On the Global COVID-19 Pandemic and China's FDI

Jing Fang, Alan Collins, Shujie Yao*

Abstract: The global COVID-19 pandemic has generated serious challenges for the world economy, including cross-border foreign direct investment (FDI). China's inward FDI (IFDI) and outward FDI (OFDI) are also facing unprecedented risks and challenges. This paper first clarifies the timelines of the pandemic evolving in China, the US, and the rest of the world. It then reflects on China's past development process of IFDI and OFDI, noting the growth of IFDI and highlighting the risks and challenges for OFDI during and after the pandemic. Empirical evidence for the impact of COVID-19 on FDI is set out. Policy recommendations are then made regarding China's latest development strategy using the so-called *dual circulation* to sustain its economic growth with respect to cross-border FDI.

Keywords: COVID-19, FDI, OFDI, China, *dual circulation*

JEL: E22, F21 I18, O53

Author details:

Jing Fang, Ph.D. candidate, School of Economics and Business Administration, Chongqing University, Chongqing, China. Email: fangjing@cqu.edu.cn.

Alan Collins, Professor and Head of the Department of Economics, Nottingham Tent University, Nottingham, UK. Email, alan.collins@ntu.ac.uk.

Shujie Yao *(corresponding author), Chair Professor of Economics, School of Economics and Business Administration, Chongqing University, Chongqing, China, and Business School, University of Nottingham (Ningbo), Ningbo, Zhejiang, China. Email: yaoshujie@cqu.edu.cn.

Authors

Jing Fang [a]

Alan Collins [b]

Shujie Yao [a, c, *]

Author affiliations

[a] School of Economics and Business Administration, Chongqing University, Chongqing, China

[b] Department of Economics, Nottingham Tent University, Nottingham, UK

[c] Business School, University of Nottingham (Ningbo), Ningbo, Zhejiang, China

**Corresponding author*

E-mail addresses

fangjing@cqu.edu.cn (J. Fang)

alan.collins@ntu.ac.uk (A. Collins)

yaoshujie@cqu.edu.cn (S. Yao)

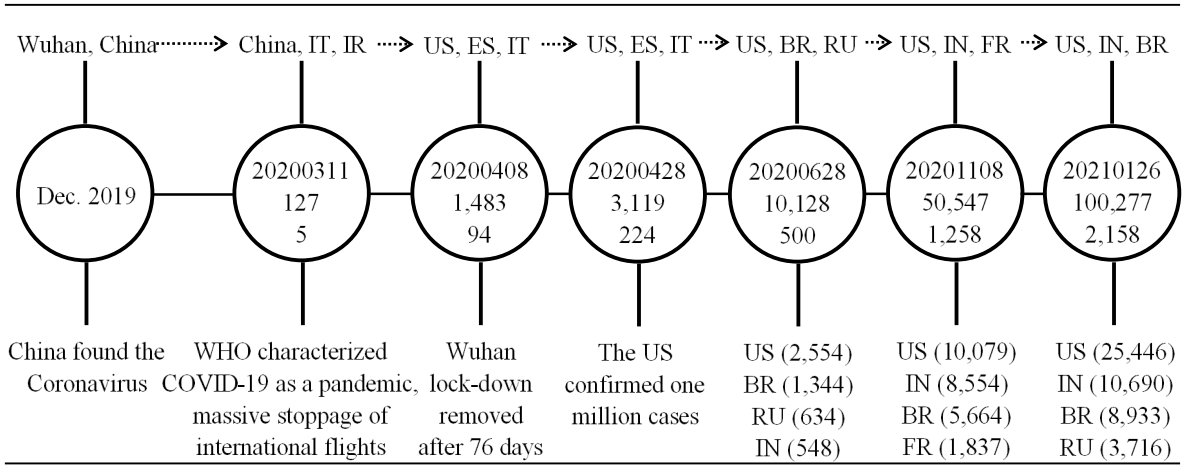
Funding

This research is financially supported by the National Social Science Foundation of China (18ZDA005), the National Natural Science Foundation of China (71673033) and the Chinese Ministry of Education Central Fund (2020CDJSK02ZH02). The authors remain solely responsible for any omission or error herein.

1. Introduction

The global COVID-19 pandemic has posed a serious threat to people's health and economic development worldwide. To prevent and control the pandemic, China adopted strict quarantine measures such as the complete lockdown of cities and communities seriously infected by the virus, mobilizing national resources to build specialized and makeshift hospitals, offering free medical tests and medical care/treatment, etc. This has enabled the country to contain the disease effectively in a relatively short time.

In sharp contrast, some western countries, such as the USA, have been relatively slow in taking effective national control and prevention measures at the beginning of the outbreak, missing a critical time window for containment of infection. This has resulted in the global pandemic hitting many countries really hard in terms of health and economic outcomes. The epicenter seemed to shift initially from China to Iran, Italy, then to Spain, France, the UK, before moving to the USA. From early June, 2020， the US, Brazil, India, Russia, and some other Latin American countries were the most seriously infected countries. From the fourth quarter of 2020, European countries such as France, Spain, and the UK became the hardest-hit areas again. On January 26, 2021, 100 million people worldwide were diagnosed with COVID-19 (Fig. 1). On February 8, 2021, the numbers of the world's total infected cases and deaths reached 106.44 million and 2.32 million, respectively.



Notes: 1. The first line lists the world's epicenters. 2. The circles in the middle give the date (in YYYYMMDD format), the numbers of confirmed cases (1,000) and deaths (1,000) worldwide on typical dates. 3. The bottom line reports the events on the corresponding dates. 4. IT, IR, ES, BR, RU, IN and FR denote Italy, Iran, Spain, Brazil, Russia, India and France, respectively.

Fig. 1. The evolution process of the COVID-19 pandemic with changing epicenters

Sources: Johns Hopkins University Coronavirus Resource Center, https://coronavirus.jhu.edu/map.html, and Harvard Dataverse, https: // dataverse.harvard.edu/dataverse/cdl_dataverse.

The Chinese economy grew rapidly for more than four decades since the country's economic reforms and opening-up policies were implemented in 1978. Inward foreign direct investment (IFDI) appears to have played an important role in China's economic development process. Yao and Wei (2008) suggested that IFDI improved industrial production efficiency and accelerated technological progress. During 2008-2019, China was the second-largest IFDI country in the world for ten years (except for 2015 and 2016). Since 2010, it has been the world's second-largest economy, the largest exporter and the second-largest importer. It started to invest extensively in other countries from 2004, facilitated by its huge foreign exchange reserves, accumulated technologies, human capital, and manufacturing capability (Li *et al.* 2007; Luo *et al.*, 2008; Yao and Wang, 2014).

China's bi-directional capital flows to and from the domestic market have greatly enhanced its position in the global trade and investment systems. On the one hand, it continues to absorb foreign capital and technologies to shift its technological frontier outward and starts to harness its own comparative advantages in the global value and technological chains to diversify and expand the international territory of trade and services. On the other hand, China's continuing efforts in research and technological innovations have enabled many large enterprises, state-owned or private, to play an increasingly important role in the development of the newly emerging industries such as 5G, high-speed rail, nuclear power, mobile payment, e-commerce, new materials and the like.

However, China's two-digit or close to two-digit level of economic growth came to an end by 2011. Since 2012, it has entered the so-called *New Normal* development stage, focusing more on quality rather than speed of economic growth. This seems to be an unavoidable outcome given the worldwide economic downturn and market shrinkage following the global financial crisis.

Since Donald Trump took power in 2017, various 'frictions' between the US and China have been triggered. The on-going US-Sino trade war and the US's sanctions on China's high-tech companies pose serious threats and challenges to China's ambition of economic development and cross-border FDI. The powerful shock triggered by COVID-19 has also

affected China's foreign trade and investment. In response, China has promoted the so-called *dual circulation* model. This involves developing the domestic economic system as the mainstay and exploiting the complementary benefits of both the domestic and foreign economic systems. The intention of this type of development pattern is to help cope with the complicated internal as well as external challenges (China Daily, 2020). It is anticipated that China's 14th Five-Year Plan (2021-25) will focus more on building a stronger domestic market and paying more attention to quality and efficiency instead of extensive expansion in attracting foreign capital, or making investments in other countries. Under the multiple pressures of the escalating US-China trade frictions, the global COVID-19 pandemic and the inevitable economic recession, should we lose confidence in China's future FDI attraction? This paper aims to address this question, based on a review of China's past FDI development and an empirical investigation of the impact of COVID-19 on FDI using the quarterly data of 43 major economies affected by the pandemic during 2009Q1-2020Q3.

The rest of this paper is organized as follows. Section 2 reviews the existing literature on China's FDI, as well as the impact of COVID-19. Section 3 clarifies the evolving timelines of the pandemic in China, the US, and other parts of the world. Section 4 examines China's past IFDI and OFDI development process, discusses the changes in IFDI during and after the pandemic, and analyzes the risks and challenges faced by China's future OFDI activities. Informed by this evidence base, the last section unfolds some policy recommendations under the new *dual circulation* development pattern with respect to IFDI and OFDI.

2. China and FDI in Retrospect

One of the most fundamental ideas in economic growth is to realize capital accumulation as the primary condition to eliminate economic backwardness for developing countries in their initial stage of development (Rostow, 1960). Chenery and Strout (1966) proposed the Two-gap Theory suggesting that FDI could make up for capital and foreign exchange gaps and promote economic growth. Balasubramanyam *et al.* (1996) tested an endogenous growth model finding that FDI could promote economic growth through multiple effects. Inward FDI was found to have an impact on local wages (Nguyen, 2019). FDI's enhancing effects were found more

potent in those countries that followed an export promoting rather than import-substituting strategy. Following the *economic reforms and opening-up* policy, China's trade strategy changed from import substitution and self-reliance to export promotion (Yao and Zhang, 2001). This created a favorable external environment for sustained economic growth. Since 1978, China had achieved an average annual economic growth rate of 9.5% for 40 years. Its foreign trade maintains an average annual growth rate of 14.5% since the 1990s, marking a rapid change from a closed/socialist economy to a commercially open one (Lin and Zhang, 2019; Lin and Wang, 2020).

As more and more FDI flows into China, the role of IFDI in China's growth process has become a topic of intense research. On the one hand, many studies support the role of IFDI in promoting China's economic growth. Yao (2006) pointed out that exports and IFDI are two significant drivers of China's economic success. IFDI originating from overseas had contributed to the entry rate of local firms in China. The backward linkage spillover effect was also found significant and positive (Anwar and Sun, 2012; Hansen and Rand, 2006; Tang *et al.*, 2008; Tuan *et al.*, 2009). The leap-forward improvement of China's infrastructure construction since the 1990s has also been argued to provide a strong driving force for IFDI (Cheng and Kwan, 2000; Lin and Zhang, 2019).

Regarding the relationship between the two key drivers, i.e., IFDI and trade, Huang (2003) and Sung (2000) found that China's processing exports were dominated by IFDI. Lin and Zhang (2019) argued that without the participation of FDI, China would not be able to overcome the lack of capital, institutional distortions, and financial discrimination against private enterprises.

