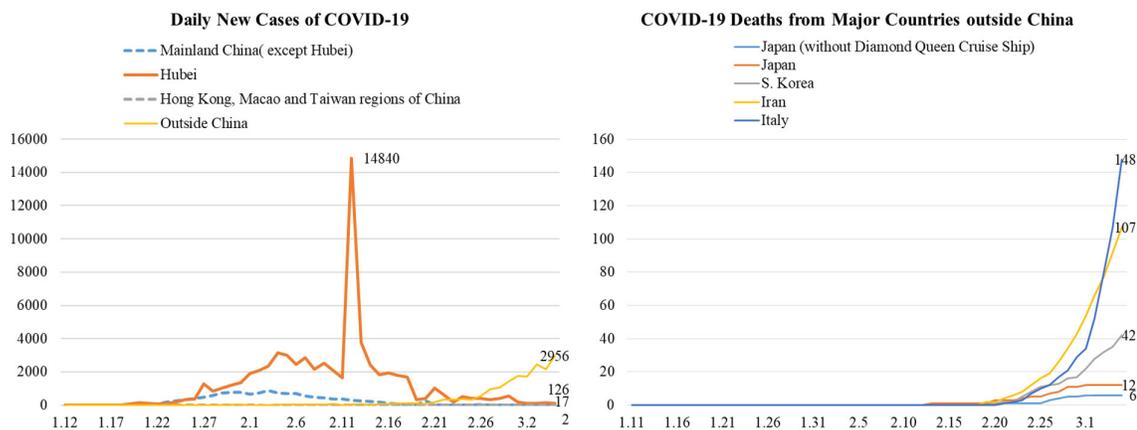


Slow Recovery as COVID-19 Goes Global

By Luohan Academy

During the past 10 days, there have been significant new developments in the global Coronavirus 2019 (COVID-19) outbreak. The number of new cases rose sharply in Iran, Italy and South Korea, business and consumer confidences sank across the world. Global equity markets suffered sharp declines, as implied volatility indices jumped. Besides its potentially dire consequences for the Chinese economy in the first quarter of 2020, now the virus is expected to have a major impact on global trade and investment. This note examines the recent developments in **global financial markets**, in **China's e-commerce, domestic and cross-border**, as well as the progress made in terms of **production resumption** in the country, which is fundamental for jumpstarting growth.

Figure 1: Evolution of the COVID-19 Outbreak in and out of China



Notes: As of March 5, 2020.

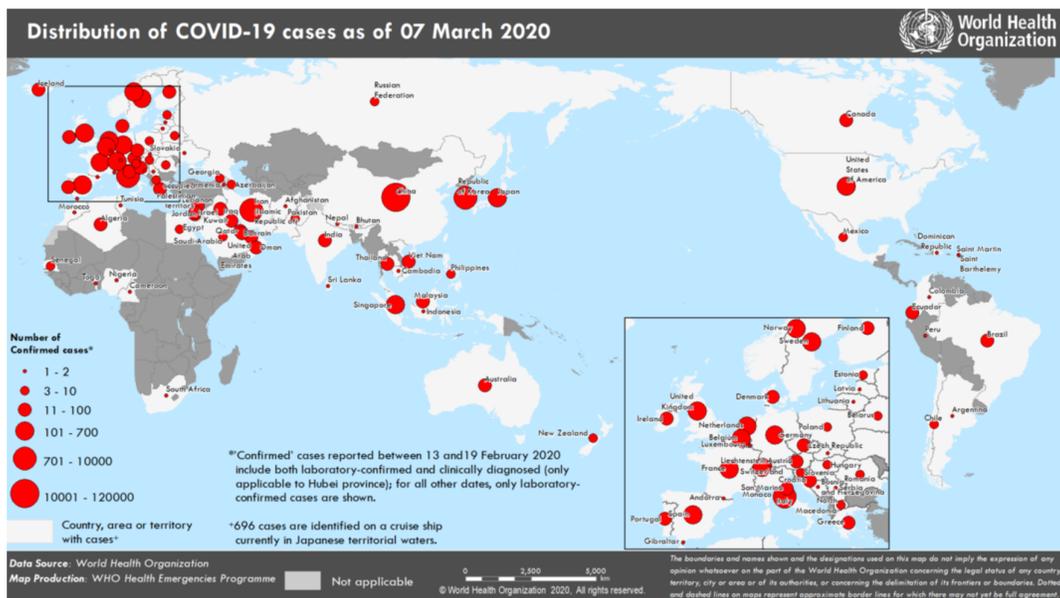
Source: Luohan Academy compilation.

