



# On COVID-19 pandemic and China's foreign trade

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## Abstract

In this study, we analyse China's foreign trade performance under the global COVID-19 pandemic using the monthly data in 2019–2021. This paper finds that: (1) China's exports to its major trading partners recover and continue to grow in the second half of 2020 and 2021, after falling significantly in the first half of 2020; (2) the mechanical & electrical and the high-tech industries have contributed significantly to the recovery of China's exports; (3) the exports of medical products, furniture and appliances show growth in line with the implementation of quarantine policies; (4) the exports of electronic products and electrical vehicles kept growing both before the outbreak and during the pandemic. It is posited that China should continue to expand trade with emerging markets while maintaining a steady trade volume with the developed economies. We also recommend that China focus its future export development on these industries and products that are growing steadily and have greater potential, including the mechanical & electrical industry, the high-tech industry, electronic products and electrical vehicles.

## KEY WORDS

China, COVID-19, foreign trade

## 1 | INTRODUCTION

In more than 200 countries and regions around the world, the Corona Virus Disease 2019 (COVID-19) had infected more than 451 million people and caused 6 million deaths by 10 March 2022. Half of the global infected cases were found in the United States, Brazil, India, the UK, Russia and France. COVID-19 was first diagnosed in Wuhan, China, at the end of 2019. The number of infected cases rose rapidly towards the end of January 2020, in Wuhan and the rest of China, but it became stable by the end of February 2020. The virus was found all over the world in early March 2020. By 26 January 2021, the number of infected cases worldwide exceeded 100 million, and by 4 August 2021, this number rose to 200 million. In the first quarter of 2022, the global pandemic was still evolving uncontrollably in many countries outside China after twenty-five months of the outbreak and some countries were suffering from the second, the third and further waves of serious contagion. The hardest-hit countries were shifting from Iran, Italy, to Spain, France, the UK, and then to the United States, Brazil and India. [Table 1](#) highlights the accumulative numbers of infected cases and deaths for the entire world and some representative countries on some selective days.

China began to promote the resumption of work and production orderly after the pandemic was effectively contained in late February 2020. In May 2020, the resumption of work and production in China progressed in an orderly manner. In sharp contrast, COVID-19 broke out in countries in the Americas and Europe without being timely controlled. Cross-border air transportation and the global supply chains were then severely impacted or even interrupted.

With trade protectionism, geopolitical conflicts and de-globalisation, the world economy and the international trade system have been under severe pressure and threat. The impact of the pandemic on trade has received attention. Baldwin (2020) pointed out that the pandemic might lead to a more severe trade recession than the outbreak of the global financial crisis in 2008–2009, as the pandemic is both a demand shock and a supply shock while the 2008–2009 recession was driven mostly by a demand shock. A similar and provocative study is by Liu et al. (2021), also using the data on monthly year-over-year growth of China's trade. Liu et al. (2021) find that the lockdown restrictions had affected imports more severely than the direct health and behavioural effects of the pandemic itself. This paper focuses on analysing and capturing changes in China's trade by using the same data and then offers some policy recommendations for China's future trade development.

The COVID-19 pandemic has, without doubt, triggered further risks and uncertainties on cross-border trade. In this context, how did China's foreign trade with its major trade partners change during the pandemic? What are the commonalities and characteristics of the impact on different export industries and products? Are there some industries that have revealed some new opportunities? How does China's foreign trade performance compare to that of the world's major trade nations when viewed from a global perspective? This paper aims to answer these questions and provides some coping strategies for China.

Using the monthly data in 2019–2021 of China's foreign trade, it is found that: (1) the pandemic caused severe declines in China's trade with its major trade partners, but China's trade recovered rapidly and relatively strongly after the second half of 2020; (2) the electromechanical industry was the largest industry in China's exports and an important pillar driving China's export recovery; (3) exports of high-tech industrial products showed good performance even during the pandemic; (4) compared with the world's leading trade nations, the COVID-19 has had overall devastating but not persistent impacts on China's trade; (5) China has spent incalculably large costs to control and prevent the epidemic, but this has also allowed China to

TABLE 1 Total numbers of infected cases and deaths (1000) by country in some selected days

	02/4/20		26/1/21		24/9/21		31/12/21	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
World	1042	57	100,377	2227	231,153	4738	288,294	5439
US	257	8	25,552	433	42,854	687	54,794	827
India	3	0	10,690	154	33,624	447	34,862	481
Brazil	8	0	8933	219	21,328	594	22,292	619
UK	49	4	3700	100	7637	136	12,965	149
Russia	4	0	3716	69	7270	199	10,320	303
France	59	5	3139	74	7075	117	10,018	124
Turkey	18	0	2442	25	6987	63	9483	82
Germany	85	1	2164	54	4193	93	7193	112
Spain	112	10	2630	57	4947	86	6295	89
Iran	50	3	1386	58	5509	119	6194	132
Italy	115	14	2486	86	4654	131	6126	137
Argentina	1	0	1885	47	5249	115	5654	117
Colombia	1	0	2041	52	4949	126	5157	130
Indonesia	2	0	1012	28	4204	141	4263	144
Poland	3	0	1483	36	2902	76	4108	97
Mexico	2	0	1789	152	3619	275	3980	299
ZA	1	0	1424	42	2894	87	3458	91
Malaysia	3	0	190	1	2171	25	2758	31
Japan	3	0	373	5	1691	17	1732	18
KR	10	0	76	1	298	2	635	6
China	82	3	89	5	96	5	102	5

Note: (1) The abscissa records dates in DD/MM/YY format; for example, 15/1/20 denotes 15 January 2020. (2) The data for China is for mainland China only.

Sources: Coronavirus Resource Center of JHU, <https://coronavirus.jhu.edu/map.html>.

achieve a stable and strong recovery more quickly than other nations, and the evidence in this paper supports China's strategy. Based on these findings, this paper suggests that China has greater potential for future trade development. It is then recommended that China should continue to vigorously expand its bilateral trade partnerships with ASEAN, Japan and Korea while supporting exports in electromechanical industries, high-tech industries, electronic products and electric vehicles.

The rest of this paper is organised as follows: Section 2 portrays the pandemic evolving timelines in China and other parts of the world, focusing on the key time nodes and policy differences. Section 3 analyses China's import and export trade performance with its major trade partners during the pandemic. Section 4 studies the commonalities and characteristics of the export performance of different industries/products during the pandemic and looks for which products show new growth potential, thus identifying opportunities in and after the crisis. Based on an international perspective, Section 5 compares the trade performance of China and other major trade economies. The last section concludes with some policy recommendations.

## 2 | COVID-19 OUTBREAK TIMELINES IN AND OUTSIDE China

COVID-19 was characterised as the fifth global pandemic by the World Health Organization (WHO) on 11 March 2020. It is also the first time in human history that a coronavirus causes a pandemic. Different countries took different approaches to contain the disease. When the virus spread rapidly in late January 2020, China decided to quickly quarantine all the people and lockdown Wuhan with a population of over 11 million people. By the end of February 2020, the pandemic was basically brought under control, and economic activities resumed gradually across the country apart from Wuhan (capital city of Hubei) and the rest of Hubei Province. On 8 April 2020, the lockdown in Wuhan was removed after 76 days, signifying the success of China in containing the disease for the whole country.

From May 2020 to September 2021, China suffered a succession of infections caused by imported cases in several cities. Local governments took timely action, such as citywide testing of all residents, home quarantine measures and free vaccination of anti-COVID-19 vaccines. These measures enabled China to maintain daily numbers of confirmed cases below 150 for 19 consecutive months. As can be seen in Figure 1, the total number of confirmed cases in China was 102,314, with 4636 deaths by 31 December 2021.

China has many useful and effective experiences in fighting the pandemic, which could have been shared by other countries. First, the government decisively adopted compulsory quarantine measures to restrict population mobility, cutting off inter-city and community transmission of the disease. Second, the government provided free medical tests, free medical care/treatment

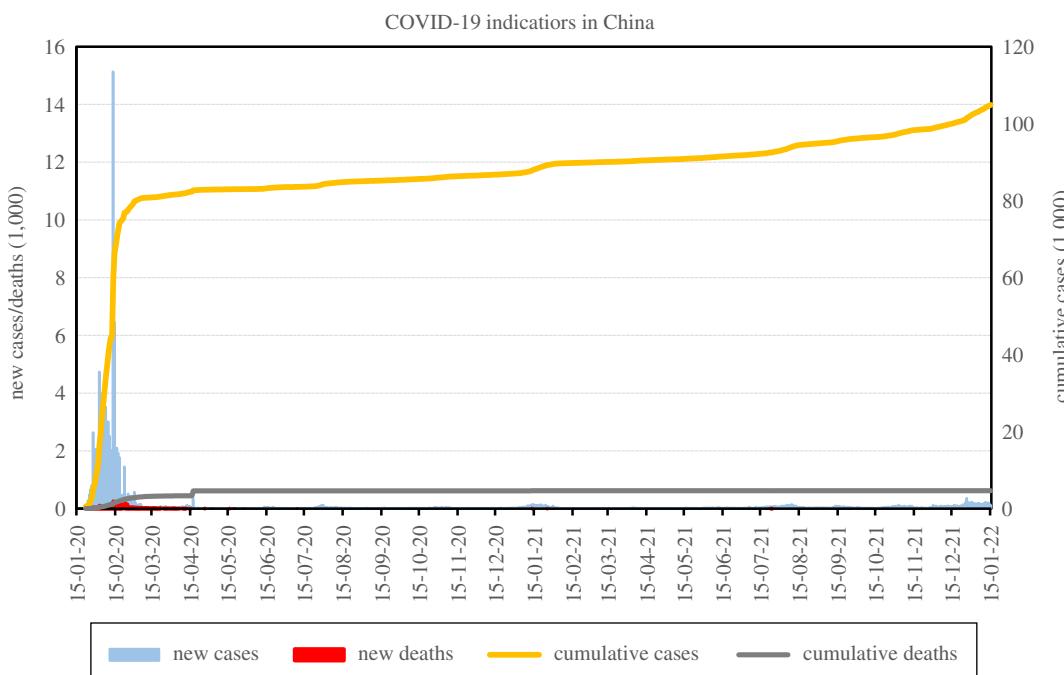


FIGURE 1 The cases (1000) and recovery/death rates (%) of the COVID-19 pandemic in China.

