Inflation During the COVID-19 Pandemic in The United States: Drivers and Impacts

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Introduction

The COVID-19 pandemic brought unprecedented challenges to the global economy, leading to significant disruptions across various sectors. Among these challenges, the spike in inflation rates stands out as a critical issue that has attracted substantial attention from economists, policymakers, and the public. The largest economy in the world: the United States of America also suffered from a historically high inflation rate and brought about a long-time and profound impact to the global economy. This report aims to address two primary research questions:

1. What are the primary drivers of the elevated inflation observed during the COVID-19 pandemic in the United States?

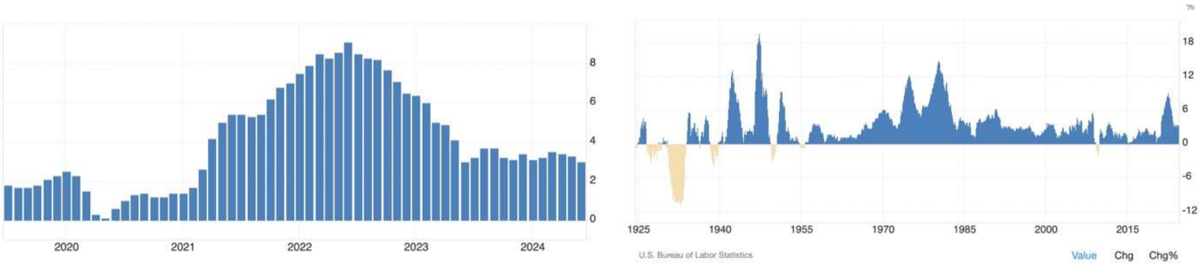
2. What are the impacts of this inflation?

To comprehensively answer these questions, this report will be structured into four main sections: an overview of large-scale inflation during the pandemic, a review of major academic drivers of inflation, an analysis of the specific drivers at this time, an analysis of the current impact, my own opinions on the U.S. inflation during this period.

The overview of the large-scale inflation during the Covid-19 pandemic period

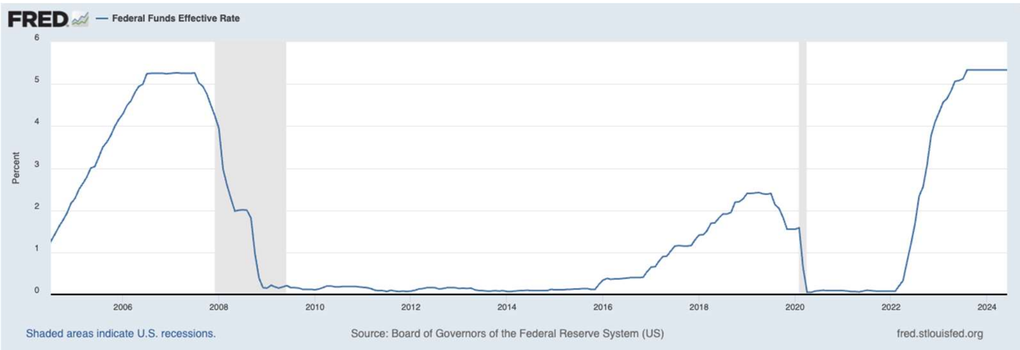
The COVID-19 pandemic has had a profound impact on the global economy, leading to severe economic contractions, widespread unemployment, and significant disruptions to supply chains. In response, governments and central banks around the world implemented various fiscal and monetary policies to mitigate the economic fallout. These measures, while necessary to prevent economic collapse, have also contributed to the inflationary pressures observed during the pandemic.

In the United States, inflation rates saw a dramatic increase during the pandemic period. According to the U.S. Bureau of Labor Statistics, the inflation rate remained above 5% for two years from May 2021 to May 2023, marking the largest inflation in recent decades.



Inflation rate in past 5 years and history record. Retrieved from https://tradingeconomics.com/united-states/inflation-cpi

Meanwhile, the unemployment rate in the US continued to decrease from May 2020 and reached its lowest level in the past 20 years by 2022 (U.S. Bureau of Labor Statistics, 2024). To suppress the unprecedented high inflation, the Federal Reserve raised interest rates to the highest level in recent 20 years. U.S. high interest rate policy caused some secondary impact on international economy, such as changes in the exchange market.



