IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 11, Issue 6 Ser. I (Nov. – Dec. 2020), PP 53-61
www.iosrjournals.org

Impact and Implication of Coronavirus on Global Economy

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Abstract
While in 2020 the world economy was predicted to grow by 3.3% and after 2.9% growth in 2019, the outbreak of the coronavirus in China upset the world and shocked the fragile global situation. In reality, the coronavirus outbreak in China emerged as a "black swan" and has disrupted Chinese economic activities. As the lunar New Year holiday has been extended, most businesses and companies have been declared to be closed until the middle of February 2020 and since 24 January 2020 most economic activities in the retail, manufacturing and transportation sector have been disrupted. Conversely, a sharp decline in Asia's main financial stock markets has mirrored COVID-19 transmission to South Korea, Japan, Singapore and other countries in Asia. Increased number of confirmed COVID-19 cases impacting the major financial markets in Europe in Italy, France, Spain, Germany and the United Kingdom. At the same time, COVID-19 spreads to MENA and North America. While one of the key questions is how and when the virus outbreak is to be controlled, the world economy is influenced by the coronavirus epidemic and how far it would have been. Many research experts have used SARS-2003 to calculate COVID-19's economic impact and have tried to understand the COVID-19 phenomenon. In November 2002, the first case of SARS was recorded and the epidemic peaked after three to four months. After 6-7 months, the spread of SARS was contained. Almost 8,000 people were infected in 26 countries and 800 people died as a result of a serious infection during that time. While these two cases have some parallels with the lessons learned, variations in the scale of infections, the degree of global penetration, the increasing share of China's global trade economy and COVID-19's rapid dissemination contribute to us analyzing the effects of the virus individually. Given the massive integration between China's economy and the rest of the world, epidemic virus propagation is not just confined to China, but has also affected many other Asian and worldwide countries. China constitutes 17% of the world economy, almost 11% of global trade and nearly 9% of global tourism. More than 104 countries reported cases of COVID-19, among them China, Italy, South Korea, Iran, France, Spain, Germany and the US, in preparation for this study. The countries included the United States, Iran and Spain and France. The virus outbreak has now grown into a global health problem that has been declared a global pandemic by the World Health Organization (WHO), and the virus' economic effect has risen as it started to spread widely all over the world. The global economy, due to producer and demand chains, was affected by production closures, quarantine, travel restrictions and the interruptions in service sector operations.
Keywords: *Coronavirus, Global Economy, COVID-19, countries*

Date of Submission: 27-10-2020 Date of Acceptance: 06-11-2020

I. Introduction

A virus named Severe Acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes coronavirus disease (COVID-19).It spread from the city of Wuhan in the province of Hubei in China. Until now, there are 75,781 cases, of which 2130 people died, the death rate is approximately 2%. Approximately 74,581 cases have been reported in China alone (2020). In China, it is an epidemic. The WHO announced global health emergency in the middle of January because it is likely to establish a pandemic unless it is included. All the world's economies are tightly interconnected in this new era. It will have low to large effects around the world if it occurs in any part of the world. This will have a huge impact on one of the growing economies like China. China, worth $13.6 trillion, is the world's second largest economy. It's just after the United States. China contributes nearly 16% of the world's total GDP. Forward and backward ties, many companies are dependent upon China. The production of several main companies has stopped due to Chinese factory closures. China has a large number of customers with substantial buying power, thanks to which many foreign businesses operate in China, not only as an integral part of its product and service delivery. Because of the impact of Corona Virus, people don't come out of home and buy as much as before, they face the warmth of the situation as sales decrease. Apple said it could not meet its revenue target in China due to declining revenues. A leading car maker Jaguar Land Rover reported that if Corona Virus existed again for a few weeks they would run out of car parts for their factories (Inman, 2020a). For the inability to obtain supply of parts from China, Hyundai has already shut down its operations in South Korea.

