reopening factories (Chokshi 2020). Another factor that played into the demand shock is living expenses such as rent. Despite California, Chicago and New York creating policies to help tenants find more time to pay bills, "nearly 44%... will struggle to make rent in May" (Salisbury 2020). Many people have been laid off and do not have the discretionary income they once did to purchase from nonessential businesses. Below, the graph from the Bureau of Labor Statistics that shows how the CPI (change in price level of basket goods and services bought by consumers) has decreased in the last twelve months. Source: BLS.GOV

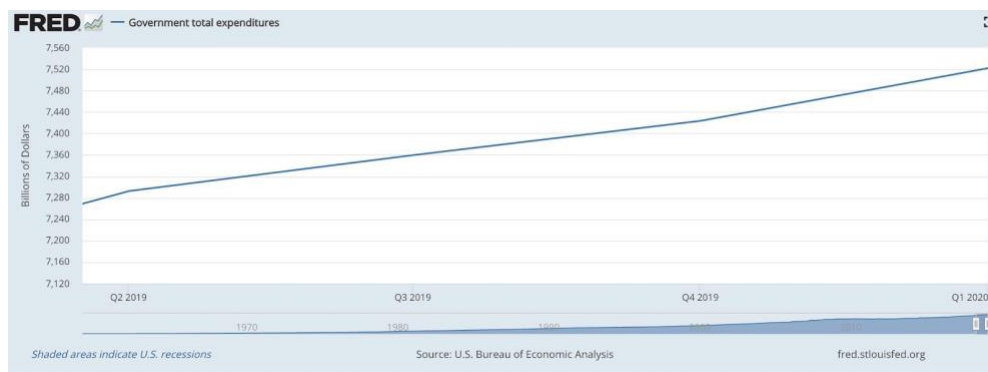


In response to these shocks, the government has increased aggregate demand to offset the damage done. One way was the implementation of the stimulus check, "a usual response to a shock caused by lack of demand" (Maiello 2020). However, economists have argued against this because increasing disposable income may interfere with social distancing and the decision to stay home. Another decision was to increase unemployment benefits to fit the influx of workers losing their job due to the pandemic. According to Forbes, "an additional \$600 a week will be paid to individuals for up to four months... [and] eligibility has been expanded by an additional 13 weeks..." (Smith 2020). Furloughed workers and those who can't work for any reason due to Coronavirus are eligible for unemployment too. Furthermore, some

states have implemented rent freeze programs. Governor Cuomo has issued a “state eviction moratorium... until at least June 20th” and Governor Newsom has “barred evictions due to coronavirus” (Salisbury 2020). This will all increase disposable income and the velocity of money, which will motivate people to buy and businesses to sell. This will push prices and output up.

On the supply side, the government has enacted multiple ways to help businesses for this time. For example, the Paycheck Protection Program provides “loans up to \$10 million” that may be forgiven if the business keeps normal employee salary levels for eight weeks and uses the aforementioned loans for “qualifying expenses” (McGurran and Smith 2020). In other words, if the company goes on business as usual, they are eligible to have their loans forgiven if they keep the same salary for their employees as before. The U.S. Small Business Administration is also administering up to \$2 million in loans to “businesses and nonprofits affected by the coronavirus” (McGurran and Smith 2020). If a company is denied for the aforementioned loans, it may request an emergency grant of \$10,000 from the U.S. Small Business Administration. The government has also extended the due date of the federal income tax return federal deadline to July 15th (Smith 2020). Though the ones listed are only supplied by the federal government and associates, there are more programs created by state governments to aid small businesses. For example, New Jersey is offering “low cost financing to small businesses and nonprofits [and] provide a direct loan of up to \$100,000” (McGurran and Smith 2020). To qualify for this program, the business or nonprofit must have been negatively impacted by the coronavirus pandemic. Through these implementations, the government will increase the velocity of money by giving consumers more options where to buy and invest. This, in turn, will increase price levels and output. The graph below shows the

increase in government spending since the second quarter of 2019.

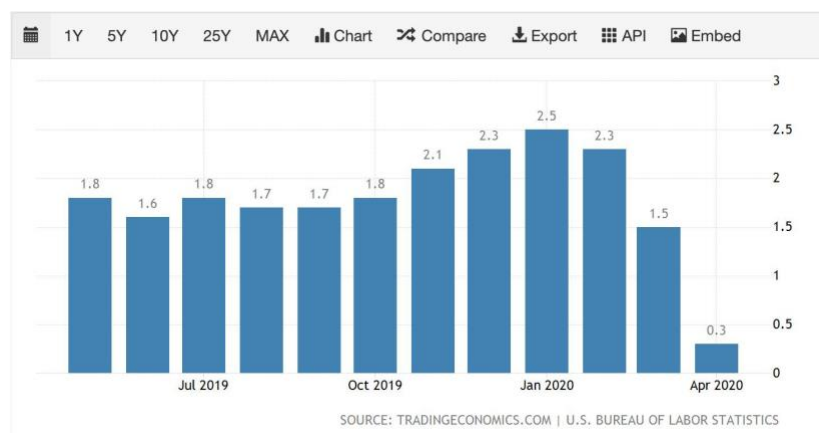


In terms of monetary policy, the government chose to stabilize interest rates in the short run, citing a “symmetric 2 percent inflation objective” (Federal Reserve 2020). The Fed is also choosing to purchase both Treasury and “residential and commercial mortgage backed securities” (Federal Reserve 2020). By buying bonds, the government increases the money supply and decreases interest rates. The graph below shows how much the interest rate has decreased since March 2019.



The Fed has also “reduced banks’ reserve requirements to zero... lowered the costs of dollar swaps... and lowered its target interest rate by a full percentage point nearly to zero” (Kohn 2020). As of now, the inflation rate is 0.3% (see graph below). Lowering the reserve requirements increases the money supply and allows the banks to loan more money out to consumers; according to the Federal Reserve website, “the Board reduced reserve requirement ratios to zero percent effective March 26, 2020” (Federal Reserve 2020). By decreasing interest rates, the Fed is fighting deflation as it becomes “more

costly to hold onto money, incentivizing spending” (Smith 2020). Therefore, we can expect the inflation rate to steadily increase within the upcoming months due to actions taken by the Fed.



The data provided matches with the theories studied in class about demand and supply shocks. As predicted, the output decreased due to a supply shock, and the price level decreased due to the demand shock. The government is implementing policies to help raise aggregate demand, just as mentioned in the textbook. Most importantly, the monetary policy chosen by the government to combat the supply shock is clearly shown through the purchase of bonds and decreased interest rate (we see the interest rate stabilization choice in effect). The theory of shocks to the AD-AS graph were proven correct during this pandemic.

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