China's economic growth is inseparable from the world market, and arguably *vice versa*. While attracting IFDI, China also began to invest extensively in other countries from 2004. The mainstream theory explaining industrialized country FDI is, to a certain extent, applicable to an emerging country like China, while some unique explanations should be nested within the general theory (Buckley *et al.*, 2007). Liu *et al.* (2005) thought that China's OFDI was positively correlated with China's per capita GDP, IFDI, and human capital stock. Pradhan (2011) argued that whether the host country had signed a bilateral investment agreement and a double taxation agreement with China, and whether the host country was an offshore financial center, had significant impacts on China's OFDI.

Child and Rodrigues (2005) suggest that China's OFDI was designed to acquire advanced technology, management skills, and other strategic assets and to enhance its own competitiveness. This manifested itself in the relationship between the Chinese government's OFDI decision-making and government support, institutional factors, and the sharing of responsibilities with other countries (Kolstad and Wiig, 2009; Ramasamy *et al*., 2012). As China continues to expand its OFDI, its competition and crowding-out effects against OECD members have also raised concerns (Hurst, 2011; Yao and Wang, 2014). That said, Yao *et al*. (2016) found a strong and positive relationship between lagged inward FDI and contemporaneous OFDI, indicating that the outflow of capital from China is partially induced by the countries investing in China.

Among the OFDI activities, the Belt and Road (B&R) initiative proposed in 2013 is undoubtedly the most high-profile project (World Bank, 2019). The B&R initiative has positive impacts on China's OFDI activities, the direction and the magnitude of which depend on the host countries' willingness to participate in the initiative (Ma and Teng, 2018; Yu *et al*., 2019; Ndzendze and Monyae, 2019). With the B&R initiative, China's OFDI is enhanced by high-level international political cooperation and the reduction of political risks (Shao, 2020).

The Trump administration has used tariff escalation to exert pressure on China (Ding *et al*., 2019; Iqbal *et al*., 2019; Li *et al.*, 2020; Xu *et al.*, 2020). Further, trade frictions have evolved into technological and financial wars. The White House listed 33 Chinese technology companies, colleges, and institutions on the so-called *Entities List* on May 23, 2020, despite the on-going COVID-19 pandemic in the US and the rest of the world. These actions are aimed at curbing the development of China's economy, technology, trade, and cross-border investments (Dai *et al*., 2018). They may also change China's direction in its future FDI development strategies, particularly in the light of the COVID-19 pandemic.

3. The COVID-19 pandemic

COVID-19 was identified at the end of 2019 in Wuhan, the capital city of Hubei province. On January 3, 2020 (hereafter 2020 will be omitted when months/days are mentioned), the Chinese government notified the World Health Organization (WHO) of the outbreak. Wuhan is

one of the busiest cities in the country with extensive road, rail, air, and water transportation systems. The COVID-19 epidemic took hold during China's Spring Festival season when a huge number of its residents traveled to other parts of Hubei and the rest of the country for holidays. Human movement and mobility are important factors for spreading infectious diseases (Gushulak and Macpherson, 2004). In early February, COVID-19 cases were reported in all provinces, autonomous regions, and metropolitan cities throughout China. As a result, all the Chinese regions imposed Class I quarantine measures to contain the disease from spreading.

On January 23, Wuhan was completely locked down. By the end of the month, all the 1.4 billion people in China, except for medical personnel and other essential workers, were quarantined at home. Public transportation in most parts of the country was strictly controlled. Public gatherings were proscribed. Schools and other public places were closed.

COVID-19 has an incubation period of 1-14 days. From late January to mid-February, the virus spread quickly throughout the country, with the daily number of newly infected cases climbing to as high as 2000-4000. It was not until mid-February that the active cases (calculated from cumulative confirmed cases minus recovered cases and deaths) reached the inflection point (Fig. 2).

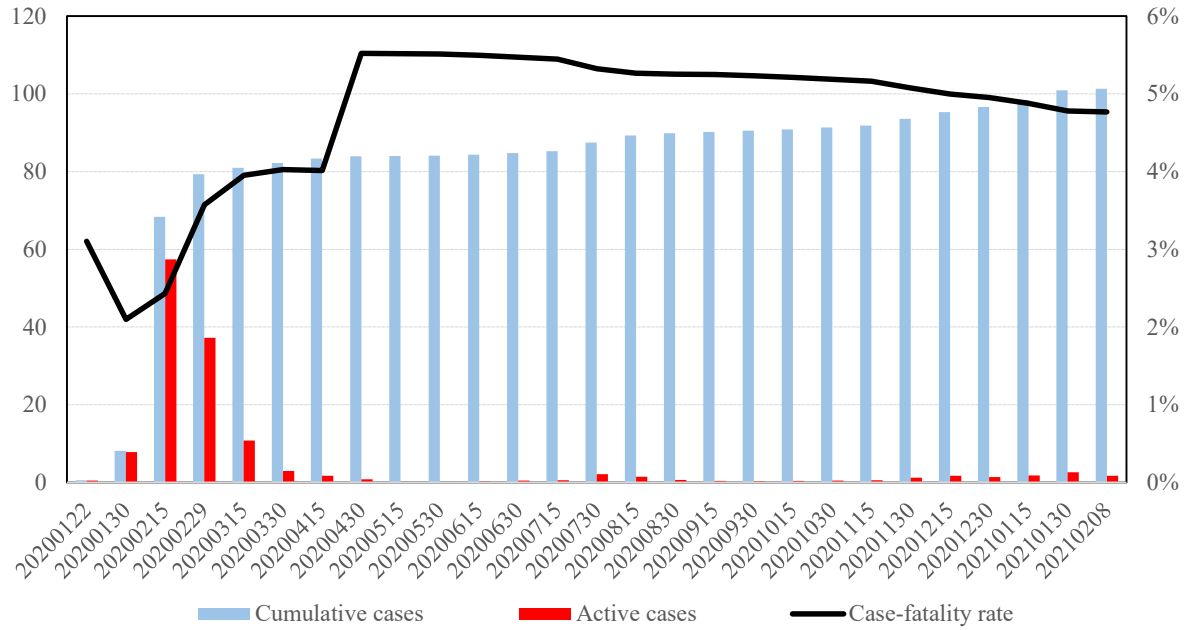


Fig. 2. Cumulative confirmed and active cases (1,000) and case-fatality rates (%) of COVID-19 in China
Sources: The NHCC, http://www.nhc.gov.cn/.
Note: 1. Active cases are calculated from cumulative confirmed cases minus recovered cases and deaths. 2. Case-fatality rates are the ratio of the number of total deaths divided by the cumulative number of confirmed cases on a given day, which changes over time. 3. The abscissa records dates in YYYYMMDD format; for

example, 20200115 denotes January 15, 2020.

By the end of February, the epidemic was effectively brought under control in China. By the end of March, the total number of infected cases nationwide reached a steady state at about 86,000. The lockdown on Wuhan was removed on April 8 after 76 days, marking China's success in containing the spread of COVID-19 within the country.

However, the virus started to spread outside China in early March. Towards the end of March, China had to face double challenges to contain COVID-19 at home and imported cases from abroad. On February 8, 2021, the cumulative number of infected patients originating from abroad was 4,818, despite China imposing strict restrictions on its international flights after March 28.

By February 8, 2021, the nationwide cumulative numbers of infected cases, active cases and deaths stabilized at approximately 101,363, 1,693, and 4,831, respectively, and the overall case-fatality rate was 4.8% (Fig. 2). Overall, China could reasonably claim success in containing COVID-19 by the end of May, 2020. The subsequent waves of contagion lasting into early 2021 were small in scale caused by imported cases and/or imported food, but they were quickly brought under controlled within specific localities.

The pandemic is not a problem for a single country/region but a disaster faced by all human beings. The number of infected cases outside China was less than 500 before February 15. The most infected countries (defined by the total number of infected cases in this paper) arguably lost a critical time window for several weeks, or even months, to impose the essential quarantine measures in order to contain the disease.

The US had the largest numbers of infected cases and deaths in the world (Fig. 3). In fact, the US Center for Disease Control and Prevention (CDC) announced the first infected case of COVID-19 on January 21. After 99 days, the number of infected cases reached one million on April 28. Trump election rallies and the death of George Floyd on May 25, triggering unrest on the streets of many large cities throughout the country amidst the COVID-19 pandemic, had likely led to another wave of the spread of the disease, resulting in a new high of daily new cases of more than 60,000. The second, third, and fourth million cases respectively took 43, 28, and 15 days up to June 10. The fifth and sixth million cases were confirmed respectively on

August 10 and 31.

After the number of daily new confirmed cases in the US reached a peak of 75,000 in mid-July, it dropped to the 20,000-40,000 range in early September. From September to October, the epidemic in the US had eased, with no more than 50,000 new confirmed cases per day. However, this number soared from 100,000 to 200,000 since November. The number of cumulative confirmed cases in the US exceeded 10 million on November 8, surging to 27.1 million on February 8, 2021, with 464,840 deaths. The total number of confirmed cases in the US is more than that in all the Asian countries combined.

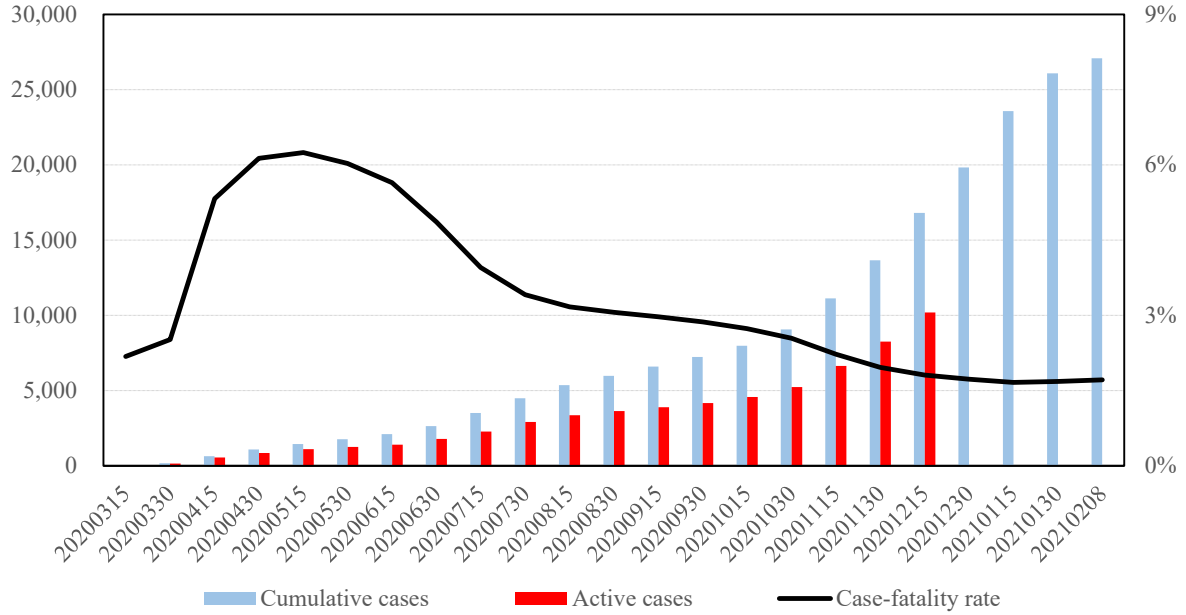


Fig. 3. Cumulative confirmed and active cases (1,000) and case-fatality rates (%) of COVID-19 in the US.
Notes: 1. Detailed definitions are given at the notes to Fig.2. 2. The number of recovered cases in the US is unavailable from mid-December 2020.
Sources: Johns Hopkins University Coronavirus Resource Center, https://coronavirus.jhu.edu/map.html, and Harvard Dataverse, https: // dataverse.harvard.edu/dataverse/cdl_dataverse.

