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Is This Time Different? Comparative Analysis of Supply Shocks in the 1970s and 2020s

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Abstract: Based on the supply shocks in the 1970s and 2020s, this study discusses the similarities and differences between the two periods qualitatively. While both periods experienced price increases due to reliance on imported oil and stock market crashes, there are distinct factors that make a repeat of stagflation unlikely. The current labor market remains strong, and inflation is showing signs of slowing down. In addition, the bargaining power is weaker now than in the 1970s; higher productivity resulting from innovative technology and the trend of a more integrated global economy, which help to mitigate the impact of inflation. Policy solutions are proposed to address the challenges of easing supply pressure, promoting industrial development, and ensuring employment. The three key policy suggestions are as follows: energy transition incentives, research and development grants, skills development initiatives. By adopting these policies, it is believed that governments will address supply pressure, foster industrial development and promote employment.

Keywords: supply shock, stagflation, inflation, productivity, globalization

1. Introduction

An adverse supply shock is a negative shift for the aggregate supply curve. The two famously examples of supply shocks are one in the 1970s, and the other one is in the 2020s during the COVID-19 pandemic. According to the Bureau of Labor Statistics, during the 1970s supply shock, inflation rate reached 12.3% by the highest amount and unemployment rate hiking 8.5% in 1975, while GDP dropped by around 1% as reported by the World Bank. Both supply shocks have left behind profound impact on the economy, even world widely.

The 1970s supply shock is caused by a mix of energy crisis and improper policies implemented by President Nixon. The Organization of Petroleum Exporting Countries (OPEC) cut the oil exports to the United States while U.S. relied heavily on the imports of oil, thus causing a dramatic decrease in supply of oil. Meanwhile, both the Yom-Kippur War in 1973 and the Iranian Revolution in 1979 played significant roles in causing disruptions to the global supply chain. While demand for oil drove up as massive reconstruction for industries needed raw materials like oil after World War II. President Nixon acted several policies, including wage-price control and abolishing the gold standard, wishing to alleviate the inflationary pressure [1]. However, the subsequent consequence is regarded as overall ineffective and undesirable, which may even further deteriorate the situation.

The supply shock experienced during the 2020s can be primarily attributed to two major factors: the disruptions caused by the COVID-19 pandemic and the ongoing Ukraine-Russia war. The impact

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of COVID-19, including lockdown measures, recurring outbreaks, and viral mutations, severely hampered the recovery of global supply chains, resulting in widespread shortages and persistently high unemployment rates [2]. In addition, the Ukraine-Russia war further exacerbated the situation by disrupting the supply of critical resources such as oil, fertilizer, and wheat. Notably, according to J.P. Morgan Global Research in 2022, these two countries accounted for approximately 35% of the European Union-27's steel imports, highlighting their significant role in the global economy.

The global consequences of these disruptions have been striking, with energy prices surging by 34.6% and food prices skyrocketing by 10.1% in May 2021, reaching levels unseen in over four decades [3]. The United Kingdom, in particular, experienced an unprecedented increase of over 50% in electricity prices during April [4]. These staggering price hikes have put immense strain on consumers and businesses worldwide, further exacerbating the economic challenges already posed by the supply chain disruptions.

At first glance, it may seem that these two supply shocks are very alike since they can both mainly be attributed to oil shocks. However, they have distinct and complicated combined reasons, which are worth investigating. This study will begin by discussing previous studies related to the topic at hand and introducing a novel perspective. It will then present the methodology employed and the structure of the paper. The paper will undertake a qualitative comparison of two supply shocks, examining their historical context, similarities, differences, and subsequent impact on the economy.

2. Literature Review

Alan and Jeremy argued that in the 1970s, the economy experienced stagflation as a result of a combination of factors, including the removal of wage-price controls, food and energy crises, and rising mortgage rates [5]. Both aggregate supply and demand were affected, with a more significant impact from the supply-side. Barsky and Kilian, however, contended that the supply shock due to oil shortages was not a major contributor, but instead, the monetary side was the real accelerator for the deteriorating situation [6]. In examining the history of the 1970s supply shock, Hamilton highlighted the role of oil shortages resulting from the OPEC embargo, accompanied by the Arab Israeli War and the Iranian revolution, which significantly increased the price of oil [7].

