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Research on the Impact of COVID19 on Global Economy

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Abstract. With the development of cosmopolitanization and globalization, dense population and large-scale population flow not only make the economy more integrated, but also make the spread of the plague more rapidly. The impact is unprecedented. The outbreak of COVID-19 has disrupted the Chinese economy and is spreading globally. The evolution of the disease and its economic impact is highly uncertain. Because of its high infectivity, high mortality and incubation period, the main preventive measures are to control social distance and isolation, which makes many economic activities impossible. Global GDP will fall by as much as 3%, while developing countries will be the hardest hit, as much as 4% on average, but some were more than 6.5% and world merchandise trade will plummet by 13% in 2020 due to the COVID-19 pandemic. This paper analyzes the macro economic impact of new coronavirus on the world GDP, merchandise trade (taking China as an example with other countries), and various industries, and proposes some countermeasures.

1. Introduction

Covid-19 is spreading rapidly around the world. It is not a simple accident from the first discovery of the new corona virus in Wuhan, China at the end of 2019. Tedros Adhanom Ghebreyesus pointed out that the new corona virus will coexist with us for a long time. The outbreak of COVID-19 has disrupted the world economy. Because of its high infectivity, high mortality and incubation period, the main preventive measures are to control social distance and isolation, which makes many economic activities impossible. The COVID-19 will change the macro environment of the world economy from the aspects of aggregate demand and total supply, labor income and financial market trade. The evolution of the disease and its economic impact is highly uncertain. But before that, people did not treat infectious diseases as an important factor affecting the economy.

According to annual Trade Outlook on 8 April issued by WTO, world merchandise trade will plummet by between 13 and 32% in 2020 due to the COVID-19 pandemic. WTO economists believe the decline will likely exceed the trade slump brought on by the global financial crisis of 2008-09. Trade is likely to fall more steeply, particularly in electronics and automotive products. Services trade will also be highly impacted due to the imposition of transport and travel restrictions and the closure of many retail and hospitality establishments. It is said global GDP will fall by as much as 3%, while developing countries will be the hardest hit, as much as 4% on average, but some were more than 6.5% (Maliszewska et al., 2020)^[1].

This paper will analyze the macro economic impact of new coronavirus on the world, and take China as an example to analyze its impact on three main industries, as well as World Trade solutions.



2. The Impact of COVID-19 on World Economy

2.1. The impact of the new COVID-19 on GDP in various countries

The COVID-19 pandemic differs markedly from past triggers of downturns. Infections reduce labor supply. Quarantines, regional lockdowns, and social distancing are usually adopted to contain the virus. Workplace closures disrupt supply chains and lower productivity. Layoffs, income declines, fear of contagion, and heightened uncertainty make people spend less, triggering further business closures and job losses. All lead to a shutdown of a significant portion of the economy (IMF). These domestic disruptions spill over to trading partners through trade and global value chain. Compared with the great depression in 2008, the impact of COVID-19 on global economy is more severe. According to IMF, the world will lose 9 trillion US dollars, equivalent to the GDP of Japan and Germany, 6 times that of South Korea. The impact of new coronavirus on GDP in various countries is as the following Table 1.

Table 1 The impact of COVID-19 on global economy compared with the economic crisis in 2009(%)

GDP growth rate	2008	2009	2019	2020	2021
World	3	-0.1	2.9	-3	5.8
China	9.7	9.4	6.1	1.2	9.2
Japan	-1.1	-5.4	0.7	-5.2	3
Korea	3	0.8	2	-1.2	3.4
United States	-0.1	-2.5	2.3	-5.9	4.7
ASEAN-5	5.4	2.5	4.8	-0.6	7.8
European Union	0.9	-4.2	1.7	-7.1	4.8
Africa	4.5	3.2	3.2	-1.7	4.6

Source: https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD

As seen in Table 1, in 2009, due to the economic crisis, the global GDP was only reduced by 0.1%, but in 2020, the global economy will be reduced by 3%. In all the countries listed, except China, the economic growth is all negative, but even so, China's economic growth is 4.8% lower than the IMF predicted before the outbreak in January. The biggest negative impact on the EU will be 7.1%, followed by 5.9% in the US and 5.2% in Japan^[2].