I. Further Spread of COVID-19 Beyond China

Over the past two weeks, the pace of COVID-19 contagion in China, including the epicenter Hubei and the provincial city Wuhan, has further slowed and new cases have gradually stabilized to a record low level (Figure 1, left-hand panel). Thousands of patients recovered each day, pushing the cure rate to above 70%. The current trend is generally consistent with our earlier projection that "in most provinces, new cases of

COVID-19 would stop growing by early March, and the number of cumulative confirmed cases should peak". Overall, we expect the number of newly confirmed cases in China, including Hubei, to continue to fall in the coming weeks, and the number of cumulative cases to peak by mid- to late March. **A major, new source of uncertainty relates to potential contagion from abroad.** Notably, as of March 7, 63 news cases came from abroad, highlighting the risks of "re-importing" virus infection.

Figure 2: COVID-19 Spreads Worldwide



Source: WHO Coronavirus disease 2019 (COVID-19) Situation Report 47 on March 7, 2020.

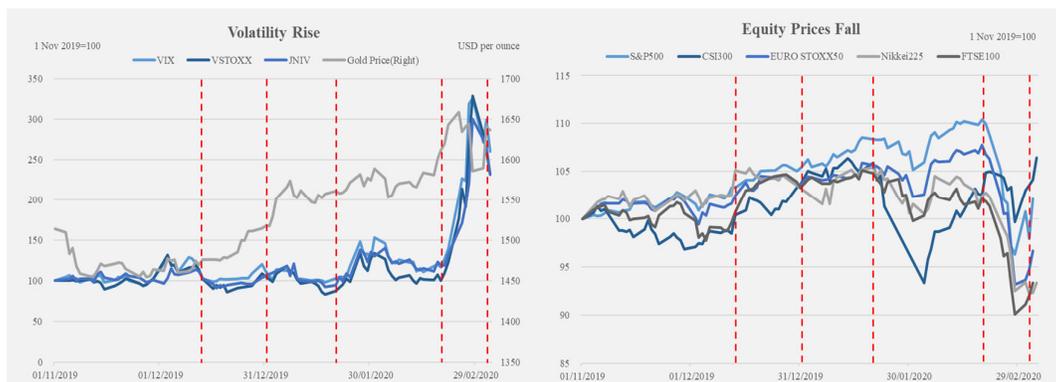
During this period, **COVID-19 has spread to all continents except Antarctica.** As of March 7, 101,927 cases have been confirmed in 93 countries and territories (Figure 2). So far, over 51,000 people have recovered, but nearly 3,500 people died, including 413 people out of mainland China. **In the past week, the daily number of newly confirmed cases outside China has outpaced that within China** (Figure 1, right-hand panel). New cases rose rapidly in some countries, e.g. South Korea, Italy, and Iran, and the growing case count in the United States is alarming.

The COVID-19 outbreak's global reach has caused growing concerns among the policymakers and the general public. On February 28, the WHO re-assessed and raised its global risk level to "very high", the highest level in its classification, and a pandemic might be declared at the current pace of global COVID-19 contagion. While the responses to the outbreaks vary, all affected countries face severe shortages of personal protective equipment, as well as test kits for COVID-19. COVID-19 outbreaks in the United States, Europe, Korea, and Iran appear to be at an early stage, and risks could escalate in some developing economies in Africa, Southeast Asia and Latin America, considering their limited medical resources and capacity.

II. COVID-19 Impact on Global Financial Markets

Until late January, much of the economic impact of COVID-19 concentrated in China. However, the spillover effects became more visible with COVID-19 outbreaks in Japan, Singapore and South Korea, and the outbreaks eventually led to a **panic run on global financial markets** with a sudden rise of newly confirmed cases announced in Iran, Italy and the United States. If the epidemic continues for an extended period, or if it eventually morphs into a major pandemic, COVID-19 can have a sizeable impact on consumer and investor confidence, and yield significant adverse effects on global trade and investment. Reduced cross-border flows of labor and goods and services have started to cause severe strains to the global and regional value chains.

Figure 3: Impact of COVID-19 Outbreak on Global Equities



Notes: In the left-hand panel, VIX represents CBOE Volatility Index, VSTOXX represents Euro STOXX50 Volatility Index, JNIV represents Nikkei225 Volatility Index; Gold Price is the current London Metal Exchange (LME) gold price. Volatility and equity price indices are rebased to November 1, 2019 level.

