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# Policy Report

**Title:**

*"Macroeconomic Analysis of  
Policies Addressing Coronavirus  
Pandemic"*

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# **MACROECONOMIC ANALYSIS OF POLICIES ADDRESSING CORONAVIRUS PANDEMIC**

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## **SUMMARY**

Before our discussion of the macroeconomic implications of government policies, we would first like to focus on the human factor of the coronavirus pandemic: the people who lost their battle to the pandemic. We would like to express our most sincere condolences to their families.

During last two quarters, active macroeconomic policies have been a significant component of the overall response of the U.S. government to the coronavirus pandemic. An analysis of current government policies addressing this short-term shock and the resulting economic impact would be helpful in developing future policies, should similar circumstances arise down the road. We conjecture that the combination of expansionary macroeconomic policies preceding the coronavirus pandemic likely shifted the level of U.S. aggregate economic output beyond the point of macroeconomic equilibrium with full employment. In other words, the start of the Coronavirus pandemic coincided with the macroeconomic phenomenon known as demand-pull inflation. In such economic conditions the level of aggregate output is much higher than the economy can sustain in the long run, but the overheated economy enjoys all the benefits of higher than natural level of national production and low unemployment in the short term. The following economic shutdown driven by growing worries over the limited hospital capacity, which would have become unable to meet the growing needs of hospitalization by Coronavirus

patients, caused a severe shift in the demand for economic output, along with sharp declines in personal consumption, business investments, and exports of goods and service. The \$2 trillion economic relief package known as the CARES Act of March 2020 softened the adverse economic impact of this shock to some extent.<sup>i</sup> The observation in this brief suggests that the overheated economy absorbed some of the shock produced by the economic shutdown, therefore limiting the devastating impact of the sharp economic contraction.

## MACROECONOMIC DEVELOPMENTS

### General Developments:

According to a World Health Organization report from February 12<sup>th</sup>, 2020, the United States then had only thirteen confirmed cases of coronavirus and of those 85% were confirmed to have been contracted in China.<sup>ii</sup> According to a Johns Hopkins University report, almost all states of the United States issued restrictions in order to address the healthcare crisis, which came around March 12<sup>th</sup>, 2020. In the beginning, these restrictions commonly constrained the number of people congregated in the same place, followed by the closure of businesses and stay-at-home requests (so individuals would stay at their place of residence).<sup>iii</sup>

### Government Policies:

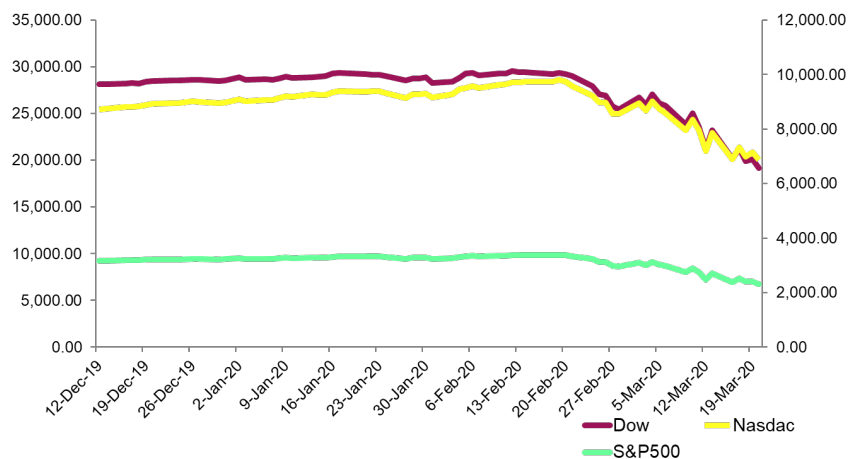
In terms of an immediate macroeconomic response to the coronavirus, on March 3<sup>rd</sup> Federal Reserve Board Chairman Jerome Powell announced a reduction in interest rates amid worries over the economic impact of the coronavirus on the economy of the country.<sup>iv</sup> On March 17<sup>th</sup> Treasury Secretary Steve Mnuchin announced an \$850 billion stimulus package to support the economy.<sup>v</sup> The stimulus plan consisted of several components: purchase of commercial

paper (to inject liquidity into money markets); IRS rules for deferral of tax payments; provision of loans and direct checks to individuals to create liquidity for small businesses; and financial support to most affected industries (such as airlines, hotels, travel services, etc.) in the form of loans. On March 27<sup>th</sup>, an economic relief package totaling \$2 trillion was signed into law.<sup>vi</sup>