The S&P global rating indicates that this epidemic is causing Chinese companies to reduce their total car production by 15 percent. Starbucks still has difficult moments as it has over four thousand stores and most are closed because of the outbreak. The Asian countries are important for Chinese travelers, who visited approximately 173 million countries in the past 12 months and spend about a quarter of a billion dollars. As a result of the travel prohibition, the Asian region's airlines & hotels face terrible times. When China imports Japanese vehicles, trucks, other engineering goods and heavy equipment, Japan is strongly integrated with China. China is one of the top importers of petroleum. Thanks to the outbreak of Corona virus, China has reduced the import of crude, leading to a drop in foreign oil prices (Inman, 2020b). There are many students in China who want to study abroad. Most universities have recently faced a lack of students due to the virus outbreak. Temperature is also faced by the multinational luxury manufacturers. British company Burberry, a luxury goods maker, has shut 24 out of 64 shops in China. Qualcomm, the world's largest smartphone chip maker, says this outbreak creates uncertainty about mobile demands and supply supplies (Horowitz, 2010).). The Chinese economy is expected to slow to the slowest rate after the financial crisis in the first quarter of the year 2020 to 4.5 percent (Hutt, 2020). In this scenario, China is making every effort to preserve the confidence of companies, the People's Bank of China has recently cut interest rates and plans to inject huge amounts of cash into the economy. Analysts said that in recent years, the Chinese tried their hardest to manage their debt, and China could be forced to pump capital directly to the economy.

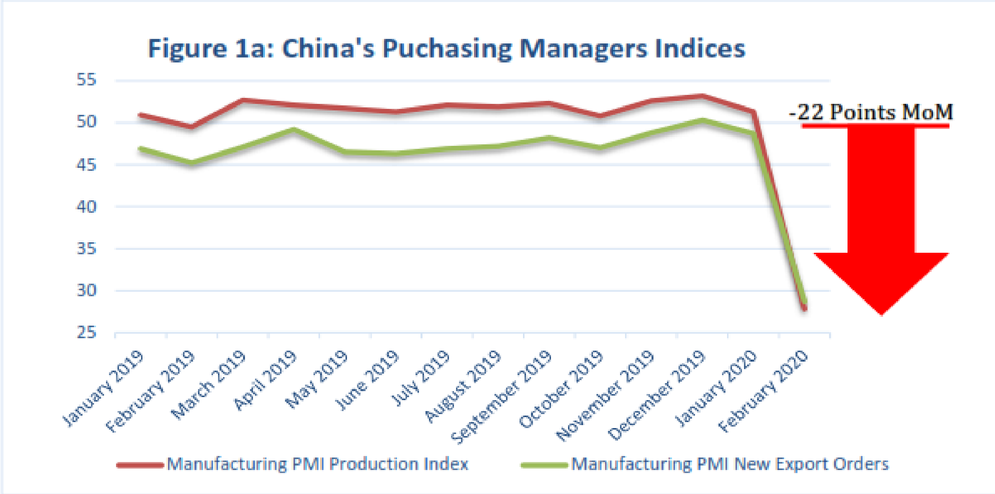
Oxford Economics has cautioned that if it is pandemic, Corona Virus will knock off $1 tn of revenue. The virus will decrease global GDP growth by 0.3 per cent if it stays present. Because numerous countries suffer from China's supply deficiency, production there may decrease and be inflation-slight. New suppliers may be able to take on the market as the majority of countries try to diversify their supply chain.

Nevertheless, on the negative impacts of coronavirus eruption on the global and China’s economy, we have observed several pessimistic views of authentic international economic institutions, which predict a deceleration of the world economy as follow:

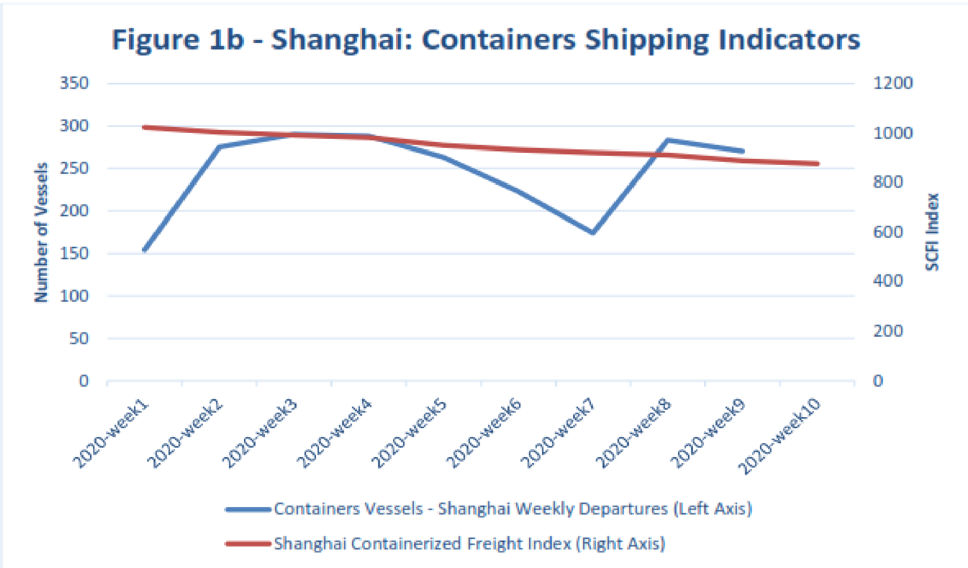
- On 22nd February 2020, IMF announced that China’s economic growth in 2020 would be revised down by 0.4 percentage point from 6% to 5.6%. Also, the global economic growth is estimated to be downgraded by 0.1 percentage point from the 3.3% expected prior to the Coronavirus issue. IMF Managing Manager KristalinaGeorgieva stressed in her latest speech on 5 March 2020 that, in any scenario, global growth would decrease by less than 2.9%, as it was last year. However, the degree of economic effects depends on the outbreak and the containment timeline.
- According to a Survey by FocusEconomics, the main effects of COVID-19 outbreak on the global economy is expected to be subtraction of global growth by 0.2 percentage point in 2020, as compared with the forecast prior to COVID19 outbreak. China’s GDP growth in 2020 also projected to be downgraded by 0.5-0.8 percentage points.
- Oxford Economics has revised down its forecast of the global economic growth in 2020 from 2.5% to 2.3%, down from the 2.6% foreseen in 2019. China’s economy is expected to grow by 5.4% in 2020, down by 0.6 percentage points as compared with the January 2020 forecast.
- The International Air Transport Association estimated $30 billion loss of revenue for airline and tourist companies caused by the COVID-19 outbreak and it foresees a slowdown of the industry from 4.8% growth to a 8.2% contraction in this sector.
- National Bureau of Statistics (NBS) of China released China’s Purchasing Managers Index (PMI), which slumped to a record level of 35.7 in February 2020 from 50 in January 2020.

IMPACTS OF CORONAVIRUS

The new corona viral strain (COVID-19) can have a major effect on human life, and not only the Chinese economy but the world economy can decrease significantly. China has been the focus of many multinational businesses. Chinese production disruption is expected to have implications across regional and global value chains elsewhere. In reality, China's latest data show a significant decline in production. In February, the vital index for Chinese manufacturing purchasing managers (PMI) dropped by about 22 points (Figure 1a).



The index is closely associated with exports and such a fall means that exports are reduced by approximately 2% annually. In other words, the fall in the availability of intermediate products in February over the year is equivalent to -2 percent. Shipping indicators also indicate a decrease for February in the amount of Chinese exports (Figure 1b). Throughout the first half of February, the number of container ships leaving Shanghai was slightly lower and in the second half increased. Nonetheless, it remains unchanged, suggesting surplus shipping capacity and lower demand for container ships in the Shanghai containerized freight index.



On the other hand, international economic organizations and central banks announced some accommodative packages to support the global economy:
• UN announced that it would release US$15 million to help vulnerable countries to contain the spread of the coronavirus;
• The IMF made about $50 billion available through its rapid-disbursing emergency financing facilities for low income and emerging markets;
• Finance ministers of G7 pledged to support the global economy under acute threat from the coronavirus;
• The U.S. Federal Reserve cut its benchmark interest rate by a half-point - the biggest reduction since the financial crisis 2008-9.
Considering all the above developments and putting our reference point of economic growth on the basis of the latest World Economic Outlook (WEO, January 2020), we have built up three scenarios on the economic impacts of coronavirus outbreak as follows:
• Short-Lived Coronavirus to be contained in 2nd Quarter of 2020 (3-5 months crisis);
• Mid-Lived Coronavirus to be contained 3rd Quarter of 2020 (6-8 months crisis);
•Long-Lived Coronavirus not to be contained by the end of 2020 (more than 8 months).

Table 1 below shows our forecasts of the GDP growth in some selected countries and regions as well as the global growth.