2.2. Impact on merchandise trade

According to Korea trade association data, the outbreak of COVID-19 has disrupted the world commodity trade greatly. Take China as an example to explain its impact on the imports and exports with Korea, Japan and the United States as seen in Table 2.

It shows that in the first quarter, all most all the imports and exports of China with USA, Korea, Japan, are negative. Especially with USA, the biggest import and export growth rates are -23.54%, and -36.47% respectively on March. The biggest import growth rate of China with Korea was -17.91% on April, and export of -13.01% on February. With Japan, the biggest export growth rate reached -47.02% on February and import of -8.75% on March.

Table 2 Growth rate of commodity trade between China and other countries

Trade amount and growth rate Year		2020	2019		2020	2019	
Countries	Month	Import amount		Growth rate	Export amount		Growth rate
United States	3	7,971,890	10,426,534	-23.54%	19,805,426	31,175,673	-36.47%
	2	6,815,003	8,433,552	-19.19%	22,813,059	33,194,398	-31.27%
	1	7,215,277	7,134,336	1.13%	33,280,571	41,603,831	-20.01%
Japan	3	11,072,992	12,134,768	-8.75%	13,316,389	13,935,852	-4.45%

	2	10,565,088	10,599,601	-0.33%	6,265,724	11,826,917	-47.02%
	1	8,338,718	8,910,999	-6.42%	16,144,501	17,103,441	-5.61%
Korea	4	10,203,532	12,429,814	-17.91%	9,616,908	9,793,054	-1.80%
	3	10,684,398	11,442,781	-6.63%	8,949,028	8,804,782	1.64%
	2	8,827,088	9,532,194	-7.40%	5,552,953	6,383,455	-13.01%
	1	9,645,824	10,836,336	-10.99%	9,424,173	10,338,825	-8.85%

Source: <https://www.kita.net/>

Both import and export amount between China and USA, Japan and Korea is decreased in the First quarter of this year compared with the Last quarter of Last year, as Fig. 1 and Fig.2.

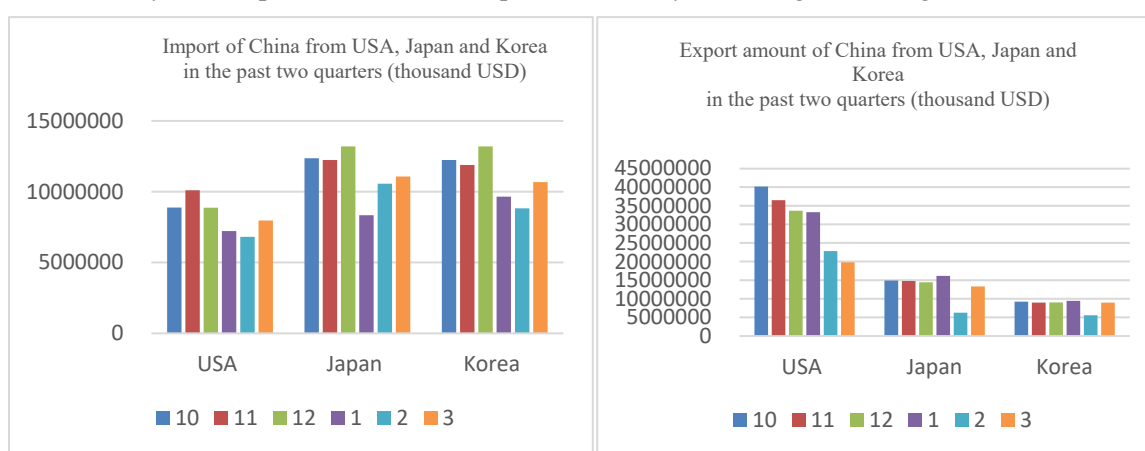


Fig. 1 Import amount of China in the past two quarters Fig.2 Export amount of China in the past two quarters

As can be seen from the import and export chart, compared with the last quarter of last year, imports in the first quarter of 2020 have been significantly reduced. With the lockdown of Wuhan on January 23, China entered the most severe period of the epidemic, and its export amount fell sharply. Exports to Japan fell by 61%. As the epidemic in the United States became severe, it dropped sharply in February and March, while Korea and Japan recovered slightly as the epidemic eased.