Notes: The abscissa records dates in DD/MM/YY format; for example, 15/1/20 denotes 15 January 2020. The data for China are for mainland China

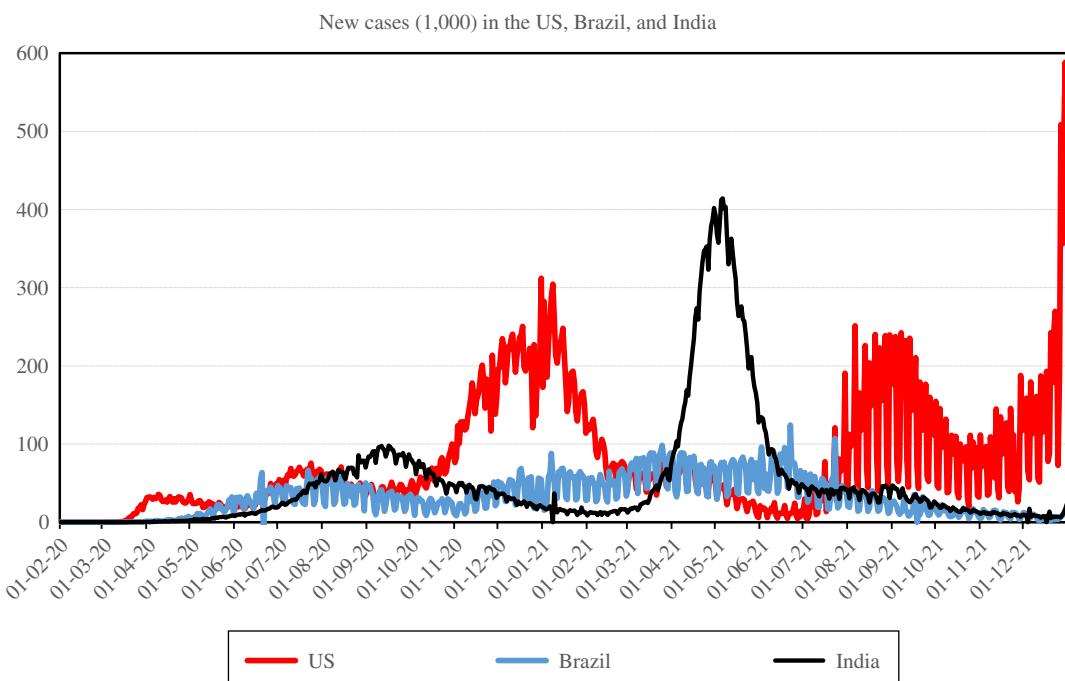
Sources: The NHCC, <http://www.nhc.gov.cn/>

and free vaccines. Third, the epicentre was entirely and timely locked down to prevent the disease from spreading to other regions. Fourth, the central government quickly mobilised medical resources, doctors, nurses and food supplies from the whole country to Wuhan, ensuring that the patients and residents there were adequately supported. The Leishenshan and Huoshenshan Hospitals as well as 16 makeshift hospitals in Wuhan were quickly built and supported by the People's Liberation Army and many other medical teams outside Hubei. Finally, all the Chinese people were cooperative with government instructions and voluntarily isolated themselves at home or wearing medical masks and keeping distances from other people whenever/wherever they were instructed to do so.

However, over the same period, the situation outside China deteriorated. The hardest-hit countries were shifting from Iran, Italy, to Spain, France, the UK, and then to the United States. In the second and third quarters of 2020, the hardest-hit countries were the United States, Brazil, India, Russia and some South American countries. In the last two months of 2020 and early 2021, large-scale infections broke out in the European countries. And in the second quarter of 2021, Southeast Asian countries also became the hardest-hit areas.

As shown in [Figure 2](#), the number of confirmed infections in the United States exceeded 100,000 by 27 March 2020, recording the highest number of infections in the world. By 31 December 2021, the cumulative numbers of infected cases and deaths in the United States were, respectively, 54,793,602 and 827,254, with a case-fatality rate of 1.51%.

India and Brazil are the second and third most infected countries in the world measured by the absolute numbers of infected cases and deaths. In April–May 2021, the Delta variant of the COVID-19 virus was found in India, causing a surge in the number of new diagnoses, as



**FIGURE 2** The numbers of new confirmed cases (1000) in the United States, Brazil and India.

*Note:* The abscissa records dates in DD/MM/YY format; for example, 1/2/20 denotes 1 February 2020

*Sources:* Coronavirus Resource Center of JHU, <https://coronavirus.jhu.edu/map.html>

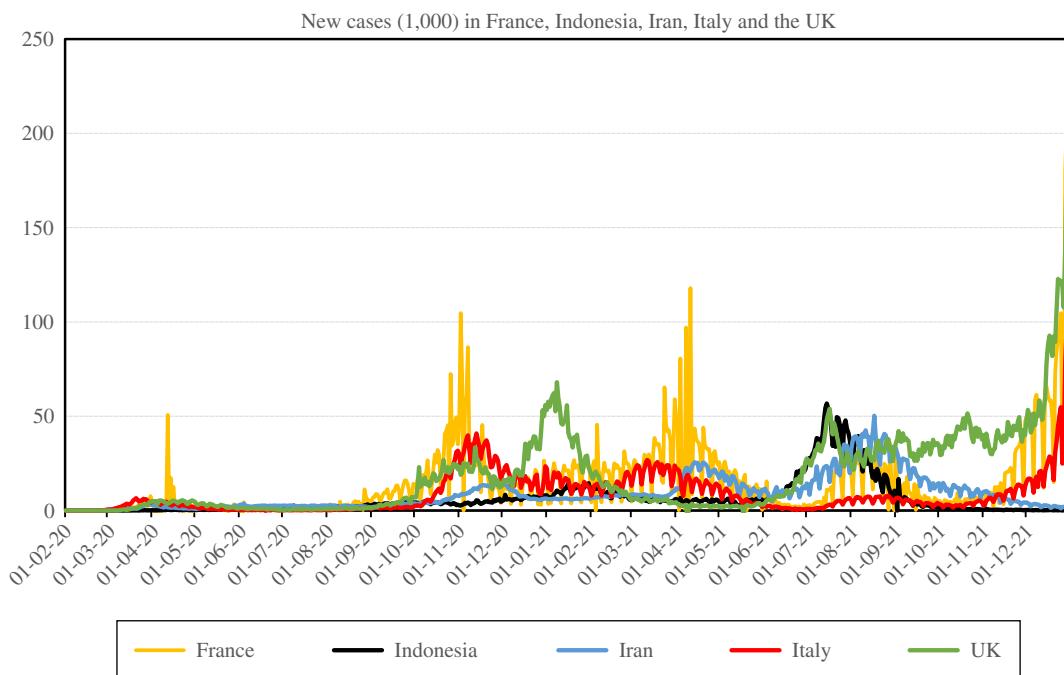


FIGURE 3 The numbers of new confirmed cases (1000) in France, Indonesia, Iran, Italy and the UK.

Note: The abscissa records dates in DD/MM/YY format; for example, 1/2/20 denotes 1 February 2020

Sources: Coronavirus Resource Center of JHU, <https://coronavirus.jhu.edu/map.html>

100,000–400,000 people were confirmed per day, outnumbering the daily maximum found in the United States. At the end of 2021, the total number of diagnoses in India and Brazil reached 34.9 million and 22.3 million respectively.

The contagion trends in Western Europe, represented by the UK, France and Italy, are relatively similar to those in the United States. France experienced three severe waves of outbreaks, occurring in late October-early November 2020, late March-early April 2021 and December 2021. The daily number of new confirmed cases approached or even exceeded 1 million per day. As is presented in Figure 3, this indicator reached a staggering 2 million at the end of 2021. The waves of the UK's outbreaks were not as high as in France, but lasted longer. As a result, the total number of confirmed diagnoses in the UK was the largest in Western Europe and the 4th largest in the world from May 2021.

The Asian countries have overall performed obviously better than countries in the Americas and Europe in 2020, with the exception of India, Iran and Turkey. However, in the third quarter of 2021, the Southeast Asian countries suffered severe outbreaks, likely relating to the mutated virus. Indonesia, in particular, had about 40,000–50,000 new confirmed cases per day in mid-late July 2021. The peak in Indonesia was even higher than in Iran, which has been in the hardest-hit area of the pandemic since the first half of 2020. Malaysia also became the hardest hit in August–September 2021, with 20,000 confirmed diagnoses per day. Fortunately, the outbreak in these countries was subsequently brought under control.

To sum up, under the threat of the global COVID-19 pandemic, the world's economic structure might have been violently affected, imposing a serious threat and uncertainty on foreign trade and cross-border movement of capital, people and services. Without exception, China's foreign trade endured significant challenges and constraints. How did China's import and export trade

with its major trade partners perform? From the perspective of industries and products, which industries have been most affected and which products' exports have been more disrupted? Are there any new trade opportunities emerging from the recessionary trend? From a global perspective, how does China's trade performance compare to that of other countries? These are the foci of our discussion below.

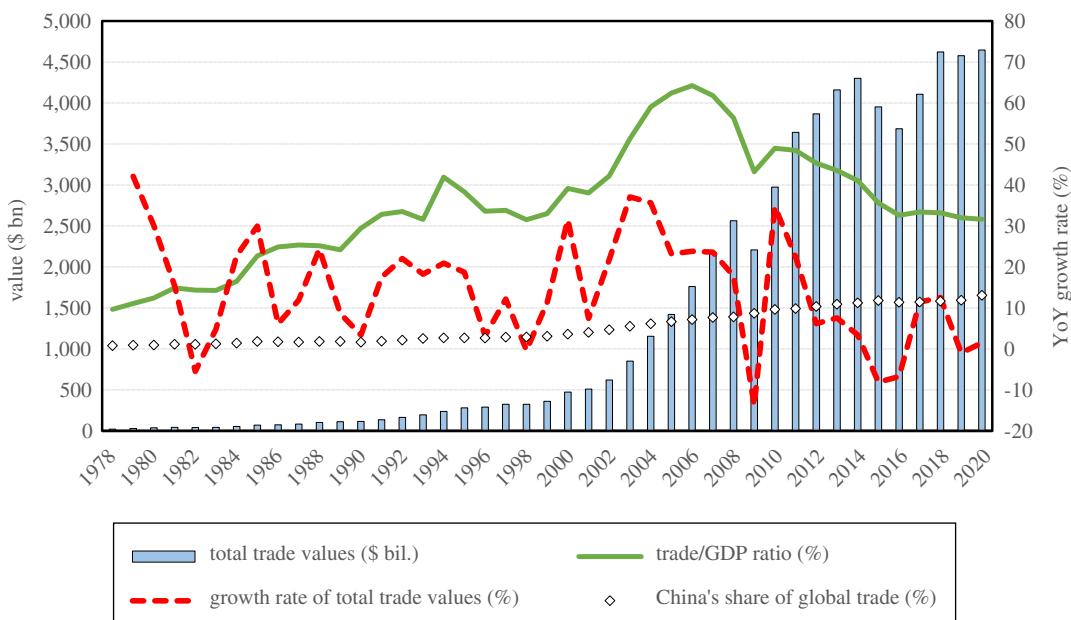
### 3 | THE IMPACT OF THE COVID-19 PANDEMIC ON CHINA'S FOREIGN TRADE

Before the *economic reforms and opening-up*, China's economic development pattern was generally an inward-looking economy that implemented import substitution strategies. As shown in [Figure 4](#), China's total trade volume accounted for <1% of the world trade in 1978, with the trade/GDP ratio being about 10%<sup>1</sup>. In the last two decades of the twentieth century, China's foreign trade took off under the prosperous and favourable environment of the global market. The average growth rate per annum of China's total trade value exceeded 20% from 2001 to 2011 after its WTO accession, with the trade/GDP ratio ranging from 45% to 65%.