**Financial Markets:**

The announcement of the economic relief package coincides with a sharp decline in financial markets (*Figure 1*), which by then had already declined by almost 30% relative to all-time highs (the Dow closed at 29,551 on February 12<sup>th</sup> versus 21,237 on March 17<sup>th</sup>). The announcement of the economic package helps contain the free fall of financial markets and changes the trajectory of price changes starting March 23<sup>rd</sup>, when the lowest point is registered.

*Figure 1. Reaction of financial markets on coronavirus impact<sup>vii</sup>*

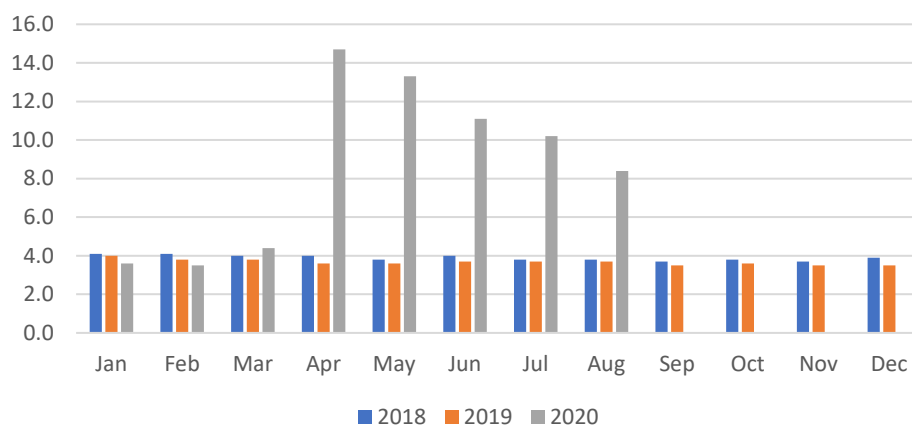


**Unemployment:**

The restrictive measurements to contain the spread of coronavirus in the communities and the fear of people to contract the deadly disease also affects employment for millions of people. Although communities learn about the Covid related possible threats to the economy in March,

the increase in the unemployment rate has a lagged effect. In February 2020 the unemployment rate is 3.5 percent, the lowest in last 50 years. This changes dramatically within days and the rate sharply rises to 14.7 percent in April (Figure 2).

