CHINA AFTER COVID-19

Economic Revival and Challenges to the World

edited by **Alessia Amighini**
introduction by **Paolo Magri**

ISPI

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Economic Revival and Challenges to the World
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First edition: June 2021
Image cover by Francesco Fadani

Print ISBN 9788855265225
ePub ISBN 9788855265232
Pdf ISBN 9788855265249
DOI 10.14672/55265225

ISPI. Via Clerici, 5
20121, Milan
www.ispionline.it

Catalogue and reprints information: www.ledizioni.it

Ministry of Foreign Affairs
and International Cooperation

This Report is realized with the support of the Policy Planning Unit of the Ministry of Foreign Affairs and International Cooperation pursuant to art. 23-bis of Presidential Decree 18/1967.

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Introduction

The coronavirus pandemic that has rocked China since December 2019 poses a gruelling test for the resilience of the country's national economy. The premises were anything but positive for Beijing, which entered the crisis while already weakened by the profound effects of the trade war with the United States, a perilous internal rebalancing, and the need for financial deleveraging amid mounting domestic debt. The pandemic has further added to these challenges and, in 2020, China's GDP grew only by 2.3% – one of the worst performances in history. However, once again this time, for China the past was prologue.

Over the past two decades, China has proven extremely successful in countering the effects of major crises, such as the 2007-08 financial crisis or the one that followed the 2002-03 SARS epidemic outbreak. Once again today, in spite of the rather weak performance in 2020, the economy is rapidly picking up pace with all three key economic indicators – retail consumption, investments and trade – recovering swiftly. If anything, there is talk of an overheating economy, with GDP growing by 18% year-on-year in the first quarter of 2021. In particular, the growth in retail consumption indicates that the leadership has been successful in rebuilding consumer confidence. China's approach to the global recession has been characterised by a significant degree of innovation pursued by the country's élite, compared to the response in the aftermaths of the Global Financial Crisis.

Although China's economic system is radically different from that in Europe, the country remains an influential term of comparison in times of crisis, as regards the responses to the global decrease in demand and output recorded in 2020. Fiscal stimulus has been by far the most important policy to help the economy out of the crisis – even though one should not forget that today China has relied on a more limited toolbox to restart the economy than it did after the Global Financial Crisis. Post-coronavirus China, in fact, has prioritised the domestic economy and recovery measures were not designed to support growth in the rest of the world as had been the case in the past. A key indicator in this sense is the framework of "new investment projects", as China calls it: Chinese investments are now more selective, prioritising domestic consumption and the digitalisation of the national economy to the detriment of traditional large infrastructure projects. Moreover, Beijing's willingness to innovate during the post-pandemic recovery was made clear by the monetary policy adopted by its leadership, which was clearly less aggressive than the approaches adopted by other countries and included very specific goals that focused on small and medium-sized enterprises – i.e., the "engine" of the country's labour market.

In light of the above, this Report examines how China designed and implemented its post-Covid recovery strategy, keeping an eye both on the internal and external criticalities the country had to overcome over the short and medium-term. In particular, the Report is articulated along two lines. Firstly, it focuses on China's domestic scenario, detailing the impact of the pandemic on the economic and political systems as well as on China's recovery policy choices. Secondly, it looks at the effects of the pandemic on the country's international strategy, mainly focusing on the future of economic and trade relations with the United States and the prospects for the Belt and Road Initiative (BRI).

In the first chapter, Maximilian Kärnfelt paints a composite picture of the effects the pandemic had on China's national economy. The author argues that, although the outlook for

the country's economic relaunch remains positive, China still runs substantial risks that might hinder its recovery, especially regarding the impact of a second wave of infections, the further contraction of foreign demand, and mounting financial difficulties. Nonetheless, in chapter 2, Haihong Gao contends China has benefited extensively from previous experiences in handling the risks that emerged from previous health crises (above all the SARS epidemic outbreak), when designing an anti-coronavirus health and economic response strategy. Gao makes the case for the country's ability to learn from past mistakes, devoting special attention to debt sustainability, which was one of the main issues emerging from the measures China adopted in the aftermath of the global financial crisis.

Elisa Sales, in contrast, highlights in chapter 3 that rapidly developing consumer needs stimulated China's development of digital technologies in an effort to combat the health and economic crises. Although positive results were achieved, Sales argues there are still challenges that the pandemic has exacerbated and that the country is still finding hard to solve, mainly related to the inter-generational digital gap and access inequalities between rural and urban areas.

In chapter 4, Giulia Sciorati contextualises the traditional concept of "pragmatic performance legitimacy" within the anti-coronavirus policy choices made by the country's political élite, contending that delivering and/or communicating a convincing anti-Covid-19 "performance" remained central in the leadership's attempts to counter the legitimacy challenges posed by the health and economic crises for the country's political system.

In chapter 5, Eduardo Missoni opens the debate on the future of the BRI after the pandemic, stressing the role the Health Silk Road will play in the short-run to drive the entire initiative. The key takeaway from Missoni's argument is the international community should jointly rethink the concept of "health diplomacy" and make sure "people's health" replaces "access to healthcare" among the priorities of public policies worldwide.

In chapter 6, Yukon Huang investigates the future of China-US relations after the crisis. Huang suggests that, to the extent that China has been labelled "a partner, competitor and rival at the same time", the United States should realise that the most controversial issues with China (e.g., reform of the WTO, data rights and economic and trade relations) should be tackled within multilateral frameworks like the G20, not bilaterally.

Tyson Barker in chapter 7 focuses on the prospects of China's Digital Silk Road, emphasising the fact the health crisis has forced China's digital strategy to focus increasingly on mergers and acquisitions, health, fintech and ICT training. Barker also points out the BRI is now heavily dependent on finance-intensive infrastructure projects as a consequence of economic slowdowns in partner countries.

In chapter 8, Alessia Amighini draws some conclusions on China's position in the post-pandemic world. The author stresses that, despite the country continuing to be a "growth pole" in the international system, China will maintain a more prominent position in its immediate neighbourhood rather than with Western powers, which are eventually bound to look more consistently at the United States. Amighini concludes that the global economic system will be steadily moving towards two simultaneous "growth poles", although scepticism with regards to the feasibility of decoupling remains high.

In conclusion, the book presents a comprehensive argument that helps us navigate China's future in domestic and foreign contexts. The study indicates that, despite the numerous difficulties that China faced during the health and economic crises in terms of losing economic and political capital, the country seems to have been strengthened by the "pandemic test," thus becoming an even more challenging "partner, competitor and rival" for Western countries in both the short and the long run.

Paolo Magri
ISPI Executive Vice President

1. Express Recovery from the Covid-19 Pandemic

Maximilian Kärnfelt

The world has struggled with the global outbreak of Covid-19 for more than a year. Millions of people have died, normal life has been heavily interfered with and economic activity has been restricted. China, the country in which the pandemic originated suffered relatively low deaths per capita, and its economy performed better than other countries. But China relied heavily on resilient demand in foreign markets for its recovery.

China used measures which democratic market economies could not replicate. First, extremely tough measures were used to reduce virus transmission. Once accomplished, state driven economic stimulus was quickly unleashed to ensure economic output could grow even in a year when almost all activity ceased for an entire month.

But even with a huge stimulus programme in place, Chinese private demand recovered slowly. Chinese output had to be absorbed through state investment in exports to foreign markets. The stimulus also led to China's already shaky financial situation deteriorating further. The government recorded its largest budget deficit ever, and corporates, households and local governments are deeper in debt than ever, with income growth lagging credit growth.

Before the pandemic hit, China was transitioning away from its investment driven model, trying to modernise and allow private domestic demand a greater role in determining economic outcomes.

In the years to come, China will have to find ways to cover the costs entailed by the pandemic response. Before the pandemic hit, China was transitioning away from its investment driven model, trying to modernise and allow private domestic demand a greater role in determining economic outcomes. The pandemic took China a step back from this, and it will now have to refocus.

The Chinese Economy Was in Transition and Facing Challenges Even Before the Pandemic

Before the Covid outbreak and the subsequent lockdown, the Chinese economy was in transition from an investment-heavy manufacturing economy to a more consumption driven and service-based economy. At the same time, it is facing both internal and external challenges. Large scale reform to modernise the country was under way, and China was faced with everything from slowing growth to trade tensions with the US.

Gradually catching up with the rest of the world's level of productivity and technology, decades of double-digit growth was ebbing out. In 2010, ten years before the beginning of the pandemic, China's GDP grew by 11.9%. In 2019, right before the Covid outbreak, growth had slowed to 5.9%. To some, the slowdown was a sign of health, and that there was less room for catchup. To others it signalled a problem, as it meant that the trajectory towards emerging as the world's largest economy was uncertain.

Slowing growth was putting pressure on the financial system. Gradually, more units of credit had to be issued to generate one unit of growth, and aggregate debt levels ballooned. To counteract this, in 2017 the Chinese government launched its deleveraging campaign aimed at reducing indebtedness. But although the campaign did much to improve oversight, it did not manage to reduce credit growth. The need to keep growth levels high in order to reach political targets was too acute.

Simultaneous to the economic slowdown, a shift from an investment driven economy to one focusing more on services and domestic demand was under way. Between 2000 and 2010, about half of GDP growth was accounted for by domestic consumption and investments respectively. Five years later, between 2014 and 2019, the role of investments in pushing growth had deteriorated significantly, contributing on average 36% to growth while domestic consumption accounted for almost 63%.

At the same time, domestic consumption was becoming more important, as was the service sector. Another way of accounting GDP is to break it down into primary, secondary and tertiary industries. When comparing the secondary and tertiary industries, which loosely correspond to manufacturing and services, the trend is also stark. In 2014, the tertiary industry overtook the secondary industry as the largest contributor to GDP growth, at 49.9%. By 2019 it contributed 63.5%.

President Xi Jinping seems to think the changes are inevitable and has sought to portray himself as a captain resolutely steering his ship into unchartered waters. Among other things, Xi has launched the term "Quality Growth", which has since been repeated by himself and other officials in important speeches as well as in policy documents. Quality growth seems to be a focus on less wasteful growth, on environmentally and financially sound projects, which of course is compatible with *lower growth*.