3. The Impact of COVID-19 on the Three Industries

3.1. Impact on primary industry

When the epidemic is still going on in many countries, the impact of the primary industry will be further intensified. The United States euthanized pigs, dumped milk and other economic depression scenes repeated. Germany poured out a lot of beer. Many fast food restaurants can't even produce hamburgers. Because of the outbreak of the epidemic, the transportation of agricultural means of production is blocked, the feed for livestock and poultry breeding is difficult to get in and out of the market, and mature vegetables are unable to enter the market, which makes the vegetables rotten on the ground, livestock slaughtered and buried, causing great losses and waste (<http://www.fao.org/news/story/en/item/1269721/icode/>)^[3].

3.2. Impact on secondary industry

The manufacturing sector is a major part of the economy as it accounts for nearly 16% of the global GDP in 2018. As per the estimation by United Nations Conference on Trade and Development (UNCTAD), the COVID-19 outbreak could cause global FDI to shrink by 5%-15%, due to the downfall in manufacturing sector coupled with factory shutdown.

Due to the epidemics of COVID-19 across the globe, the manufacturers of automobile, food &

beverage, chemical, machinery, electrical and electronics, metal, aviation, pharmaceutical and aircraft are facing concerns regarding the availability of raw materials. In recent months, there has been a strong demand for medical materials. According to the data calculation of UN COMTRADE, in 2018, China's export of medical masks accounted for 46.0% of the world's total export, and the export of protective clothing accounted for 49.3% of the world's total export. Under the global spread of the epidemic, in 2020, the products with large estimated export value of national defense epidemic products are mainly medical masks, disposable hats, medical gloves (plastic materials), ultrasonic CT, medical goggles, protective clothing, patient monitors, alcohol cotton ball cotton swabs, respirators and infrared thermometers(Shen,2020)^[4].

3.3. Impact on the tertiary industry

The travel and tourism sector with COVID-19 outbreak, has been particularly hard hit. The European Union's tourism industry is estimated to be losing around €1 billion in revenue per month as a result of the outbreak. Due to the severity of travel restrictions and the expected global recession, the International Air Transport Association (IATA) estimates that industry passenger revenues could plummet by US\$252 billion, 44 per cent below the 2019 figure. According to the statistics of the Ministry of Transport of the People's Republic of China, in 2020 the Spring Festival Railway sent passengers 210 million passengers, a year-on-year decrease of 47.3%, highway passengers 1.21 billion passengers, a year-on-year decrease of 50.8%, waterway passengers 16.89 million passengers, a year-on-year decrease of 58.6%, and civil aviation passengers 38.39 million, a year-on-year decrease 47.5%(http://www.mot.gov.cn/jiaotongyaowen/202002/t20200220_3334989.html)^[5].

But online services have risen dramatically. Listening to songs, fitness, or learning through online courses, make telecommuting, online medical. The market scale of online education in 2020 is expected to exceed RMB300 billion yuan in China (Zheng et al., 2020)^[6].

In a word, due to the COVID-19 outbreak, it is difficult to move the agricultural products in the primary industry to process in the secondary industry, resulting in losses and wastes. At the same time, chemical fertilizers and machines produced by the secondary industry cannot be delivered to farmers, which further affects the primary industry. The stoppage or slowdown of the secondary industry has caused the loss of transportation of the tertiary industry. Even if the secondary industry produces products, the lack of manpower for transportation will also make the products unable to reach the next stage. The lack of sales personnel in the tertiary industry leads to the slow-moving or waste of commodities in the primary and secondary industries. It is also due to the closure of the tourism and catering industry that adversely affects the primary industry. Because of maintaining social distance and less people moving, all industries will restrict each other. The effect of COVID-19 on the Three Industries is as the Fig. 3.