Figure 2. Covid related increase in unemployment<sup>viii</sup>



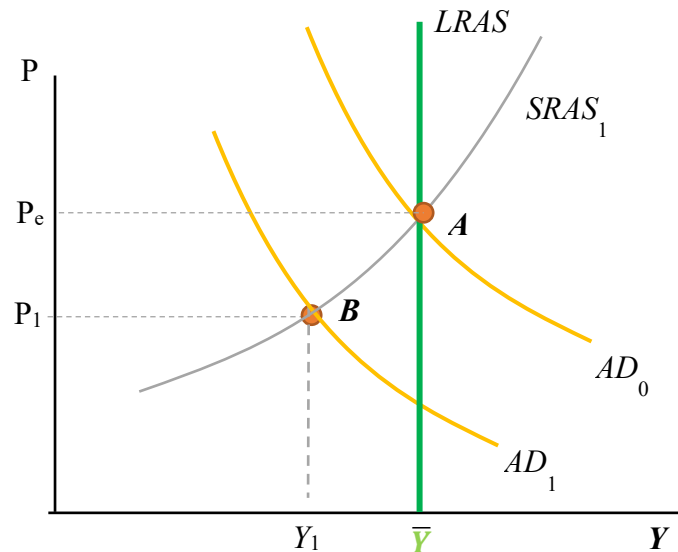
## POLICY DISCUSSION

### Coronavirus Pandemic and Macroeconomic Equilibrium:

Suppose that prior to the Covid related contraction the economy was in the long-run equilibrium illustrated by *point A* in *Figure 3*. Due to the Covid driven economic shock, the components impacting the aggregate demand curve (such as personal consumption expenditures, gross private domestic investment, and exports) sharply decline. In the second quarter of 2020 their decline from the preceding period is as follows: consumption down 34%, investments down 46%, and exports down 63%.<sup>ix</sup> This shock shifts the aggregate demand curve from  $AD_0$  to  $AD_1$ , achieving the new short-run equilibrium at *point B*, which corresponds with lower levels of national output and prices. Indeed, according to the Bureau of Economic Analysis, real GDP declined by almost 32 percentage points in comparison with the previous period.<sup>x</sup> The price

change is also evident as the GDP deflator suggests its decline from 113.14 points in Q1 to 112.76 in Q2, 2020.<sup>xi</sup>

Figure 3. Covid related macroeconomic changes

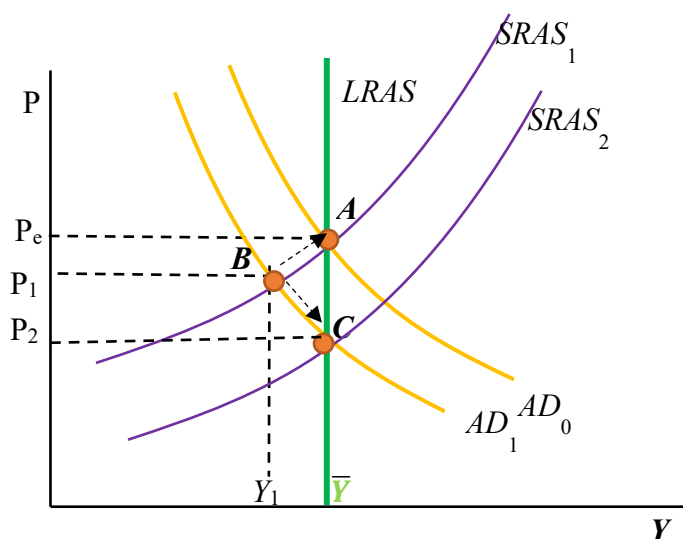


Since the economy gravitates towards its long-run equilibrium with the natural level of output and full employment, two possible scenarios can be considered. The economy can either move back to the initial level of equilibrium (*Figure 4, point A*) or to a new level of equilibrium (*Figure 4, point C*). In the first scenario the government may possibly continue stimulating the economy through fiscal policies, which in addition to contributing to an increase in aggregate demand will also, as a consequence, further increase the public debt. If those policies offset the negative impact from the economic shock, the economy will continue expanding and achieve the pre-Covid level of aggregate demand (from  $AD_1$  to  $AD_0$ ) and comparatively higher prices (move from *point B* to *point A* in *Figure 4*).

Due to various circumstances, including the worries over a second wave of the coronavirus pandemic, the second scenario is more likely to occur. This is when the

expansionary government policies do not achieve the expected impact of stimulus on aggregate demand and it does not recover to its pre-Covid level in the short run. This is a more realistic scenario. This scenario assumes that, in contrast to the expansionary fiscal policies of the government, other components of GDP (such as consumption and investment) will remain at lower levels and result in higher unemployment for a much longer period than the first scenario