President Trump did not pay sufficient attention to preventing the disease from spreading across the states and to local communities. He even decided to suspend USA funding to the WHO from April 14 and made the US leave the organization on July 8. All of his actions likely diverted domestic efforts in containing the spread of the virus in the US itself.

Secondly, there are apparent socio-cultural differences between the US and China. Ineffective self-quarantine, mass demonstrations against the quarantine, and large-scale gatherings were ideal hotbeds for cluster transmission due to COVID-19's high infectiousness.

Apart from China and the US, how other countries have coped with the pandemic deserves further discussion. India, Brazil, Russia, Western European countries and other emerging economies in Latin America and South Asia have all at various times been at the epicenter of the pandemic.

The most worrying concern for the WHO is the explosion of the COVID-19 in India, which is the world's second-most populous country with a significant proportion of people living in poverty. Initially, India appeared to be a low-risk area. However, due to its high population density and the poor healthcare system, the daily number of newly infected cases started to rise exponentially from 3,000 to nearly 15,000 in May. By July 6, India became the third most infected country in the world, with the total numbers of infected cases and deaths rising to 697,836 and 19,700, respectively. It is worth noting that the US, Brazil, and India together accounted for nearly half of the daily new cases in the world. On September 6, India surpassed Brazil to become the second most infected country in the world. The situation of the COVID-19 pandemic in India continued to worsen in September. The daily number of newly infected cases was close to or even more than 100,000, and the daily number of deaths was persistently more than 1,000. As of December 18, India became the second country in the world with more than 10 million confirmed cases. On February 8, 2021, the total numbers of infected cases and deaths in India were 10.8 million and 155,080, respectively.

The 'free-style' management and control system adopted by the Brazilian government led to an uncontrollable spread of the disease in the megacities of Sao Paolo and Rio de Janeiro as well as the rest of the country. In early June, the total number of infected cases in Brazil exceeded half a million, becoming the second-largest in the world. On February 8, 2021, the total number of confirmed cases in Brazil was close to 10 million, with 231,534 deaths.

The situation in Russia is not dissimilar to that in Brazil, but Russia's death rate was significantly lower. On September 1, Russia became the fourth country in the world after the US, Brazil, and India to have more than 1 million infected cases. On February 8, 2021, the cumulative numbers of cases and deaths in Russia rose to 3.94 million and 75,828, respectively.

Although the numbers of infected cases in India and Brazil were substantially higher than in Russia, the numbers of active cases in the three countries were relatively close by mid-November (Fig. 4). Compared with the number of cumulative cases, the number of active cases

can better reflect the actual threat of the pandemic. Since mid-September, the number of active cases in India has been declining, but the numbers in Russia and Brazil increasing. By 2021, the number of active cases in Russia has also been declining, while the number in Brazil continues to increase. As of early February 2021, the number of active cases in Brazil was 1.9 times that of Russia and 5.5 times that of India (Fig. 4).

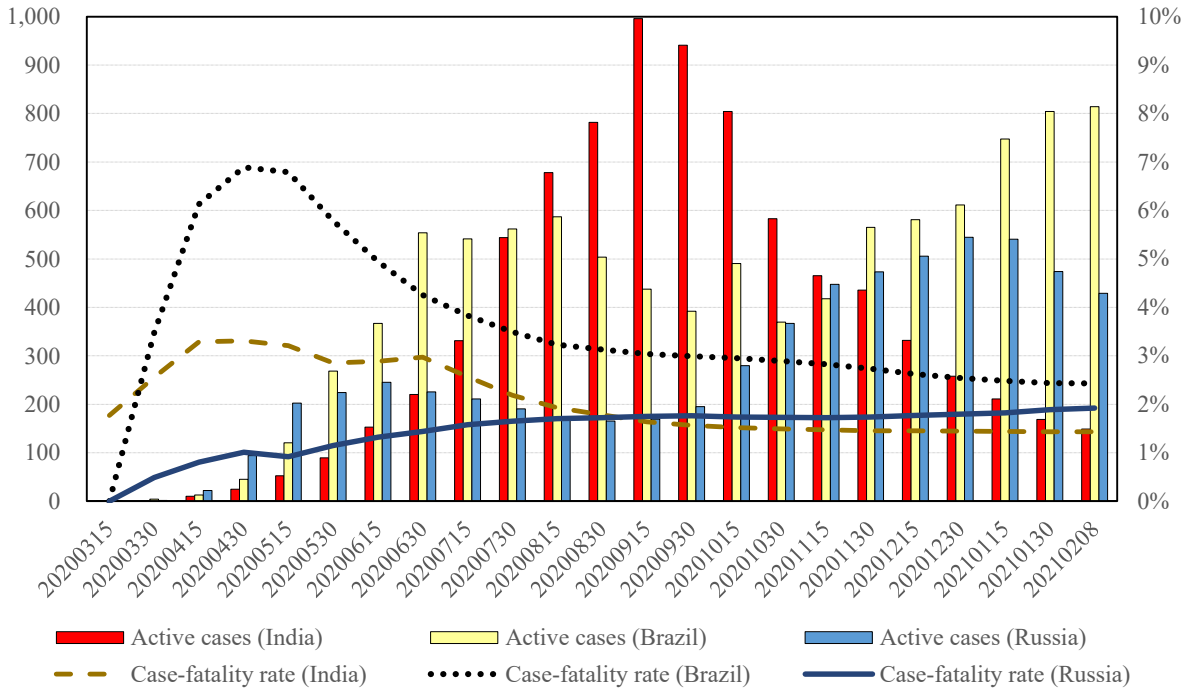


Fig. 4. Cumulative confirmed and active cases (1,000) and case-fatality rates (%) of COVID-19 in India, Brazil and Russia.

Notes: Detailed definitions are given in the notes to Fig.2.

Sources: Johns Hopkins University Coronavirus Resource Center, https://coronavirus.jhu.edu/map.html, and Harvard Dataverse, https: // dataverse.harvard.edu/dataverse/cdl_dataverse.

The situation in Europe was somewhat similar to that in the US. Together with the traditions of public gatherings and the aging population, COVID-19 spread rapidly in Italy in March/April with an unusually high death rate of more than 11%. Other hardest-hit countries in Europe were more or less similar to Italy. The outbreak in Spain, France, and Germany lagged behind Italy by 7-10 days, and the explosion in the UK lagged by about 14 days. Most of the European countries did not pay serious attention to the epidemic in the early stage of development. The aging population, inadequate medical supplies, and the lack of cooperation between various levels of government and the public were all important factors responsible for the pervasive spread of the disease.

Table 1. Numbers of infected cases (1,000) and death rates (%) of selected countries on specific dates.

	20200306	20200402	20200628	20201108	20210126	20210208
World	102 (3.4)	1042 (5.4)	10128 (4.9)	50547 (2.5)	100277 (2.2)	106472 (2.2)
US	0 (5.9)	257 (3.1)	2554 (5.0)	10079 (2.4)	25446 (1.7)	27091 (1.7)
India	0 (0)	3 (2.8)	548 (3.0)	8554 (1.5)	10690 (1.4)	10847 (1.4)
Brazil	0 (0)	8 (4.0)	1344 (4.3)	5664 (2.9)	8933 (2.5)	9525 (2.4)
UK	0 (0.3)	49 (7.8)	284 (14.2)	1195 (4.1)	3700 (2.7)	3971 (2.9)
Russia	0 (0)	4 (0.8)	634 (1.4)	1760 (1.7)	3716 (1.9)	3939 (1.9)
France	1 (1.5)	59 (9.1)	203 (14.7)	1837 (2.2)	3138 (2.4)	3400 (2.3)
Spain	0 (1.3)	112 (9.2)	249 (11.4)	1329 (2.9)	2630 (2.2)	2989 (2.1)
Italy	5 (4.2)	115 (12.1)	240 (14.5)	935 (4.4)	2486 (3.5)	2645 (3.5)
Turkey	0 (0)	18 (2.0)	197 (2.6)	394 (2.8)	2442 (1.0)	2540 (1.1)
Germany	1 (0)	85 (1.3)	195 (4.6)	683 (1.7)	2164 (2.5)	2296 (2.7)
Colombia	0 (0)	1 (1.6)	92 (3.5)	1144 (2.9)	2041 (2.6)	2161 (2.6)
Argentina	0 (0)	1 (3.2)	60 (2.1)	1242 (2.7)	1885 (2.5)	1986 (2.5)
Mexico	0 (0)	2 (3.3)	217 (12.3)	968 (9.8)	1789 (8.5)	1936 (8.6)
Poland	0 (0)	3 (1.9)	34 (4.2)	546 (1.4)	1483 (2.4)	1553 (2.5)
South Africa	0 (0)	1 (0.3)	138 (1.8)	737 (2.7)	1424 (2.9)	1478 (3.1)
Iran	5 (2.6)	50 (6.3)	223 (4.7)	682 (5.6)	1386 (4.2)	1474 (4.0)
China	81 (3.8)	82 (4.0)	85 (5.5)	92 (5.2)	100 (4.8)	101 (4.8)

Notes: 1. Case-fatality rates (death rates) in parentheses are defined as the numbers of deaths divided by the cumulative numbers of infected cases in this paper. 2. The first line records dates in YYYYMMDD format; for example, 20200306 denotes March 6, 2020.

Sources: Johns Hopkins University Coronavirus Resource Center, https://coronavirus.jhu.edu/map.html, and Harvard Dataverse, https: // dataverse.harvard.edu/dataverse/cdl_dataverse.

From June to early September, COVID-19 in Italy and Germany was effectively under control, and the pandemic in France, Spain, and the UK also showed a downward trend. However, since mid-September, the second round of outbreaks has swept across European countries. From 7 to the end of November, the number of confirmed cases in France once exceeded that of Russia. In early-December, the total numbers of confirmed cases exceeded 2.3 million in France, 1.6 million in Britain, Spain and Italy, and 1.1 million in Germany. The total number of confirmed cases in the UK reached 2.72 million on January 4, 2021, surpassing that in France, and then surged to 3.75 million on January 28, 2021, surpassing that in Russia and becoming the fourth-largest in the world. On February 8, 2021, the total number of infected

cases in the UK reached nearly 4 million, with 113,014 deaths. On the same day, the numbers of cumulative confirmed cases in France and Spain were more than 3 million, in Italy 2.6 million, and in Germany 2.3 million (Table 1). The numbers of confirmed cases and deaths in Poland were 1.55 million and 39,132, respectively (Table 1).