The five red vertical lines indicate December 13, 2019 (announcement of the US-China phase-one trade deal); December 31 (arrival of National Health Council's first Team of Experts in Wuhan; and Hong Kong SARS' implementation of preventive measures); January 20, 2020 (China's acknowledgement of human-to-human transmissibility of Covid-19; its classification as Class B infectious disease and Dr. Lanjuan Li's proposal of Wuhan lockdown in the Executive Meeting of the State Council presided by Premier Li); February 19 (two COVID-19 deaths in Iran and Korea's acknowledgement of the possible multiple contacts by a super-spreader); and March 3 (US Federal Reserve's emergency 50-basis-point cut in the Federal Funds rate due to COVID-19 risks).

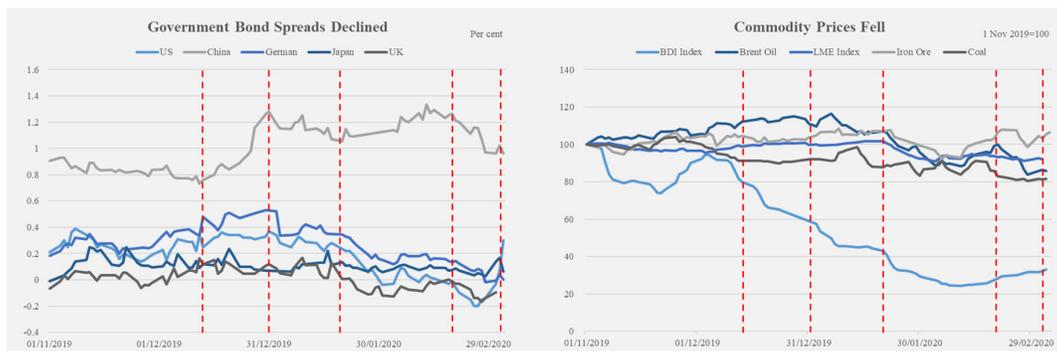
Source: Wind, Investing.com, Luohan Academy.

Market confidence fell sharply but gradually stabilized in China. In February 2020, the NBS manufacturing purchasing managers' index (PMI) plunged to a record low of 35.7 from 50 in January, with sharp declines in output component (from 51.3 to 27.8), new orders (51.4 to 29.3), employment (47.5 to 31.8) and suppliers' delivery time (49.9 to 32.1). The Caixin manufacturing PMI fell well below market expectations to 40.3, the

lowest level since the survey began in April 2004. February Business confidence was less affected in the United States and Germany, as US ISM Manufacturing PMI declined slightly to 50.1 from 50.9 in January, and Germany Ifo Business Climate Index remained unchanged at 96.10, but sizeable change are expected in March surveys. The rapidly spreading COVID-19 outbreak led the IMF to cut its 2020 global economic growth forecast to below 2.9%. **Trade and growth are expected to slow in all major economies.**

Financial markets improved upon the news of a US-China phase-one trade deal on December 13, 2019, but the good mood did not last. The price of gold, a protective asset that hedges financial risks, jumped after the arrival of the National Health Council's first Team of Experts in Wuhan on December 31, despite little reactions in the **implied volatilities** in the US, European and Japanese markets (Figure 3, left-hand panel). As China acknowledged human-to-human transmissibility of Covid-19 on January 20, 2020, and Wuhan lockdown started on January 23, volatilities rose significantly, and **equity prices** fell in all major markets, especially in China (Figure 3, right-hand panel). Stock prices fell sharply as COVID-19 contagion became serious in Iran and Korea on February 19, before a partial recovery in late February, further supported by US Federal Reserve's emergency 50-basis-point cut in the Fed Funds rate on March 3. However, **with improved epidemic control, equity prices in China rebounded in February, and they have performed better than in other major markets.**

Figure 4: Impact of COVID-19 Outbreak on Bond and Commodity Markets



Notes: In the left-hand panel, the difference between 10-year government bond yield and 3-month bill rate. In the right-hand panel, BDI Index is Baltic Dry Index; Brent Oil is the price of UK Brent crude oil; LME Index is the London Metal Exchange Index; Iron Ore is the Dalian Commodity Exchange iron ore price; Coal is the ICE Rotterdam Coal price. All indices are rebased to November 1, 2019 level.

The five red vertical lines indicate December 13, 2019; December 31; January 20, 2020; February 19; and Mach 3.