Over the past 40 years of *economic reforms and opening up*, China has made tremendous development progress, being deeply integrated into the global economy, and profoundly embedded into the global value chains (GVCs; [Ding et al., 2019](#)). The rapid expansion in foreign trade and foreign direct investment (FDI) over the last two decades has significantly accelerated China's technological progress ([Jarreau & Poncet, 2012](#)) and economic growth ([Fang et al., 2021](#); [Yao & Wei, 2007](#)). Many empirical studies suggested that China's foreign trade development benefited from foreign technology, capital, management and marketing experiences, particularly for the export-processing industries ([Bastos, 2020](#); [Hsieh & Klenow, 2009](#); [Ndzendze & Monyae, 2019](#)). [Liu et al. \(2001\)](#) pointed out that the increase in import trade could bring more foreign capital flows to China, which in turn increased China's export trade to these investment home countries, and this synergy greatly promoted trade and FDI expansion. Over the most recent decade, China has quickly emerged as one of the world's largest foreign investors ([Yao & Wang, 2014](#)), becoming more and more important in the global trade market ([Autor et al., 2013](#)), and an integral part of all sectors in the world economy ([Sohrabi et al., 2020](#)).

In the context of globalisation, it has become the new normal to division and cooperation under Global Value Chains (GVCs) based on comparative advantage ([Baldwin & Lopez-Gonzalez, 2014](#)). Looking back on the 40-year development process since China's *economic reforms and opening up*, China has gradually changed from a primary product exporter to be the world's largest exporter of manufacturing goods ([West & Lansang, 2018](#)). Its export structure has been shifting from that dominated by resource- and labour-intensive goods to that featured with capital- and technology-intensive products ([Caporale et al., 2015](#)). China has initially formed a pattern in which the entire industrial chains are embedded in the GVCs, and it has continuously deepened its integration with the global market over time ([Van Assche & Van Bieseboeck, 2018](#)), emerging as one of the core hubs in the global supply and industrial chains ([Hoekman, 2015](#); [Lemoine & Unal, 2017](#)). However, China's main

<sup>1</sup>In this section, when talking about foreign trade / trade / exports / imports, it refers to merchandise trade. Trade in services and exports / imports of services are discussed only in subsection 3.4.



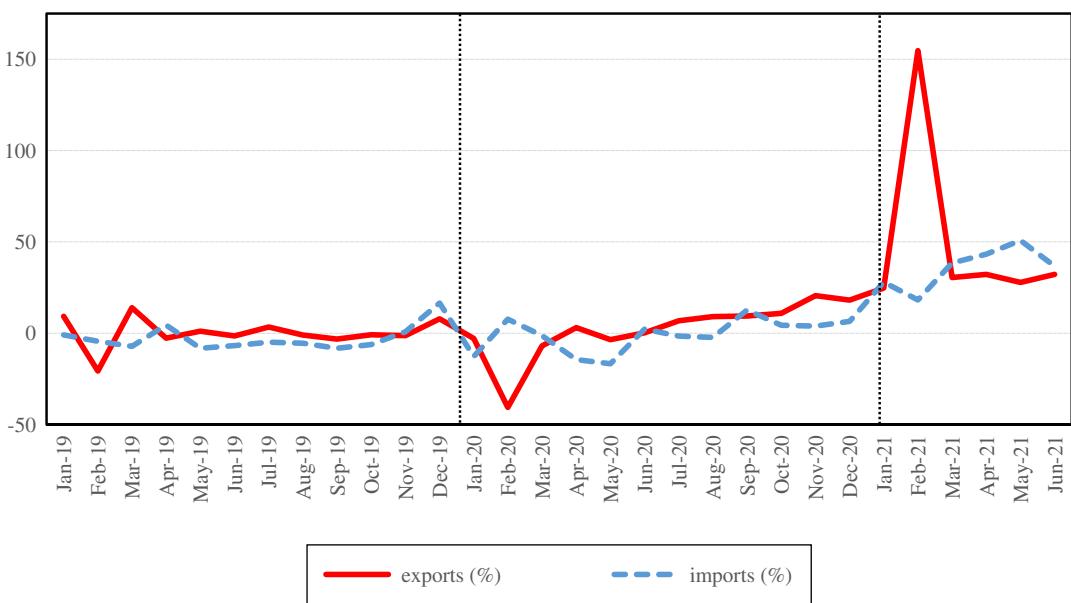
**FIGURE 4** The total value (\$ bn at current prices), the year-on-year growth rate (%), the trade/GDP ratio (%) and the share of global trade (%) of China's merchandise trade, 1978–2020

Sources: The NBS, data.stats.gov.cn/, and the World Bank, <https://data.worldbank.org/indicator>

competitiveness in global trade is still concentrated on low-tech products, and its ability to provide high value-added intermediate goods is still far behind that of the developed economies (Yu & Luo, 2018).

After the global financial crisis in 2008–2009, global economic growth has notably slowed down, and world trade tensions have gradually escalated. Under the downward pressure of the world economy, China's economic development has entered the so-called *New Normal* stage, when the GDP growth rate has dropped from the two-digit level to a middle-higher single-digit level of 6%–8%. Trade growth has also slowed down notably. China's trade volume grew by 7% in 2012–2013 and endured a negative growth in 2015–2016 for two consecutive years before it recovered in 2017–2018.

As China raises its global market share, there has already been much debate on the impact of its exports on employment and welfare in the United States and other major trade partners. Autor et al. (2013) presented the China syndrome argument, suggesting that cheap imported products from China had a significant squeeze-out effect on the US industries, resulting in a double-whammy of employment and average wages and a double-pressure on unemployment relief and financial burden. Many other studies hold different opinions. Such concerns grew, that is, while manufacturing employment in the United States shrank, its labour productivity rose steadily, particularly in the manufacturing sector (Fort et al., 2018), signified by the Sino-US trade war after Donald Trump took power in 2017. However, Bernard et al. (2017) proposed that when most manufacturing enterprises shifted from smokestack industries to service-oriented ones, their most value-added business processes were still retained. As a result, there was no need to worry too much about the relative contraction in manufacturing.



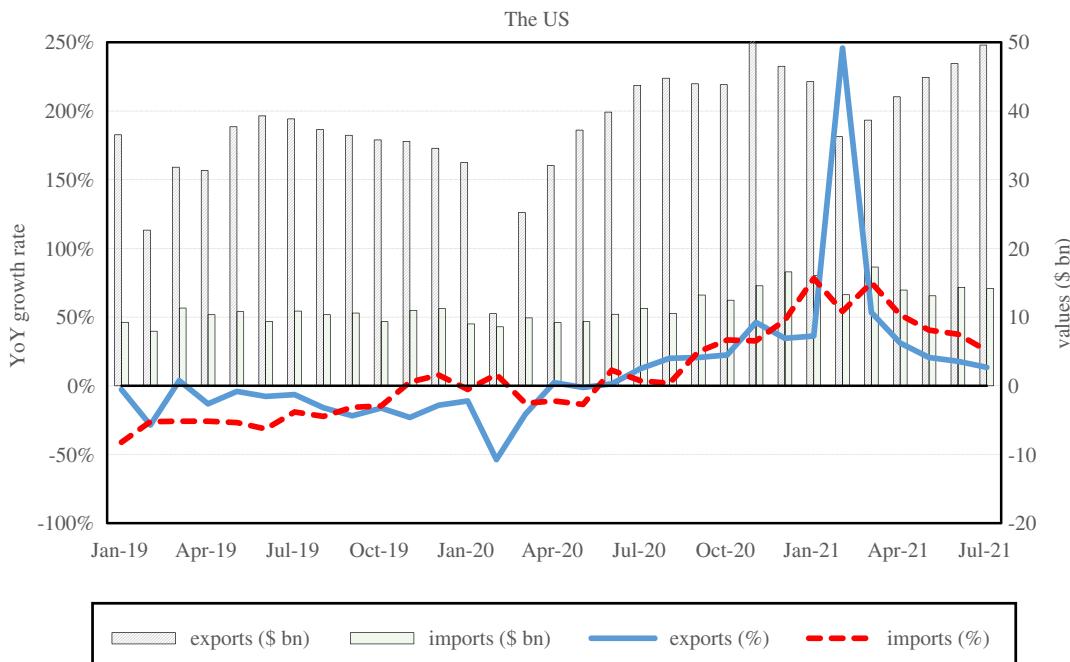
**FIGURE 5** The year-on-year growth rate (%) by month of China's exports and imports, 2019–2021  
 Sources: The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

The United States initiated and continuously escalated a trade war with China from 2018 under the Trump Administration. The trade war has undoubtedly affected both the United States and China, as well as the entire world economy. China's trade volume contracted by 0.96% in 2019. In short, China's trade growth has been significantly weakening in the *New Normal* stage, compounded by the weakening of international demand as well as the worsening of the Sino-US relationship.

Despite the pressure of sluggish global markets and escalating trade tensions, China managed to become the global largest nation of merchandise trade in 2018, overtaking the United States. In 2018–2019, China's total merchandise trade value reached \$4.6 trillion, with a trade/GDP ratio of around 32%. China has been endeavouring to maintain the development of foreign trade, but has relied more and more on the domestic economic circulation (market) to sustain stable growth signified by the so-called *dual-circulations* strategy, which is officially defined as “relying on the domestic circulation as the mainstay, and exploiting the mutually promoting effect between the domestic and external circulations”.

As can be seen in Figure 5, China's foreign trade has experienced a V-shaped trend from heavy losses to sharp rises in 2020–2021, with the COVID-19 pandemic sweeping around the world. In February 2020, exports contracted sharply to only 60% of those in February 2019. This decline persisted in the first five months of 2020, after which growth resumed. The year-on-year growth rate of exports in February 2021 reached an impressive 154.7% compared to those in February 2020, a fluctuation largely due to the aforementioned sharp decline. With respect to exports in February 2019, exports grew at a rate of 51.3% in February 2021, supporting a significant recovery without the disturbance of volatility. The rest of this section provides more detailed analyses of China's trade on cross-country/industry/product bases using monthly data from January 2019 to June 2021.

The rest of this section looks at the impact of COVID-19 on China's foreign trade using monthly data in 2019–21 by countries, industries and industrial products.



**FIGURE 6** The monthly value and year-on-year growth rate (\$ bn and %) of China's exports/imports to/ from the United States, 2019–21.