But even as the Chinese economy is becoming more market driven, the government still wants to have some control. Related to Quality Growth is the vast Made in China 2025 (MIC2025) industrial upgrading programme which has been strongly affecting China's economy and its economic relations. The brainchild of Premier Li Keqiang, MIC2025 was launched in 2015 as part of the 13th and 14th five-year plans. The goal of the programme is to turn China into a global manufacturing superpower by

Even as the Chinese economy is becoming more market driven, the government still wants to have some control on upgrading industries

modernising its industrial base. The program has focused on upgrading industries such as manufacturing, IT solutions, robotics, semiconductors, AI, 5G and new materials.[1] The programme has also resulted in significant Chinese outbound investment as foreign companies with technology relevant to the programme have been acquired. One example of this was the German robotics company Kuka, which was acquired by Midea in 2016.

Finally, trade tensions with the US were peaking right before the Covid outbreak. Former US President Donald Trump accused China of unfair trade practices. To exert pressure, the US raised tariffs on the majority of Chinese goods. After about a year of negotiations, the US and China had signed a so-called "Phase One" trade deal, which aimed to lower some of the tariffs the US had put on China in return for significant Chinese purchases of US goods, especially agricultural products.

The Virus Hits China

According to the World Health Organization (WHO), the pandemic first started in the Chinese city of Wuhan in January 2020. The WHO says it published its first bulletin on a new virus on 5 January,[2] and the first confirmed death from Covid was on 9 January.[3]

After more people died from the new disease, the Chinese government banned travel in and out of Wuhan and began restricting normal life across the whole of the country. The restrictions imposed were extremely strict. In most major cities in China people could only leave their homes a limited number

[1] M.J. Zenglein and A. Holzmann, *Evolving Made in China 2025 China's industrial policy in the quest for global tech leadership*, MERICS, 2 July 2019.
[2] *Archived: WHO Timeline - COVID-19*, World Health Organization (WHO), 27 April 2020.
[3] A. Qin and J.C. Hernández, "China Reports First Death From New Virus", *The New York Times*, 10 January 2020.

of times each day, and only at certain times. Mask-wearing was largely mandatory and regular tests were administered, sometimes forcibly. Some videos even surfaced of Chinese citizens locked in their apartments from the outside. The WHO has called the Chinese lockdown "unprecedented in human history"[4] due to the harshness of the measures. Outside of government mandated action, civil society also acted. Naturally, people were frightened and reduced their contacts with other people. Many villages went as far as to erect walls to keep away outsiders.[5]

Inbound and outbound travel to and from China also largely ceased. On 31 January the US banned travel from China.[6] The EU banned travel from non-EU countries on 17 March, including China. China also banned travel; after the virus spread outside of China, inbound travellers were required to quarantine for two weeks.

The Chinese strategy has worked well. Deaths and confirmed cases peaked in February 2020, and there has not been a severe second wave. Vaccine rollout is also well under way and, once the population has been inoculated, barring unforeseen events, it may be possible to open borders once again.

The Initial Hit on the Economy Was of Historic Proportions

The initial damage to the Chinese economy from the pandemic was severe. Production plummeted and unemployment increased. As is the case with Western countries, the government policies associated with reducing the spread of the virus have

[4] "Wuhan lockdown 'unprecedented', shows commitment to contain virus: WHO representative in China", *Reuters*, 23 January 2020.

[5] "China coronavirus: Road blocks and ghost towns", *BBC News*, 26 January 2020.

[6] G. Whitmore, "When Did President Trump Ban Travel From China? And Can You Travel To China Now?", *Forbes*, 19 January 2020.

likely affected the economy more than the outbreak itself. Since people could not go to work and could only go out to buy essential supplies, much of economic activity ceased. When the virus spread outside of China the same happened abroad, affecting trade and investment to and from China.

	2015 - 2019 annual average	Q4 2019	Q1 2020	Change
Real GDP	6.7	5.8	-6.8	-12.6
Nominal GDP	9.4	10.1	-5.3	-15.4
MERICS China Confidence Index	101.7	101.2	84.4	-16.9

		Dec 2019	Feb 2020	
Retail sales	9.6	8.0	-20.5	-28.5
Fixed asset investment	7.3	5.4	-24.5	-29.9
Foreign direct investment	1.9	2.1	-10.5	-12.6
Real estate investment	6.9	9.9	-16.3	-26.2
Exports	1.6	0.5	-17.4	-17.9
Imports	1.9	-2.8	-4.1	-1.3
Electricity consumption	4.7	1.4	-7.8	-9.1
Unemployment	4.1	5.2	6.2	1.0
Official PMI	19.3	53.4	28.9	-24.5
IHS Markit PMI	18.3	52.6	27.5	-25.1

Source: CEIC

The economic crisis was apparent in every sector, and on both the demand and the supply side of the economy. Output collapsed, demand faltered, and economic activity ceased across most of society. In the first half of 2020, the pandemic caused the largest drop in GDP growth in modern Chinese history, affecting the economy more strongly even than the Global Financial Crisis (GFC). Real GDP growth fell from 5.8% in Q4 2019 to -6.8% in Q1 2020, a change of 12.6 percentage points. In absolute terms that is a year-on-year GDP contraction of US$216 bn in that period's exchange rate. That is about equal to the total GDP of Portugal.

All subcomponents of GDP – consumption, investment and net exports – were severely affected.

Because of the heavy restrictions on civil society, domestic consumption took a hard hit. By February, retail sales (a proxy for overall consumption) were 20.5% lower year on year. Consumption was the biggest drag on GDP growth in Q1, lowering growth by 4.3 percentage points.

Fixed asset investment initially fell the most, but also made the strongest recovery. By the end of February, fixed asset investment had contracted by 24.5% year-to-date. Foreign direct investment was also down, falling by 10.5%. Overall investment reduced Q1 growth the least, only pulling it down by 1.4 percentage points.

International trade was also hit hard. But the trade dynamics were quite surprising. Imports, which had caused net exports to contribute strongly to GDP, had been declining before 2020. At the beginning of 2020, a reversal took place. To substitute for domestic output, year-to-date imports rose, from -12.7 to -4.1% in February. Because the domestic labour force could not work freely, exports on the other hand sank heavily by 17.4%. This resulted in net exports pulling down GDP by about 1.7 percentage points.

But GDP may be understating or failing to capture the severity of the economic crisis. Energy consumption and greenhouse gas emissions fell by more than real GDP. February

electricity consumption fell by 10.1%. Greenhouse emissions fell enormously from January to February. A map[7] produced from NASA satellite images published by Deutsche Welle comparing mean monthly NO_2 levels shows emissions almost vanishing across China. Emissions in neighbouring South Korea look roughly unchanged, so seasonal factors may be ruled out. The enormous fall in emissions would be impossible without industrial activity almost ceasing.

Official statistics on industrial output show damage across most important industries. Tonnage output of many major industries had fallen significantly by the end of February: crude coal fell by 6.3%, iron ore by 4.6%, cement by 29.5% and cloth by 36%. Steel was an important exception, instead of falling, output of crude steel increased from 2019 levels, in fact steel output hit a record high in 2020 growing by 3.1%.

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Business surveys during February also strongly reflected the ceasing of economic activity. The Chinese National Bureau of Statistics' Purchasing Manager's Index (PMI) fell from 53 in January to 28.9 in February. An alternative PMI, from IHS Markit, fell from 51.9 to 27.5. The non-manufacturing side of the PMI was more strongly affected as the lockdown generally had a greater impact on the service sector than on the manufacturing sector.

The MERICS China Confidence Index, an alternative business indicator developed by a colleague and I in 2017, also showed a sharp decline in business activity. Our index fell from 101 in Q4 2019 to 84 in Q1 2020, with numbers above 100 indicating an improvement. Our index fell far below the level it was at during the Global Financial Crisis.

[7] R. Russell, "Coronavirus and climate change: A tale of two crises", *DW Made for Minds*, 5 March 2020.

The decline in output resulted in layoffs in the labour market. Surveyed unemployment rates increased from 5.3% in January to a historic high of 6.2% in February. But these figures are probably understating the situation as it is likely difficult to conduct surveys outside population clusters in China. Additionally, workers whose hours were reduced would not have been classified as unemployed.

The Chinese Government Steps In with Stimulus Measures

According to data compiled by Johns Hopkins[8] (based on Chinese official data), deaths from Covid peaked in China on 19 February. A few days later, the strict lockdown caused the death rate to fall tenfold. By late April, average daily deaths were usually zero. At this point restrictions on economic activity began to be eased but, as we saw in the previous section, economic output had already been severely reduced. Despite restrictions being lifted, the return to normal was slow.

In response to the pressure on the economy, the Chinese government launched a large stimulus package. Both fiscal and monetary measures were utilised. This was not the first time China had used such a strategy to steer out of a crisis. Ten years earlier, during the GFC, the Chinese government had launched an enormous stimulus package.

But compared to the support package that was launched during the GFC, the Covid-relief package came at a time when the Chinese government had far less room for manoeuvre. Government deficits had already been mounting, and the financial system was in many ways insolvent.

Unlike Western economies which often funnelled funds directly to workers, households in China received little support.[9]

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[8] "Coronavirus tracked: see how your country compares", *Financial Times*.

[9] T. Huang and N.R. Lardy, *China's fiscal stimulus is good news, but will it be enough?*, Peterson Institute for International Economics, 26 May 2020.

The stimulus package was largely business-oriented, aiming to insure that production and employment would not be too severely damaged while also avoiding corporate bankruptcies.

In response to the pressure on the economy, the Chinese government launched a large stimulus package, but the Chinese government had far less room for manoeuvre compared to 2009

The fiscal side of the stimulus package is more easily quantified. A CNY4 trillion (US$564 bn) in fiscal stimulus was launched in May.[10] The fiscal stimulus corresponds to roughly 4.5% of GDP, although some expected even more. This meant the government's fiscal deficit went from 2.8 to 3.6% of GDP;[11] before this, the deficit had never exceeded 3%. Meanwhile, growth of government revenue has been declining in recent years. The government made up for the shortfall through borrowing.