Source: Wind, Investing.com, Luohan Academy.

As market anxiety with COVID-19 grew, **global bond markets** felt the impact. Investors rushed into government bonds, with US 10-year Treasury bond yield dropping to 0.74% on March 6, a historical low. **Yield curves in all major economies**

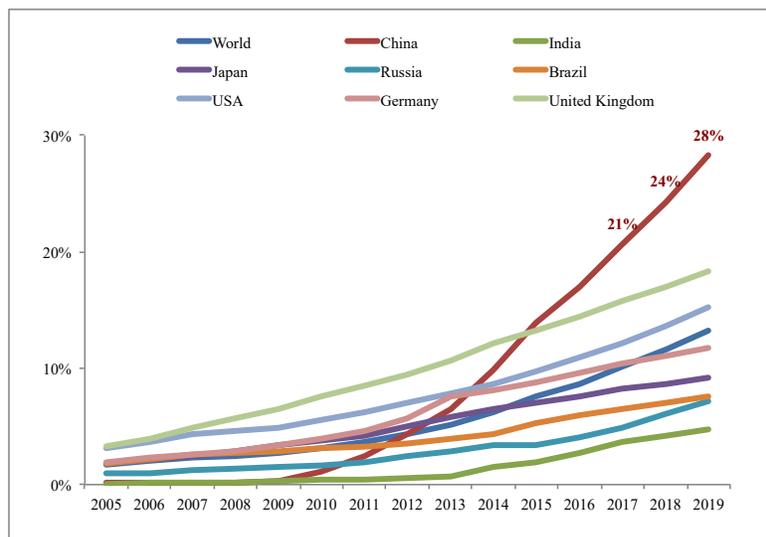
started to flatten around December 13, both US and UK term spreads went negative around February 19 (Figure 4, left-hand panel). An **inverted yield curve** often signaled an impending recession in the United States.

As market participants began to question the health of ongoing and future economic activity, **commodity prices** fell sharply. This was most evident in the Baltic Dry Index, a measure of the cost of shipping staple goods around the world. The index halved in January, the worst month in the last eight years, much due to weak activity in China (Figure 4, right-hand panel). The index improved slightly in March, as rates dropped and China's demand for shipping started to pick up with its resumption of production. Commodity prices also started to recover. Yet early on March 9, UK Brent crude oil price fell by 31% to USD 31 a barrel from USD 45, one of the biggest one-day drops in its history. Clearly, **the spillovers of COVID-19 know no national boundaries**, and rising COVID-19 infections abroad and the growing risks of slowing external demand pose a major risk to the Chinese economy.

III. COVID-19 Outbreak and E-commerce

During the COVID-19 outbreak, due to lockdowns and quarantines in large areas across the country, the flows of people and goods have been severely reduced throughout China. As a consequence, local, offline retail sales were hard hit. While online retail sales, or e-commerce were expected to fare well, the reality was less heartening. There is a limit, at least for the time being, to digital economic activity. **E-commerce still heavily depends on smooth logistics and solid distribution networks.**

Figure 5: China Leapfrogs and Leads in E-commerce



Notes: The share of e-commerce in total retail sales by countries.

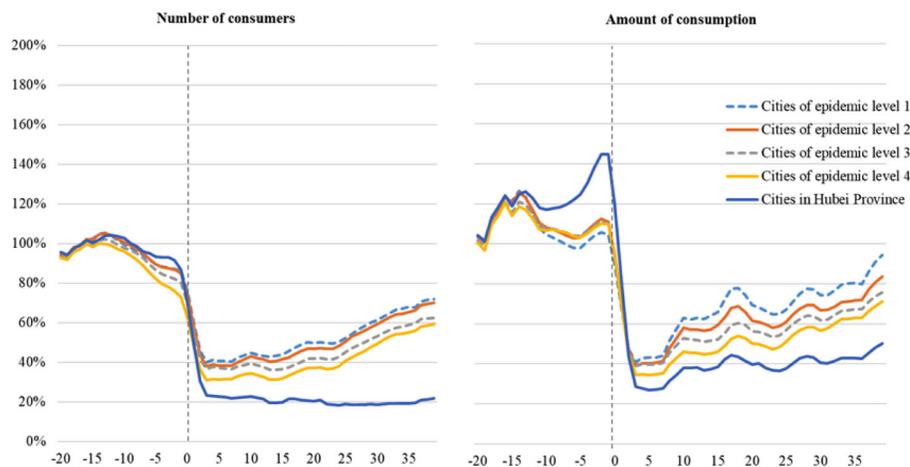
Source: Euromonitor; Luohan Academy calculations.