Note: The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

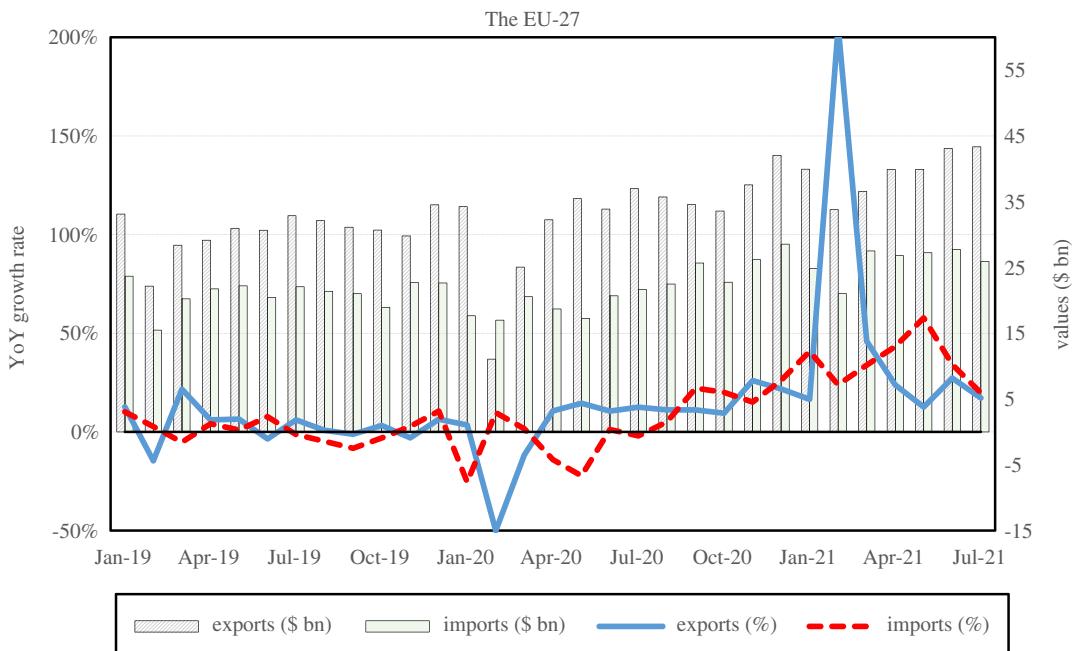
Sources: The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

### 3.1 | Development and changes in China's foreign trade with major trade partners

In the most recent decade, the three largest trade partners of China are mainly the United States, the EU and ASEAN measured by trade values, followed by Japan and South Korea.

The United States was China's largest export market and second-largest trade partner for seven consecutive years (2012–2018). An obvious structural feature of the Sino-US trade is the large trade imbalance. Overall, China's exports to the United States are about three times that of imports. However, China's exports to the United States declined in all 11 months of 2019 except March compared with the same period the year before after the escalation of the trade frictions. China's imports from the United States declined even more sharply in the first ten months of 2019 before achieving positive growth in the last two months of the year. As a result, the EU replaced the United States as China's top export market, ASEAN became the second-largest, forcing the United States to the third position.

As shown in Figure 6, the downward trend in China's foreign trade with the United States was further aggravated when COVID-19 broke out in China in the first quarter of 2020, with annualised monthly growth rates of exports falling 11.1%, 53.7% and 20.8% in January, February and March of that year respectively. From April to May 2020, the domestic epidemic in China was basically under control, easing the decline in exports to the United States. The imports from the United States also experienced a continuous while delayed fall with a declining rate of about 12% from March to May 2020. From June 2020 to July 2021, China's trade with the United States achieved positive growth for 14 consecutive months, for both exports and imports, reversing the



**FIGURE 7** The monthly value and year-on-year growth rate (\$ bn and %) of China's exports/imports to/ from the EU-27, 2019–21.

Notes: (1) the statistics of the EU-27 do not include those of the UK; (2) the abscissa value denotes month-year, for example, Jan-19 denotes January 2019

Sources: The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

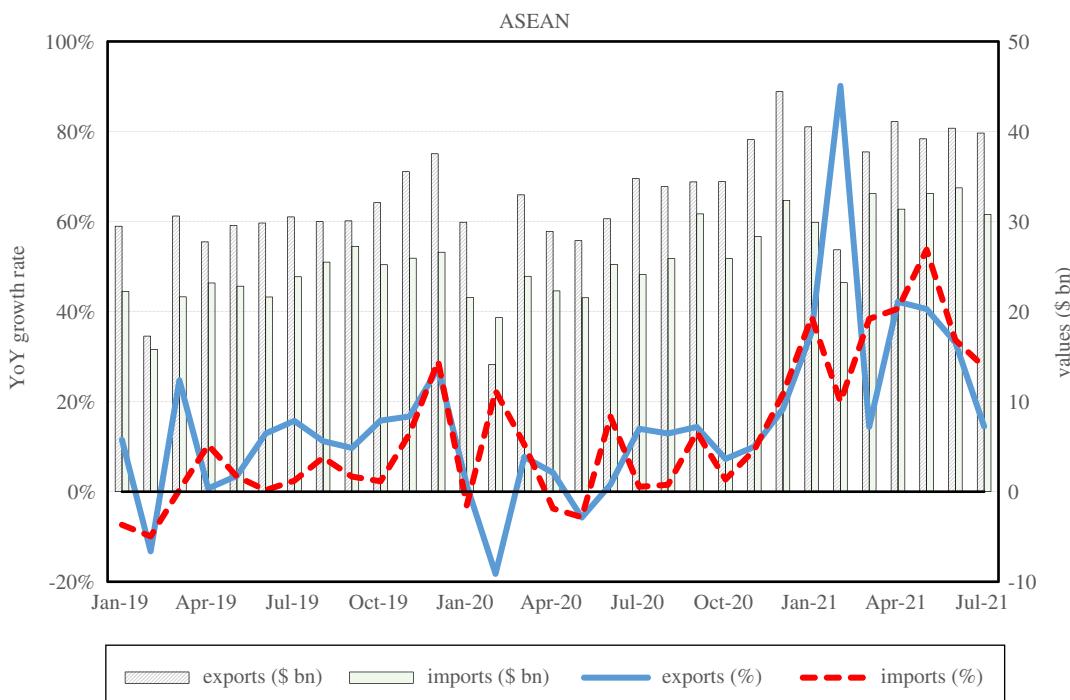
downward trend after the trade war began in 2018. These findings may indicate that the United States and China are both indispensable and important trade partners for each other. Maintaining orderly and healthy bilateral trade is important and valuable to both sides.

The EU has been China's top two trade partners in terms of both exports and imports (Filippini & Molini, 2003; García-Herrero & Xu, 2016). However, the growth of China's foreign trade with the EU is relatively weak, probably affected by a combination of factors including the Sino-US trade tension. As is observed in Figure 7, China's exports to the EU grew monthly at an average growth rate of 3%–4% in 2019<sup>2</sup>; the imports from the EU performed slightly more poorly, with an average monthly growth rate of around 1%–2%, yet declined for four consecutive months from July to October in the year.

From February to March 2020, that is, the most severe period of the domestic epidemic in China, its exports to the EU experienced a sharp fall, with a respective decline of 50.1% and 11.7%. In April and May 2020, China's imports from the EU respectively dropped by 14.0% and 22.2%. The decline was soon reversed after China brought the domestic outbreak under control. From April 2020 to July 2021, China's exports to the EU increased for 16 consecutive months; imports from the EU also achieved 12 consecutive months of growth from August 2020 to July 2021.

In addition to the EU and the United States, ASEAN has been China's top three trade partners in recent years (Tongzon, 2010). In 2019, China's foreign trade with ASEAN grew

<sup>2</sup>The statistics of the EU do not include those of the UK.



**FIGURE 8** The monthly value and year-on-year growth rate (\$ bn and %) of China's exports/imports to/ from ASEAN, 2019–21.

*Notes:* (1) ASEAN includes Brunei, Myanmar, Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand and Vietnam; (2) the abscissa value denotes month-year, for example, Jan-19 denotes January 2019

*Sources:* The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

significantly, contrary to the weakening trend in China's trade with the EU and the United States. Consequently, ASEAN replaced the EU as China's largest import partner and third-largest export destination.

As can be seen in Figure 8, China's exports to ASEAN fell by 18.2% and 5.7% in February and May 2020, respectively, and imports decreased by 3.0%, 3.7%, and 5.7% in January, April and May 2020, respectively, due to the impact of COVID-19. However, bilateral trade reversed the declining trend from June 2020, as China's foreign trade with ASEAN continued to grow remarkably for both exports and imports. As a result, ASEAN became China's top trade partner in terms of total trade value for the first time in 2020, and China remained ASEAN's top trade partner for 12 consecutive years. This shows the strong resilience of the Sino-ASEAN economic and trade partnership. The signing of the Regional Comprehensive Economic Partnership (RCEP) on 15 November 2020 indicated that China and ASEAN would expand further bilateral trade and investment cooperation in the future.

Following the United States, the EU and ASEAN, China's other two major trading partners are Japan and South Korea (Estrada et al., 2012). In contrast to the aforesaid three economies, China has standing trade deficits with these two partners. In 2019, China's imports from both countries declined sequentially. Especially in May–October 2019, the monthly imports from Japan decreased more than 5% and from South Korea declined more than 17.5%. China's exports to Japan were down for seven months in 2019, with declining rates ranging from 4% to 9%. However, China's exports to South Korea fared a bit better, with a slight increase overall.

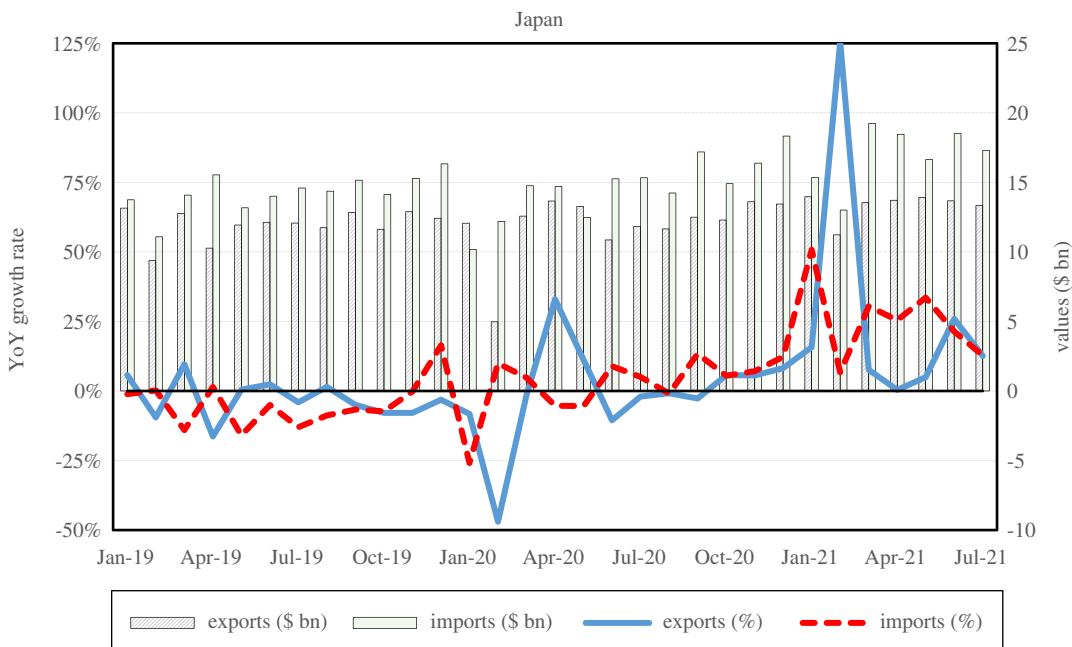


FIGURE 9 The monthly value and year-on-year growth rate (\$ bn and %) of China's exports/imports to/from Japan, 2019–21.