The fiscal package was to a large extent focused on boosting investment in infrastructure but was also to some extent aimed at boosting private consumption. Value added taxes were reduced to encourage shopping. New infrastructure projects were announced to keep employment high, funnel funds into the economy and boost output. Banks were also instructed to suspend collection of interest and principal for SMEs, which were particularly badly affected by the lockdown.

Monetary measures were also very substantial. Interest rates were lowered, reserve requirements were also lowered, and the central bank, the People's Bank of China (PBOC), undertook large-scale open market operations to ensure liquidity. In 2020, the PBOC injected CNY15 trillion into the banking system through its 7- and 14-day lending windows, more than twice as much as was injected in 2019. The monetary stimulus led to significant increases in new lending, which rose by 175% year-on-year in April.

[10] F. Tang, "What stimulus measures did China use to combat the economic impact of the coronavirus?", *South China Morning Post*, 8 May 2020.

[11] F. Tang, "Coronavirus: China unveils US$500 billion fiscal stimulus, but refrains from going all-in", *South China Morning Post*, 22 May 2020.

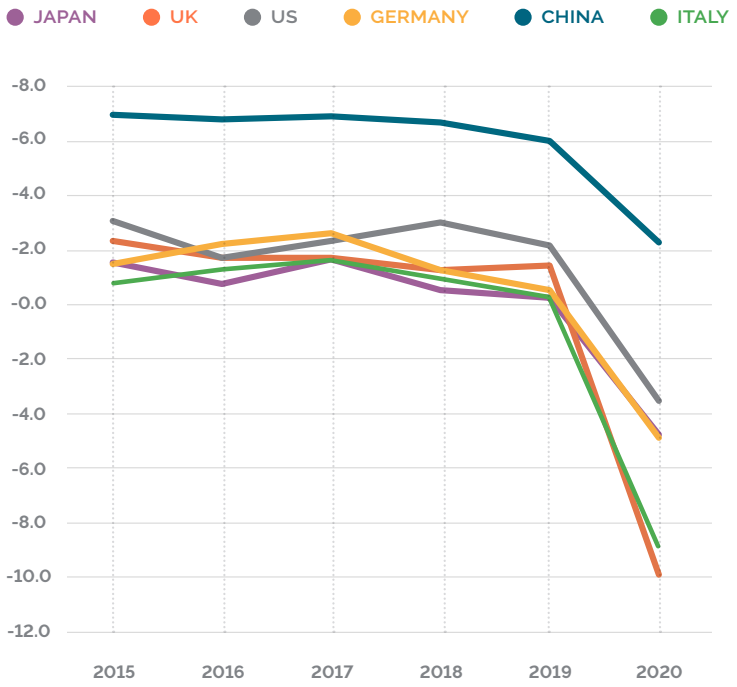
Overall, the stimulus package did what was needed. Fiscal stimulus ensured that output remained high and companies in dire financial straits could borrow cheaply to plug holes in their balance sheets.

The Chinese Recovery Outperformed the Rest of the World

China's handling of the pandemic, government support of the economy and resilient external demand allowed it to escape recession. China only had one month of negative growth, and ended 2020 strongly, expanding at 2.3%, a far better result than the OECD and the global economy.

By spring, as the Covid spread throughout the world and many countries entered lockdown, most of the world was going into recession. The US, most EU countries and Japan all entered recession after experiencing consecutive quarters of negative economic growth. For the OECD as a whole, GDP growth was strongly negative in both Q1 and Q2.

FIG. 1.1 - CHINA MANAGED TO KEEP GROWTH

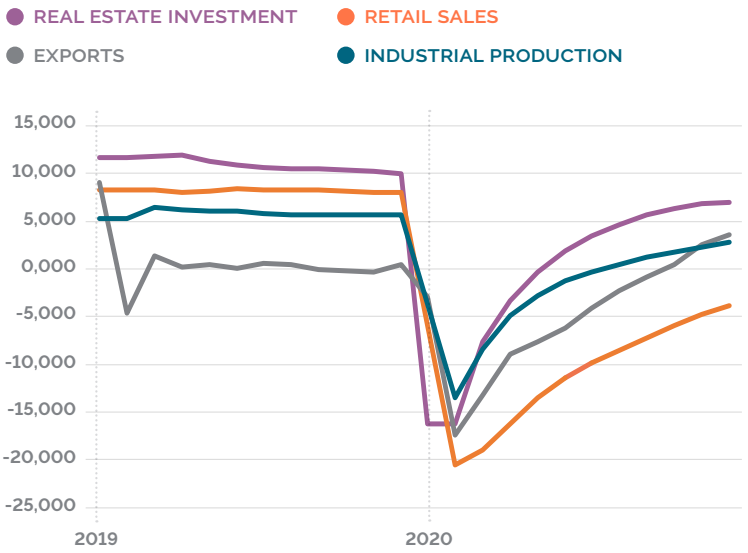


Source: OECD

The Chinese recovery could be seen across most economic indicators. And, importantly for the Chinese government, unemployment fell as people went back to work. But the recovery was unbalanced and looked more like China's old growth model. Investment and exports were strongly outpacing domestic consumption. Market-driven domestic consumption was expanding at a sluggish pace before the pandemic and, as China came out of lockdown, it recovered at a much slower pace than the supply side. But the stimulus package saved output. The package had allowed businesses to keep producing, and cheap credit combined with many new government infrastructure projects meant construction was booming. Thanks to the huge

amount of liquidity made available by the government, financial markets also had a particularly strong year. The government had engineered a stimulus driven demand to absorb the huge supply needed to keep output growing.

FIG. 1.2 - THE RECOVERY WAS BUSINESS AND INVESTMENT DRIVEN



Source: EIC

Strongly affected by the lockdown, consumption recovered slowly. Retail sales, a proxy for overall consumption, contracted by 3.9% in 2020, far below GDP growth. The fall was likely due to changed preferences, not because of less disposable income. In fact, average disposable income grew by 3.5% in 2020. Uncertainty about the future, combined with a strongly performing financial market with high returns, likely caused Chinese people to invest or simply save a larger share of their income than in previous years. But even though domestic demand has recovered at a relatively slower pace it *is* in recovery and looks set to continue picking up.

Property construction was hugely important for China's positive GDP growth in 2020. Here, the effect of the stimulus package was particularly visible. China experienced a construction boom in 2020. More than CNY14 trillion of real estate investment was accounted for, growing by almost 7% from the previous year. This is far above overall economic growth, showing clearly how important construction was. Almost three quarters of the amassed investment was in residential buildings. This put downward pressure on house prices, the growth of which began cooling. In 2020, average monthly house price growth in seventy cities was almost 5%, which is about half of price growth in 2019, but still far above consumer price inflation.

The reason why construction is so receptive to stimulus is because of the enormously strong demand for real estate in China in recent years. Chinese investors are restricted from freely investing abroad, so in most years apartments and houses are the best investment assets in the market. They have what economists call a high Sharpe ratio, the ratio of return to risk: every year house prices go up, and investors know the government is afraid of a crash, which they see as insurance against such a crash.

Several factors contributed to the export sector having a strong year, finishing out with growth of 3.6%. Cheap credit and tax reductions ensured that factories could keep producing, which was also reflected in industrial output figures, which expanded by 2.8%. At the same time, output abroad plummeted while external demand was resilient, ensuring that surplus Chinese goods could be absorbed. One side effect of China's strong exports has been that inflation in Western economies has been subdued. Western economies, despite pushing out huge stimulus packages with weak domestic output, have not experienced much inflation. Chinese surpluses to some extent preserve supply and absorb the stimulus money.

Some types of goods and products did very well. The lockdowns abroad led to exceptionally high demand for Chinese

IT products. Many people were buying home electronics to make it possible to work from home. Others purchased Chinese IT products for enjoyment. Another good example was Chinese exports of medical products such as protective face masks and ventilators. Goods such as these were in high demand in foreign markets which were battling against a much worse Covid outbreak than China had struggled with.

Strong export growth combined with a sluggish import recovery led China to amass its largest ever monthly trade surplus. In December 2020, China exported US$78 bn more than it imported, most of this imbalance being with the US, but also had a trade surplus with the EU.

Going forward, trade surpluses of this size may not materialise. Firstly, the CNY appreciated strongly against the US dollar during most of 2020 as international investors were moving money into what looked like the safest market. A stronger CNY makes Chinese goods relatively more expensive abroad and foreign goods cheaper for Chinese people, which may reduce Chinese exports and boost imports in the coming years if the CNY strength persists. Secondly, maintaining trade surpluses will likely result in criticism from abroad. Chinese trade surpluses have faced sharp criticism abroad from many political figures, most prominently from former US President Donald Trump, who has frequently accused China of cheating on international trade rules in order to boost its exporting industry.

Another important trade development was China's emergence as the EU's largest goods trading partner. While some of the reasons for this are Covid-specific, others are not. Over the past three decades, China's share of the world economy has grown from about 3 to 20%, this has shifted the economic centre of gravity more towards the Pacific, bringing trade with it. More recently, a weak US dollar due to political unrest, uncertainty about future direction and difficulty in handling the pandemic in the US has also negatively affected European exports to the US.

As was the case in most of the world, China's financial markets performed very strongly in 2020. Despite poor earnings growth,

much of the international stimulus money found its way into stocks. But that is not the only reason. China's strong economic performance combined with new investment channels resulted in greater foreign inflow into its stock and bond markets. Together, this resulted in stock indexes performing remarkably well. The Shanghai stock index grew by 12.6% in 2020. The Shenzhen index, which includes more tech stocks, performed even better, expanding by 32.6%.

Overall, the Chinese economy has recovered well from the sharp initial contraction caused by the Covid outbreak and the February lockdown. Output recovered quickly, and unemployment fell as stimulus money reached producers and the outbreak was contained. Domestic demand has still not fully recovered but is gradually coming back as well. Critically, the recovery was stronger than in the rest of the world. China has appeared decisive, locking down hard, unleashing huge stimulus measures and then going back to a more normal situation. The West, on the other hand, has been flip flopping, getting stuck in a sort of lockdown limbo, which has caused enormous economic damage. The West has been unable to either replicate the Chinese Covid response or commit to a lockdown-free set of policies which, for example, the UK initially proposed. But as much as it is possible to be critical of the Western policy makers' response, it is important to remember that the Chinese recovery was partly due to the capacity of Western economies' resilient demand to absorb China's surpluses.