Domestic Online Retail

In the last ten years, China has experienced explosive growth in e-commerce, with its share in total retail sales rising from almost nil to 28% in 2019, overtaking the United Kingdom and the United States in 2013-14 (Figure 5). Following the COVID-19 outbreak, many observers speculated that online transactions would benefit from lockdowns and quarantines, and a growing reluctance of people venturing into public spaces. However, **the digital economy is also facing challenges as the virus contagion created significant difficulties for e-commerce**, largely due to disruptions to logistics and distribution channels as a result of stringent epidemic control on the flows of people.

The COVID-19 outbreak largely coincided with Chinese New Year holidays, a period of distinct consumption patterns. We analyze consumption around the Chinese New Year's Eve (January 24, 2020), tracking online shopping 20 days before Wuhan lockdown to 40 days after. We compare the numbers of active consumers and the amounts of consumption relative to a **benchmark**, i.e. the average daily levels between 60 and 31 days before January 24, a period of consumption that can be considered normal. We rely on data from three major digital channels, namely, e-commerce platforms Taobao and Tmall; consumption at stores paid on Alipay apps; and food, groceries and takeaways ordered via Eleme or Alibaba's Freshippo supermarket.

Figure 6. Slower Consumption Recovery in More Heavily Infected Cities

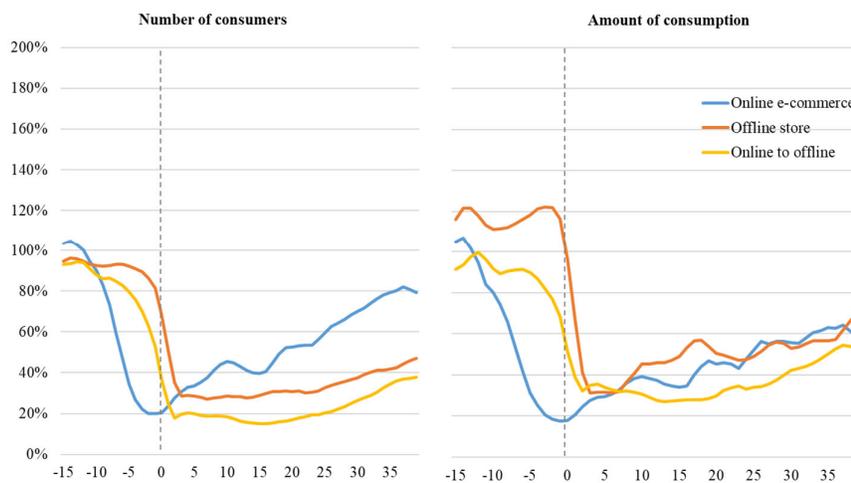


Notes: T=0 represents 2020 Chinese New Year's Eve. The left- and right-hand panels depict weighted averages of the numbers of active consumers and actual amounts of consumption on Alibaba's domestic e-commerce and other platforms, relative to the average daily level between 60 and 31 days before 2020 Chinese New Year's Eve, respectively. Cities outside Hubei Province are divided into four groups based on the severity of the outbreak. Level 4 groups cities most severely affected by the virus, while level 1 groups those least affected.

Source: Luohan Academy.

Our results suggest that not only offline consumption, but also online consumption suffered a major setback during the virus outbreak, the blow being harder in cities more severely infected by COVID-19 (Figure 6). Both the number of active consumers and the amount of consumption in level-1 to level-4 cities fell sharply to 30-40% of the corresponding benchmark levels around the Chinese New Year's Eve. Still, it took much longer for the number of consumers to recover than actual consumption. Besides being faster, the recovery was also stronger in value: the actual consumption amount rose to 70% to over 90% of the benchmark levels in level-1 to level-4 cities about 40 days after the Chinese New Year, while the number of consumers rose to only 60-70% of the benchmark levels. In particular, as expected, cities in Hubei suffered a larger drop in the number of consumers and the amount of consumption. The former did not recover in the sample period, while consumption rose from less than 30% of the benchmark level to near 50%. As epidemic prevention and control measures placed restrictions on human mobility and therefore on distribution, actual consumption per consumer rose in response.