		Global GDP	China	Japan	Europe	U.S.
WEO (January 2020)		3.3	6.0	0.7	1.3	2.0
Short-Lived Optimistic	To be contained in 2nd Quarter 2020	3.1	5.4	0.5	1.1	1.9
		(- 0.2)	(-0.6)	(-0.2)	(-0.2)	(-0.1)
Mid-Lived Baseline	To be contained in 3rd Quarter 2020	2.7	4.9	0.2	0.7	1.6
		(- 0.6)	(-1.1)	(-0.5)	(-0.6)	(-0.4)
Long-Lived Catastrophic	Not to be contained by the end of 2020	2.0	4.0	0.0	0.3	1.2
		(- 1.3)	(-2.0)	(-0.7)	(-1.0)	(-0.8)

We think the coronavirus is present in our baseline scenario by Q3-2020. As a result, in early January 2020 the world economy will experience a dramatic deceleration to stabilize about 2.7 percent (based on IMF, OECD and World Bank estimates, prior to the emergence of the coronavirus). The very positive short term scenario implies that, by substantial political and monetary support and a lifting of enforced quarantine steps, the period of disruption should be mastered by the advice of the medical experts and the researchers in Q2-2020. In this long-lived scenario-which is the global economy's alert scenario-a sustained disruption of supply chains and a low market may have a virulent economic effect on COVID-19. World trade will be limited under this situation and global spending will continue to be undermined. Nevertheless, the world economy is weak and oil prices are falling with all their consequences. It is important to point out that in all the above-mentioned scenarios, aftershocks need to be addressed, as they can prevent economic growth from stabilizing at the expected pace of our current estimates, and so global economic growth is likely to be well below the figures shown in Table 1. Our research, which is motivated by the present troubling situation, will not contribute to the world's coronavirus resistant economy, and if no positive global intervention is taken and accepted, the effect will be heavily felt worldwide.

IMPACT ON GLOBAL VALUE CHAINS

China has been essential to the world economy in the last two decades. In the global economy, China's growing importance is not only linked to its position as a consumer goods manufacturer and exporter. China has been the principal intermediate product supplier to international manufacturing enterprises. Today, around 20% of worldwide trade in intermediate manufacturing goods comes from China (up from 4% in 2002). Chinese incorporation into the global supply chains through industries, as calculated by GLI, is shown in Figure 2.

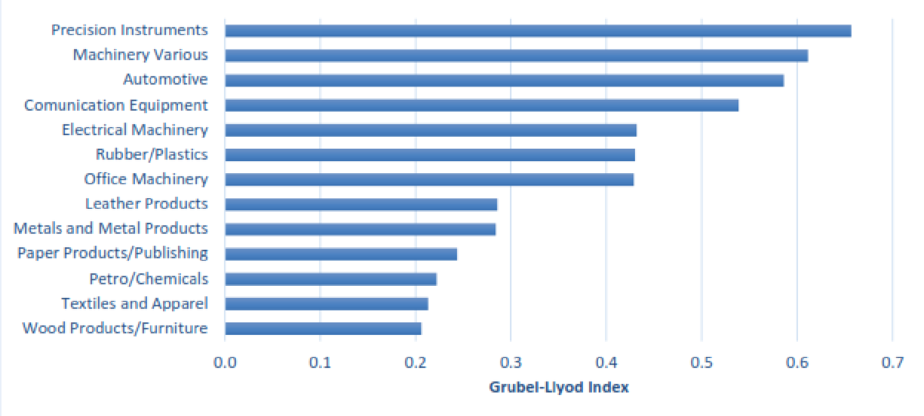


Figure 2 - China Integration in Global Value Chains, by sector

Many global value chains, especially those relating to precision instruments, machinery, automotive and communications equipment, rely on Chinese production. Any large supply disruptions in these industries in China are expected to have a major effect on producers around the world. Some businesses worldwide are also afraid that measures to contain COVID-19 (i.e. restrictions on economic and human movement) could impede the supply of essential parts by Chinese manufacturers, thereby affecting their own production.