Deleveraging Set to One Side

The stimulus driven rebound, however, took China a step back from its pre-pandemic path. China relied heavily on government involvement and supply-side policies to ensure output could grow even in a year when there was a complete lockdown for almost an entire month.

Overcapacity, overinvestment and weak domestic demand was an issue even before the pandemic, with China exporting

its excess industrial output while building up leverage at home to keep factories producing, construction sites working and employment high. This economic model was seen as unsustainable and inefficient, even by Chinese thinkers.

One unfortunate consequence of China's economic model was that every year aggregate debts would increase in relation to the size of the economy. Banks would lend more money than the economy was growing. The result was a dramatic increase in leverage: China's aggregate leverage rose from 226 to 258% of GDP between 2015 and 2019, according to figures from the Bank for International Settlements. In response to the increasing leverage, in 2017 China launched its deleveraging campaign. The campaign was meant to reduce leverage in the economy and reduce risk in financial markets. Although monetary policy was not greatly changed, bank lending practices were more heavily scrutinised, and it appears that some progress was made, at least in slowing credit growth. Part of China's drive to introduce discipline into the financial system has been building more investment channels into its financial markets. By 2019, marked progress had been made on this front, and foreign ownership of Chinese securities had risen significantly.[12]

Overcapacity, overinvestment and weak domestic demand was an issue even before the pandemic, with China exporting its excess industrial output while building up leverage at home to keep factories producing, construction sites working and employment high

But the pandemic has reversed these efforts, and financial risk is once again building up. Since there was no way to sustain output growth without allowing credit growth to accelerate, the deleveraging campaign had to be shelved, at least temporarily. This resulted in credit growth jumping in 2020, expanding by about 28 percentage points. More concerning, the amount of GDP generated by one incremental unit of credit issued has

[12] M.J. Zenglein and M. Kärnfelt, *China's caution about loosening cross-border capital flows*, MERICS, 19 June 2019.

fallen. In 2015 one additional unit of aggregate credit generated 0.29 units of GDP, by 2020 this had fallen to 0.08. At the same time, profit growth has been weak, which means the ability to repay loans and interest has deteriorated.

The credit expansion has resulted in risk increasing in two key areas: real estate and corporates.

Real estate has been a long-standing issue in China, where there has been a tendency to overinvest. All across China apartment complexes are being built, but as many who have lived in China will attest, occupancy once completed is often very low. Despite this, prices keep going up, indicating that many buy apartments for speculative investment reasons. Many Chinese spend a huge proportion of their earnings on housing costs related to mortgages. Price growth is now slowing, which means that the risk of a real estate crash is growing

As for large companies, issues are becoming pronounced. In 2020 both Evergrande[13] and HNA,[14] two of China's largest companies, experienced serious financial difficulties, with default being a possibility. The problems Evergrande and HNA face are shared by many other companies. 2021 is set to be a year with record defaults. Ratings firm S&P has published research[15] indicating that only 6.3% of all rated Chinese developers can meet the central bank's red lines for debt.

The extra leverage buildup made necessary by the pandemic was not surprising, China was facing a situation where an economic recovery had to be engineered. But the problems it brings with it are nevertheless real. A series of big defaults could cause a crisis, and these days China's financial markets are more connected to global markets, making such a crisis more difficult to prevent.

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[13] "China Evergrande bonds halted; world's most indebted developer hit by fears of cash crunch", *The Straits Times*, 28 September 2020.

[14] K. Wu and B. Goh, "China's HNA eyes private investors in uphill battle to emerge from bankruptcy", *Reuters*, 21 February 2021.

[15] P. Liu, "China braces for another record year of bond defaults as cash-starved developers breach central bank's red lines for borrowings", *South China Morning Post*, 19 January 2021.

China's Economy Post Pandemic

Moving into a post-pandemic world, China's economy is mostly looking strong. Coming up from a low base, 2021 GDP growth will likely be the highest in years. State driven investment is sure to contribute greatly to this, but even on the weak side of the recovery, domestic demand looks set to come back. But there are several risks.

A second wave of Covid would be most damaging. China contained the first wave effectively and has been making headway with vaccinations. But several new outbreaks across the country or the emergence of a new resistant strain remain possible. A second wave could easily cause economic damage on the same scale as the first. The first wave led the Chinese government to lock almost the entire country down for an entire month, resulting in a historic contraction of Chinese output. A second wave could easily cause similar levels of economic havoc.

A second potential risk is a sharp contraction of foreign demand. During the pandemic, foreign countries have absorbed China's surplus output through exports, even leading to the largest monthly trade surplus ever. But economically the world has been hit hard and may not be able to absorb China's surpluses for much longer. The Chinese currency has already appreciated significantly, making Chinese goods relatively more expensive abroad.

Third, financial difficulties are piling up. Many companies were kept alive through stimulus measures throughout the pandemic. These companies are piling up debt which they may not be able to service. Several large companies are already in some form of default; this can easily spread and cause economic damage. To avoid financial risk increasing even more, the government must eventually tighten fiscal and monetary policy. But, without credit constantly building up, growth may

Many companies were kept alive through stimulus measures throughout the pandemic. These companies are piling up debt which they may not be able to service

slow down considerably. Uncomfortably for policymakers, both keeping stimulus going and reining it in has the potential to slow down growth. In recent years, China has managed to balance this problem by supplying the market with liquidity at the same time as maintaining outbound capital controls and focusing on disciplining markets through regulation. But it will be increasingly difficult to do so as credit keeps building up.

Based on recovery continuing, the IMF has forecast[16] that the Chinese economy will grow by 8.1% in 2021, outpacing the global economy which they forecast at 5.5%. The Chinese government itself has set a growth target of above 6%.[17] To emphasise the commitment to "quality growth", the target was set far below the IMF forecast. If none of the risks materialise, the IMF forecast is the most likely scenario. But, before the pandemic China was already in slowdown. So even if 2021 is a strong year, gradual slowdown will continue until China converges with the global economy.

In the past decades, the Chinese share of the global economy has steadily grown, making the country increasingly important to world affairs. Despite Covid originating in China, the country's economy kept expanding, while the rest of the world has struggled for more than a year to beat the pandemic. Chinese GDP growth was strong in 2020 and will likely be strong in 2021 as well. This will ensure that the Chinese share of the global economy grows, especially since the rest of the world is still struggling with Covid. But, after that, China needs to focus strongly on improving its growth model or risks facing a crash when debts mature.

[16] International Monetary Fund, "Policy Support and Vaccines Expected to Lift Activity", *World Economy Outlook Update*, January 2021.

[17] J. Carter, "China's 'two sessions': key takeaways from the annual government work report", *South China Morning Post*, 8 March 2021.

2. Policy Actions for Economic Recovery

Haihong Gao

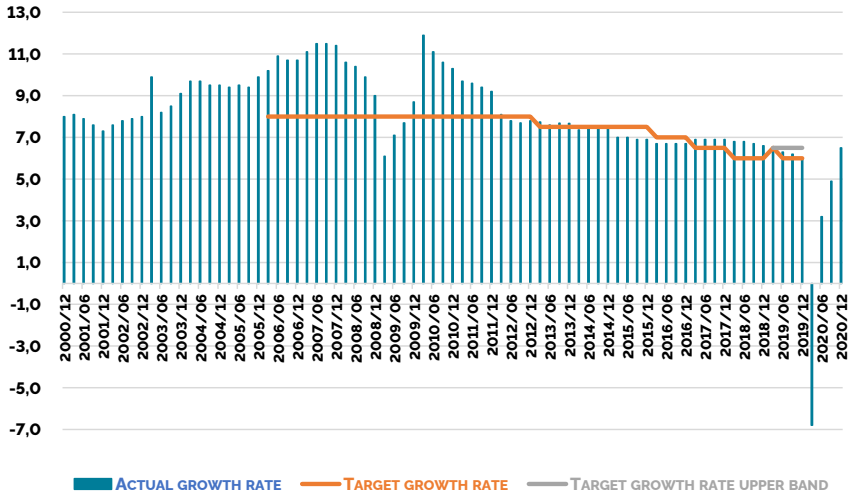
China was the first country to face the pandemic crisis. In response to the outbreak, the Chinese government took swift action that drew upon the prior experience of handling the SARS (Severe Acute Respiratory Syndrome) epidemic of 2002-03. The quick containment of the spread of virus enabled the economy to recover earlier than in many other countries. While monetary expansion, fiscal stimulus, structural reform and continuous economic openness were the key measures involved in reviving the economy, the authorities also took balancing action to avoid negative side effects, such as debt unsustainability, which took years for China to overcome after the Global Financial Crisis (GFC) in 2008.

Economic Impact and Initial Recovery

The outbreak of Covid-19 has disrupted Chinese economic activity. The initial sharp economic downturn was a reasonable reaction to a drastic exogenous shock. In the first quarter of 2020, China's GDP contracted by 6.8%, the worst figure since China began reporting quarterly growth data, in 1992. This drop was deeper than in the US (-4.8%) and EU (-3.5%) in the same period. It was much worse than the previous declines during the outbreak of SARS in 2003 and the global financial crisis in 2008 (Figure 2.1). The first quarter's contraction was mainly driven by the sharp decline of fixed asset investment

and retail consumption, which contributed 16.1% and 19% respectively. From the supply side, the decline of industrial production took the leading role, while service and agriculture also fell by 5.2% and 3.3% respectively.