More recently, Baldwin and Tomiura found that promoting trade and globalization is an effective remedy to encounter large-scale pandemics and achieve economic growth [8]. Conversely, closing trade and focusing only on domestic industries may worsen the situation and make the country more volatile. Regarding the impact of the COVID-19 pandemic, Baqaee and Farhi investigated the supply shock from the pandemic, which reduces both output and demand, leading to the economy operating below its potential [9]. However, Pedro et al. attributed the supply shock mainly to the reduction in labor working hours, accompanied by the demand shock resulting from lockdowns and fear of infection [10].

A few studies focus on the causes of the inflation in the 1970s and 2020s. For instance, Nelson attributeed the inflation in the 1970s mainly to macroeconomic policies and propose the monetary policy neglect hypothesis [11]. Weber et al. reached the conclusion that inflation in the 2020s affects different groups of people at different levels. Groups are divided by the education level, income level, and even race [12]. LaBelle and Santacreu attributed U.S. inflation in the present time to the supply chain disruptions globally, measured by the producer price index of the performance of industries before and after the pandemic [13]. Moreover, and Shapiro showed that both demand and supply-side factors contribute to the soaring inflation. The present policies mainly focus on solving the demand side, but it is essential to consider whether it can be solved from the supply side [14]. Finally, given the similarities in the supply shocks in the 1970s and the 2020s, it is possible that stagflation may occur again [15].

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Overall, the vast majority of current research reveals that the supply shocks in the 1970s and 2020s had significant impacts on the economy, with both demand and supply-side factors contributing to inflation. This paper will further discuss on the future implications of the 2020s shocks on the economy, including the possibility of stagflation.

3. Analytical Framework and Discussion

3.1. Similarities Between the 1970s and 2020s Supply Shocks

3.1.1. Causes and Resulting Economic Impacts

Both adverse supply shocks, whether experienced in the 1970s or the 2020s, were heavily influenced by a significant dependence on imported oil. Consequently, with the imposition of an embargo by OAPEC in the 1970s and the Ukraine-Russia war in the 2020s, the aggregate supply was significantly reduced during these periods. This reduction occurred because oil serves as a crucial raw material for numerous associated products, causing considerable inconvenience and hardship.

During the 1970s, the United States faced a notable decline in oil supply due to the production cuts implemented by the Organization of OAPEC, along with disruptions triggered by the Yom-Kippur War in 1973 and the Iranian Revolution in 1979. Additionally, the post-World War II era witnessed an increased demand for oil as it became an essential component in almost all industrial processes. Many industries and firms were adversely affected, necessitating substantial rebuilding efforts that relied heavily on oil as a raw material. Furthermore, inflation during that period eroded the real price of oil, effectively making it cheaper and resulting in a higher quantity demanded of the commodity. This led to the transformation of more industries into energy-intensive sectors.

According to the Federal Reserve History, the combination of these factors led to a severe oil shortage and a subsequent exponential increase in prices, exceeding tenfold prior to the energy crisis. As oil prices surged, the associated commodities experienced marked price increases due to the elevated cost of production. Faced with these challenges, firms were forced to reduce production and decrease aggregate supply, which significantly contributed to the stagflation witnessed during the 1970s.

The Ukraine-Russia war disrupts the supply of oil and natural gas. The rising price of oil, as a fundamental bulk commodity, has a direct impact on the energy market, leading to increased production costs. Drawing a parallel to the oil shock of 1972, the price of oil experienced a significant surge when oil-exporting nations restricted supply and halted exports to the United States. With the cessation of oil imports from these producing countries, the overall oil supply diminished, subsequently driving up prices. This, in turn, had a ripple effect on transportation costs since oil serves as the primary fuel for the transportation sector. Consequently, the prices of complementary products reliant on oil witnessed an increase.