Federal Fund Effective Rate in past 20 years. Retrieved from https://fred.stlouisfed.org/series/FEDFUNDS#

Academic Considerations on Inflation

Theoretical Causes of Inflation

According to mainstream economic theories, there are 3 major types of inflation: Demand-pull, cost-push and Build-in.

- Demand-Pull Inflation

Demand-pull inflation occurs when the aggregate demand for goods and services in an economy exceeds the aggregate supply, leading to an increase in prices. This type of inflation is often driven by strong economic growth, increased consumer spending, and expansive fiscal and monetary policies (International Monetary Fund, 2020).

- Cost-Push Inflation

Cost-push inflation arises when the costs of production increase, leading to higher prices for final goods and services. Key factors contributing to cost-push inflation include rising wages, increased costs of raw materials, and supply chain disruptions (World Bank, 2021).

- Built-In Inflation

Built-in inflation, also known as wage-price spiral inflation, occurs when higher prices lead to higher wage demands by workers, which in turn leads to higher production costs and further price increases. This type of inflation is often sustained by inflation expectations among consumers and businesses (Federal Reserve, 2021). This in in fact a very interesting phenomenon, similar to Murphy's law, the expectation of inflation will really bring about inflation since individuals and companies will alter their behavior to deal with the expected inflation (Lee et al., 2020).

Theoretical Impacts of Inflation

Both consumers and companies lose purchasing power if the inflation occurs without a corresponding increase in wages (McKinsey & Company, 2024). This is exactly what is happening in Japan. The central bank uses interest rate to control the inflation. However, as we learnt in Open economy and trade section (July 9), changing interest rate in an open economy can impact on trade and other economic activities (As demonstrated in the model of Taiwan and Thailand in Technical problem set)

Specific Drivers of Inflation During the COVID-19 Pandemic

COVID-19 pandemic introduced unique situations including unprecedented fiscal and monetary stimulus, supply chain disruptions, shifts in consumer demand, and geopolitical tensions. In this section, we aim to clarify the specific causes of the current inflation by comparing actual economic data with the theoretical factors that cause inflation presented in the previous section.

Unprecedented Fiscal and Monetary Stimulus

In response to the economic crisis triggered by the pandemic, governments and central banks implemented massive fiscal and monetary stimulus measures. In the United States, the government injected liquidity and create demand directly through relief packages funded by national debt to address skyrocketing unemployment rate and recession. The fiscal deficit for the financial year 2020 and 2021 was 3.13 trillion and 2.77 trillion respectively, both far exceeding the previous peak of $1.42 trillion in 2009, with a deficit-to-GDP ratio soaring to 18% in the financial year 2020. Throughout the pandemic, the federal government passed several relief packages totaling approximately $4 trillion, including direct payments to households, enhanced unemployment benefits, and support for businesses (Srinivasan, 2024). Similarly, the Federal Reserve adopted an ultra-loose monetary policy, including near-zero interest rates and large-scale asset purchases. However, such a large amount of liquidity resulted in the excessive amount of money in the consumer market, according to Hume's quantity theory of money and the formula we learnt July 2nd: MV=PT, when the money supply (M) increases significantly in a short period, price rise dramatically in the short run, directly causing inflation.

Shifts in Consumer Demand

The pandemic also caused notable shifts in consumer demand. Pandemic itself changed people's lifestyles and consumption patterns. With lockdowns and social distancing measures in place, consumers shifted their spending from services to goods, leading to increased demand for household items, electronics, and home improvement products. A notable example is the shortage of semiconductors. As everyone was forced to conduct all activities, including work and entertainment, from home, the demand for semiconductor components, which are essential for the production of electronic devices, surged and resulted in shortages (King et al., 2021). This exceptionally high demand can be rightly called a "COVID-19 boom.". For example, stock price of semiconductor manufacturing giant TSMC tripled from 2020 to 2023, demonstrating the high demand on semiconductors.
In addition to increasing demand of specific goods demands, the direct financial aid to citizens created "artificial" demands. This surge in demand, coupled with supply chain constraints, exerted upward pressure on prices.