Note: The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

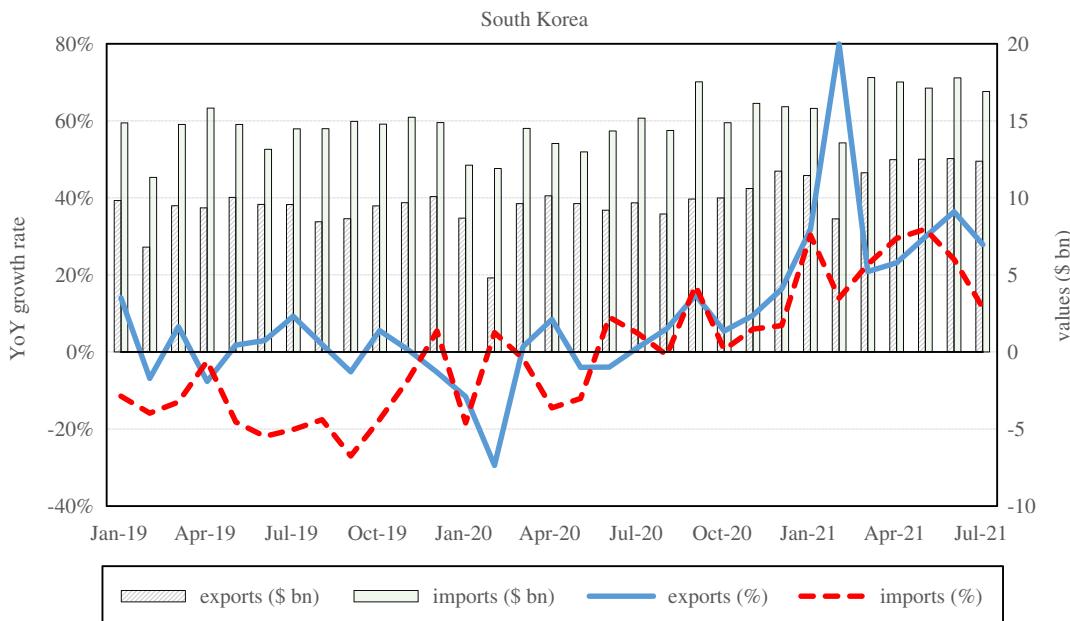
Sources: The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

The decline in trade with Japan and South Korea continued in the first three quarters of 2020. As is presented in Figure 9, China's imports from Japan dropped visibly in January 2020, with a decline rate of 25.9%; in the following month, China's exports to Japan fell sharply by 47.0%. The development trend of China's foreign trade with South Korea was similar to that of Japan. As is observed in Figure 10, the largest fall in China's exports to South Korea occurred in February 2020, with a decline rate of 29.4%. The difference was that imports from South Korea declined at a slower rate in 2020 compared to 2019. Thereafter, the downward trend in China's trade with the two countries eased to some extent in the second and third quarters of 2020. In the fourth quarter of 2020 and the first seven months of 2021, China's trade with Japan and South Korea achieved remarkable growth in both imports and exports.

### 3.2 | On COVID-19 and the exports of major industries

From an industry perspective, the largest sector of China's export trade is the mechanical & electrical (M&E) industry, which has accounted for more than 50% of exports since 2003. Increasing exports of electrical-mechanical products can be seen as a sign indicating that China continues to climb upstream in the Asian and global value chains. In 2019, however, exports of this industry slowed down, with a growth rate of about 4.4%. The reason for this slowdown is likely to be the lower overseas demand for mobile phones and computers, which account for about 15% of exports of the M&E industry<sup>3</sup>. On the bright side, the exports of some

<sup>3</sup>Resources: The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/).



**FIGURE 10** The monthly value and year-on-year growth rate (\$ bn and %) of China's exports/imports to/from Korea, REP, 2019–2021.

Note: The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

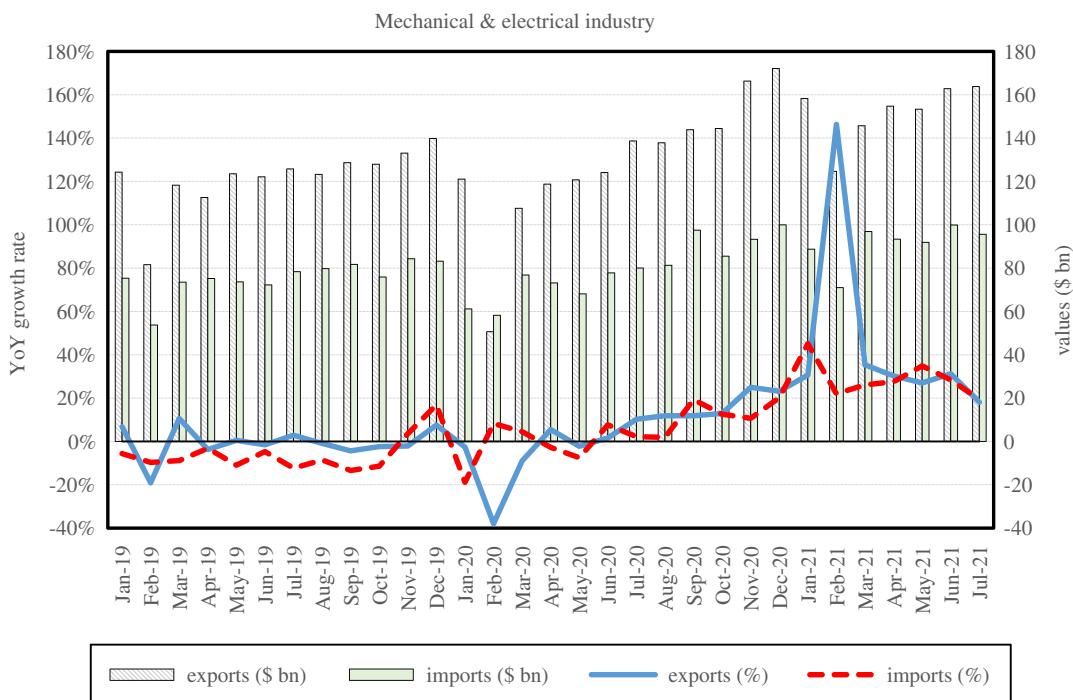
Sources: The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

emerging electromechanical products grew remarkably, including new energy vehicles, wireless headphones, lithium-ion batteries, integrated circuits, photovoltaic products, etc. This indicates that the types of commodities exported by China's M&E industry are becoming more diversified.

As shown in Figure 11, China's M&E product exports dropped markedly in the first quarter of 2020, due to the domestic outbreak of COVID-19. Especially in February of that year, the decline rate reached 38.0% due to home quarantine and production shutdown. In April–May 2020, M&E product exports recovered slowly because of the labour shortage. In the period from June 2020 to July 2021, the exports and imports of this industry recovered and maintained strong growth simultaneously. In July–October 2020, M&E product exports grew at a rate of more than 10%. In the following eight consecutive months, this growth rate further increased to more than 20%.

As capital-intensive as the M&E industry, the high-tech industry is generally considered to require a higher level of technology. At the beginning of this century, China's exports of the high-tech industry accounted for only about 16% of total exports. However, in recent years, this share has increased to about 30%. This can be used to some extent as evidence of China's technological progress.

As can be seen in Figure 12, the exports of China's high-tech industry decreased slightly in 2019, and the decline in imports was more pronounced than in exports. In the first quarter of 2020, the exports of this industry decreased for three consecutive months, with the largest monthly decline occurring in February 2020, at a rate of 28.4%. However, from April 2020 to July 2021, the exports of high-tech industries maintained growth for 16 consecutive months, reversing the previous downward trend. Especially from November 2020 to July 2021, the monthly exports of this industry increased by more than 15%.



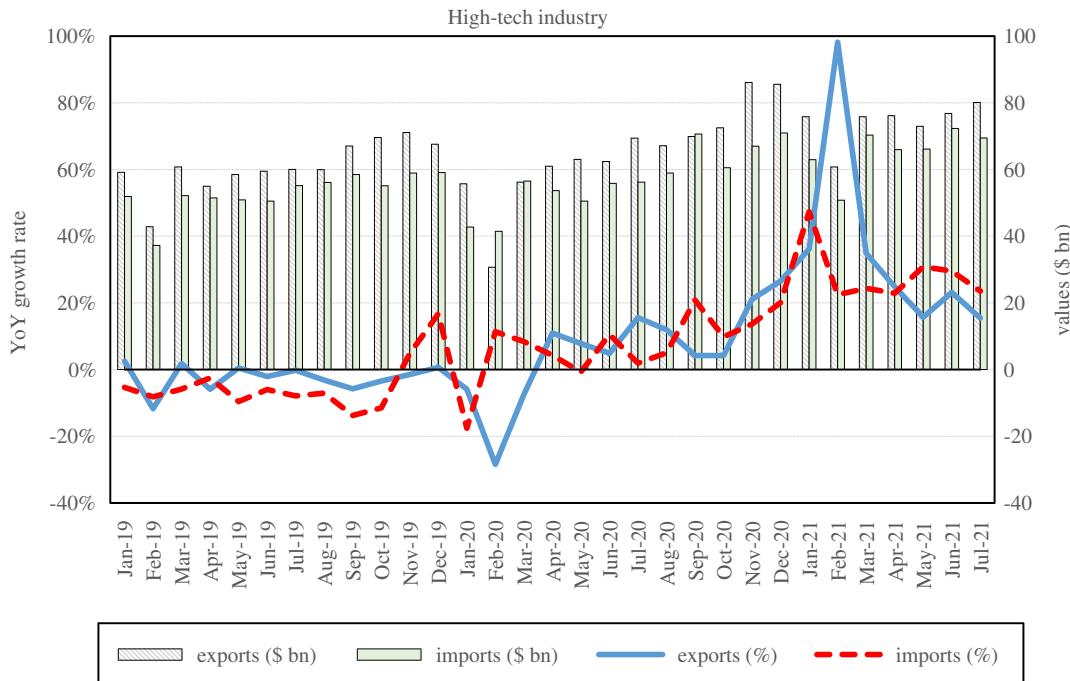
**FIGURE 11** The monthly value and year-on-year growth rate (\$ bn and %) of China's exports/imports of the M&E industry, 2019–2021.

*Note:* The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

*Sources:* The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

As to the high-tech industry, computers and communication technology (CT) products generate the most export value, accounting for more than 60% of this industry's exports. The growth rate of computer & CT products was about 4.8% in 2020. The products with the fastest export growth rate in the high-tech industry in 2020 were life science & technology products and biotechnology products, with growth rates of 23.5% and 22.6%. These two types of products together accounted for about 5.4% of the high-tech industry's exports. The third-fastest growth category in exports of high-tech products in 2020 was electronic products, with a growth rate of 16.9%. This category of products was the second-largest in this industry, accounting for about 23% of the industry's exports.

Unlike the above two industries, the textile & garment industry is a typical labour-intensive one. It was one of the most important industries that China pioneered in foreign trade after the economic reforms and opening-up. In recent years, the export share of this industry has gradually decreased to about 10%, which is influenced by factors such as rising labour costs. A non-negligible problem in this industry is that part of the orders from the international market flow out to some countries with lower labour costs in Southeast Asia and South Asia, such as Bangladesh and Vietnam. As shown in Figure 13, both exports and imports of this industry decreased slightly in 2019. In the first quarter of 2020, exports of the textile & garment industry declined significantly, especially in February 2020 at a rate of 62.9%. Growth then resumed from the second quarter of 2020. Up to this point, the exports of this industry followed the same trend as that of the M&E and high-tech industries. However, the difference emerged in the second quarter of 2021, when the exports of the textile & garment industry declined for three consecutive



**FIGURE 12** The monthly value and year-on-year growth rate (\$ bn and %) of China's exports/imports of the high-tech industry, 2019–2021.