ECONOMIC POLICY CHALLENGES

Policymakers were faced with one challenge: introducing targeted measures that resolve what are supposed to be short-term concerns without distorting the effects of the virus itself in economies. However, policy makers are overwhelmed by the rapidly changing complexity of the global health crisis, which appears to have developed into a global commercial and economic crisis with increasingly growing possible effects on the global economy. With continuing growth of the pandemic's economic consequences, policymakers are likely to raise policy weight at the cost of long-term considerations. Initially, many policymakers felt limited in their ability to respond to the crisis due to a limited degree of flexibility for monetary and fiscal support within traditional norms, particularly in the manufacturing and trade sector which developed in advance of the viral outbreak. The first, short-term supplementary problems had to be anticipated with the economic effects of the virus, as factory production dropped as workers were in charge of reducing the spread of the virus through social contact. As businesses have seen delays in deliveries of medium to finished products through supply chains, economic development, first in China, has international implications. There have, however, become more aware that the virus-related supply shock is producing longer and broader demand shocks as a result of lower customer and company activity. As market shocks grow, businesses face downturns, lower profits, and possible credit and liquidity constraints. Although manufacturing firms suffer supply chain shocks, reduced customer engagement through social distancing affects the business services market, which accounts for two-thirds of US business performances annually. Manufacturing companies and service companies collect cash in this environment that affect the competitiveness of the market. In response, central banks have, where possible, lowered interest rates and increased lending facilities to provide liquidity for financial markets and companies that are potentially insolvent. If the economic effects continue, it that spread to an ever-expanding group of countries, businesses and households through trade and financial ties. This will potentially further raise liquidity constraints and a tightening of the credit market in global capital markets as businesses harvest cash with negative economic growth implications. At the same time, financial markets have factored in increased government bond issuance in the USA and Europe as public debt rates grow to satisfy budget commitments during an predicted economic downturn and raise tax expenditure to counteract the impact of COVID-19. In comparison to the financial crisis of 2008-2009, reduced customer demand, work market challenges, and reduced business rates have contributed to corporate credit issues and potential insolvency instead of aggressive lending by multinational banks. Some analysts have questioned whether these developments are the start of an extensive global financial crisis. These market conditions are not.

Liquidity and credit markets concerns pose a new set of issues for policymakers rather than solving supply-side restrictions. Via a variety of political, fiscal and other policies, including border closures, quarantines and limitation of socio-interaction, government policy has therefore widened its focus from one health problem to the macro-economic and financial market issues. In essence, while firms are trying to fix worker and product problems at firm level, national leaders are trying to put fiscal policies in place to prevent economic growth from declining rapidly through help to financial stress workers and businesses, and central bankers are adjusting monetary policies to resolve growing problems on the credit market. And with the number of job losses increasing rapidly, there will be mortgage defaults and rent-payment crime when financial institutions offer no credit or whether there is a financial assistance system. Hypothetical defaults may in turn impact the mortgage-backed securities market, the availability of mortgage funds, and the overall economic growth rate negatively. Price losses for most stock markets in the United States. It could also affect Asia and Europe's household wealth, especially fixed income retirees and other equity owners. An investor reportedly cutting its holdings as the Federal Reserve is seeking to boost the demand for trading in mortgage-based securities. Also common policy instruments, such as money housing, tend to have struggled to historically be dealt with by the markets in the current setting, with stock market indexes showing higher rates of volatility rather than lower following the Federal Reserve's interest-rate cut. Such instability raises confusion as to what policymakers will do to counter global economic vulnerabilities.

ECONOMIC DEVELOPMENTS

Investor worries about COVID-19 generating a few indicators of global economic and financial crisis showing how severe and widespread the economic effects may have were whipswept between the end-February and the beginning of Aprils 2020. Investors, such as the US index, have found safe haven investments. 10 year treasury protection, which saw a historic decline in yields on 3 March 2020 to less than 1 per cent. The Fed decreased key interest rates on 3 March 2020, to increase economic activity, in response to concerns that the world economy was in free-fall, while the Bank of Japan purchased assets to provide Japanese banks with short-term liquidity and Japanese government said it would also support wage subsidies to workers. Even its core interest rate dropped in the Bank of Canada. The IMF announced that it is making about $50 billion available through its Catastrophe Containment and Relief Trust (CCRT) emergency funding facility to low-income and emerging markets and financing. Recognizing the in certitudes of investors, between 14 February 2020 and 23 March 2020, the Dow Jones Industrial Average (DJIA) lost about one third of its value as shown in Figure 3. Expectations in the United States The DJIA was to be raised by more than 11% on 24 March 2020, by Congress, to follow a $2.0- trillon spending plan. Some policy-makers have been worried about the decline in share prices that foreign investors might exploit the situation by boosting their purchases of companies in sectors deemed important for national security. Ursula von der Leyen, President of the EU Commission, urged EU members, especially in the areas of health, health research and critical infrastructure, to strengthen their screen ship of foreign investment.