Figure 7. Faster Online Retail Recovery



Notes: T=0 represents 2020 Chinese New Year's Eve. The left- and right-hand panels depict weighted averages of the numbers of active consumers and actual amounts of consumption on Alibaba's domestic e-commerce and other platforms, relative to the average daily level between 60 and 31 days before 2020 Chinese New Year's Eve, respectively.

Source: Luohan Academy.

Distinguishing between online, online-to-offline, and offline shopping provide further insights that strengthen our earlier conclusions. Both the online and offline consumption recovered to around 60% of the benchmark levels in the 40 days after

the Chinese New Year's Eve. In terms of the number of consumers, online shopping fared much better, rising from 20% to 80% in less than 40 days (Figure 7). In contrast, it took a while for the number of active offline consumers to start to rise, and it only reached less than 50% of the benchmark level in 40 days. **Consumers were far more active online following the COVID-19 outbreak.** In addition, the recovery in the number of consumers and the amount of consumption was slow for online-to-offline shopping. This might be attributed to impaired logistics and deliveries due to rigorous epidemic control measures, most stringent in cities in Hubei.

To sum up, the **COVID-19 outbreak had a significant impact on domestic e-commerce, especially in places where epidemic control measures were more severe, likely a result of restricted human mobility and damaged logistics and distribution.** Besides the rapid return of online consumers, it took much longer for the number of consumers to recover relative to actual consumption. As digital consumption hits its physical limits, **there is a strong need to enhance the logistics and distribution in a way that they become more shock-resistant and less dependent on manpower, i.e. less labor intensive.**

Cross-Border Transactions

The COVID-19 outbreak has had a sizeable impact on cross-border online transactions, with a significant decline in e-commerce during and after the Chinese New Year holidays. In terms of **exports**, although Tmall's overseas transaction volume dropped slightly, AliExpress' transaction volume fell significantly year-on-year (y/y). Notably, the number of online inquiries on Alibaba International Station during the holidays rose significantly, indicating overseas buyers' continued confidence in China's ability to control the epidemic and resume the production and supply of goods and services in future. This in part reflects the irreplaceable role of Chinese manufacturing in the global trade and value chain in the short term.

During and after the holidays, **different categories of goods showed distinct trends in cross-border online exports.** The demand for medicines skyrocketed (y/y), while non-necessities such as clothing, shoes and hats fell sharply. Some of the markets, e.g. Southeast Asia, were heavily affected by the outbreak and the demand for preventive items was strong.

On the other hand, **e-commerce imports increased slightly during the holidays,** despite slowing growth. Nevertheless, **much of this was driven by increased imports in Guangdong and Zhejiang,** at a rate (near 40%) much higher than the national average. In addition, the import pattern was heavily affected by COVID-19 outbreak. The categories of highest growth were goods related to epidemic prevention and household necessities, including food and medicine. Imports of masks and thermometers rose by over 55 and 16 times y/y, respectively. Sales of medicines and

medical instruments unrelated to epidemic prevention also grew rapidly, such as skin and gastrointestinal medication, blood pressure meters, oximeters, and nebulizers, indicating **a growing awareness of personal hygiene and health**. The import of goods of typically high demand, e.g. cosmetics, fell during the holidays.

Several factors associated with the COVID-19 outbreak had affected cross-border e-commerce exports. First and foremost, **a prolonged delay in firms' resumption of production led to increased pressures on seller inventories and delivery**. A recent survey conducted at Alibaba International Station reveals a general shortage in seller inventories, with more than 70% of the merchants reporting their inability to satisfy orders due to inventory depletion. While some merchants (less than 30%) had goods in stock or could quickly resume supply, most of their existing inventories would not last beyond mid- or late March. Firms in different areas typically differ in their paces of production resumption.

Second, **e-commerce distribution channels were severely disrupted and became much less efficient than before**. The Survey at Alibaba International Station shows that issues with logistics and transportation, customs clearance, epidemic control and quarantine, had significantly reduced the sellers' ability to fulfill orders, and the short-term prospects were not encouraging. At home, the January E-commerce Logistics Index released by the China Federation of Logistics & Purchasing (CFLP) indicates a significant decline in the indicators of timeliness of delivery, rate of order fulfillment, satisfaction rate, cost efficiency, among others. Closed ports (e.g. in Shenzhen) and warehouses had a sizeable impact on export logistics.

Many countries have adopted strict border controls since the outbreak, severely hindering the flow of goods and people. Over 130 countries adopted varying degrees of entry restrictions on China, some countries have tightened sanitary and quarantine control, cancelled direct flights, closed ports of entry and railways, or restricted the entry of parcels from China, further damaging cross-border flows. These included a 14-day quarantine requirement for cargo ships arriving from China in the United States; some Australian ports' refusal to allow in vessels departed from China within the last 14 days; and Indonesia's revised epidemic control measures.