Note: The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

Sources: The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

months from May to July 2021, as the epidemic in Southeast and South Asian countries eased during this period. These findings indicated to a certain extent that a portion of this industry's orders returned to China from Southeast and South Asian countries in 2020 after China brought the domestic epidemic under control, but those orders flew out of China again when the epidemic eased in those countries.

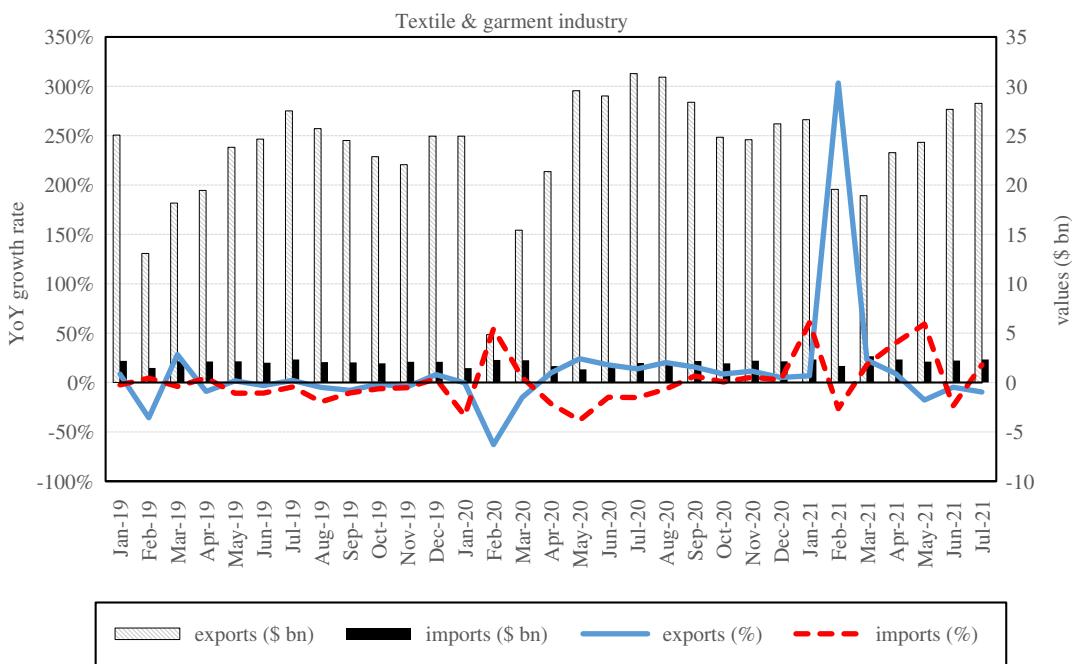
### 3.3 | On COVID-19 and the exports of typical products

In this sub-section, some specific products are selected for detailed analysis.

The first category of products to be spotlighted is those for which explosive demand is directly generated by COVID-19, represented by medical materials & medicines, medical equipment and vaccines.

Medical products are important during a pandemic. China suffered a severe shortage of medical supplies when the epidemic initially broke out in the first two months of 2020. During that time, China received donations of medical supplies from abroad. Relying on the large and well-established domestic industrial system, China then resumed production and supply of medical products and subsequently turned to outward donations and exports.

Specifically, China had significant trade deficits in medicinal materials & medicines before the outbreak, with the value of imports of these products being nearly twice the value of exports in 2019. As is presented in Figure 14, exports of medicinal materials & medicines exploded from March 2020. Especially from November 2020 to July 2021, exports of these products grew by



**FIGURE 13** The monthly value and year-on-year growth rate (\$ bn and %) of China's exports/imports of the textile & garment industry, 2019–2021.

Note: The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

Sources: The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

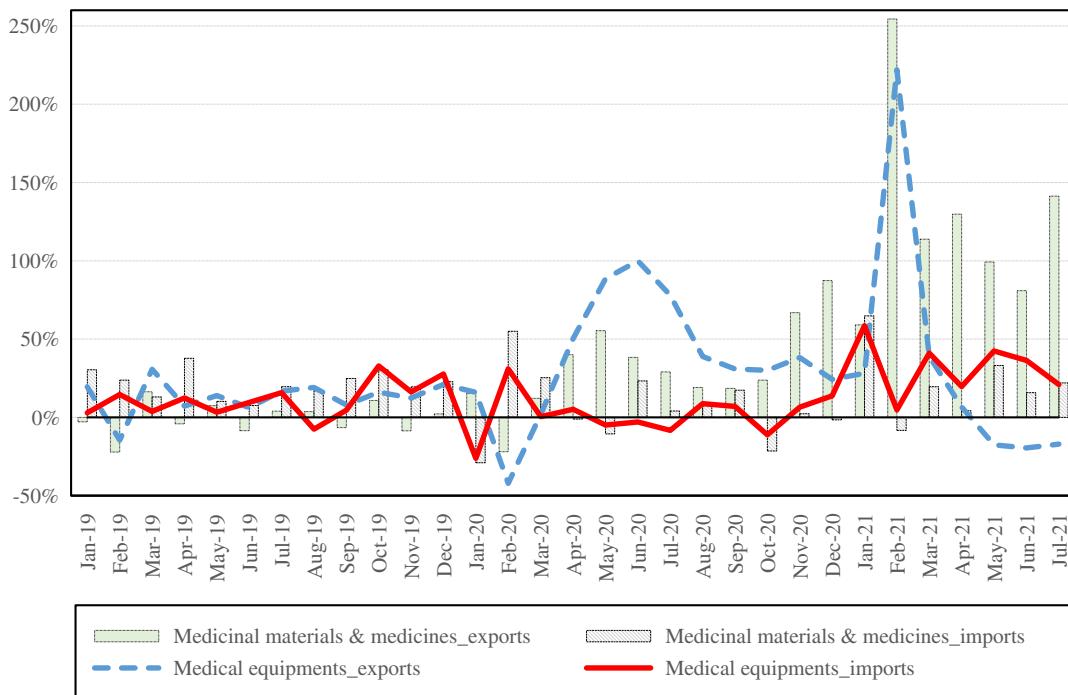
more than 60% for nine consecutive months. A noteworthy phenomenon is the popularity of traditional Chinese medicines, exports of which reached \$4.28 billion, with a growth rate of 6.6%<sup>4</sup>. During this period, imports of medicinal materials & medicines decreased slightly, ultimately increasing the trade surplus of these products. Likewise, exports of medical equipment such as gloves and ventilators also increased sharply due to the pandemic. The explosive growth of exports of medical equipment occurred in May, June and July 2020, with growth rates of up to 80%. However, after 14 consecutive months (March 2020 to April 2021) of growth, exports of medical equipment decreased consecutively in May, June and July 2021, with decline rates of about 17%, reflecting an adjustment from the unusually high growth experienced in the previous months.

While preventing and controlling the outbreak, China has actively invested in vaccine research and development, becoming one of the few countries in the world to develop and produce the COVID-19 vaccines. As of July 2021, China had donated more than 26 million doses and provided more than 500 million doses of vaccines and stockpiles to more than 100 countries and international organisations, amounting to one-sixth of the total global COVID-19 vaccine production. In particular, China's vaccine exports were 84 times that of the United States.<sup>5</sup>

<sup>4</sup>China Daily, 2021. Chinese medicine making inroads overseas, June 08. <https://www.chinadaily.com.cn/a/202106/08/WS60bec9a8a31024ad0bac43d8.html>

<sup>5</sup>Sources: Report on the Global Use of Covid-19 Vaccines, July 29, 2021.

Growth rates of trade of medicinal materials &amp; medicines and medical equipment



**FIGURE 14** The monthly year-on-year growth rate (%) of China's exports/imports of medicinal materials & medicines and medical equipment, 2019–2021.

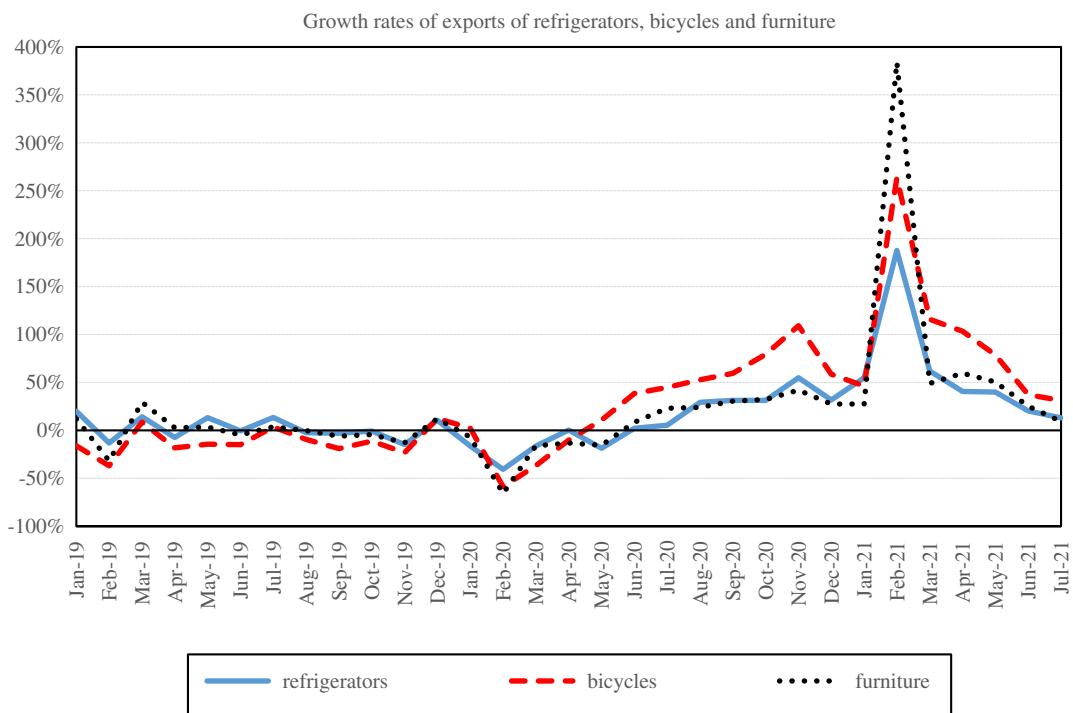
Note: The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

The second category of products that experienced unexpected export expansion due to the epidemic included bicycles and electrical appliances, especially refrigerators and furniture.

As can be seen in Figure 15, the export growth of these three types of products in 2019 was relatively slow or slightly decreased. In the first quarter of 2020, there were substantial declines in exports of these products. Especially in February 2020, the declining rates reached 40%–65%. However, in the second half of 2020 and the first seven months of 2021, exports of these products increased significantly, and this growth was likely due to the gradual implementation of home quarantine measures in various countries, raising the overseas market demand for these products.

The third category of products included several typical products with stable growth. This paper uses the statistics of the latest 5 years (2017–2021) to screen out products that have consistently maintained positive growth in exports. In particular, the growth rate of 2021 is calculated using the aggregated value of exports for the first 7 months of each product category compared with the aggregated value for the first 7 months of 2020. Table 2 presents the results.