Europe, heavily dependent on natural gas imports from Russia, has been particularly affected by the ongoing war. During winter, Europe faced a shortage of natural gas, which is crucial for heating and warmth, owing to the disruptions in the supply chain. Given Europe's geographical location near the Atlantic Ocean, Arctic Ocean, and the Mediterranean Sea, the region experiences harsh sea winds that exacerbate the challenges of winter for its residents. As highlighted by Schrank, these circumstances have made European life during the winter season a nightmarish and highly intolerable ordeal [16].

In both scenarios, the surge in oil prices has contributed to an overall rise in the general price level. This occurs through a mechanism whereby the higher cost of oil exerts upward pressure on production costs for goods. Consequently, firms become reluctant to increase production due to the elevated cost

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of manufacturing, leading to a contraction in output and a subsequent reduction in aggregate supply. This phenomenon, known as cost-push inflation, emerges as a result.

However, it is important to note that the inflation witnessed in the 2020s is not solely driven by increased costs. Further elaboration on this point will be provided in the following paragraph.

As depicted in Figure 1, the inflation rates during the 1970s exhibited persistent peaks, spanning roughly a decade, indicating a period of fluctuating and unstable price levels. Similarly, data from the Bureau of Labor Statistics (BLS) reveals that the inflation rate surged by over 17% in the 2020s. This alarming increase in inflation is coupled with sluggish and tepid GDP growth rates observed in both time periods. Moreover, both eras experienced significant stock market crashes.

According to Nasdaq, the stocks that plummeted in the 1970s took more than 10 years to recover. In a parallel fashion, the Dow Jones Industrial Average registered a decline of 15.68% in 2022, placing it in a precarious zone where it is at risk of transitioning into a bear market, characterized by a slump of 20% or more in stock values. Additionally, the S&P 500 reported a decline of over 23% as of September 2022. These findings underscore the presence of economic turbulence and volatility in both the 1970s and the current decade, with soaring inflation rates, lackluster GDP growth, and significant stock market downturns.

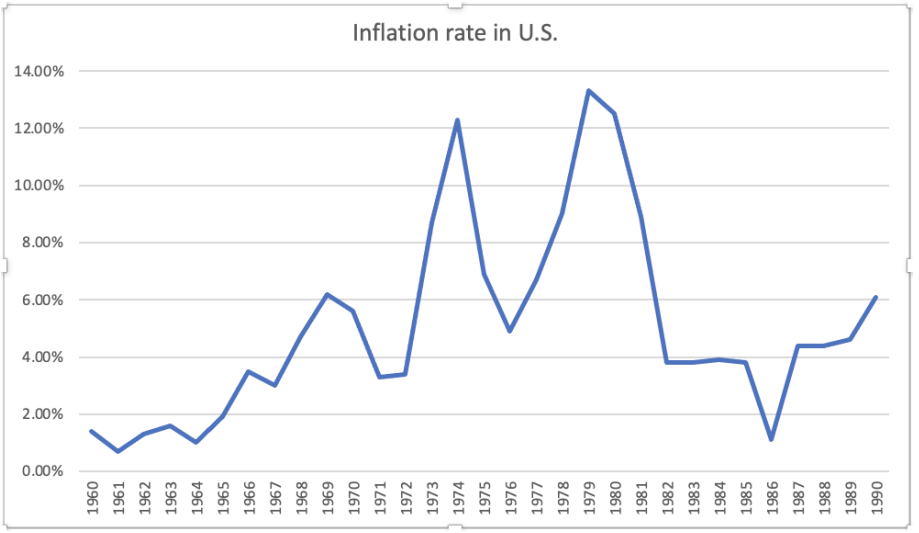

Figure 1: The inflation rate in U.S. from 1960-1990 (Photo credit: Original).