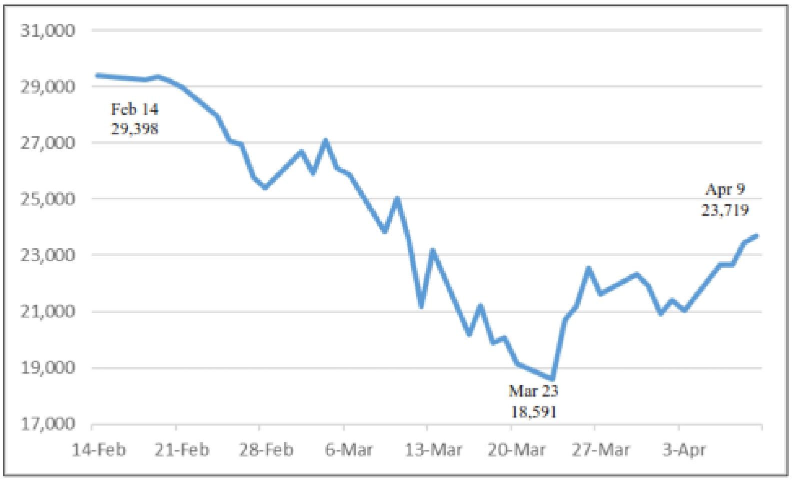


Figure 3. Dow Jones Industrial Average (February 14, 2020 to April 9, 2020)

Figure 4 shows that over the period from 3 March to 13 March 2020, the dollar increased more than 3.0 percent as a result of a growing worldwide demand for money-dollar assets. The dollar constitutes 88 percent of the world's foreign exchange turnover and is crucial to financing various financial transactions including the invoicing money that enables international trade, according to a recent survey by the Bank for International Settlements (BIS). It also accounts for 2/3 of the foreign currency reserves of the central bank, half of which is not US. Foreign currency deposits banks and non-U.S. two-thirds. Company financing from banks and the bond market of companies. This may have large implications on international trade and financial transactions on disturbances in the smooth functioning of the world dollar sector. The dollar's foreign position also increases the pressure on the Federal Reserve to play its primary role as the global last resort lender. Reminiscent to the financial crisis, the global economy has experienced a dollar shortage, forcing the Federal Reserve to take numerous measures to guarantee US and world economy dollars, including the activation of existing exchange agreements with additional central banks and the creation of new financial facilities to provide liquidity. In general, banks are lending and short-term borrowing and can borrow only from their central banks at home. In exchange, central banks can only provide their own currency with liquidity. As a result, a bank in panic may become unliquid so that it cannot borrow to meet short-term cash flow requirements on private markets. Swap lines are intended to allow the money needed to provide the banks in dollars of their countries with the necessary liquidity. When world leaders postpone international gatherings, the pandemic affects global affairs, and some countries are supposedly promoting conspiracy theories that blame others.