Fig. 2.1 - China's GDP growth (2000Q1-2020Q4, yoy)



Source: Wind

Initial rebound

China began reopening its economy partially at the end of March. This coincided with the time when many other countries began locking down. The initial recovery showed signs of a quick bounce-back in a limited range of economic activities. However, external demand froze, to the extent that Chinese exporters faced widespread cancellations and postponements of orders from their international trade partners. Therefore, the recovery in April was driven by domestic economic activities. On the supply side, value-added industrial output picked up quickly by 3.9%, the first increase since the outbreak. This was mainly

China began reopening its economy partially at the end of March. This coincided with the time when many other countries began locking down

due to the quick output recovery in private enterprises. The private sector increased production by 7% in April. State-owned enterprises (SOEs) only increased 0.5%, whilst joint venture companies and the manufacturing industry recovered by 4% and 5% respectively. It was notable that high-tech companies took the lead in this recovery, with 10.5% growth, and equipment manufacturing also increased by 9.5%. On the demand side, retail consumption, fixed investment and trade were all in negative territory. Fixed investment declined by 10.3%. Imports fell by 10.2%, while exports increased by 8.2%, mainly in the category of PPE (Personal protective equipment), making an overall drop of 0.7% in trade. Retail sales fell by 7.5%, which represents a substantial but slower decline. It was the first sign of an improvement in consumer confidence since the outbreak of the pandemic.

The second quarter showed stronger recovery than the first. GDP growth rebounded 3.2%, narrowing the first half year's contraction to 2.6%. This recovery was mainly led by 15.7% growth in the information transport, software and technology services sector. The construction sector also contributed 7.8% to the recovery because of the stimulus policy and quick reopening of hard infrastructure projects. Manufacturing grew 4% during the same period, reflecting the resurgence of production. Spending on hotels and restaurants remained low, on -18%. However, the gradual relaxation of travel restrictions helped stop further falls. Household spending remained very weak. Wholesale and retail sales grew by only 1.2%. The third quarter recorded 4.9% growth, a stronger rebound than the prior quarter. The driving force behind this, again, was a strong expansion of 18.8% in the information transport, software and information technology services sector. Industrial production increased by a further 6%, surpassing the fourth quarter of 2019. The service sector picked up by 4.3% in the third quarter.

With the nationwide reopening and removal of travel restrictions, economic activities reaffirmed a steady recovery beginning in November. The manufacturing sector showed the strongest monthly growth since December 2010. The Caixin China Manufacturing Purchasing Manager's Index (PMI) rose to 54.9 from the prior month of 53.6. A similar manufacturing sector PMI released by the National Bureau of Statistics of China increased to 52.1, the highest level since October 2017. The main driver of production growth was that companies began receiving new orders at a faster pace, as economic activities returned to normal. In the meantime, external demand remained weak, compared with domestic expansion.

As a result, the fourth quarter rebounded by 6.5%, making it the fastest of all the quarters in all 3 sectors since the outbreak. Annual growth in 2020 ended up at 2.3% – one of the few positive figures worldwide, according to IMF data. This outcome paved the way for the economy to make a V-shaped recovery.

Comparison with the effects of the SARS epidemic and the GFC

The outbreak of SARS briefly disrupted the economy. The GDP growth rate dropped from 11.1% in the first quarter to 9.1% in the second quarter of 2003. The worst-hit sectors were transportation, hotels and restaurants because of the restrictions on social communication and mobility. For instance, the value-added growth of the transportation sector declined from 7.7% to 2.3% in the first 2 quarters of 2003.

Since the virus infection spread mainly within the borders of Hong Kong and the mainland, the anti-virus measures aimed at high-risk areas and groups of people were effective at containing the virus. From November 2002, when the first case was reported, to June 2003, when no new cases were found, effective virus containment made it possible for the economy to rebound quickly.

Fiscal policy targeted the sectors worst hit by the outbreak, and involved measures such as forgiving or reducing business tax for airlines, railway companies, hotels, restaurants, recreation, etc. Monetary policy also targeted vulnerable sectors and at the same time the People's Bank of China (PBC) took action to prevent excessive credit expansion at aggregate level, so as to avoid a real estate bubble. With the help of supportive policies, the economy started to recover in the third quarter of 2003 and remained in double-digit growth for the next 4 quarters. In fact, the outbreak of SARS did not change the course of fast growth, and the economy maintained an average growth rate of 10.48% from the first quarter of 2000 until the fourth quarter of 2008.

The economic impact of the GFC in 2008 was considerably more severe than that of the SARS outbreak. China's fast growth had been driven by export and FDI (foreign direct investment) inflows before the GFC. Export as a share of GDP was 31% in 2008. The actual use of FDI saw a cumulative increase of 126.9% between 2000 and 2008. The GFC was an external demand shock for China. Therefore, the impact of the GFC on China's export and investment was tremendous. Export began shrinking in July 2008 until July 2009. The actual use of FDI contracted by 32.67% from December 2008 to January 2009. As a result, the growth rate dropped to 9.5% in the third quarter of 2008, the first time growth had fallen below double digits since 2005.

In response to the crisis, the government implemented fiscal stimulus worth US$4 trillion to revive investment, coupled with credit expansion to support the financial system. This stimulus policy boosted the growth rate and put it back on track. However, downside effects appeared, as the economic imbalance worsened – overcapacity and overleverage in the economy made the heavily investment-driven growth model unsustainable. In order to correct the problem, the government embarked on a process of economic rebalancing, which has led to a "new normal" in the form of a soft landing for the economy.

When the coronavirus pandemic started in 2020, China had already been on a slower growth trajectory since 2010. The outbreak also coincided with the ongoing shift of China's economic structure towards a consumption-driven and service-led economy.

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Compared with the prior two episodes, the impact of this pandemic crisis and policy response share similarities as well as differences. First, Covid-19 and SARS are both health crises that cause the loss of human life. The quick containment of the virus during the SARS crisis provided both government and society with valuable experience for handling the Covid-19 crisis. Second, while the economic impact of the SARS pandemic was limited, the real economy was significantly damaged by Covid-19 and the GFC. Furthermore, Covid-19 has caused much deeper disruption than the GFC, because this pandemic is multi-dimensional crisis. Third, the rise of the technology-led sector has played a leading role in the economic recovery from this pandemic crisis. This distinguishing feature was absent from the past 2 episodes of crisis. For instance, the recovery of the information transport, software and information services sector has become a driver because its value-added growth was faster than that of any other sector in 2020. In comparison, the economic rebound from SARS and GFC was mainly driven by the construction sector (Table 2.1). Fourth, the policy response to the Covid-19 crisis has been relatively prudent compared with the stimulus package implemented after the GFC. This is because the authorities are fully aware of the negative consequences of excessive stimulus and have made strenuous efforts to strike the right balance between reviving the economy and avoiding unwanted debt accumulation.

Tab. 2.1 - Comparative economic impact of Covid-19, SARS and GFC

Sector (%, YOY)	Covid-19				SARS			GFC			
	Dec. 2019	Mar. 2020	Jun. 2020	Sep. 2020	Mar. 2003	Jun. 2003	Sep. 2003	Sep. 2008	Dec. 2008	Mar. 2009	Jun. 2009
GDP	6.0	-6.8	3.2	4.9	11.1	9.1	10.0	9.50	7.10	6.40	8.20
Industry	5.9	-8.5	4.1	5.6	13.1	11.1	12.8	9.60	5.80	4.60	6.70
Manufacturing	5.9	-10.2	4.4	6.1							
Construction	5.3	-17.5	7.8	8.1	14.7	13.0	16.3	7.70	10.70	18.80	20.20
Whole sale and retail	5.4	-17.8	1.2	3.1	8.3	10.3	13.8	17.70	16.80	11.40	11.30
Transportation	6.3	-14.0	1.7	3.9	7.7	2.3	7.6	10.50	0.30	-4.40	-2.60
Hospitality and catering	6.2	-35.3	-18.0	-5.1	11.0	7.4	16.9	10.50	9.40	1.70	3.80
Finance	7.0	6.0	7.2	7.9	11.3	7.7	7.2	10.30	13.70	13.40	17.20
Real estate	2.5	-6.1	4.1	6.3	11.1	12.7	6.9	-3.70	-6.20	7.10	12.30
Information transport, software and information services	15.6	13.2	15.7	18.8							
Leasinge and commercial services	9.9	-9.4	-8.0	-6.9							
Others	6.0	-1.8	-0.9	2.3	12.1	9.9	6.4	12.20	9.20	7.60	

Source: Wind

Policy Actions To Revive the Economy

The Wuhan lockdown began on 23 January. On 27 January, China's National Development and Reform Commission (NDRC) allocated 300 million yuan to fund the construction of 2 temporary coronavirus hospitals in Wuhan. The Organisation Department of the Communist Party of China allocated 108 million yuan to help front-line medical professionals on 30 January 2020.

Following the success of bringing the initial outbreak under control, the government took further measures to avert large outbreaks. The following measures were crucial for successful containment: establishing national-level decision-making institutions for emergency management and a cross-department coordination mechanism; pausing most economic and social activities and makingit mandatory to wear masks in public; taking rigorous lockdown measures in multiple levels of cities; striving to test potential virus carriers; tracking all close contacts by various means; isolating all infected patients and close contacts; increasing the supply of medical resources by various means; providing comprehensive measures through a mix of policies; and protecting the elderly and other groups at high risk of infection.[1]

The initial policy responses reflect the following 2 distinct features. First, it is critical to rely on a centralised leadership to secure full implementation of the strict pandemic containment – the key action China adopted in dealing with the SARS epidemic of 2002-03. Second, coordination among the key financial regulatory and decision-making bodies plays a crucial role amidst considerable uncertainties in the early stage of the outbreak. For instance, on 31 January, the People's Bank of China, Ministry of Finance (MOF), China Banking and Insurance Regulatory Commission (CBIRC), China Securities Regulatory Commission (CSRC) and State Administration of Foreign Exchange (SAFE) issued a joint notice on "Further Strengthening Financial Support for Containing Novel Coronavirus Outbreak".[2] This was the first coordinated action among the major financial authorities aimed at ensuring smooth financial services in support of epidemic containment nationwide.

[1] L. Chen and C. Xiao, *China's Strategies and Actions against COVID-19 and Key Insights*, Center for International Knowledge on Development, Working paper CIKD-WP-2020-006 EN, 2020.

[2] People's Bank of China, 2020.

Prudent monetary policy

The monetary response to the pandemic crisis has adhered to the principle of serving the real economy with "no flood-like stimulus". This reflects concerns about the unwanted inflationary pressure that a massive credit expansion could generate and the subsequent over-leverage of the economy – a lesson learnt from the policy adopted during the GFC in 2008. In the meantime, Yi Gang, Governor of the PBC, has adhered to a normal monetary policy with positive interest rate and upward yield curve, which is conducive to sustainable economic recovery. Guided by those principles, throughout 2020, the central bank adopted prudential monetary policy and deployed structural policy tools, including re-lending and rediscount programmes, to stabilise jobs and save businesses affected by the health crisis.