3.1.2. Remedial Action

Furthermore, governments implemented various policy measures to mitigate the adverse effects of the supply shocks in both periods. Primarily, demand-side policies were adopted, with a focus on reducing oil dependency and promoting alternative energy sources. In the 1970s, expansionary fiscal policies were employed, including tax reductions and increased government spending. Tax cuts aimed to boost disposable income and purchasing power, stimulating consumption and overall demand. For example, in 1975, President Gerald Ford signed the Tax Reduction Act, which included cuts to individual and corporate income taxes. The objective was to provide consumers and businesses with more financial resources, encouraging spending and investment to stimulate the economy.

Similarly, in the 2020s, the government, under Joe Biden's administration, implemented direct stimulus payments to individuals and households as part of relief packages. These one-time payments were designed to provide financial assistance and stimulate consumer spending. In response to the economic challenges posed by the pandemic, the U.S. government passed several relief packages, such as the CARES Act, Consolidated Appropriations Act of 2021, and American Rescue Plan Act

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of 2021. These measures aimed to provide economic support and stimulate the economy. However, it is worth noting that such government spending has been criticized for potentially exacerbating inflationary pressures in both periods. Critics argue that the increased spending, without a corresponding increase in productive capacity, can lead to inflation, primarily impacting nominal variables while real variables like output and income remain unchanged or even decrease due to the erosion of the real value of money.

Recognizing the importance of reducing reliance on traditional energy sources like oil and coal, governments in both periods prioritized the development and utilization of alternative energy sources. In 1977, the establishment of the Department of Energy played a vital role in promoting research and development of renewable energy sources such as wind and solar power. Tax credits and subsidies were granted to make alternative energy more economically viable and attractive. Governments also enacted regulations and policies to support the growth and utilization of alternative energy. For instance, the Public Utility Regulatory Policies Act (PURPA) of 1978 in the United States mandated electric utilities to purchase electricity from qualifying renewable energy facilities, creating a market for renewable energy. Similarly, in line with the White House's declaration, Joe Biden set ambitious goals of achieving a carbon-free power sector by 2035 and a net-zero emission economy by 2050. These targets aim to accelerate the transition to renewable energy sources and promote clean energy technologies.

Contractionary monetary policies were also employed as part of the remedies in both periods. By decreasing the money supply through raising interest rates, contractionary monetary policy encourages saving overspending and aims to stabilize employment. In the 1970s, the Federal Reserve vigorously raised interest rates, even reaching a peak of around 20% in the early 1980s, which remains the highest level in U.S. history. However, the inappropriately high-interest rates triggered a global recession in 1982. Similarly, in the 2020s, the Federal Reserve announced plans to raise interest rates to more than 5%.

3.2. Differences During the 2020s

3.2.1. Historical Background

The stagflation experienced in the 1970s persisted for approximately a decade, inflicting significant hardships on people due to the high cost of living. However, in the 2020s, although the inflation rate continues to rise, there are indications of a slowing trend. This deceleration is quite significant, thanks to the Federal Reserve's adoption of a tightened monetary policy to combat inflation. Inflation rates have decreased from over 8% in 2022 to below 5% recently, halving the rate of increase.

Furthermore, the lessons from the past serve as a reminder. Stagflation was a novel concept that even economists had not encountered before, leaving them unprepared with no prior cases to study and find remedies for. Consequently, the U.S. government is prioritizing addressing the issue of inflation based on past experiences. The effectiveness of this approach is evident as the price level has already started to ease down.

3.2.2. Labor Market

During the 1970s, economist Paul Samuelson coined the term "Stagflation" to describe the simultaneous occurrence of stagnant economic growth, high inflation, and elevated unemployment rates. The energy crisis was a primary driver of stagflation, as it caused production costs to rise, leading firms to reduce production and lay off workers. Unfortunately, wages did not adjust quickly enough to match the declining demand for labor, resulting in high unemployment rates that persisted despite weakened economic growth. This situation created uncertainty and eroded investment confidence.

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However, the labor market in the United States during the 2020s presents a contrasting picture. Surprisingly, despite the challenging circumstances, the labor market remains robust. In April 2023, the unemployment rate dropped significantly to 3.4%, albeit with some fluctuations. Government stimulus measures, such as the CARES Act and subsequent relief packages, have bolstered market confidence by supporting consumer spending and business operations. Various financial support and relief programs, including the Paycheck Protection Program (PPP), have helped businesses retain employees and prevent layoffs.