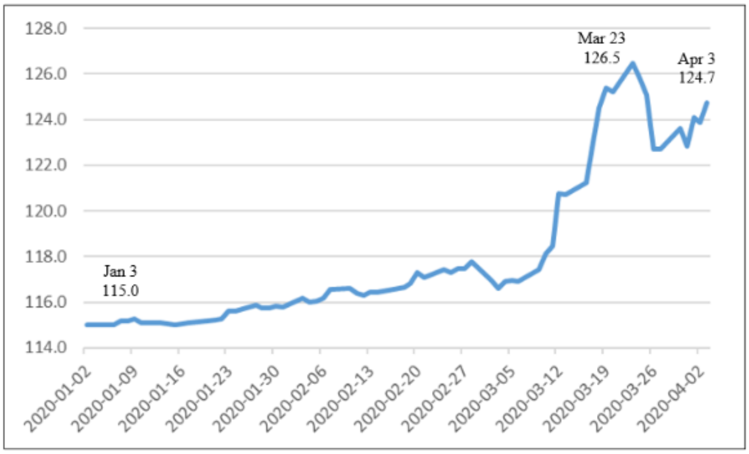


Figure 4. U.S. Dollar Trade-Weighted Broad Index, Goods and Services

IMPACTED COUNTRIES

A decrease in Chinese supplies of intermediate inputs will affect the production capacity and thus the exports of each country depending on how dependent Chinese suppliers are on its industries. In Japan businesses could find it difficult to procure components required for assembling digital cameras, etc. For example, European car makers might face shortages of critical components for their operations. For many firms, the limited use of stocks brought on by a slight and time-consuming manufacturing process would lead to shortages that would affect their output and overall exports. COVID-19's possible effects on exports to Chinese supply disruptions in the most exposed countries. The most affected economies would usually be the European Union (Machinery, Automobile and Chemistry), the United States (Machinery, Machinery, Automobile and Precision Instrumentation), Japan (Automotive and Automotive), and the République of Korea (Machinery and Communication Equipment).

GLOBAL GROWTH WILL SLOW DOWN AND SLOWLY RECOVER IN YEAR 2021

There are very uncertain prospects for growth. The forecasts are based on the assumption that China's disease peaks are being gradually recovered in the first quarter of 2020, accompanied by substantial domestic policy relaxation in the second quarter. In addition to the recent pronounced downturn in global financial conditions and increased uncertainty, global GDP growth will be squeezed by the first quarter of 2020, and even lowered to zero. Whereas, according to supposed illustrative simulations, worldwide growth can be cut by 1/2 percentage point in the year as planned, even if COVID-19 effects slowly decrease by 2020 (Figure 5). New cases of virus are also believed to be sporadical and found in other nations, but global development would be substantially poorer if this is not the case.

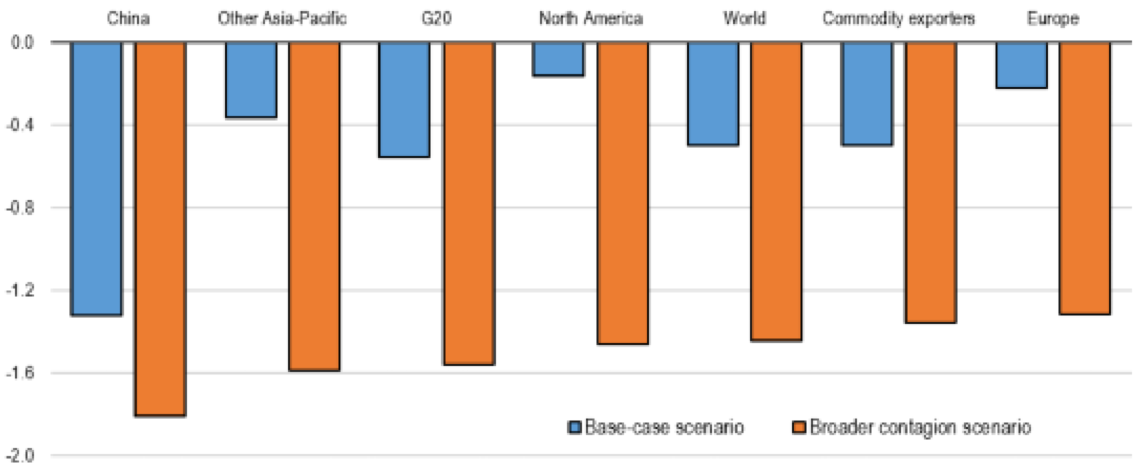


Figure 5. Illustrative coronavirus scenarios highlight the adverse impact on growth Change in GDP growth in 2020 relative to baseline, percentage points

On that basis, growth of world GDP is expected to be slowing from 2.9 to 2.4percent this year, with the impact of coronavirus fading and recovery gradually increasing up to about $3\frac{1}{4}$ percent in 2021 (Figure 6). The policy measures announced and enforced in the provision would contribute to promoting incomes in the short term, particularly for the companies and households concerned. In the most exposed countries, macroeconomic policy stimulus is going to help re-establish confidence, as the outbreak and suppliers disrupt the results. Small interest rates will help to reduce demand, even though in advanced economies the impact of recent and planned policy changes on business are likely to be moderate.