Figure 4. Two possible scenarios



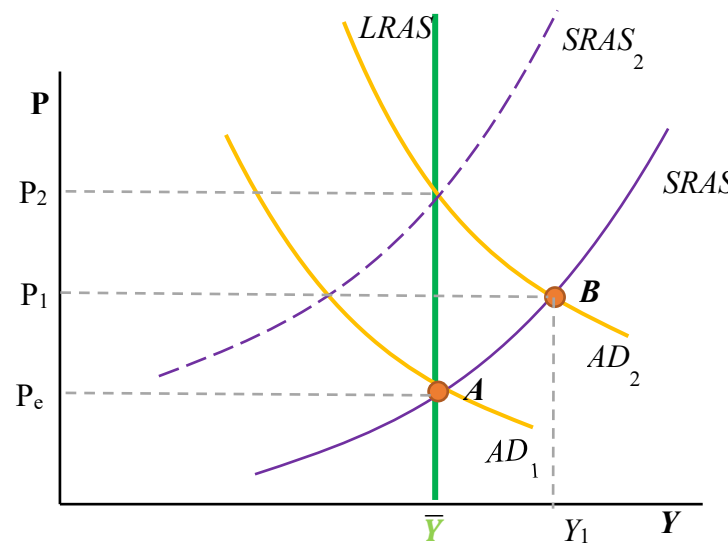
assumes. The extended period of lower prices for factors of production due to high unemployment and underutilized capacities will induce the production of goods and services (shifting supply from  $SRAS_2$  to  $SRAS_1$  in Figure 4). Overall, the economy will not recover to the initial level of aggregate demand, but in the long-term the economy will achieve its level of full employment with a lower price level (Figure 4, point C).

### Coronavirus Pandemic and Demand-Pull Inflation:

A third scenario can be identified if we start our analysis with the policies preceding the Coronavirus shock to the economy.

**Overheated economy:** The Tax Cuts and Jobs Act went into effect in 2018. This was a tax reform designed to stimulate individual consumption and businesses investments. According to the Congressional Budget Office (CBO) the Act gives individuals, partnerships and S corporations about \$1,125 billion in net benefits, and corporations receive \$320 billion in benefits over 10 years.<sup>xii</sup> In addition to the tax reform, the low interest rates and high government spending during last several years overheated the economy, shifting the short-run economic equilibrium to the right from its natural level. In other words, these measures shifted the economy to the condition where the output grew beyond its natural level and the unemployment rate declined below its natural level (*Figure 5, point B*).

*Figure 5. Demand-Pull Inflation Effect*

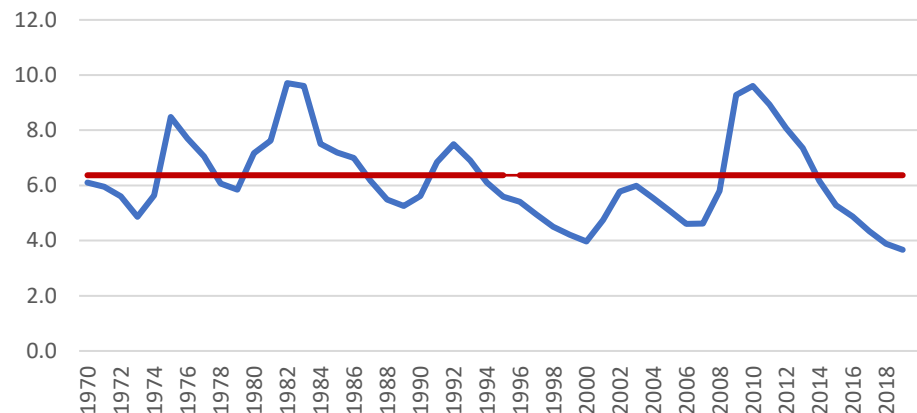


**Unemployment rate:** The theories suggest that ideally the unemployment rate fluctuates within the range of 3.5% to 4.5% annually. The U.S. unemployment statistics suggests that the average unemployment rate for the period from 1970 to 2017 was 6.3%.<sup>xiii</sup> In 2018 and 2019 the unemployment rate reached lows of 3.7% and 3.5%, respectively and was either 3.5% or 3.6%



from September 2019 through February 2020. These levels of unemployment are far below the aforementioned average, which we use as guidance for the natural rate of unemployment (*Figure 6*). The significant positive deviation of the unemployment rate from its natural level may cause upward pressure on the inflation rate. This is also one of the causes of demand-pull inflation in the short run.