Moreover, emerging industries have emerged during the pandemic, offsetting job losses in other sectors. Essential sectors like healthcare, e-commerce, and delivery services experienced increased demand, resulting in job opportunities. The successful development and distribution of COVID-19 vaccines played a pivotal role in the labor market's recovery. As vaccination rates increased and restrictions eased, businesses regained confidence, leading to rehiring and workforce expansion.

Furthermore, as the price level improves, the central bank can adopt a looser monetary policy by reducing interest rates. This approach helps mitigate the crowding out effect caused by extensive government spending aimed at boosting the economy, as well as the economic slowdown resulting from a contraction in the money supply. The accommodative stance of the central bank promotes business investment, access to credit, and job creation.

Therefore, the situation in the 2020s differs significantly from the 1970s, as structural unemployment, which arises from skill loss or obsolescence, is less prevalent and easier to address.

3.2.3. Wage Bargaining

Furthermore, a significant factor contributing to stagflation in the 1970s was the wage-price spiral. As inflation rose, workers sought higher wages to cope with the increasing prices, and businesses passed on these additional labor costs to consumers by raising prices. This cycle perpetuated further inflation and eroded purchasing power. Governments faced challenges in breaking this cycle, as attempts to control wages and prices encountered resistance from labor unions and businesses.

However, the landscape has changed considerably since then, with trade unions experiencing a significant decline in bargaining power. Over two-thirds of workers used to participate in collective bargaining agreements that included Cost-of-Living Adjustments (COLAs), which provided periodic wage, benefit, or pension increases based on changes in the cost of living, typically measured by inflation. However, the percentage of workers protected by trade unions and wage bargaining in member countries of the Organization for Economic Co-operation and Development (OECD) has declined by more than half from 1970 to 2019. Consequently, workers now face greater challenges in negotiating higher wages with employers and firms. The power dynamics of trade unions differ significantly between the two time periods.

3.2.4. Technological Progress and Productivity

Additionally, it is important to consider the difference in productivity between the 1970s and the present. Back then, productivity levels were relatively lower due to limited advancements in capital, technology, and worker skills. This resulted in a lower production capacity and limited mobility and flexibility in meeting demand. However, today's technological advancements are rapidly transforming various sectors with exponential growth and disruptive innovations. The integration of artificial intelligence into daily lives is a growing trend, further enhancing productivity and improving the quality and quantity of goods and services.

Increased productivity enables the production of more output with the same or fewer resources, effectively increasing aggregate supply and alleviating inflationary pressures by exerting downward pressure on prices. By prioritizing technical innovation, businesses can gain a competitive advantage

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in the market. This allows them to offer higher-quality products or services at competitive prices. Increased competition fosters market dynamics and helps prevent monopolistic pricing practices, thus further curbing inflationary tendencies.

Besides, higher output contributes to overall economic growth. A growing economy creates employment opportunities, reduces unemployment rates, and enhances consumer purchasing power. A robust economy with lower unemployment rates helps to balance supply and demand, mitigating inflationary pressures in the market.

3.2.5. Degree of Economic Globalization

In addition to the factors mentioned earlier, the trend of globalization has played a significant role in shaping the economic landscape. Over the years, there has been a notable increase in globalization, with greater integration and interdependence in the global economy. Since the 1970s, one key component of global GDP, namely trade, has experienced a substantial doubling, indicating a growing inclination among countries to engage in the exchange of goods and services in the global trade market.

The flow of both physical and human capital has contributed to the success of emerging industries and high-tech companies. This trend is in stark contrast to the conservative approach towards trade observed in the 1970s. Globalization has opened up markets to international competition, forcing domestic industries to remain competitive by offering attractively priced goods and services. This competition acts as a check on excessive price increases and fosters cost efficiency.

Moreover, globalization has expanded market opportunities for businesses, enabling them to access a broader customer base. This increased access to consumers can stimulate higher demand and lead to economies of scale. As production scales up, costs can be spread over larger volumes, resulting in lower average costs and potentially lower prices for consumers. This dynamic further supports the containment of inflationary pressures.