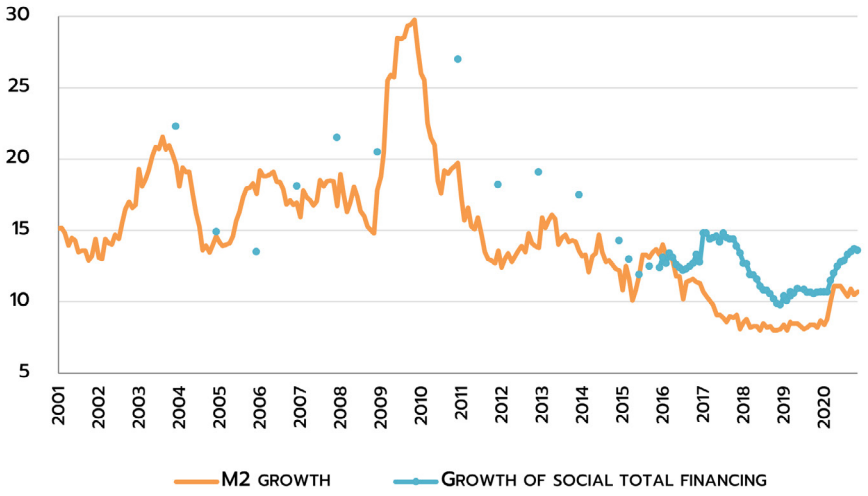
In the early stage of the outbreak, the prime concern was to keep sufficient liquidity in the banking system. The PBC acted swiftly on the first day the stock markets in Shanghai and Shenzhen reopened after the Lunar New Year holiday, by injecting 1.2 trillion yuan of liquidity through reverse bond repurchase agreements. Typically, the PBC carries out liquidity injections through reverse repo operations and adjustment of the Loan Prime Rate (LPR) and Medium-term Lending Facility (MLF) which is more directly linked to companies financing costs. Following the first injection, the PBC carried out 4 more operations in February, making a total of 2.8 trillion yuan within a month. From March to mid-July, the PBC injected 10 times, totalling 3.31 trillion yuan, through reverse repo operations and MLF in order to keep abundant liquidity in the banking sector.

As the lockdown began to cause severe collateral damage to certain sectors of the real economy, the PBC targeted the most vulnerable small and medium size enterprises (SMEs), rural areas, farms and agriculture firms. One of the most frequently used policies was the re-lending or re-discounting quota, which gave the targeted firms access to bank loans at preferential rates

during this difficult period. For instance, on 26 February, the PBC increased the re-lending and re-discounting quota by 500 billion yuan for SMEs, on top of 300 billion yuan approved earlier in February for self-employed businesses. Some small businesses were also allowed to postpone loan repayments. On 3 March, the State Council ordered policy banks to add a special credit quota for loans worth 350 billion yuan to be issued to SMEs at preferential rates. The State Council also decided to increase the PBC's re-lending and re-discount quota by 1 trillion yuan to support SMEs on 31 March. Another policy tool was the central bank's targeted Required Reserve Ratio (RRR) applied to small and medium banks. For instance, the PBC lowered this ear-marked RRR twice, effective on 15 April and 15 May. However, for large banks, the PBC kept the RRR unchanged throughout 2020. The overall average RRR for commercial banks has been lowered from 15% to about 9% since 2018. This reflects the fact that the central bank's policy was clearly aimed at sectors made vulnerable by the pandemic.

As a result, the policy response was less aggressive than the expansionary episode during the GFC in 2008 (Figure 2.2). Unlike the GFC, this pandemic crisis is multi-dimensional and therefore requires monetary policy to be aimed more specifically at vulnerable small companies and private enterprises, which are the powerhouses of job creation, while allowing fiscal policy to play a bigger role. As the economy returns to normal, this prudent monetary stance leaves room for policy adjustment, so that it can prevent a sharp turn when policy normalisation is needed.

Fig. 2.2 – M2 and Total Social Financing (monthly, yoy)



Source: Wind

Fiscal stimulus

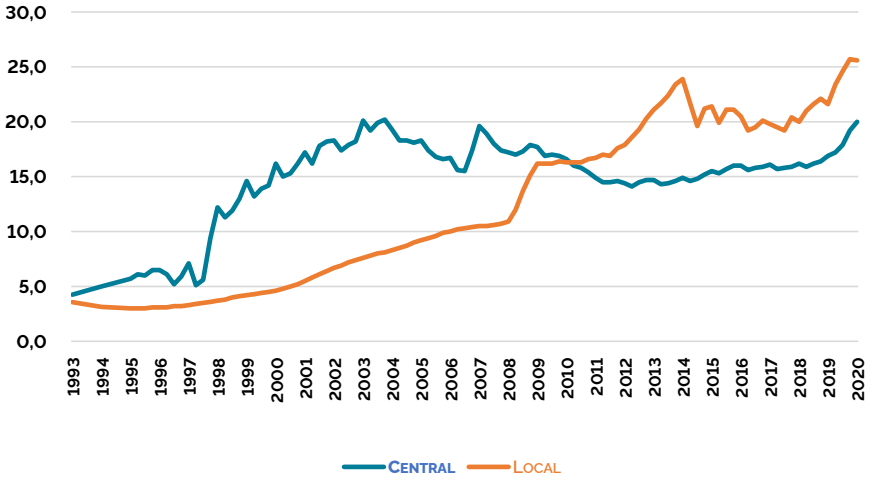
In the early stage of the pandemic, fiscal policy centred on exemption of value-added tax (VAT) and loan subsidies to pandemic control companies. The policy also allowed business to reduce or stop pension fund contributions from February to June. The NDRC lowered companies' electricity prices to support the continued operation of industry. On 17 April, the first quarter's economic data was released. The 6.8% contraction in growth raised the expectation of a large fiscal stimulus.

On 22 May at the Two Sessions meetings, Premier Li Keqiang announced a fiscal stimulus package amounting to 3.75 trillion yuan to support economic recovery. On the top of this package, the government decided to increase the general government fiscal deficit to an all-time high of 3.6% of GDP, compared to 2.8% in 2019. The package includes several stimulus measures

to boost the economy. The Finance Ministry also hopes to utilise the capital markets, which are more transparent than bank loans, to finance the real economy. These bonds are key sources for infrastructure financing, a similar measure taken following the 2008 global financial crisis. The difference is that the additional stimulus targets new infrastructure investment, such as 5G telecommunication networks, new energy vehicle (NEV) charging stations and healthcare services, rather than real estate, bridges and high-speed rail, etc. However, some economists argue that the stimulus package may not be substantial enough, because it was similar in size to the stimulus of 4 trillion yuan deployed in response to GFC in 2008, whereas the Chinese economy is now larger than it was in 2008. The size is also limited compared with the fiscal stimulus deployed in certain other countries during the same period.

There are constraints on massive stimulus. The biggest concern is debt accumulation. In the first quarter of 2020, China's overall debt-to-GDP ratio reached to 259.3%. It is a sharp increase from the last quarter – a reverse of the previous effort of deleverage. There is also a worry that massive stimulus would inflate local government debt further, which has grown very fast since the GFC (Figure 2.3). Slower growth worsened the debt ratio and reduced fiscal income. It is reported that some provinces fiscal income grew negatively, and debt stockpiles face rollover or default risk.

Fig. 2.3 – Central and local government debt-to-GDP ratio (%)



Source: Wind

On 10 November, the state-owned coal company Yongcheng Coal and Electricity Holding Group defaulted. After this default, at least 20 Chinese companies suspended plans for new debt issues, totalling 15.5 million yuan. In the past, there has been an assumption that the government would guarantee state-owned enterprises and bail out state-owned borrowers. The local SOEs, which accounted for 60% of all corporate debts, are normally under local government protection. The increasing likelihood of defaults reflects the change in risk-sharing between central government and local SOEs. Following several high-profile bond defaults, the Vice-Premier, Liu He, warned that the government would show "zero tolerance" for misconduct, at a meeting of the Financial Stability and Development Committee in November. This commitment sends a signal that the regulators are concerned about rising risk in the financial system associated with debt accumulation.

Since SOEs have rarely filed to default in the past, the new wave of bond defaults is also a test before more cases arise in the months to come.

No growth target

In May 2020, China's annual Two Sessions meetings – the 13th National People's Congress (NPC) and the third annual Chinese People's Political Consultative Conference (CPPCC) – concluded with a decision to implement more policies to support the economy. In the Work Report, the premier, Li Keqiang, announced that China would not set a GDP growth target for 2020 – the first time the government has not set a target since records began in 1990. In 2019, China set a growth target of 6-6.5%. The actual growth rate was 6.1% in the same year.

Setting an annual growth target has been regarded as a political commitment by the government for more than 2 decades. However, many economists have long argued that the tradition of setting a target would create incentives for inefficient government spending and short-sighted behaviour, while ignoring structural problems that could jeopardise long-term growth and economic development. The rationale behind this decision not to set a growth target lies in the high level of uncertainty caused by the pandemic crisis and its effects on the economy. While the government decided to take strong measures to support employment and livelihoods, and to stimulate the economy without any specific growth target, dropping the growth target does not mean that the government has no ambition for growth. In fact, the government set explicit numerical targets for other areas, which can only be met if a certain growth rate is achieved.

Steps Towards Economic Normality

China launched its 14th 5-year plan in October 2020. One of the major objectives is high-quality economic development. In

March 2021, at the Two Session meetings, Premier Li Keqiang announced a growth target of no less than 6% in his Work Report, alongside a set of objectives, including the creation of 11 million new jobs, the issuance of special-purpose local government bonds with an equivalent value of 3.65 trillion yuan, the expansion of effective investment and consumption, and continuous adoption of flexible and targeted monetary policy. To achieve a solid recovery and its long-term economic goal, China need to should carry out more structural reforms.