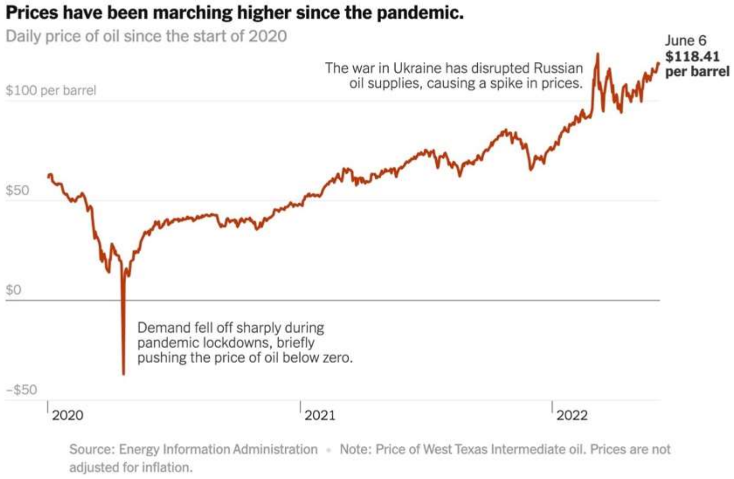
TSMC stock price. Retrieved from https://www.cnbc.com/quotes/TSM

Supply Chain Disruptions

The pandemic caused significant disruptions to global supply chains, affecting the production and distribution of goods. Factory shutdowns, port closures, and transportation bottlenecks led to shortages of key components and raw materials, driving up production costs and contributing to cost-push inflation (Moosavi, 2022). The semiconductor shortage, for instance, severely impacted the automotive and electronics industries, leading to higher prices for vehicles and electronic devices.

Energy crisis

The energy price skyrocketed after the recession period in the early stage of pandemic, becoming a main driver of cost-push inflation. The price of oil has reached the highest point since 2008. High price of fossil fuels was mainly driven by 2 factors: declining production ability during the recession period and Russo-Ukraine war. The recession in the first half of 2020 forced oil producing countries to decrease production due to the lack of storage facilities. An interesting phenomenon happened in this period was the negative price, demonstrating the excessive supply of oil and the reluctance for oil producing countries to produce oil.

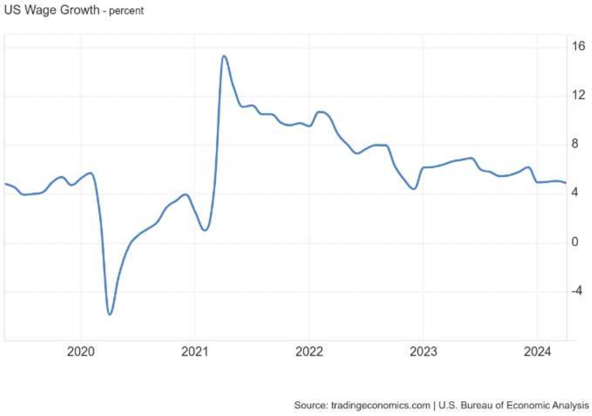


Oil price trend. Retrieved from https://www.nytimes.com/interactive/2022/06/14/business/gas-prices.html

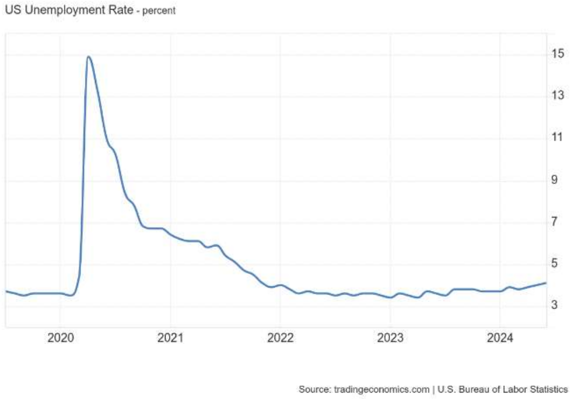
However, the economic recovered strongly soon after the short recession period, the U.S. recorded an annualized 34.8% economy growth in Q3, 2020, up from -28% in Q2, 2020. Nevertheless, oil production didn't catch up. The reason is that oil production cannot fully recover overnight and the accumulated high demand during stay-at home period led to soaring prices (Gaffen, 2022).