Electronic products are taken as a representative product category for all categories of products in Table 2. Against the backdrop of a slight decline in China's overall exports, electronic products achieve significant growth in 2019, with monthly year-on-year growth rates remaining between 10% and 20%. As is observed in Figure 16, electronic products maintained commendable growth in the first quarter of 2020, when the domestic epidemic outbreak caused a large and



**FIGURE 15** The monthly year-on-year growth rate (%) of China's exports of refrigerators, bicycles and furniture.

Note: The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

Sources: The GACC, [www.customs.gov.cn](http://www.customs.gov.cn)

significant decline in China's exports. Since then, exports of such products have further kept and achieved even faster growth.

Similar to electronic products, the fourteen types of products listed in Table 2 are all products whose exports have continued to grow in the past five years, including three types of high-tech products, six types of M&E products, toys, sports equipment, etc. The international market demand for these products was relatively strong before the outbreak and remained stable during the pandemic, resulting in an expectation that their exports would remain relatively good in the future. It is suggested that these products should be treated as the pillar products of China's exports, and larger inputs on the manufacture and R&D of these products are recommended.

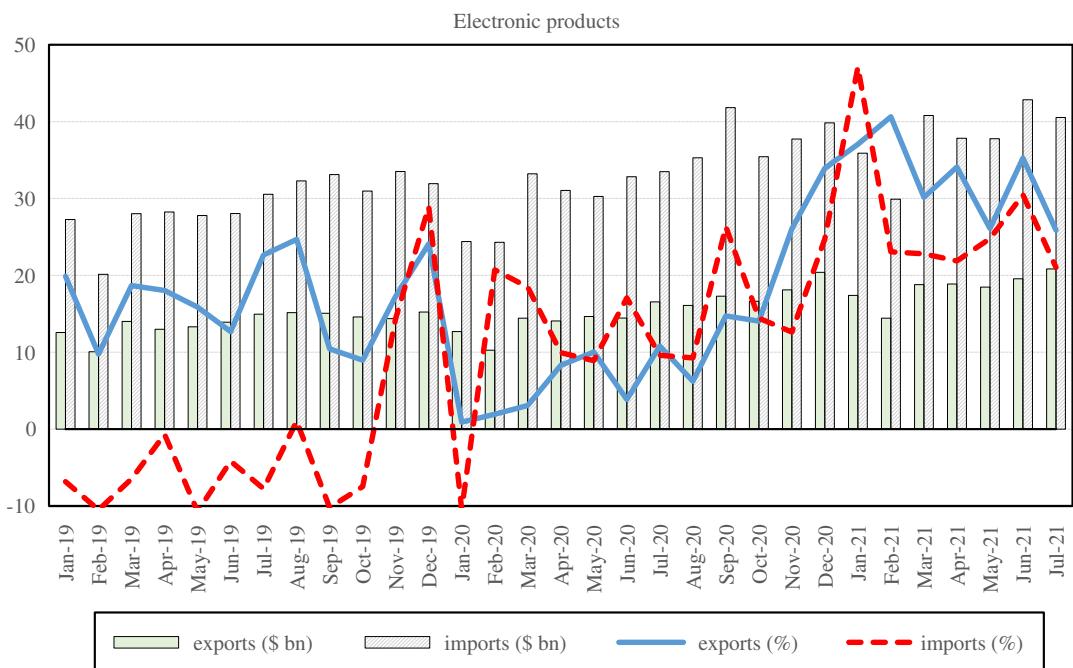
In addition, this paper uses statistics from the latest three years (2019–2021) to screen products with high export growth potential, represented by electrical vehicles (EVs). As shown in Figure 17, China's trade in EVs grew notably in the last three years, especially in exports. In fact, China has large but shrinking trade deficits in EVs. The annualised growth rate of exports of EVs reached 167% in 2019. In 2020, even with the impact of COVID-19, there was an astounding 136% increase in exports of EVs. This growth momentum continued in 2021 as the total value of EV exports in the first half of 2021 exceeded that of the whole year of 2020. In July 2021, the monthly exports of EVs exceeded a striking \$1 billion for the first time, generating a significant trade surplus.

This paper calculates the average price of exports (imports) of EVs, which is an average figure obtained by dividing the total value of exports (imports) by the number of units exported (imported) in that month. In 2019, the average price of China's exported EVs was only \$5000/vehicle,

TABLE 2 Typical products with sustained growth of exports, 2017–2021

	2018		2019		2020		2021 (January–July)	
	Growth (%)	Share (%)	Growth (%)	Share (%)	Growth (%)	Share (%)	Growth (%)	Share (%)
High-tech industry								
Electronic products	4.00	5.25	19.65	5.72	16.89	6.65	11.69	7.17
Computer & communication technology	11.78	20.24	10.86	20.42	-7.84	18.72	4.72	18.92
Biotechnology	9.81	0.03	32.89	0.04	5.23	0.04	22.56	0.05
Life science & technology	12.21	1.23	17.71	1.32	1.95	1.34	23.46	1.59
M&E industry								
Automobiles & automobile chassis	23.44	0.59	11.09	0.60	3.38	0.61	2.55	0.61
Bicycles	0.08	0.14	4.52	0.13	-12.51	0.11	28.08	0.14
Hand/machine tools	10.49	0.46	12.25	0.47	1.86	0.47	2.73	0.47
Machine tools	8.36	0.15	21.28	0.16	9.93	0.18	45.21	0.25
Medical instruments/apparatus	6.57	0.44	13.43	0.46	13.17	0.52	40.45	0.70
Motorcycles	11.34	0.29	13.32	0.30	1.19	0.31	12.42	0.33
Refrigerators	15.47	0.29	13.56	0.30	2.31	0.30	8.15	0.32
Textile machinery/parts	13.24	0.15	6.25	0.15	2.40	0.15	20.82	0.18
Textile & garment industry								
Garments	-1.81	6.99	0.35	6.38	-4.46	6.07	-9.33	5.31
Yarns & fabric	4.02	4.88	7.95	4.80	0.86	4.81	27.97	5.94
Electrical Vehicles	0.00	0.00	0.00	0.02	167.49	0.05	136.23	0.12
Furniture	2.90	2.23	7.55	2.18	-0.08	2.17	8.33	2.27
Medicinal materials & medicines	10.62	0.67	15.67	0.70	-0.90	0.69	33.39	0.89
Sporting goods & equipment	3.18	0.43	5.89	0.42	8.14	0.45	40.89	0.61
Tea	8.72	0.07	11.01	0.07	13.04	0.08	0.60	0.08
Toys	31.38	1.08	5.15	1.03	21.99	1.25	7.27	1.30

Note: (1) 'growth' denotes the annual year-on-year growth rate of exports. (2) 'share' denotes the share of exports of these products in China's total exports in the first seven months of 2021.



**FIGURE 16** The monthly value and year-on-year growth rate (\$ bn and %) of China's exports/imports of electronic products, 2019–2021.

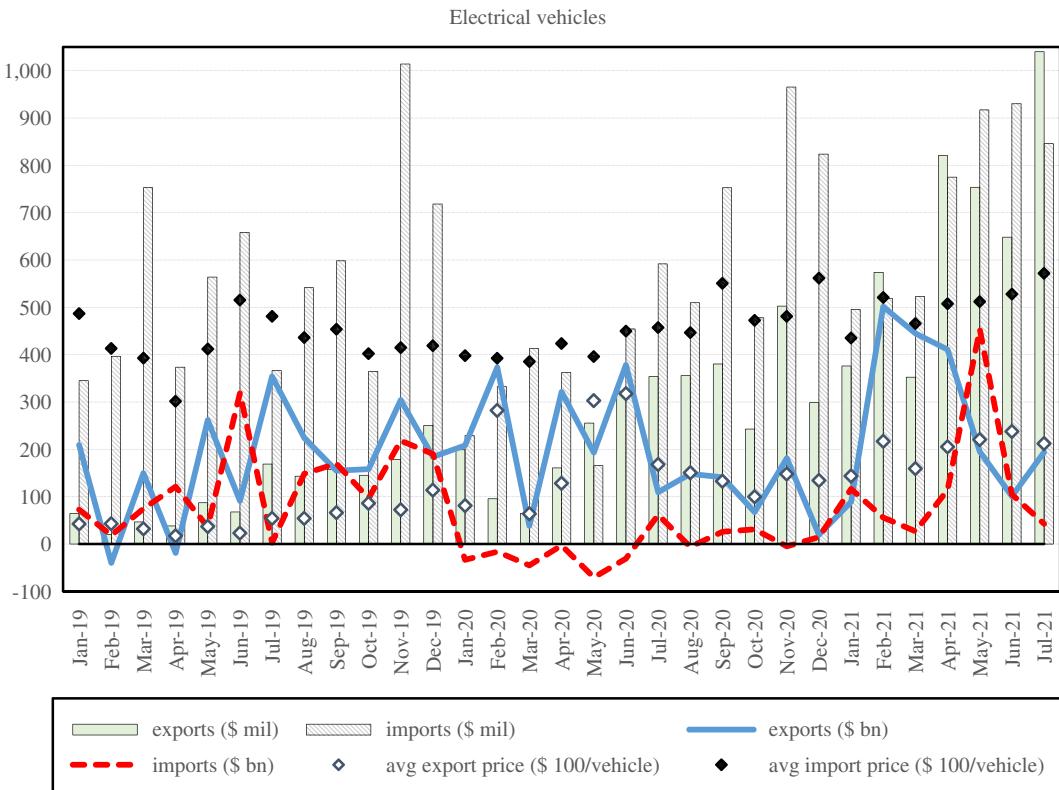
Note: The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

Sources: The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

much lower than that of the imported ones (\$42,000/vehicle). However, in 2020, the average price of exported EVs surged to \$16,000/vehicle, rising further to \$19,000/vehicle in the first 7 months of 2021. The average price difference between imported and exported EVs shrank significantly during 2019–2021. It suggests that market demand for EVs is expected to remain positive and broad. Active but rational supports for the development of exports of EVs are recommended.

### 3.4 | On COVID-19 and global supply chains: challenges and opportunities for China

In the context of globalisation, the COVID-19 pandemic can have substantial negative impacts on global trade and supply chains (Chowdhury et al., 2021). Restrictive measures for epidemic prevention and control lead to labour shortages and production disruptions, thus delaying commodity deliveries and propagating disruptions across the supply chains (Queiroz et al., 2020). On the other hand, disruptions in domestic or cross-border transport can exacerbate disruptions to the global supply chains and lead to ripple effects (Queiroz et al., 2020). Container return congestion and shortages of empty containers affect the delivery of Chinese exports (China Daily, 2021). Under the multiple threats of the pandemic, cross-border railroads and short-distance shipping may be more efficient compared to long-distance shipping in the post-COVID-19 era. Making full use of the China Railway Express (CRE) trains can bring new opportunities for China to solidify its industrial chain and export deliveries.



**FIGURE 17** The monthly value, year-on-year growth rate and average price (\$ bn, % and \$ 100/vehicle) of China's exports/imports of electrical vehicles, 2019–2021.