Among the Latin American countries, Argentina, Colombia and Mexico were at the epicenter, with more than 1.9 million cumulative confirmed cases in each country on February 8, 2021 (Table 1). The total number of infected cases in Peru was close to 1.2 million by early-February, 2021. The hardest-hit country in Africa is South Africa, where the numbers of total confirmed cases and deaths were 1.5 million and 46,473, respectively, on February 8, 2021 (Table 1).

4. Empirical analysis

4.1. China's IFDI development before the outbreak of COVID-19

Before the *economic reform and opening-up* policy in 1978, China's development was relatively backward. Foreign investment and trade were underdeveloped. The 1980s was a transitional period for China, changing from a self-reliance planned economy to a gradually open one. During this period, a series of development issues were re-considered, such as the past management system, economic structure, private and foreign ownership. In the early 1990s, China began to accelerate the construction of the socialist market system. In 1991-97, China ushered in the first round of explosive growth, with an average annual GDP growth rate of 13.5% for seven years, largely driven by openness and IFDI. As the Asian financial crisis broke out in the late 1990s, China's economic development was inevitably impacted, with the annual GDP growth rate slowing down to 8%. In 2001, China joined the World Trade Organization (WTO), and the active world market brought new opportunities to China. Even if the SARS epidemic broke out in the spring of 2003, it did not stop the momentum of fast economic expansion and the inflows of FDI.

In the decade of 2002-11, China's GDP annual growth rate maintained a high-level, close to or even exceeding double-digit despite the global financial crisis taking place in 2008-09 and the serious recession of the world economy (Fig. 5). From 2012 onward, the continuing

weakening of the world economy and some emerging structural problems within China forced its economic expansion to slow down significantly. In 2012, China's GDP growth rate dropped to 7.5% and continued to gradually slow down to 6.1% in 2019, the lowest level for two decades. However, compared to other world's top 10 economies, China's GDP growth rate was still high. In the meantime, China's development strategy started to shift away from quantitative expansion toward quality improvement and industrial upgrading. Development efforts were made in policy areas that were neglected in the past, such as environmental protection, abject poverty eradication, anti-corruption and social welfare enhancement measures.

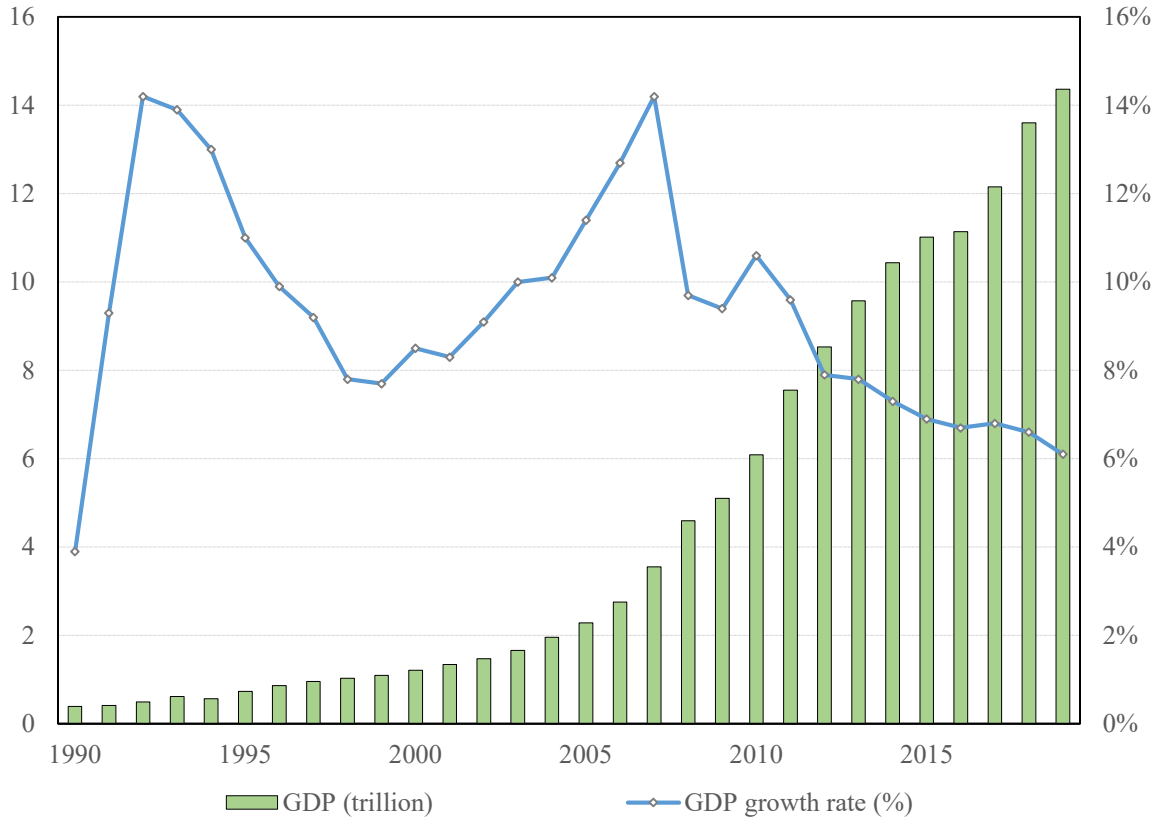


Fig. 5. GDP ($trillion, current prices) and growth rate (%) of China, 1990-2019
Sources: NBS, *China Statistical Yearbook*, 1990-19, various issues, and *The People's Republic of China 2019 National Economic and Social Development Statistical Report*.

China's GDP was outside the world's top 10 economies at the beginning of economic reforms. In the first decade of the 21st century, China's GDP surpassed the UK's in 2005, German's in 2007 and Japan's in 2010. In 2019, the size of the Chinese economy was two-thirds of the US', 5.1 times as large as the UK's, and 2.7 times as large as Japan's. In the 1990s, Japan's GDP was 70% of that of the US', while in 2019, this ratio dropped to 25%. The US,

China, the EU, and Japan are still the world's largest economic blocks, but since the global financial crisis, the Japanese and the EU economies have been weakening relative to the US and China, triggering a drastic shift in the world's economic and political geography, with the economic growth center gradually moving away from the west to the east (Table 2). Before the "9.11" event, the US's GDP accounted for nearly one-third of the world's total, but it dropped to 24% in 2019. During the same period, China's GDP share in the world's total rose from 4% to 16%. In 2019, China's GDP reached $14.34 trillion and per capita GDP exceeded the $10,000 mark for the first time in history. The next stage of development has the ambition to become a high-income and developed economy by the middle of this century.

Table 2. GDP and growth rates of major economies, 2010-19 ($trillion, %).

Year	US	China	Japan	Germany	India	UK
2010	14.99	6.09	5.70	3.40	1.68	2.48
2015	18.22	11.06	4.49	3.36	2.10	2.93
2018	20.58	13.89	4.95	3.95	2.71	2.86
2019	21.43	14.34	5.08	3.85	2.88	2.83
Growth %	4.05	9.98	-1.27	1.39	6.17	1.48

Note: Growth % = average annual growth rate in 2010-19.

Sources: Trading Economics, https://tradingeconomics.com/?ref=ieconomics.com/&iis.

Similar to other developing countries, China was short of capital and advanced technologies in its initial stage of economic development. The openness policy articulated by the late Deng Xiaoping was intended to overcome this problem. Deng's famous South Tour in 1992 triggered the high wave of IFDI, particularly in the Special Economic Zones and the 14 other coastal open cities in eastern China.

The processes of attracting FDI and economic growth were broadly synchronous in China. It became the world's second-largest recipient of FDI for five consecutive years from 1992 to 1997, accounting for more than 10% of the global cross-border FDI. During 2008-19, China remained the world's second-largest FDI recipient for ten years (except 2015 and 2016), despite the global economic slowdown and the European debt crisis triggered by the global financial crisis. In 2019, the total amount of IFDI reached a record high of $141.2 billion (Fig. 6). The continuing growth of IFDI in China suggests that foreign investors have been confident in the country's economic potential even though it has entered the so-called *New Normal* as discussed

earlier.

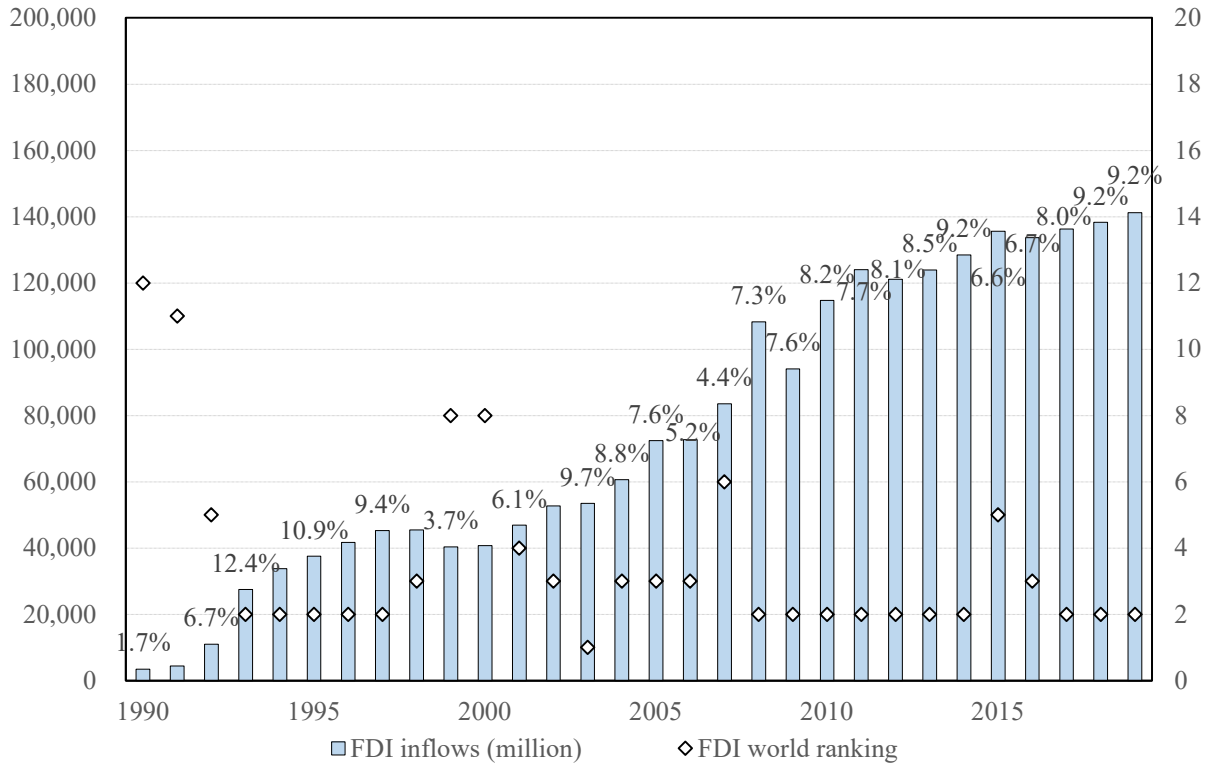


Fig. 6. IFDI ($million, current prices) and world ranking of China, 1990-2019

Note: The numbers on the graph are annual growth rates.