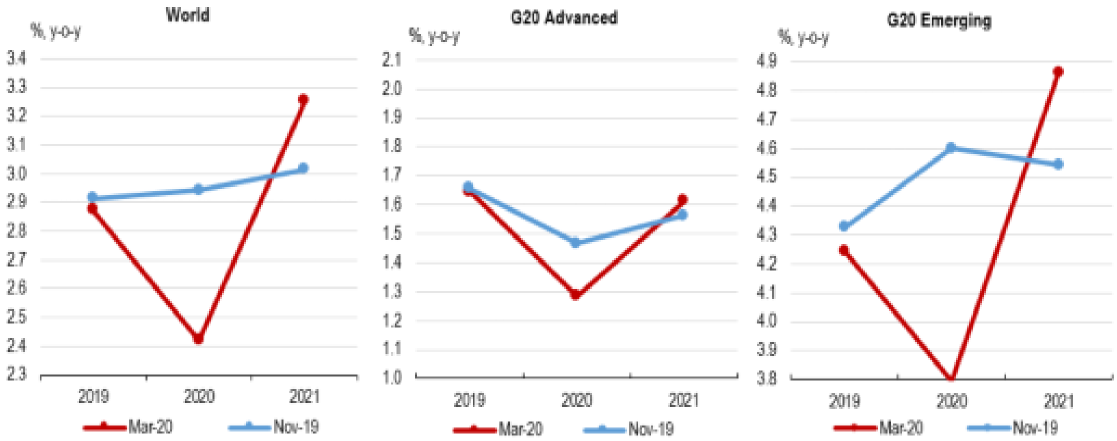


Figure 6. GDP growth prospects are set to remain weak

Fiscal policy easing will also contribute to Asian economies, but in many other countries, especially in Europe, soft growth opportunities and low borrowing rates are probably more restrictive than desirable. Household spending tends to strengthen the conditions on the labor market, but slow employment growth is likely to weigh down and poor productivity growth and investments will limit the pace of real wage gains. Uncertainty is likely to continue to grow, with still poor trade and investment. The decline in perception of the financial market risk and the fall in tourism and business travel would also limit demand growth for some time to come.

THE MAJOR MARKETS HAVE MIXED EXPECTATIONS:

•China's outlook for 2020 has been substantially updated, with GDP growth expected to be just fewer than 5 percent in the calendar year. The Calendar-year growth of 2021, with production rates largely in keeping with the forecasts in the absence of the coronavirus outbreak, will correspondingly rise to between $6\frac{1}{4}$-$6\frac{1}{2}$ percent. In several economies closely interconnected to China, such as Japan, Korea, Australia and Indonesia, the trend is expected to be similar, but less pronounced.

•The effects on other less heavily embedded economies, especially in the United States and Canada, are projected to be relatively mild, whereas the erosion of confidence, supply chain disruption and weaker external demand are projected to limit prospects for development.

•Growth is expected to remain below par in the Euro Area at approximately 1 percent per year on average in 2020-21 but will be lower in the first half of 2020 as a result of virus outbreak. The plans for the United Kingdom and the euro area are expected to come into effect from beginning 2021 on a simple free trade agreement. If it is implemented smoothly, greater costs of service exports and administrative non-tariff barriers are likely to affect exportation and growth of production by 2021.

•For many emerging economies a gradual, if moderate, recovery is expected for 2020-21, but the scale is uncertain. The renewal will expect positive effects from reforms and monetary policy support to India and Brazil, well-focused policy initiatives to fuel sustainable growth in Mexico and Turkey, and the ambitious recovery of commodity exporters this year, exposed to slowdown in China.

II. Conclusion

The coronavirus is a significant and rising threat to China's vulnerable and world economies. It is hard to suppress the degree to which the virus eventually spreads and how virulent it is, but China and the rest of Asia are now highly destructive. The United States won't be immune from the adverse effects. In the most likely scenario for the virus spread, coronaviral disruption in the first quadr of this year will, in accordance with our global economy model, be less than 2 percentage points from real Chinese GDP growth at an estimated pace and 0,8 percentage point from growth for all 2020. Actual US GDP growth will be reduced by 0.45% in the first quarter at an annualized rate and by 0.15% in the year. There are, of course, many other examples, each claiming to be darker than the last. The new coronaviral strain (COVID-19) could not only significantly slow down Chinese economy but also global economic development, in addition to its alarming effects on human life. China has been the focus of many multinational businesses. Chinese production disruption is expected to have implications across regional and global value chains elsewhere. Any disruption of China's output is expected to have repercussions elsewhere through regional and global value chains.

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