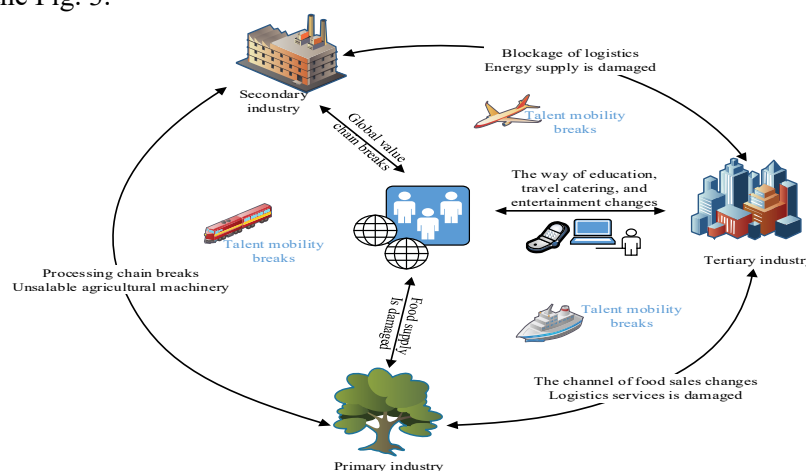


Fig. 3 The effect of COVID-19 on the three industries

4. Countermeasures for economic development in coping with COVID-19

With the continuous outbreak of new coronary pneumonia, the protection trade has deepened, and various international organizations have been threatened. But to overcome difficulties, countries need to strengthen policy coordination and cooperation, achieve economic stability through economic rescue and stimulus programs, and prevent the biological crisis from evolving into an economic crisis ; To cope with future epidemics, infrastructure construction such as health insurance and artificial intelligence should be strengthened to explore growth points; To reduce labor use in developing countries, continuous innovation and reform should be created(Tong, et al., 2020)^[7].

4.1. To strengthen international cooperation

WTO as an organization established for global trade, it also carries out other economic activities based on the protection of human security. Two WTO agreements address measures adopted by members to protect public health or public safety--the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and the Agreement on Technical Barriers to Trade (TBT Agreement). The leaders of the World Customs Organization (WCO) and the World Trade Organization (WTO) issued a joint statement on April 6, promising to work together to promote the trade of medical supplies, food, energy and other necessary materials. Members should strengthen cooperation to facilitate and simplify cross-border procedures, especially to prioritize those for exporting and importing essential goods to cope with COVID-19. The UN system on 25 March launched a consolidated humanitarian appeal under which FAO asked donors for \$110 million to protect the food security of vulnerable rural populations.

As Bill Gates said the world needs WHO now more than ever. When faced with difficulties, the world needs cooperation more than ever. Strengthening cooperation would be more effective than acting alone, as it would have a positive spillover effect through trade and improved confidence (Boone, 2020)^[8].

4.2. To increase infrastructure construction

The infrastructure construction includes public investment in health care, traffic infrastructure, and climate change. In response to the Asian financial crisis in 1998 and the global economic crisis in 2008, the Chinese government has invested in large-scale infrastructure, greatly reducing transportation costs, improving the efficiency of resource allocation among regions, and enhancing the global competitiveness of made in China. First, qualified public investment is necessary in health care systems to protect people and minimize the risks from future epidemics. Second, new infrastructures such as, 5G, artificial intelligence, industrial Internet, smart city, digital economy, education, medical and other new infrastructure should complement the traditional infrastructures to cultivate new economic growth point (Liao and Zhang, 2020)^[9].

4.3. To create more innovation and reform

In developed countries, machines have created 85% of GDP. It is vital for developing countries to keep up with this and strengthen innovation and scientific development. Logistics has a great impact on various industries, and the innovation of logistics methods such as drones will play an important role in future development. The South Korean government's car-free quarantine, as well as automobile movie theaters, whether in the epidemic prevention or service industries, continue to innovate and keep pace with the times.

5. Conclusion

The COVID-19 is spreading rapidly around the world. Global GDP will fall by as much as 3%, while developing countries will be the hardest hit, as much as 4% on average, but some were more than 6.5% and world merchandise trade will plummet by between 13 and 32% in 2020 due to the COVID-19 pandemic. First, this paper compares the impact of COVID-19 on global GDP with the economic crisis in 2009 and compares the changes in import and export amount affected by the epidemic

situation of China with the United States, Japan and South Korea in the First quarter. Second, this paper explains the impact of various industries to provide a basis for future countermeasures. Last, this paper presents some suggestions for coping with the COVID-19 in the world economy. For the uncertainty of COVID19 pneumonia, this paper only analyzes the impact on several major countries' economy since the outbreak of the epidemic and only makes a simple explanation on the commodity trade in the macroscopic aspect. A global crisis requires a global response and there is a need for global collaboration and cooperation not just on health, but also on trade, finance and macroeconomic policies.

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