Sources: UNCTAD, FDI/MNE database (www.unctad.org/fdistatistics).

The most important foreign investors in China come from East Asia, Southeast Asia, Europe, North America, and Australia in descending order (Table 3). Different countries have shown some dynamic changes in their investments in China, with the rapid growth of the Chinese economy and the evolution of the world economic pattern. For a long time, Hong Kong, China's special administrative region, was the most important source of FDI to the mainland, although part of Hong Kong's investment in mainland China may be due to the so-called 'round-tripping'. The same problem may also exist in the mainland's IFDI flowing from Macau (another special administrative region of China), Barbados, the British Virgin Islands, and the Cayman Islands. Therefore, the analysis in the rest of this paper excludes the investments from the above-mentioned regions. This implies that the US was mainland China's biggest cross-border investor in 2000-02, followed by Japan and Taiwan (China). Since 2003, Japan and South Korea overtook the US to become the largest two foreign investors in mainland China, and the US slipped to third position. This situation lasted for four years until 2007 when Singapore replaced the US as the third-largest investor. From 2009 to 2012, Japan and

Singapore became the top two investors in mainland China, while South Korea, the US, and Taiwan (China) were in third to fifth positions. From 2013, Singapore remained the largest home country of China's IFDI up to 2019. During the same period, Japan was the second-largest home country of China's IFDI. In 2014, Germany replaced Taiwan (China) as the fifth largest investor in mainland China, and the European countries such as the UK, France, and the Netherlands continued to increase their FDI flows into China. As of 2019, the top five sources of the Chinese IFDI included Singapore, South Korea, Japan, the US, and Germany, with IFDI amounting to 7,591, 5,538, 3,721, 2,686 and 1,658 million US dollars, respectively.

Table 3. China's IFDI main investing countries 2000-19 ($million).

2000		2005		2010		2015		2019	
US	4384	JP	6530	SG	5428	SG	6904	SG	7591
JP	2916	KR	5168	JP	4084	KR	4034	KR	5538
TW	2297	US	3061	US	3017	JP	3195	JP	3721
SG	2172	SG	2204	KR	2692	US	2089	US	2686
KR	1490	TW	2152	TW	2476	DE	1556	DE	1658
UK	1164	DE	1530	FR	1238	TW	1537	TW	1587
DE	1041	NL	1044	NL	914	FR	1224	UK	857
FR	853	UK	965	DE	888	NL	752	FR	793
NL	789	FR	615	UK	710	LU	630	LU	780
AU	309	CA	454	CA	635	SE	527	AU	429
CA	280	AU	401	Italy	396	UK	496	CA	232

Note: AU, CA, DE, FR, NL, JP, KR, LU, SE, SG, TW, UK, and US denote Australia, Canada, Germany, France, Netherlands, Japan, South Korea, Luxembourg, Sweden, Singapore, Taiwan (China), the United Kingdom, and the United States, respectively.

Sources: UNCTAD, FDI/MNE database, www.unctad.org/fdistatistics.

4.2. The impact of COVID-19 on FDI

The world economy had not yet recovered fully from the global financial crisis, and so the sudden spread of COVID-19 was an additional powerful and damaging shock to many industrialized as well as emerging economies such as Japan, the EU member states, as well as the BRIC economies except for China. The International Monetary Fund (IMF) in its June report estimated that the global economy might shrink by 4.9% in 2020, which would comprise the most serious crisis since the Great Depression in the 1930s. The contraction of the world economy will inevitably lead to a significant decline in cross-border FDI. The effectiveness of

COVID-19 pandemic control and prevention can directly impact the confidence of international investment. At the same time, the outbreak of COVID-19 disrupts economic and production activities, which in turn will affect the inflow of FDI. Therefore, this paper focuses on the impact of COVID-19 on FDI. The basic regression model is as follows:

$$\begin{aligned}\ln(fdi/gdp)_{it} = \beta_0 + \beta_1 \ln COVID_{it} + \beta_2 \ln rpcgdp_{it} + \beta_3 ipi_{it} + \beta_4 \ln exchang_{it} \\ + \beta_5 \ln unemploy_{it} + \beta_6 trend_{it} + \beta_7 year_{2020} + \beta_8 \mu_i + \beta_9 \gamma_t + \varepsilon_{it}\end{aligned} \quad (1)$$

where fdi/gdp_{it} denotes the ratio of FDI inflows divided by GDP of country i in time t. The advantage of using FDI relative to the scale of the economy is that the effect of price can be eliminated, and this variable can be interpreted as the dependence of GDP on FDI in economic terms. $COVID_{it}$ is the variable representing the COVID-19 pandemic; in this paper, we mainly focus on five metrics, namely, new cases, new deaths, cumulative cases, cumulative deaths, and active cases. The number of new cases/deaths can reflect changes in the epidemic, and the number of cumulative diagnoses/deaths can represent the absolute seriousness of the pandemic. The number of active cases is measured by the total number of diagnoses deducting the number of deaths and recovered cases. $rpcgdp_{it}$ denotes real GDP per capita. ipi_{it} denotes Industrial Production Index, reflecting economic activity and prosperity. $exchange_{it}$ denotes the foreign exchange rate of the local currency to the US dollar. $unemploy_{it}$ denotes the unemployment rate. $trend_{it}$ controls time trend. $year_{2020}$ is a time dummy variable which equals to 1 in 2020; otherwise, it equals to 0. μ_i and γ_t control country- and time-fixed effects. The specification of the model and explanations on how the explanatory variables are included can be referred to Yao *et al.* (2016).

The OECD member countries, the BRICS countries, and Singapore are the most active economies in global economic and investment activities, and China's main FDI home countries are all in this country group. As described in Section 3, COVID-19 broke out globally in the second quarter of 2020, except for China and several Asian countries. This paper uses quarterly data on these 43 countries in 2009Q1-2020Q3 to study the impact of COVID-19 on FDI. Data on COVID-19 confirmed cases and deaths are collected from the WHO, Johns Hopkins University Coronavirus Resource Center, and Harvard Dataverse. Data on FDI, GDP, GDP per capita, Industrial Production Index, exchange rate, and unemployment rate are collected from CEIC data. The variables, definitions and statistics are shown in Table 4.

Table 4. Variables, definitions and statistics.

Variable	Definition	Obs.	Mean	Std.Dev.
fdi/gdp_{it}	Ratio of FDI inflows divided by GDP	2009	11.9	127.8
$newcase_{it}$	Number of quarterly new confirmed cases	2021	12906.7	192001.6
$newdeath_{it}$	Number of quarterly new deaths	2021	400.0	4779.6
$cucase_{it}$	Number of quarterly cumulative confirmed cases	2021	17125.0	248840.1
$cucase_{it}$	Number of quarterly cumulative deaths	2021	17511.1	253305.4
$active_{it}$	Quarterly cumulative cases minus deaths & recovered	2021	6045.8	106471.4
$rpcgdp_{it}$	GDP per capita at 2014 price	1996	9467.5	6440.5
ipi_{it}	Industrial Production Index (%)	1882	1.0	7.2
$exchange_{it}$	Foreign exchange rate of local currency to US dollar	2021	114.5	427.0
$unemploy_{it}$	Unemployment rate (%)	1851	8.2	5.2

Table 5. Results of the impact of COVID-19 on FDI (DV = $ln(FDI/GDP)_{it}$)

	(1)	(2)	(3)	(4)	(5)
COVID	newcase	newdeath	cucase	cudeath	active
ln$newcase_{it}$	-0.0660*				
	(0.039)				
ln$newdeath_{it}$		-0.0759**			
		(0.034)			
ln$cucase_{it}$			-0.0888*		
			(0.044)		
ln$cudeath_{it}$				-0.0561	
				(0.036)	
ln$active_{it}$					-0.0555
					(0.042)
ipi_{it}	0.0104**	0.0101**	0.0106**	0.0104**	0.0104**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
ln$rpcgdp_{it}$	-1.1122**	-1.1291**	-1.1024**	-1.0932**	-1.1166**
	(0.473)	(0.470)	(0.464)	(0.467)	(0.484)
ln$exchange_{it}$	-0.0342	-0.0125	-0.0294	-0.0379	-0.0390
	(0.248)	(0.248)	(0.246)	(0.245)	(0.253)
ln$unemploy_{it}$	-0.2183	-0.2193	-0.2137	-0.2223	-0.2213
	(0.169)	(0.169)	(0.168)	(0.169)	(0.170)
trend	0.0286	0.0291	0.0282	0.0281	0.0287
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
year2020	-0.2851	-0.2464	-0.2176	-0.2661	-0.5071***
Country FE	YES	YES	YES	YES	YES
Year-month FE	YES	YES	YES	YES	YES
	(0.215)	(0.207)	(0.234)	(0.249)	(0.149)
Constant	-43.5619	-44.5438	-42.9025	-42.7363	-43.7263
	(54.073)	(53.941)	(54.040)	(54.014)	(54.470)
Observations	1,432	1,432	1,432	1,432	1,432
R-squared	0.534	0.534	0.534	0.534	0.533

Notes: 1. Cluster robust standard errors in parentheses. 2. *** p<0.01, ** p<0.05, * p<0.1.

Table 5 shows the regression results of COVID-19 on FDI. The numbers of new cases, new deaths, and cumulative cases all have significant and negative impacts on FDI, with elasticities of -6.6%, -7.6%, and -8.9%, respectively. The pandemic appeared to have significantly slowed down cross-bordered FDI in the first three quarters of 2020. In contrast,

the Industrial Production Index reflecting economic activity has a significant and positive effect on FDI.