First, factor market reform is the key to lifting the economy's productivity. In April 2020, the government decided to restart factor market reform – a plan first set out in 2013 at the Third Plenum, but suspended in some key areas in later years. According to the reform plan, market forces will play a decisive role in pricing land, labour, capital, technology and data. Hopefully such reform will improve the efficiency of resource allocation and reduce the distortion that currently exists in the economy.

In response to concerns over the slow recovery of consumption, the government stressed the need to carry out "demand-side reform" at the Chinese Communist Party's Politburo meeting in December 2020

Second, boosting domestic demand is the core element of changes to economic structure. Domestic consumption has been a key driver for China's GDP growth since 2013. By the end of 2019, consumption contributed 57.8% to GDP, while capital formation and net exports contributed 31.2% and 11.0% respectively. Within the framework of consumption, household spending has been the major driver. This is partly because past growth has generated wealth and a subsequent increase in household disposable income in the country. Household disposable income has increased 11 times in the past 2 decades, alongside the rise of household consumption. It is also because social welfare has been improved in recent years. Higher disposable income has also coincided with a decline in the saving rate since 2010, reflecting the fact that consumers have become confident about spending in the present, instead of saving for the future.

However, this pandemic crisis reduced household income due to the rise of unemployment, while also increasing savings, in view of the high level of uncertainty. While supply-side disruption has largely eased, household consumption is expected to remain sluggish on the back of weak demand.[3] In response to concerns over the slow recovery of consumption, the government stressed the need to carry out "demand-side reform" at the Chinese Communist Party's Politburo meeting in December 2020. This decision is regarded as a measure to balance the previous "supply-side reform", and emphasises the shift away from an export- and investment-led growth model, towards a consumption-driven model, and the policy incentives for increasing household disposable income.

A new "dual circulation" strategy is set to guide the economy, in view of the changing external environment and domestic structural constraints. The term "dual circulation" was first used by the Communist Party Politburo in May 2020

Third, a new "dual circulation" strategy is set to guide the economy, in view of the changing external environment and domestic structural constraints. The term "dual circulation" was first used by the Communist Party Politburo in May 2020. It has become a core concept in the 14th 5-year plan released in October. The new 5-year plan actually sets the tone of policy for the years 2021-25. This new strategic economic formula relies on several factors. The first, defined as external circulation, is to maintain economic openness and external links with the rest of the world; the second, defined as internal circulation, is to increase reliance on domestic demand. This domestic reliance is in line with the demand-driven growth pattern which began after the GFC. In fact, the dual circulation strategy is in the same spirit as the economic rebalancing of recent years. However, the new element in this dual circulation emphasises economic self-sufficiency as a hedge against negative impacts caused by changes in the external environment. There

[3] World Bank Group, *Leaning Forward: Covid-19 and China's Reform Agenda*, July 2020.

are also concerns about how the 2 circulations interact, and whether it is possible to avoid the unwanted dual circulation scenario in which domestic reliance turns into "internalisation" and self-isolation.

Fourth, high-level economic openness is the way to keep the Chinese economy continuously integrated with the world economy. The major components of this high-level openness include: (1) Opening up the economy across a broader geographical area, e.g. by taking the free trade zone model adopted in coastal areas and rolling it over to the entire country. (2) Opening up more sectors in the economy, e.g. by continuing to open up the traditional industrial, manufacturing, technology and agricultural sectors, while also opening up certain service sectors, such as finance, science, education and medical services to foreign ownership. Moreover, direct investment will follow a 2-way path of openness, thereby inviting foreign capital into China and encouraging Chinese direct investment abroad. (3) Upgrading the openness of flows of goods and factors to the implementation of international rules and standards. For instance, China will reinforce legal protections for intellectual property rights, implement negative-list measures for foreign investments, ensure an equal, fair and legal-based investment environment, and change China's role in international cooperation from being a rule-taker to one of the rule-makers.

In fact, China is stepping up its openness against a backdrop of worldwide anti-pandemic stimulus and growing de-globalisation sentiment. Policymakers are fully aware that China's continuous economic and financial integration with the world can offset the downside effects of de-coupling. From the Chinese perspective, the country's commitment to openness may help raise expectations regarding the consistency and stability of its policy.

Last but not least, financial openness goes hand in hand with China's currency strategy, centring upon internationalisation of the renminbi. This strategy came on stage right after the GFC, when the central bank's governor, Zhou Xiaochuan,

put forward the idea of a super sovereign reserve currency and suggested a rethink of the international monetary system, dominated by a single currency. This idea was in line with the discussion on improving the existing international reserve currency system, such as by reforming the Special Drawing Rights (SDRs) of the International Monetary Fund. For the currency to become usable internationally, a set of conditions needed to be in place. One of the important conditions was capital account liberalisation. In the following years, Chinese policymakers implemented a series of policies to boost the renminbi. Currently, the currency's international use covers the functions of store of value, unit of account and medium of exchange. However, the share of the renminbi in global usage is still very limited.

The PBC's measured monetary policy certainly helps to maintain the currency's value against a backdrop of widespread ultra-easy monetary conditions. In addition, the relatively fast economic recovery helps keep the currency attractive to foreign investors. As a result, China experienced sharp capital inflows in most months of 2020, which is a double-edged sword, because it impacts on domestic financial stability. The PBC has been managing the trade-off between financial openness and stability, by using a set of macro-prudential capital flow management measurements and a flexible exchange rate as buffers to mitigate financial and macro-economic risks.

Concluding Remarks

The outbreak of the health crisis forced the Chinese government to prioritise the policy of containing the virus. Thanks to the strict measures learnt from the experience of SARS in 2002-03, China quickly halted the spread of the virus nationwide. The sharp economic downturn was a reasonable reaction to a drastic exogenous shock. The policy response to this pandemic crisis has been relatively measured compared with the stimulus package implemented after the GFC. In fact, China has

confronted multiple economic challenges since 2010, when the economy began a soft landing. Domestic rebalancing has been on the right track, but some key reforms have faced a bumpy road. The financial system has recovered from deleveraging. Domestic debt, however, has reached an unsustainable level. In dealing with this crisis, the authorities did not want to repeat the mistakes of the past and decided to take balancing action to revive the economy.

Going forward, the factor market reform tabled in April 2020 will be crucial for a restart of structural reform in the years to come. In the Two Session meetings of 2021, Premier Li Keqiang reiterated the need to deepen SOE reform by diversifying ownership. Such reform helps build up confidence and prepares the path which China will continue to follow in the future.

Another challenge for China's domestic recovery lies in external repercussions caused by highly interlinked global supply chains. China shows some signs of a production recovery, but this will be sustained only if external markets provide demand. Moreover, it is not just this pandemic that interrupts trade and investment flows. Trade tension and broader anti-globalist sentiment will reshape economic relations. Another long-term impact is the re-allocation of the Global Value Chains (GVCs). It is certainly not in China's interest to lose its position in GVCs. But the Chinese mindset that challenges are also opportunities may turn pressure into incentives. China will find ways to draw lessons, learn best practices, improve its legal system and secure fairness for competition, while also embracing a combination of continuous openness and domestic reform.

3. The Use of New Technologies During and After the Pandemic[1]

Elisa Sales

China was the first country to experience the Covid-19 pandemic, and also the first one to bring it under control, with the consequent impact on social life and economic results.

As China is several months ahead of the rest of the world both in its pandemic outbreak and recovery, close attention has been paid to how Beijing responded during the crisis and in its immediate aftermath. New technologies – such as biometrics and a global satellite navigation system tracking people, digitalisation and robotics for healthcare, drones and smart logistics for e-commerce, mobile and real-time payment, artificial intelligence – have played a relevant role in areas ranging from the measures adopted to control the spread of the virus to supporting everyday activities and economic recovery.

The effective and invasive measures adopted in a generalised, pervasive lockdown made it possible to suppress the virus. Innovative technologies complemented and supported the severe measures used to control the pandemic. These measures became part of the Chinese consolidated surveillance system, further reinforced by technology. As they are now an integral and permanent component of that system, they are not expected to be removed once the Covid-19 outbreak is fully under control.

[1] The views expressed in the document are those of the author and do not necessarily reflect the views of the Bank of Italy, nor do they involve the responsibility of the Bank of Italy.

The early and drastic reduction in the number of cases, jointly with a targeted accommodative monetary policy and a broadly supportive fiscal policy, has enabled a prompt economic recovery, faster than in other countries. China's economic and social revival after the Covid-19 outbreak has been fostered by innovation, the broad application of digitalisation and the extensive use of technology. The "Information Transmission, Software and Information Technology Services" sector registered the highest rate of growth in 2020 (+16.9%), even if it still represents a limited share of overall GDP (3.7%), based on National Bureau of Statistics Data.

Responses to the pandemic, in China as in other countries, could lead to an acceleration of improvements in people's lives, transforming challenges into opportunities. Some of these technologies, especially the more invasive ones, may also carry huge potential risks and adverse effects. In western countries with different political systems, part of them may be not applicable due to more stringent regulations on privacy, data access and confidentiality.

This chapter focuses on the role of new technologies in China during and after the Covid-19 outbreak. The analysis is structured as follows: the next section examines how China has managed the pandemic by leveraging the pervasive use of technological tools at the beginning and thereafter; the second concentrates on innovation in the health sector; the third section moves to the role of technologies in the economic recovery; the fourth focuses on e-commerce and supply chains; and the fifth on the financial sector. The last section provides a brief conclusion.

Pandemic Control

China managed to control the spread of the virus through well-targeted, strict, pervasive and effective measures, relying partly on robust, widespread enforcement.

Starting with a severe, stringent lockdown, central and local authorities have implemented a broad range of measures

to control the virus, relying on traditional tools and introducing new ones based on innovative technologies. In doing this they have followed a long-term and focused strategy, rooted in past practices and aimed at strengthening them. Targeted local restrictions have been complemented by large-scale testing. A capillary and intrusive contact-tracing model has been adopted, strengthening and leveraging instruments and procedures for social control already in place, while new ones have been introduced. China used these tools extensively, exploiting the sizeable margins granted by a privacy protection framework that is considerably lighter than in other countries.