Note: The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

Sources: The GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/)

Another opportunity is the entry into force of the Regional Comprehensive Economic Partnership Agreement (RCEP), under which the trade in goods between member countries will work to reduce or eliminate bilateral tariffs (China Daily, 2022). RCEP could make it more beneficial for China to integrate the technological factors of Japan and South Korea with the price-advantaged factors of Southeast Asian countries, due to China's integrated centre position in the Asian value and supply chains. China can use its complete and vast domestic supply chain network to embed itself deeper into the Asian supply chains of the mechanical industry, the electromechanical industry and the automotive industry. This will create more opportunities for China to withstand the impact of COVID-19 and to solidify its trade with Asian countries.

#### 4 | IMPACTS OF COVID-19 ON THE WORLD'S LEADING TRADE NATIONS IN COMPARISON WITH China

The COVID-19 pandemic was a disaster for economic and trade development all over the world. In 2020, the total volume of world trade contracted by 7.5%, declining from \$38.5 trillion in 2019 to \$35.6 trillion. As can be seen in Table 3, most leading trade nations experienced substantial trade contractions, with an annualised growth rate ranging from -7% of South Korea to -20% of India.

TABLE 3 Values and world shares of foreign trade by country, 2018–2021(Q1)

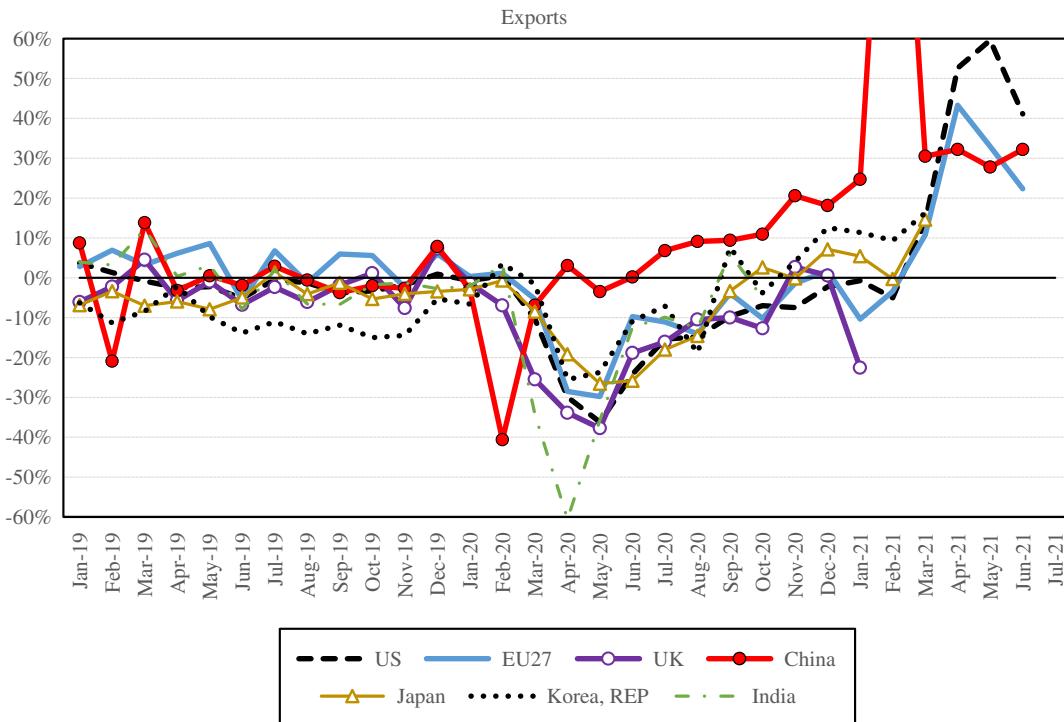
	World	US	EU-27	UK	India	Japan	Korea	China
<b>2018</b>								
Total trade (\$tn)	39.59	4.28	10.59	1.16	0.84	1.49	1.14	4.62
As % of world (%)	100	10.81	26.74	2.93	2.12	3.75	2.88	11.68
Exports (\$tn)	19.67	1.66	5.51	0.49	0.32	0.74	0.60	2.49
As % of world	100	8.46	27.99	2.47	1.65	3.75	3.07	12.64
Imports (\$tn)	19.92	2.61	5.08	0.67	0.51	0.75	0.54	2.14
As % of world	100	13.12	25.50	3.38	2.58	3.76	2.69	10.72
<b>2019</b>								
Total trade (\$tn)	38.50	4.21	10.20	1.17	0.81	1.43	1.05	4.58
As % of world	100	10.94	26.50	3.03	2.11	3.71	2.72	11.89
Exports (\$tn)	19.13	1.64	5.36	0.47	0.32	0.71	0.54	2.50
As % of world	100	8.59	27.99	2.45	1.70	3.69	2.83	13.06
Imports (\$tn)	19.36	2.57	4.85	0.70	0.49	0.72	0.50	2.08
As % of world	100	13.26	25.03	3.59	2.51	3.72	2.60	10.73
<b>2020</b>								
Total trade (\$tn)	35.58	3.84	9.56	1.04	0.65	1.28	0.98	4.65
As % of world	100	10.79	26.86	2.92	1.82	3.59	2.75	13.06
Exports (\$tn)	17.69	1.43	5.05	0.40	0.28	0.64	0.51	2.59
As % of world	100	8.09	28.57	2.28	1.56	3.63	2.90	14.65
Imports (\$tn)	17.89	2.41	4.50	0.63	0.37	0.63	0.47	2.06
As % of world	100	13.46	25.16	3.55	2.08	3.55	2.61	11.49
<b>2021Q1</b>								
Total trade (\$tn)	–	1.06	1.12	0.26	0.22	0.35	0.28	1.30
Exports (\$tn)	–	0.40	0.59	0.11	0.09	0.18	0.15	0.71
Imports (\$tn)	–	0.66	0.53	0.15	0.13	0.17	0.14	0.59

Notes: Data on EU-27 are calculated using an exchange rate of 1 Euro = 1.156 USD.

Sources: Data on China are from GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/), data on EU-27 and UK are from Eurostat, [ec.europa.eu/eurostat/database](http://ec.europa.eu/eurostat/database), and data on other nations are from UN COMTRADE, [www.comtrade.un.org/](http://www.comtrade.un.org/).

In this section, six major economies are selected as representatives, namely the United States, the EU-27, the UK, Japan, South Korea and India, and the monthly year-on-year trade growths/declines of them during the pandemic are analysed and compared with China. Data for the United States are from the US Census Bureau, data for the EU-27 are from the Eurostat, and data for Japan, South Korea and India are from the UN COMTRADE.

As can be seen in Figure 18, the world's leading trade nations experienced varying degrees of trade contraction in 2019, prior to the pandemic. In terms of exports, the EU-27 was the only one of the six economies to achieve an annual growth of 3.5% in 2019. The other five economies suffered negative growth. Exports of the United States declined for nine consecutive months thereafter while achieving positive growth in January and February 2019. Exports of Japan and South Korea experienced almost 12 months of consecutive declines in 2019. India fared slightly better, with exports growing in the first five months and July but suffered



**FIGURE 18** Year-on-year growth rates of exports of the world's leading trade nations.

Notes: The abscissa value denotes month-year, for example, Jan-19 denotes January 2019

Sources: Data on China are from the GACC, [www.customs.gov.cn/](http://www.customs.gov.cn/), data on the EU-27 and the UK are from the Eurostat, [ec.europa.eu/eurostat/data/database](http://ec.europa.eu/eurostat/data/database), and data on other nations are from UN COMTRADE, [comtrade.un.org/](http://comtrade.un.org/)

a decline in the other six months of the year. Although China's exports also decreased slightly in 2019, China's overall decline was less severe than that of the other five economies. With respect to imports in 2019, the overall tendency was similar to that of exports. Only the EU-27 achieved positive growth. The United States experienced a slighter import decline than China, whereas the import declines in the UK, Japan, South Korea and India were somewhat more severe. The general shrinkage in the world's leading trade nations reflected the continuing sluggishness and weakness of the world economy. It also indicated that the international economic and trade environment had not fully recovered from the international financial crisis in 2008.

In this context, the global COVID-19 pandemic wreaked even more havoc on global trade development. The first quarter of 2020 was the worst period for China's export decline, especially in February when China's exports fell 40.6%, while exports of the EU-27, the United States, South Korea and India grew modestly during the month, with annualised growth rates ranging from 0.5% to 3.6%. Thereafter, massive export declines swept through all the six economies. The maximum shrinkage occurred around May 2020, when the EU-27, the UK, and the United States fell close to or even exceeded 30%. Japan and South Korea dropped by about 25%. The worst situation occurred in India, where the monthly rate of decline exceeded 34% throughout the second quarter of 2020, reaching 60.6% in April in particular.

Finally, this paper compares the export and import performance of the above six economies during the pandemic with that of China. This paper finds that the maximum rate of decline in China's export trade was somewhat more severe than that of the other five economies except India. This indicates that COVID-19 has indeed caused significant interference to China's export trade. However, China experienced a shorter period of exports decline than the other six economies, that is, China's exports recovered earlier. Moreover, China's exports grew at a faster pace. The picture for imports was similar and a bit better. Specifically, the maximum decline in China's imports was smaller than in the other six economies, and the monthly growth rates of China's imports were also higher after the recovery.

These findings provide evidence at least for the following two observations: (1) China's trade, especially exports, recovered earlier and faster under its timely and effective control and prevention of the domestic epidemic; and (2) China has formed a massive domestic market that can provide relatively adequate market demand for both import trade and domestic trade.

## 5 | CONCLUSIONS AND POLICY IMPLICATIONS

This paper analyses China's trade development during the COVID-19 pandemic from the following three perspectives: (1) by country; (2) by industry and (3) by products. On this basis, it compares China's trade performance with the world's major trade economies. The findings and corresponding policy recommendations of China's foreign trade can be summarised below.

This paper finds a common downtrend in the development of China's trade with its top five major trade partners in the first half of 2020. This was inextricably linked to the suspension of production activities and the adoption of strict quarantine measures. The cost of suspending trade and economic activities for China in the first half of 2020 was high, but China appeared to have generated a huge pay-off compared with the other major economies in terms of economic growth and foreign trade recovery. In 2020, China was the only one of the world's largest ten economies to achieve a positive GDP growth of 2.3% and its foreign trade also rose by 1.9%. In the first seven months of 2021, China's export/import performance was also much more robust compared to its major trade partners. We suggest that China should continue to expand trade with ASEAN, Japan and South Korea while maintaining a steady trade volume with the EU, the UK and the United States. China should especially strengthen its integration with countries upstream and downstream of the Asian value chains, taking full advantage of the RCEP.

Regarding the industry-level analysis, this paper finds that the M&E and high-tech industries are two typical technology-intensive industries which together account for over 80% of China's recent exports. Exports of these two industries declined in the first half of 2020, but strongly recovered thereafter. It is suggested that China should continue to focus more on technology-intensive industries and improve the overall quality of foreign trade in the aftermath of the COVID-19 pandemic.

Finally, this paper identifies fifteen typical products with steady growth in exports, represented by electronic products and electrical vehicles. These products were in great demand before the outbreak and maintained their export momentum during the pandemic. The empirical analysis in this paper shows that market demand for these products will remain substantial in the aftermath of the pandemic. This paper suggests that Chinese companies should capture these new opportunities amidst the pandemic-induced recession and beyond.

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