Additionally, Russia invaded Ukraine in February 2024. In an attempt to stop Russia's war by cutting off its financial resources, Western countries imposed an embargo on Russian fossil fuels, which dealt a certain blow to the Russian economy (BBC, 2024). However, the price of natural gas in Europe, which is heavily dependent on Russian natural gas, skyrocketed due to the significant reduction in supply. This exacerbated the already soaring prices of fossil fuels, which were high due to supply shortages.

Rising wages



United States Wages and Salaries Growth. Retrieved from https://tradingeconomics.com/united-states/wage-growth



United States unemployment rate. Retrieved from https://tradingeconomics.com/united-states/unemployment-rate

U.S. wages continued to rise as the economy recovered from the large-scale lockdown in 2020. The low unemployment rate became a tailwind for wage increases in a strongly stimulated economy. (In colloquial terms: if you want to ride the wave of easing and make money, you have no choice but to offer higher salaries when recruiting.)

Summary

The monetary stimulus and special demand during the pandemic contributed to the demand-pull inflation. High energy price became the cost factor driving inflation. And the increasing wage accelerated the inflation as build-in factor. The 3 factors interacted with each other and resulted in the historical inflation observed in the United States.

Impacts

The high inflation directly brought about high interest rate, and U.S. high interest rate had many secondary impacts to world economy. We will focus on the change in interest rate and exchange market in this section.

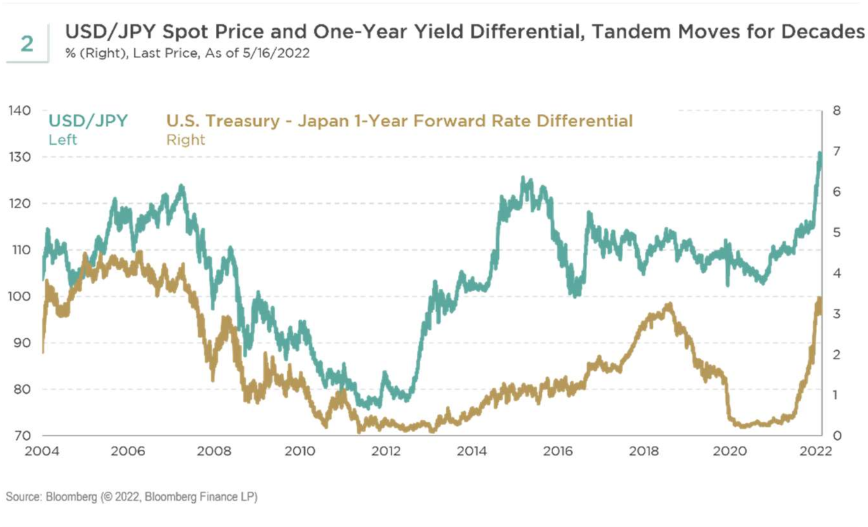
Interest Rate

The Federal Reserve has continued to raise the federal funds effective rate to address the rising inflation since the U.S. inflation rate exceeded 7.5% in February 2022. Currently, the interest rate is at its highest level in the past 20 years.

Exchange market

The high interest rates in the U.S. have increased the value of the U.S. dollar and attracted investors from all over the world, leading to a strong dollar and weakening other currencies, including the Japanese yen.