Table 6. Regression results based on different groups of countries

COVID	(1) newcase	(2) newdeath	(3) cucase	(4) cudeath	(5) active
EUln*newcase*$_{it}$	-0.0482*				
	(0.028)				
Amelnn*ewcase*$_{it}$	-0.0621**				
	(0.023)				
AOln*newcase*$_{it}$	-0.0420				
	(0.041)				
EUln*newdeath*$_{it}$		-0.0563**			
		(0.027)			
Amelnn*ewdeath*$_{it}$		-0.0683***			
		(0.023)			
AOln*newdeath*$_{it}$		-0.0565			
		(0.047)			
EUln*cucase*$_{it}$			-0.0618**		
			(0.029)		
Amelnc*ucase*$_{it}$			-0.0742***		
			(0.025)		
AOlnc*ucase*$_{it}$			-0.0566		
			(0.036)		
EUln*cudeath*$_{it}$				-0.0371	
				(0.038)	
Amelnc*udeath*$_{it}$				-0.0701**	
				(0.029)	
AOlnc*udeath*$_{it}$				-0.0359	
				(0.063)	
EUln*active*$_{it}$					-0.0454
					(0.032)
Amelna*ctive*$_{it}$					-0.0606**
					(0.025)
AOlna*ctive*$_{it}$					-0.0429
					(0.040)
ipi$_{it}$	0.0106**	0.0105**	0.0108**	0.0104**	0.0106**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
ln*rpcgdp*$_{it}$	-1.0920**	-1.0867**	-1.0740**	-1.0935**	-1.0956**
	(0.511)	(0.514)	(0.512)	(0.517)	(0.507)
ln*exchange*$_{it}$	-0.0443	-0.0327	-0.0484	-0.0279	-0.0437
	(0.237)	(0.239)	(0.238)	(0.233)	(0.238)
ln*unemploy*$_{it}$	-0.2121	-0.2088	-0.2080	-0.2112	-0.2127
	(0.181)	(0.183)	(0.181)	(0.178)	(0.179)
trend	0.0281	0.0280	0.0275	0.0281	0.0281
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
year2020	-0.4161	-0.3200	-0.3621	-0.3804	-0.5380**
	(0.335)	(0.383)	(0.304)	(0.439)	(0.234)
Country FE	YES	YES	YES	YES	YES
Year-month FE	YES	YES	YES	YES	YES
Constant	-42.8625	-42.7285	-41.9198	-42.8995	-42.8922
	(54.921)	(55.024)	(55.011)	(54.996)	(55.042)
Observations	1,432	1,432	1,432	1,432	1,432
R-squared	0.534	0.534	0.534	0.534	0.534

Notes: 1. Cluster robust standard errors in parentheses. 2. *** p<0.01, ** p<0.05, * p<0.1. 3. EU=Europe, Ame=North-South America, AO=Asia and Oceania.

The elasticity of per capita GDP is -1.1%, indicating that as per capita GDP increases, the dependence of GDP on FDI declines, which is consistent with the real situation as more prosperous economies tend to invest more on the relatively poor ones.

To test the heterogeneous effects of COVID-19 on FDI in different countries, we divide the whole sample into three groups: North-South Americas, Europe, Asia-Australia-New Zealand. The sub-sample regression results are reported in Table 6. The impact of COVID-19 on FDI is the most severe in North-South Americas, followed by Europe. The impact in Asia-Oceania is negative but insignificant. This finding is consistent with the degree of seriousness of the pandemic in different continents. It also implies that China would have fared more favorably compared to the continental American and European countries in attracting IFDI amidst the global pandemic.

China's total amount of actually utilized FDI appears to have supported these empirical findings. In the early months of 2020, as COVID-19 was first found and spreading in China, the total amount of IFDI contracted sharply by 25.6% and 14.1% in February and March due to the nationwide lockdown. However, prompt containment of the disease meant that the Chinese economy and its ability to attract IFDI recovered relatively quickly. From April to November, China's IFDI grew positively for eight consecutive months (Table 7), largely making up the losses occurring in February and March. Measured in RMB, the amount of IFDI in the first eleven months rose 6.3% (by 4.1% in US dollars), as reported by the National Bureau of Statistics of China on December 17. China's IFDI monthly inflows and year-on-year growth rates have slightly increased since March, compared to the previous years (Fig. 7).

Table 7. China's monthly IFDI inflows and year-on-year growth rate ($billion, %), 2010-20.

	2010		2013		2016		2019		2020	
	$bil.	%	$bil.	%	$bil.	%	$bil.	%	$bil.	%
Jan	8.13	7.8	9.27	-7.3	14.07	1.1	12.41	2.8	12.68	4.0
Feb	5.90	1.1	8.21	6.3	8.45	-1.3	9.28	3.3	6.74	-25.6
Mar	9.42	12.1	12.42	5.6	12.90	4.0	14.12	4.9	11.78	-14.1
Apr	7.35	24.7	8.43	0.4	9.89	2.9	9.34	2.8	10.14	8.6
May	8.13	27.5	9.25	0.3	8.89	-4.8	9.47	4.6	9.87	4.2
Jun	12.51	39.6	14.39	20.1	15.23	4.4	16.13	3.0	16.72	3.7
Jul	6.92	29.2	9.41	24.1	7.71	-6.2	8.07	4.1	9.05	15.8
Aug	7.60	1.4	8.38	0.6	8.76	0.5	10.46	0.3	12.23	15.0
Sep	8.38	6.1	8.84	4.9	9.21	-3.6	11.52	0.5	14.55	23.7
Oct	7.66	7.9	8.42	1.3	8.81	0.4	9.99	3.1	11.83	18.4
Nov	9.70	38.2	8.48	2.3	9.89	-4.6	13.62	0.1	14.38	5.6
Dec	14.03	15.6	12.08	3.3	12.21	-0.2	13.75	2.4	-	-

Sources: National Bureau of Statistics, https://data.stats.gov.cn/.

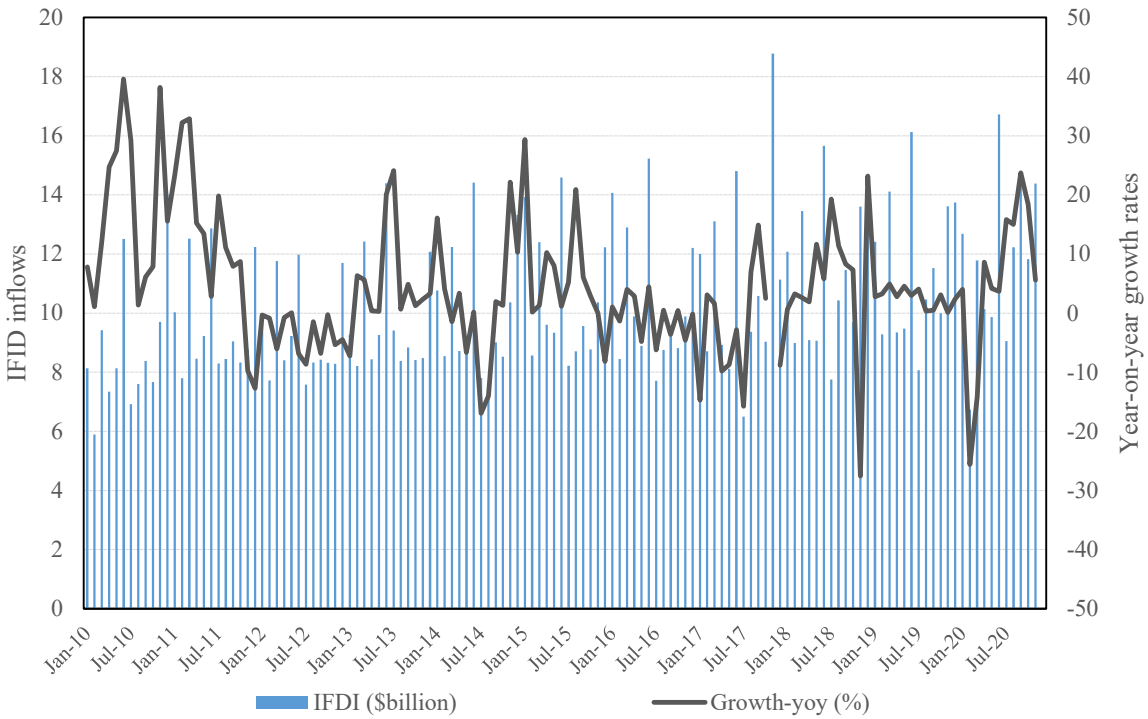


Fig. 7. Monthly IFDI inflows and year-on-year growth rates ($billion, %) of China, 2010-20.
Note: The abscissa value denotes month-year, for example, Jan-10 denotes January, 2010.
Sources: National Bureau of Statistics, https://data.stats.gov.cn/.

If the IFM and UNCTAD predictions were correct by the end of 2020, that is, the world economy contracts by 4.9% and global cross-border FDI by 40%, while China's economy and IFDI grow positively, then China's shares in global GDP and FDI will increase significantly because of the COVID-19 pandemic. Thus a new challenge faced by China would surround

decisions about the use of its relatively better position in the world (before the COVID-19 pandemic is entirely over). Further, China will have to address further potential shocks triggered by the US in the aftermath of the pandemic, designed, in some measure, to contain its accelerating emergence as a leading world economic power.

In May 2020, the Chinese Government had already formulated one policy response to the above potential challenges. China will be trying to build up the so-called *dual circulation* development pattern（People's Daily, 2020），where the internal circulation (domestic market) will play a dominant role and the external circulation (foreign market) will play a supplementary one. The relationship between the two circulations is intended to be complementary, but the internal circulation is set to become the 'basic foundation' to enable China to sustain any external shock. Further, it is intended that this can take place without compromising its ability to maintain a stable and reasonable rate of economic growth, whilst gradually improving the livelihood of its populace.

4.3. OFDI under COVID-19

As the largest developing country in the world, China also began to invest extensively in other countries while attracting IFDI. In the 1990s, the amount of China's outward FDI (OFDI) was quite small (Fig. 8). It was not until 2005 that China's OFDI exceeded the $10 billion level for the first time. Since then, China's OFDI share as a proportion of the global cross-border FDI rose rapidly from less than 1% to as high as 12.7% in 2016.

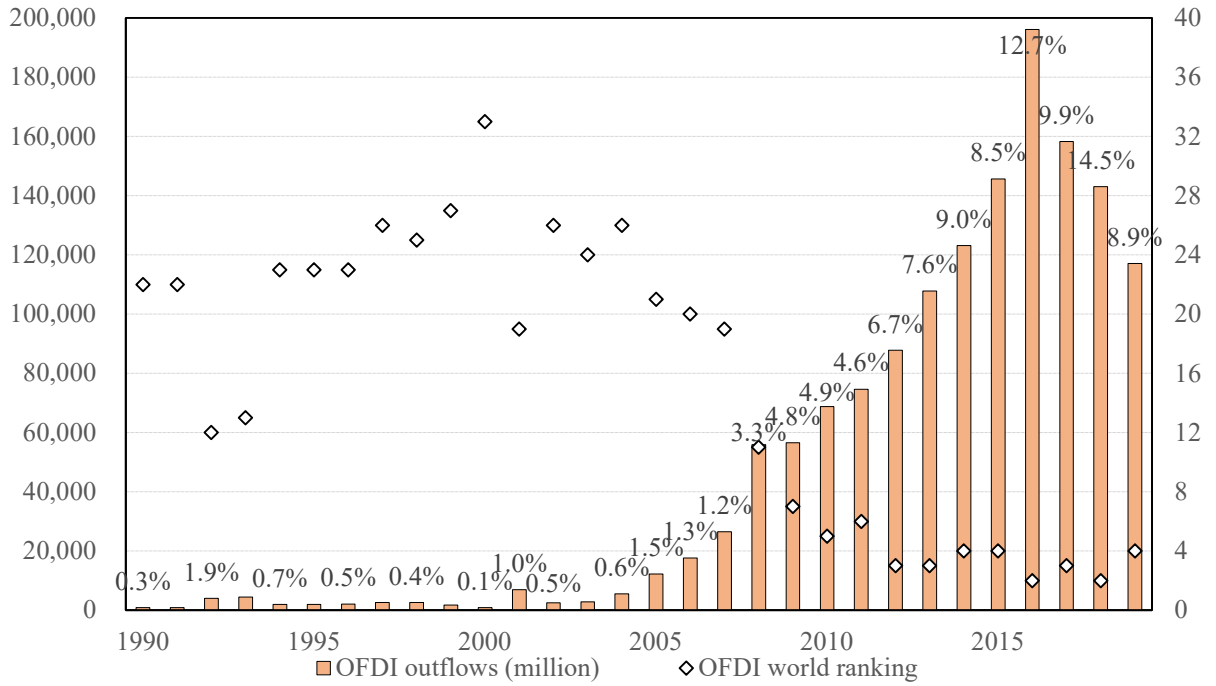


Fig. 8. Chinese OFDI ($million, current prices) and its world ranking, 1990-2019.