Third, **worries and doubts about Chinese exports in overseas markets rose** after the World Health Organization listed COVID-19 as a Public Health Emergency of International Concern (PHEIC). Our survey shows that most overseas buyers did not understand the virus transmission mechanism and thought that COVID-19 could be transmitted through physical goods. Some US users made it clear that they would not purchase Chinese goods until after the epidemic. The Russian Consumer Protection Association banned the import of citrus fruits from China. Consumer concerns with the safety of Chinese products were strongest in Spain, Russia and the United Kingdom.

Most overseas buyers were unaware of the extent to which each province and city in China was affected by the epidemic, so they were uncertain about whether or how

much their Chinese suppliers were affected, many were waiting out the epidemic until their Chinese partners resumed operations. Overseas buyers were also worried that freight rates could increase due to the epidemic. The greatest difficulties faced by online exporters during the epidemic, according to the survey, were **increased delays in delivery** (68%), **reduced ability to fulfil orders**, (60%), and **delays in the resumption of production and services by suppliers** (47%).

It is expected that e-commerce exports will decline significantly in the first quarter compared to one year ago, and the epidemic's impact will last into the second quarter. According to the survey, it is estimated that overall, **online cross-border exports would decline by about 27% y/y in the first half of the year**. About 46% of firms projected a decline of 11%-30%, 25% of firms projected a decline of 30%-50%, and 11% of firms projected a decline above 50%.

As production resumes, the main factors constraining the future growth of e-commerce exports are **deteriorating external environment**, **continued pressures on cash flows**, and the still **dim prospects for a swift improvement in international logistics**. China's exports contracted by 17.2% in January and February, and imports fell by 4%. Data from 2005 show that March and April tend to be peak months for new orders for Chinese exports each year. It is likely that the epidemic will spread to other economies which might lead to a further reduction in new orders for Chinese manufacturing in March-April, causing adverse effects in the second quarter.

Going forward, **were the epidemic to be effectively contained, especially outside China, and the recovery of production capacity stay on track, the medium-term impact on cross-border e-commerce growth could be limited**, which might pick up speed in the second half of the year. But if the epidemic intensifies in severity and it is not effectively controlled after April, it may cause severe damage to trade and disrupt the global supply chain by shifting parts of production to other economies away from China, especially in some more fragile sectors which rely on cheap labor costs. In the longer term, the US-China trade frictions and the COVID-19 epidemic increased the pressure on the Chinese industry to embrace digital transformation.

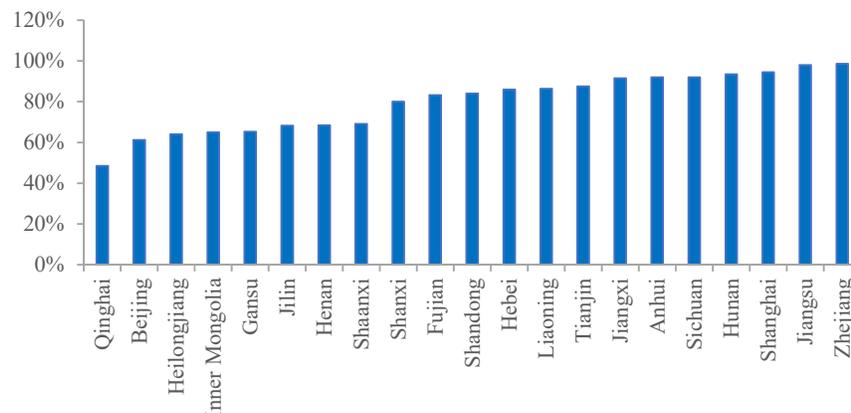
IV. Helping Workers Go Back to Work

Key to China's swift recovery from the COVID-19 outbreak is the pace of resumption of production in factories across the country. As of February 25, the work resumption rate in **large and medium-sized enterprises** surveyed nationwide by the National Bureau of Statistics reached 78.9%, and it is expected to rise to 90.8% by end March. According to the Chinese authorities, as of March 6, a total of 2.63 million migrant workers were transported "point-to-point" across the country. At present, 78 million migrant workers already returned to work, accounting for 60% of 2020 Spring Festival return travels. The rate of work resumption by migrant workers reached 70% in Guangdong and Zhejiang, and about 60% in Jiangsu.