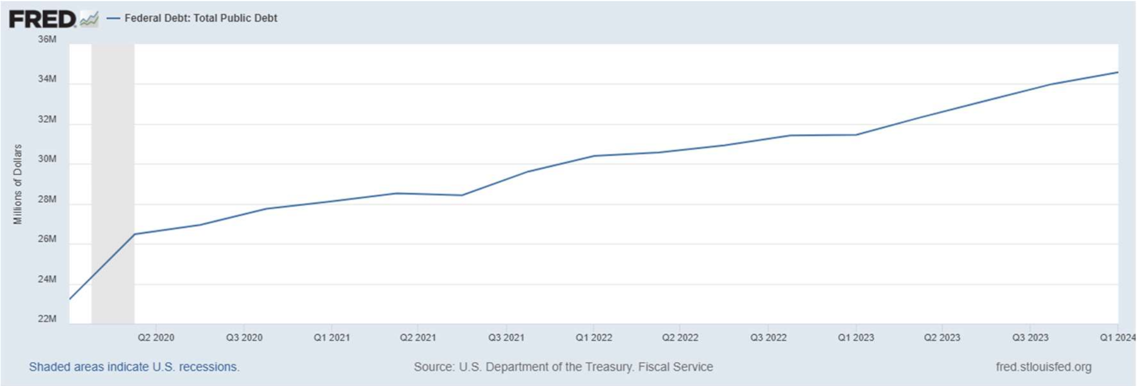
For example, the weakened yen, combined with high energy prices (partially caused by quantitative easing), has driven domestic inflation in Japan. Many other countries, including Korea and ASEAN nations, are also experiencing similar challenges due to the strong dollar.



USD/JPN trend. Retrieved from https://brandywineglobal.com/aroundthecurve/index.cfm?page=article&content=484254425

My opinions

- Government-led monetary easing and demand stimulation increased U.S. national debt by $10 trillion over the four years from 2020 to 2023. This amount is almost half of the total cumulative national debt up to 2019 before the pandemic (which was $23 trillion as of January 1, 2020). The rapidly increasing debt pressures the U.S. fiscal situation and creates uncertainty for future monetary policy. The U.S. government have warned the possibility of default, demonstrating the serious financial situation.



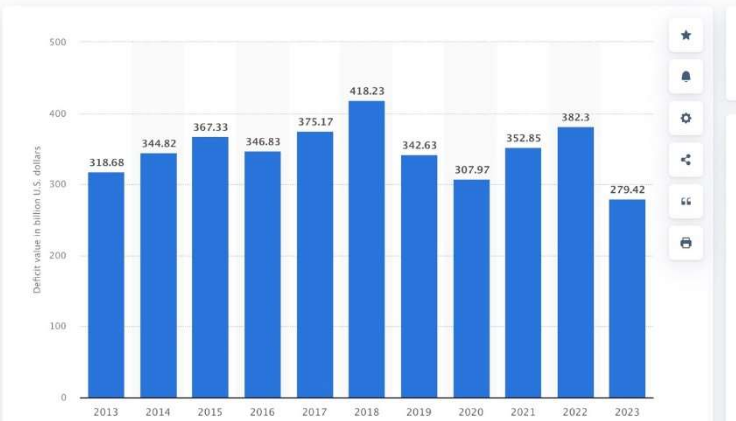
U.S. National debt from 2020.1.1 to 2024.1.1. Retrieved from https://fred.stlouisfed.org/series/GFDEBTN#

- High inflation is changing the U.S. strategy toward China. Although the U.S. aimed to decouple from China, it still heavily relies on Chinese production, and even in 2023, the year with the lowest trade deficit with China in the past decade, it exceeded $270 billion. Given this dependence on China, imposing sanctions or tariffs on Chinese imports could further exacerbate product shortages and increase costs due to tariffs, potentially driving inflation even higher.

  The reality of curbing inflation is likely one of the factors that led the U.S. to shift its goal from decoupling to de-risking with China (Benson et al., 2023).

United States goods trade deficit with China from 2013 to 2023

(in billion U.S. dollars)



U.S. trade deficit with China. Retrieved from https://www.statista.com/statistics/939402/us-china-

- High interest rates in the United States attract funds from other countries to the U.S., leading to a bustling stock and securities market in America (similar to the situation in technical problem set question No.3), meanwhile, countries from which funds are diverted to the United States may suffer from a shortage of development capital. This is precisely the situation John Locke predicted in the interest rate debate (Smith, 2022).
- High interest rates in the United States attract funds, which are then invested in the U.S.

stock market and other markets, boosting the stock market and attracting even more capital, thus creating a sort of bubble. However, the stock market's boom is not necessarily supported by real growth in the economy. When the economy, which has been buoyed by monetary easing, cools down and interest rates drop, foreign capital may withdraw, leading to a decline and normalization of the stock market. (On a personal note, I am also losing money on semiconductor stocks in the U.S. stock market.)

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