Note: The numbers attached to the bars are China's OFDI shares in the total global FDI of the respective years.

Sources: UNCTAD, FDI/MNE database, www.unctad.org/fdistatistics.

The enormous expansion of OFDI in 2016 was partly due to some capital outflows which may not have been genuinely used for direct investments, triggering the relevant regulators to 'censor' more carefully any foreign investment project that may be intended for non-investment purposes（National Development and Reform Commission, 2017）.

In the subsequent years of 2017-19, China's OFDI as a global share of cross-border FDI retreated for three consecutive years, but the amount of OFDI, or its share in the global total, still remained one of the four largest investors in the world. For example, the amount of China's OFDI was $117 billion in 2019, accounting for 8.9% of the world's total.

The most important host countries of China's OFDI include those covered by the B&R initiative. As a developing country, China has started large-scale investment in infrastructure construction in other developing countries, which has arguably rewritten the historical assumptions about poor and rich countries in early international investment and trade theories. China's development process has benefited from increased investment in infrastructure construction. The B&R initiative is also premised, to a certain extent, on anticipated sharing of China's experiences with nearby developing countries and improving infrastructure in those countries to support shared regional prosperity. The initiative should also strengthen

cooperation with countries along the route in economic, investment, and trade to promote regional multi-lateral partnerships that resist the impact of the counter-globalization trends triggered by the US-Sino trade war and technological embargo. During 2015-19, China's annual OFDI flowing to countries along the B&R remained at around $15 billion, and its proportion in China's total OFDI gradually increased to 12.8% (Table 8).

Table 8. Bilateral FDI between China and the countries along the B&R route.

	IFDI to China ($billion)	IFDI growth Rate (%)	OFDI to B&R countries ($billion)	OFDI growth Rate (%)
2015	8.5	25.3	14.8	18.2
2016	7.1	-16.5	14.5	-2.0
2017	5.6	-21.1	14.4	-0.7
2018	6.4	16.0	15.6	8.9
2019	8.4	30.6	15.0	-3.8

Sources: NBS (2016-2019), *Statistical Yearbook of China* and *Statistical Bulletin of China's National Economic and Social Development*, various issues, 2015-2019.

As the global COVID-19 pandemic intensifies, China's OFDI activities have inevitably been disrupted. Statistics from the Chinese Ministry of Commerce show that in the first ten months of 2020, China's OFDI outflows reached $86.38 billion, contracting by 3.2%. From the perspective of quarterly year-on-year growth, China's OFDI contraction in 2020 eased quarter by quarter, recovering to a positive growth of 0.7% by the third quarter of the year.

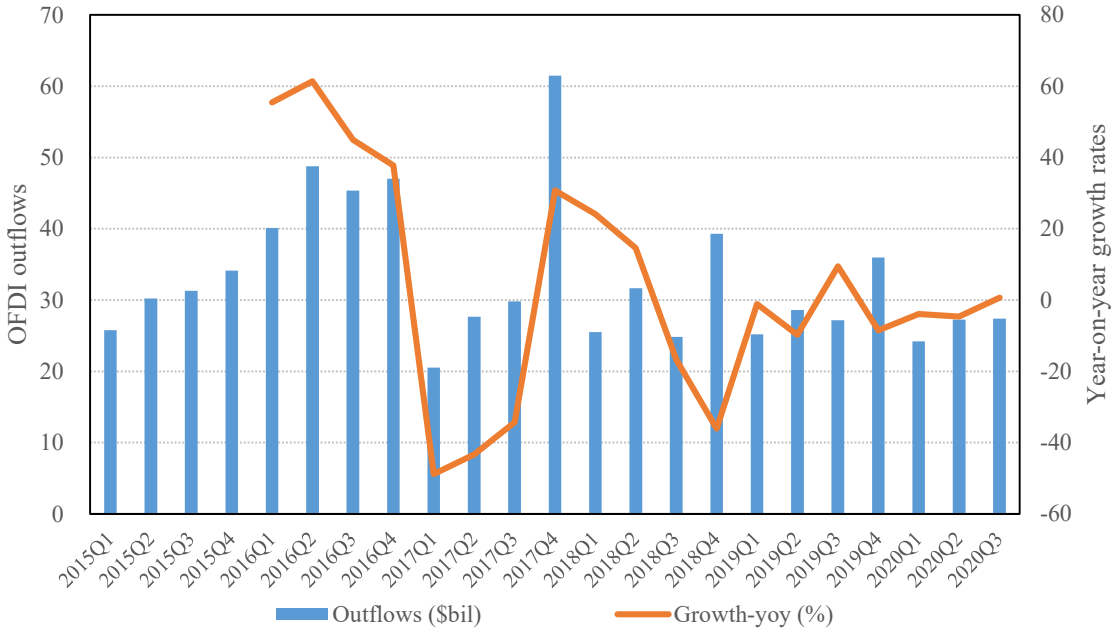


Fig. 9. Quarterly outflows and year-on-year growth rates ($billion, %) of China's OFDI, 2015-20.
Sources: National Bureau, https://data.stats.gov.cn/ and CEIC data, https://insights.ceicdata.com/.

Although China's OFDI outflows contracted in the first ten months of 2020 as a whole, its OFDI to the B&R members increased, indicating a serious contraction of China's investment in the developed economies, particularly in the US and western Europe. These countries are still powerful and represent the world's most advanced level of development in many fields. It is of high importance for China to maintain investment and trade cooperation with them. China has begun to enter the market where traditional developed countries have a great advantage, with the R&D level and the scientific and technological content of OFDI activities improving. The US blockade of Chinese technology companies, such as Huawei, Tik Tok, and WeChat, is a manifestation of rising concerns about China. More worryingly, the Trump administration has deepened trade frictions into a combined technological and market-accession war. It has also sought to politicize the prevention and control efforts of the epidemic and in so doing stigmatize China in various re-election campaign pronouncements. These actions are clearly unhelpful to bilateral investment cooperation between China and the US as well as its allies in the short term. This is arguably the most contemporary threat facing China's OFDI activities.

In the increasingly challenging and complex global situation, the B&R initiative becomes even more significant in terms of strengthening bilateral investment between China and the countries along the route, promoting regional economic development, and preventing current and future challenges that may arise. Despite the downtrend of economic recession, the Chinese Ministry of Commerce reported that Chinese investment in countries along the B&R route reached $14.11 billion in the first ten months in 2020 (Fig. 10), with an annualized growth rate of 23.1%. This accounted for 16.3% of the country's total OFDI, expanding by 3.6 percentage points over the same period last year. Even in the most difficult period when China was fighting against the epidemic, a series of infrastructure projects invested and constructed by China resumed, including the Hungary-Serbia Railway, the Manmai No. 1 Tunnel of the China-Laos Railway and the China-Bangladesh Padma Bridge.

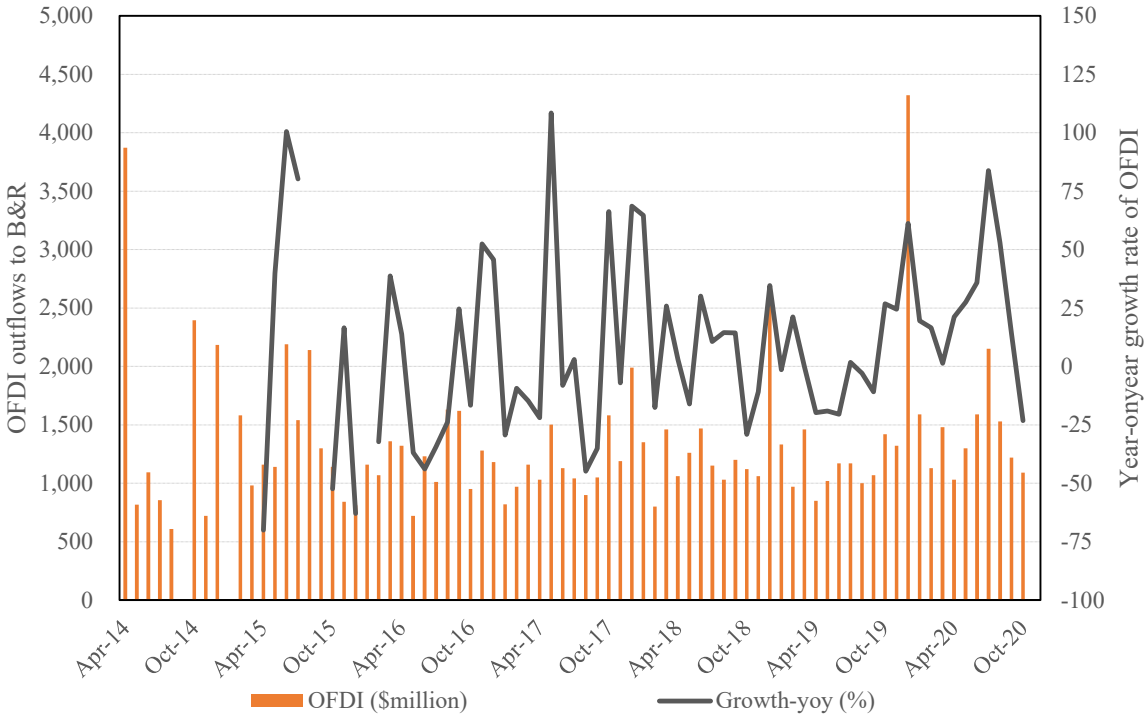


Fig. 10. Monthly outflows and year-on-year growth rates ($million, %) of China's OFDI to the countries along the B&R, 2014-20.

Sources: National Bureau, https://data.stats.gov.cn/ and CEIC data, https://insights.ceicdata.com/.

Notes: The abscissa value denotes month-year; for example, Apr-14 denotes April 2014.

It is worth noting that some B&R countries have a series of unstable factors, such as poor development foundations, an unstable political environment, and high debt levels. These problems may put China's OFDI activities at elevated risk for some time. Accordingly, they will need to be evaluated in this light despite the necessary imperative to strengthen and widen the portfolio of economic cooperation to offset US policy effects.