Efforts have been made to promote a safe return of workers to their workplaces while keeping the virus at bay. To help firms rapidly resume operations, the national transportation authorities asked transportation companies to implement “point-to-point, one-stop” direct transport of workers, and successively rolled out multiple charter flights, buses, and trains. More and more roads across and within provinces reopened, and urban transports came back into operation in many cities. However, much of the transport in China are mainly operated by traditional local bus companies and with little coordination, making it difficult and inefficient to track the virus across regions and to implement epidemic control.

There are significant differences in regional crisis responses. Some provinces, e.g. Hunan, Jiangsu, Sichuan, and Zhejiang, have been much more proactive in restoring transportation and bringing migrant workers back to the workplace. Consequently, they ranked high in terms of the rate of production resumption for larger industrial firms (Figure 8). Even though Heilongjiang, Inner Mongolia, Gansu and Qinghai were much less affected by the COVID-19 outbreak, their resumption rates were just around 60% or below, as of February 27.

Figure 8: Rate of Resumption of Production for Larger Industrial Enterprises in China



Notes: As of February 27. Industrial enterprises with revenues from main businesses of over CNY 20 million.

Source: Luohan Academy compilation.

Digital technology supports epidemic control by allowing public participation in real-time monitoring, reporting and follow-up of suspected COVID-19 cases. For instance, the Beijing Transportation Integrated Green Travel Service Platform, a MaaS platform that AMap initiated in cooperation with Beijing Municipality in November 2019, launched a real-time Beijing Metro congestion query on February 12, which helped users avoid the peak flows. Similar applications came handy in assisting epidemic control, these include Alipay’s AI Green Travel Solution released in September 2019, and Didi Intercity Carpool launched in November 2018. **Technology-**

based digital tools are transforming the existing transportation mode, making it easier, cheaper, and more importantly, safer for people to travel.

V. A Time for International Coordination

The risks are rising that the COVID-19 outbreak might eventually evolve into a global pandemic, an unintended side effect of decades of successful globalization. A global problem of this magnitude requires a global solution, and **international coordination in epidemic prevention and control efforts and in economy recovery is essential.**

The Chinese authorities have already rolled out a wide range of supportive measures. The **People's Bank of China** has injected nearly CNY 2 trillion of liquidity into the economy. It set up a special-purpose relending program of CNY 300 billion offering low-cost funds to major national banks and certain local banks in key provinces (e.g. Hubei), in order to provide loans with preferential interest rates to producers of essential medical supplies and daily necessities as well as transportation and sales. The central government would subsidize 50% of the interests paid by firms, and the actual loan rate would be lower than 1.6%, so far benefitting at least 876 companies in protective suits, medical instruments, procurement and distribution, food processing and other industries.

A major focus has been the support for small and medium-sized enterprises (SME). **Many measures were launched by both central and local authorities, including tax relief and special subsidies.** For example, on February 9, the Ministry of Industry and Information Technology announced policies to strengthen financial support for SMEs with deferred payments of electricity, water and gas required for businesses during the virus outbreak, the supply of which would not be cut even with default.

China has come a long way, but **the Chinese economy faces a growing challenge coming from the escalating virus infections abroad, the growing risks of new, re-imported cases, and the deteriorating external conditions.** The global economy now faces the same difficult challenges that China has faced in the past two months, namely containing the spread of COVID-19 while supporting economic growth in the coming months. On March 3, **US Federal Open Market Committee** decided to lower the target range for the federal funds rate by 50 basis points, to 1-1.25% due to the risks that COVID-19 posed to US economy. Other central banks, including the **European Central Bank**, pledged to take actions to support the economy if needed.

As the number of confirmed COVID-19 rises outside China, trade and investment face considerable risks of significant decline from further outbreaks around the world. **Only concerted actions by international organizations and national authorities could achieve sustained growth with effective epidemic control.** Already, the **United Nations** announced the release of USD 15 million from the Central Emergency Response Fund to help vulnerable countries combat the virus spread. The **International Monetary Fund**

made available USD 50 billion through its emergency financing facilities for low income and emerging economies, of which USD 10 billion will be disbursed at zero interest for the poorest countries stricken by the COVID-19 outbreak. On March 6, **G20** finance ministers and central bank governors pledged to “take further actions, including fiscal and monetary measures, as appropriate, to aid in the response to the virus, support the economy during this phase and maintain the resilience of the financial system.”