*Figure 6. Average rate of annual unemployment vs. average for 1970-2018<sup>xiv</sup>*



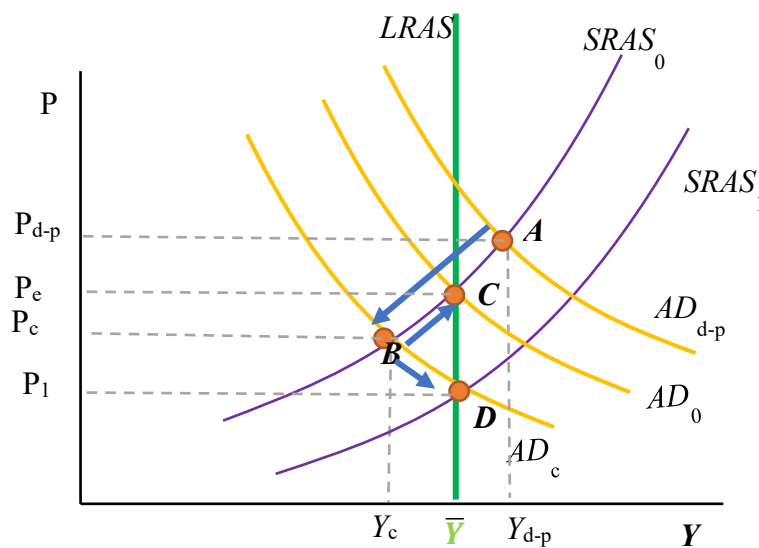
**Inflation:** Since 2009 the inflation rate, according to both the GDP price deflator and consumer price index (CPI), was on average about 2% annually. These rates led to prices rising by only just over 18% for the period from 2009 to 2019 (as calculated by the percentage change in the GDP deflator).<sup>xv,xvi</sup> Although, annual inflationary changes within 2% are typical for healthy economies, this inflationary change of over 18% during the last ten years may also be considered as contributing factors to demand-pull inflation.

### Combining the Models

The discussion in this section suggests that it was most likely that the Covid related contractionary demand-side shift occurred when the U.S. economy was in a stage of demand-pull inflation. In other words, due to the overheated economy aggregate demand was much higher

than its natural level should have been (*Figure 7, point A*). Demand was higher than our economy with existing capacities, physical capital, and human capital could have sustained in the long run. Therefore, when the economy was hit by the shutdown shock, some of it was absorbed (section between *points A and C*) by overly high demand reducing the extent of an adverse impact (section between *points B and C*) on the economy.

*Figure 7. Combining the Models*



In Figure 7 we are illustrating aggregate demand that is contracted below its natural level ( $AD_c$  is shifted to the left of  $AD_0$ ), following the macroeconomic statistics for second quarter national output, unemployment, and inflation. Assuming that the economy will not experience new short-term contractionary shocks (for example, if taxes increase), the economy may move to point C (which is an ambitious assumption in light of worries over a second wave of the coronavirus pandemic). Although more information is available on precautionary measures to limit exposure to coronavirus – particularly associated with wearing face masks, following specific healthcare routines, and social behavior – the corresponding general uncertainty,

expectations, and not having a vaccine or widely accessible treatment plans will most likely keep the demand side of the economy at a lower level. Thus, the economy is more likely to experience the second scenario, under which the contraction will result in an extended period of higher unemployment and underutilized capacities. This decline will eventually lead to lower prices of factors of production, which will slowly contribute to the increase in the production of national output, result in full employment with a lower level of inflation and overall aggregate demand, including consumption and investments.

### **Main takeaway**

The main takeaway from this discussion is we do not recommend implementing another full scale economic shutdown, because it may result in extremely profound damage to the economy. Although the recent shock also caused sharp contractions to the economy, part of that was absorbed by the overheated economy with much higher consumer demand and employment. Now our economy is already in the decline and any additional contractionary policies may cause significant long-term shocks that would require a very long time to recover.

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