Another important future investment focus might rationally be placed on East and Southeast Asia. Singapore and Taiwan (China) have common cultural advantages and well-developed markets with mainland China. Currently, strengthening OFDI for these two economies, to a certain extent, could make up for the contracted demand in the west. Japan and South Korea, as two high-income countries in the upper nodes of the Asian value chain, have a similar oriental cultural background, comparative advantages and resource complementarity with China. In the current turbulent international environment, it is increasingly important to 'park' or put aside historical disputes and promote the acceleration of the China-Japan-Korea free trade agreement (FTA) process, upholding the principle of mutual benefit.

5. Conclusion and Policy Recommendations

The global COVID-19 pandemic has been a colossal disaster for the global population. China was the first country to confront COVID-19. It adopted a series of prevention and control measures such that infection rates were effectively under manageable control in just under three months. This has earned it a time advantage (relative to other countries) for restoring economic activities. For various reasons identified in this study, this speed in infection control response has not been universally replicated elsewhere, particularly in the USA.

Although it is widely expected that the COVID-19 pandemic will cause the economy and investment to shrink, there is still a paucity of actual empirical evidence regarding the impact of COVID-19 on FDI. This paper uses quarterly data from OECD countries, BRICS countries and Singapore from 2009-20 to inform the empirical analysis. The numbers of new confirmed cases, new deaths, and cumulative confirmed cases are found to have significant negative impacts on FDI, with an average elasticity of around 0.7%. This impact has been worse in continental American and European countries, which were the most serious epicenters of the global pandemic. As the new waves of the pandemic from November 2020 broke out, most seriously in Europe and America, the impact of COVID-19 on their economies and overseas investments would naturally be more severe compared with Asia and other parts of the world. Additionally, this paper finds that the Industrial Production Index, which reflects economic activity and prosperity, has a significant effect on FDI. Therefore, it is suggested that China's IFDI would likely be greater than the global average because of the country's timely COVID-19 prevention and control measures.

Under the downward trend of the global recession, China's GDP still expanded by 2.3%. In contrast, the US' GDP contracted by 3.5% and the EU's GDP by 6.4%. It is widely expected that China would be the only one of the world's top 10 economies to have achieved a positive growth in 2020. As the world's second-largest FDI recipient and one of the world's top four OFDI investors, China may face dual pressures in both IFDI and OFDI in the aftermath of the global pandemic. The continuous escalation of the US-Sino trade war and technological embargo catalyzed by the pandemic has aggravated the uncertainty of the external environment. In order to cope with multiple crises, China is shaping a new dual circulation development

pattern, in which domestic economic circulation is regarded as the principal focus and foundation, thereby buffering and complementing the external circulation. At the critical moment when multiple pressures are looming, this study advances and anticipates some likely policy responses, in the light of the new development pattern that China is planning regarding its IFDI and OFDI.

In terms of attracting IFDI, China seems likely to remain a hot spot for global investment, despite the counter-global and decoupling activities accelerated by the Trump administration in the US. In large measure, this is due to advantages accumulated over time that have not been significantly eroded by the COVID-19 pandemic. This includes its large-scale domestic market, medium to high level per capita wealth as well as long and complete industrial and supply chains. The swift pandemic response in China might also serve to bolster global commercial confidence in this market. This would mean it would significantly outperform the more gloomy prediction for global cross-border FDI by UNCTAD and other multi-lateral organizations. In particular, the empirical results of this paper show that the dependence of GDP on FDI decreases as per capita GDP increases. Under China's uneven development structure, the per capita GDP of the central and western regions lags behind that of the eastern part. Therefore, it is suggested that China could usefully direct more IFDI to the central and western regions to promote the development in these areas.

With regard to OFDI, China's most severe challenge comes from the shrinking investment caused by technology and market blockades and restrictions in developed countries. Thus, China might usefully expand OFDI in neighboring areas to promote shared regional prosperity while resisting counter-globalization and decoupling sentiments and actions. These movements seem likely to prompt deeper economic and investment cooperation with countries along the B&R route because these countries are geographically close and have a stronger willingness for two-way trade and investment with China. It can also focus more on bilateral investment and partnership with the developed Asian economies, deepening, for example, Sino-Singapore connectivity, accelerating the promotion of the China-Japan-Korea FTA, and harnessing the benefits of the newly established Regional Comprehensive Economic Partnership (RCEP) and the Sino-EU Bilateral Investment Agreement to improve China's resilience and ability to withstand future external shocks.

References

Anwar, S., & Sun, S. (2012). FDI and market entry/exit: Evidence from China. *Journal of Asian Economics*, 23(5), 487–498.

Balasubramanyam, V. N., Salisu, M., & Sapsford, D. (1996). Foreign direct investment and growth in EP and IS countries. *The Economic Journal*, 106(434), 92.

Chenery, H. B. & Strout, A. M. (1966). Foreign assistance and economic development. *The American Economic Review*, 56 (9), 679-733.

Cheng, L. K., & Kwan, Y. K. (2000). What are the determinants of the location of foreign direct investment? The Chinese experience. *Journal of International Economics*, 51(2), 379–400.

China Daily. (2020). China to offer wider market access, Xi says. (2020-08-25)[2020-08-26]. https://www.chinadaily.com.cn/a/202008/25/WS5f44470ba310736c2dea4a48.html.

Dai, X., Zhang, E., & Wang, Y. (2018). The basic logic, essence and response of the Trump trade war. *Social Sciences in Nanjing* (*in Chinese*), 4, 11-17.

Ding, Y., Zhang, H., & Tang, S. (2019). The impact of US anti-dumping against China on China's manufacturing global value chains status. *Transnational Corporations Review*, 11(4), 323-331.

Hansen, H., & Rand, J. (2006). On the causal links Between FDI and growth in developing countries. *The World Economy*, 29(1), 21–41.

Huang Y. (2003). *Selling China: Foreign direct investment during the Reform Era*. New York: Cambridge University Press.

Hurst, L. (2011). Comparative analysis of the determinants of China's state-owned outward direct investment in OECD and non-OECD countries. *China & World Economy*, 19(4), 74–91.

Iqbal, B., Yang, G. & Yu, L. (2019). Introduction to the special issue on United States – China trade disputes. *Transnational Corporations Review*, 11(4), 265-269.

Kolstad, I. & Wiig, A. (2012). What determines Chinese outward FDI? *Journal of World Business*, 47(1), 26-34.

Li, H., Huang, P., & Li, J. (2007). China's FDI net inflow and deterioration of terms of trade: Paradox and explanation. *China & World Economy*, 15(1), 87–95.

Li, M., Balistreri, E. J., & Zhang, W. (2020). The U.S.–China trade war: Tariff data and general equilibrium analysis. *Journal of Asian Economics*, 69, 101216.

Lin J. Y., & Zhang J. (2019). *China: Learning to catch up in a globalized world.* In: *How nations learn*. Oxford University Press.

Lin J. Y., & Wang, Y. (2020). Seventy years of economic development: A review from the angle of New Structural Economics. *China & World Economy*, 28(4), 26-50.

Liu, X. H., Buck, T. & Shu, C. (2005). Chinese economic development, the next stage: Outward FDI? *International Business Review*, 14, 97–115.

Luo, L., Brennan, L., Liu, C., & Luo, Y. (2008). Factors influencing FDI location choice in China's inland areas. *China & World Economy*, 16(2), 93–108.

People's Daily. (2020). *New development structure of the due circulation strategy*. (2020-08-02) [2020-09-02]. https://baijiahao.baidu.com/s?id=1673870724017949093&wfr=spider&for=pc.

Ma, H., & Teng, Y. (2018). How political incentives affect Chinese outward foreign direct investment: A UN Security Council membership perspective. *The World Economy*. , 41(1), 3416-41.

National Development and Reform Commission of China. (2017). Regulations on Enterprises Investing Overseas. (2017-12-26) [2020-09-02]. *http://www.gov.cn/xinwen/2017-12/26/content_5250408.htm.*

Nguyen, D. T. H. (2019). Inward foreign direct investment and local wages: The case of Vietnam's wholesale and retail industry. *Journal of Asian Economics*, 65, 101134.

Ndzendze, B., & Monyae D. (2019). China's belt and road initiative: linkages with the African Union's Agenda 2063 in historical perspective. *Transnational Corporations Review*, 11(1), 38-49.

People's Daily Overseas Edition. (2020). Sino-European trains facilitate trade stability. (2020-07-13)[2020-09-02]. https://baijiahao.baidu.com/s?id=1672059037961444766&wfr=spider&for=pc.

Pradhan, J. (2011). Emerging multinationals: A comparison of Chinese and Indian outward foreign direct investment. *International Journal of Institutions and Economies*, 3(1), 113-148.

Ramasamy B., Yeung M., & Laforet S. (2012). China's outward foreign direct investment: Location choice and firm ownership. *Journal of World Business*, 47(1), 17-25.

Rostow, W.W. (1960). *The stages of economic growth: A non-communist manifesto*. Cambridge: Cambridge University Press.

Shao, X. (2020). Chinese OFDI responses to the B&R initiative: Evidence from a quasi-natural experiment. *China Economic Review*, 61, 101435.

Sung Y. W. (2001). Export-oriented foreign direct investment in the People's Republic of China: Di-vision of value added between source and host economies. In: *Global production and trade in East Asia*. Boston/Dordrecht/London: Kluwer Academic Publishers.

Tang, S., Selvanathan, E. A., & Selvanathan, S. (2008). Foreign direct investment, domestic investment and economic growth in China: A time series analysis. *The World Economy*, 31(10), 1292–1309.

Tuan, C., Ng, L. F. Y., & Zhao, B. (2009). China's post-economic reform growth: The role of FDI and productivity progress. *Journal of Asian Economics*, 20(3), 280–293.

Xu, T., Li, W., Jiang, Y., & Chen, Y. (2020). The impact of destination tariffs on China's exports: Country, firm, and product perspectives. *Journal of Asian Economics*, 71, 101246.

Yao, S. (2006). On economic growth, FDI and exports in China. *Applied Economics*, 38(3), 339–351.

Yao, S., & Wang, P. (2014). Has China displaced the outward investments of OECD countries? *China Economic Review*, 28, 55–71.

Yao, S., Wang, P., Zhang, J., & Ou, J. (2016). Dynamic relationship between China's inward and outward foreign direct investments. *China Economic Review*, 40, 54–70.

Yao, S., & Zhang, Z. (2001). On regional inequality and diverging clubs: A case study of contemporary China. *Journal of Comparative Economics*, 29(3), 466–484.

Yao, S., Wei, K., Feng, G., & Song, L. (2008). Economic growth in the presence of FDI: The perspective of newly industrializing economies. *Applied Economics Letters*, 15(11), 887–891.

Yu, S., Qian, X., & Liu, T. (2019). Belt and road initiative and Chinese firms' outward foreign direct investment. *Emerging Markets Review*, 100629, in press.