It is important to note that the impact of globalization on the economy is multifaceted and can vary across different sectors and regions. However, the overall trend towards greater integration in the global economy has brought about increased competition, expanded market access, and potential cost efficiencies, all of which contribute to mitigating inflationary pressures and promoting economic stability.

4. Conclusion

The supply shocks experienced in the 1970s and the 2020s share similarities in terms of reliance on imported oil and resulting price increases, as well as stock market crashes. In both periods, governments implemented demand-side policies and prioritized alternative energy sources to reduce oil dependency, while employing contractionary monetary policies as remedies. However, a closer examination reveals distinct differences. Stagflation is unlikely to occur again due to a strong labor market contrasting with high unemployment in the 1970s, and the current inflation in the US is showing signs of slowing down. Moreover, the impact of inflation is mitigated by reduced bargaining power; higher productivity resulting from innovative technology and a more integrated global economy.

Based on these conclusions, several policy suggestions can be presented. First, the diversification of energy sources, in which governments should provide substantial incentives for businesses and households to transition towards renewable energy sources, encouraging sustainable practices and reducing reliance on fossil fuels. Second, implementing research and development grants to foster innovation and technological advancements across industries, promoting productivity growth and competitiveness. Third, governments should invest in comprehensive skills development programs, including vocational training and retraining opportunities, to equip individuals with the necessary

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skills for emerging industries and ensure a resilient workforce. All three aimed to solve the problem from the supply-side, in which in this study is considered the ultimate solution to supply shocks and to minimize the impact of inflation.

References

[1] *Paul L. Nixon's economic policies return to haunt the G.O.P. Review from the New York Times (1976).*
[2] *Guan D.B, Wang D.P., Hallegatte S., et al. Global supply-chain effects of COVID-19 control measures. Nature Human Behaviour 4(6), 577-587 (2020).*
[3] *NBC Homepage, https://www.nbcnews.com/business/economy/inflation-may-2022-consumer-prices-food-and-gas-rcna32774, last accessed 2022/06/11.*
[4] *CNBC Homepage, https://www.cnbc.com/2022/02/03/uk-energy-bills-to-rise-by-over-50percent-in-april-as-ofgem-announces-hike.html, last accessed 2022/02/03.*
[5] *Alan S.B., Jeremy B.R. The supply-shock explanation of the great stagflation revisited. CEPS Working Paper 176 (2008).*
[6] *Robert B.B., Lutz K. Do we really know that oil caused the great stagflation? A monetary alternative. University of Chicago Press, Chicago (2002).*
[7] *James D.H. Historical oil shocks. University of California, San Diego (2010).*
[8] *Barthelemy B., Zhen H., Andrei A.L., et al. Global supply chains in the pandemic. Journal of International Economics 133, 103534 (2021).*
[9] *David B., Emmanuel F. Supply and demand in disaggregated Keynesian economies with an application to the COVID-19 crisis. American Economic Review 112(5), 1397-1436 (2022).*
[10] *Pedro B., et al. Is the COVID-19 pandemic a supply or a demand shock? Federal Reserve Bank of St. Louis (2020).*
[11] *Edward N. The great inflation of the seventies: What really happened? Topics in Macroeconomics (2005).*
[12] *Michael W., Yuriy G., Olivier C. The expected, perceived, and realized inflation of US households before and during the COVID-19 pandemic. IMF Economic Review, 71 (2022).*
[13] *Jesse L., Ana M.S. Global supply chain disruptions and inflation during the Covid-19 pandemic. Federal Reserve Bank of St. Louis Review (2022).*
[14] *Adam H.S. How much do supply and demand drive inflation? FRBSF Economic Letter, 15 (2022).*
[15] *Ha J., Kose A.M., Ohnsorge F. Global stagflation. MPRA Paper, 113306 (2022).*
[16] *Peter S. Europe's energy crisis will trigger its worst neuroses. The Economist, 9 (2022).*