Starting with a severe, stringent lockdown, central and local authorities have implemented a broad range of measures to control the virus, relying on traditional tools and introducing new ones based on innovative technologies

After the first phase, the number of infections fell drastically. Where sporadic localised Covid-19 outbreaks have arisen, they have been tightly monitored and actively managed, leveraging pervasive tracking models and adopting strict quarantines. The domestic strategy has been accompanied by tight control of inbound visitors, with visa restrictions, flight limitations, several tests required and centralised quarantine requirements.

Despite the number of new cases now close to zero, in most cities people still wear facemasks in public, indoors as well as outdoors. Other containment measures are still in place, with broad, invasive social control. This is especially true in Beijing, despite the very few cases of coronavirus recorded in the city (since the Covid-19 outbreak less than 1050 at the end of February 2021 out of a population of around 22 million).

The Chinese Government has adopted innovative tools to tackle the pandemic. The most widely used technologies are biometrics and mobile applications such as geolocation to track and front-line the spread of the virus. These digital technologies, through the necessary involvement of telecommunications and tech companies, can provide useful data on people's movements in near real-time.

Mobile health advice apps (Health Codes) were adopted locally during the first phase. Different apps were used in different provinces and cities, with several applications sometimes coexisting in the same area. At the beginning of 2021, the tracking apps were harmonised nationally to manage the greater movement expected for the Chinese New Year. The result is further data centralisation. In this period, hundreds of millions of Chinese workers normally go back to home villages in the world's largest annual mass migration. Unlike in the past, this time the number of people travelling was reduced drastically (by over 70%), as the Government urged and encouraged people to avoid non-essential travel. More recently, an international travel health certificate was launched. It is managed by Tencent and used an encrypted QR code. It is currently only available for Chinese citizens, allowing authorities to verify the holder's personal information. This certificate is updated with vaccine inoculation information, and nucleic acid test and serum antibody results.

The Health Code, even if not compulsory, is required to enter to all closed areas, from the underground to shopping centres, individual shops, restaurants and even residential buildings. In large cities, such as Beijing, people may be excluded from several essential services if they do not have advised apps. The implications of such requirements may be relevant for people who do not own or are not proficient with smartphones.

These apps are not part of the mobile health ecosystem, as they do not include early diagnosis and do not provide access to health services. They are merely disease prevention and social control technology, based on big data and social tracking systems. Downloaded on mobile devices, they show the places visited by the phone's owner and the risk of close contact with Covid-19 patients, thus reducing contagion risk. They are automatically updated with Covid-19 test results. This information can be used to recognise not only close contacts of individuals

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In large cities, such as Beijing, people may be excluded from several essential services if they do not have advised apps

that have tested positive, but also to identify people who have been in high/medium risk areas. Those individuals may have to be tested, isolated or quarantined. The outcome is a stringent, far-reaching limitation on people's mobility and privacy, confirming the powerful, pervasive role of the Government. The apps, through geolocation data collection, can identify the users registered from their ID card or passport, relying on the limited data and privacy protection.

Biometric technologies have been widely adopted as well[2] to track individuals and to prevent Covid-positive people from travelling. These technologies were already in place in several Chinese areas, including big cities and rural provinces. They were also combined with other innovative tools, including thermal imaging enhanced by artificial intelligence to monitor health status during the pandemic. In addition, companies in China have developed technology that could make it possible to successfully identify people even when they are wearing masks. These innovative and pervasive instruments are powerful in tracking and social control, especially if compared with the light approaches adopted by other countries due to political decisions and the indispensable protection of data and privacy.

In China, the surveillance system, based on biometrics, had already been launched as part of the "smart city" programme. Facial recognition is only a component of a real-time monitoring system, along with crowd analysis, AI technologies, closed-circuit television cameras in public area, big data, geographic information systems and the Internet of Things. The resulting surveillance system appears extensive, invasive and accurate. It has been adopted for several purposes, other than contrasting Covid-19, such as anti-terrorism, repression of criminal activities, social control and national security.[3]

In 2017, Beijing issued the "Next Generation Artificial Intelligence Development Plan" to transform China into

[2] OECD, "Policy Responses to Coronavirus (COVID-19) - Tracking and tracing COVID: Protecting privacy and data while using apps and biometrics", 23 April 2020.
[3] L. Khalil, *Digital Authoritarianism, China and Covid*, LOWI Institute, 2 November 2020.

China has been ranked first for the invasive use of biometric data, followed by Costa Rica and Iran, while the United States is ranked fourth

a world leader by innovating the industry by 2030. Following the plan, biometric data use has grown considerably, favoured by the Central Government. Further acceleration has taken place since the coronavirus outbreak, with extensive use of facial recognition and widespread installation of cameras (on buses, the underground, entrances to buildings and shops), with the official purpose being to measure temperatures and prevent the spread of the virus.

Together with the advantages indicated above, these technologies have raised some concerns internationally, given their potential impact on human rights. Several digital technologies have been analysed by the special procedures of the Human Rights Council of the United Nations relating to their impact on privacy[4] and racial discrimination.[5]

China has been ranked first for the invasive use of biometric data, based on a study covering 96 countries performed by Comparitech,[6] a UK-based technology firm. China is followed by Costa Rica and Iran, while the United States is ranked fourth. The ranking criteria include the practices underlying the collection of data as well as the rules for protecting them. The main concerns are the broad use of facial recognition technology in CCTV cameras and biometric databases – including genetic ones.[7] Moreover, the study takes into

[4] https://documents-dds-ny.un.org/doc/UNDOC/GEN/G18/239/58/PDF/G1823958.pdf?OpenElement

[5] Advance Edited Version, Distr. General, *Racial discrimination and emerging digital technologies: a human rights analysis*, Human Rights Council, Forty-fourth session, 15 June–3 July 2020, Agenda item 9, 18 June 2020

[6] P. Bischoff, *Biometric data: 96 countries ranked by how they're collecting it and what they're doing with it*, Comparitech, January 2021. The study identifies eight key areas applying to most countries. The low scores indicate extensive and invasive use of biometrics, while the highest score identifies the best restrictions and regulations. The biometric use for Covid-19 purposes leads to a deduction of one point for each related area. China scores two points out of 31.

[7] Genetic and biometric data was not included in the scope of Personal

account the lack of protections for households and employees. Comparitech reports that in some working areas, there are "emotion surveillance" technologies that monitor employees' brainwaves to assess their productivity. In addition, fingerprints are taken of everybody entering China. These technologies, extensively used by Beijing, are unlikely to be implementable in other jurisdictions, as they do not comply with stricter rules on privacy, security and personal data access aligned with international standards.

China has managed to effectively and promptly control the pandemic thanks also to the widespread use of these technologies. Having become part of the surveillance system, they are not expected to be removed once the pandemic is over.

The Health Sector

Starting with the Covid-19 outbreak, innovative approaches and services have been introduced in the health sector, hinging on technologies. Healthcare is moving forward to "digital health", leveraging new tools and traditional medical expertise to revisit models of care delivery.

Online services have seen rapid development, with a large customer base and an extensive range. The trend has been exacerbated by the shortage of medical resources, which had to mainly be concentrated on fighting the pandemic. To meet people's needs, healthcare services have increasingly been provided online, including both medical advice and delivery of medicines. The process was driven by the needs of households that were not fully met by the limited public services. Public resources for the healthcare system are limited in China, as confirmed by the most recent Double Session in March 2021. Public subsidies for basic medical insurance for rural and non-working urban residents was planned to increase by an average

Information Protection Law, recently issued in draft. The law would significantly increase penalties for companies responsible for data breaches.

In hospitals during the pandemic, robots, some of which were 5G-enabled, have replaced humans in common and easy tasks, redesigning processes and roles so as to reduce cross-infection risks

of 30 yuan per person, while those for basic public health services by 5 yuan per person.[8] The new technologies make it possible to provide some healthcare services to more people, at a lower cost and requiring fewer human resources, partially offsetting the major gaps in the Chinese system.

In hospitals during the pandemic, robots, some of which were 5G-enabled, have replaced humans in common and easy tasks, redesigning processes and roles so as to reduce cross-infection risks. Nurses and other operators had to be moved to other activities to compensate for the lack of professionals, while the healthcare system was required to work beyond its capacity in the areas of China most affected by Covid-19. Diagnostic procedures have been improved by artificial intelligence algorithms supporting, facilitating and accelerating medical analysis.

Technologies from different sectors were applied for health and anti-pandemic purposes. An example is iFlytek, a Chinese tech firm producing telephone robots. It supported a survey of millions of people about Covid-19 in a short time. Its services were used in Wuhan, questioning over 1 million people in six hours. The Republic of Korea has adopted the same solution for surveying people about public health conditions.

After the experience of the Covid-19 outbreak, private and public investment in the health sector has increased further, including in the most advanced fields. In the medical equipment area, an example is Midea Group Co. Ltd., an electric appliance manufacturer that planned to buy a controlling stake in Beijing Wandong Medical Technology Co. Ltd., a listed company producing appliances for X-rays. The company has started to cooperate with other medical players such as Guangzhou

[8] L. Keqiang, *Report on the work of the Government*, Fourth Session of the 13th National People's Congress of the People's Republic of China, 2021.

Pharmaceuticals Corp., a pharmaceutical supplier, and Yaskawa Electric Corp., a Japanese producer of pharmaceutical and biomedical robots. Midea's investments could make it a major, innovative leader in the Chinese medical equipment sector. Based on data released by the China Association for Medical Devices Industry, at the end of 2019 this sector was worth RMB 634 billion, with an annual increase of 19.6%. In 2020, the size of this sector is expected to exceed RMB 850 billion, boosted by the outbreak of Covid-19 and the need to improve health services to match surging demand.

Other companies have increased investment in this sector, including Tencent. This conglomerate is a key financial backer of several medical start-ups. It provided funding for Vision Medicals, a startup operating in Chinese precision medicine. Vision Medicals raised RMB 200 million in its series C funding round led by Tencent, its second funding round in seven months. The operation was also joined by existing investors such as CICC Capital and CDH Investments. The funds should be used for product development, medical equipment registration, clinical services support and marketing activities. Founded in 2018, Guangzhou-based Vision Medicals, which has labs in the Chinese cities of Beijing, Shanghai, Nanjing and Zhengzhou, focuses on developing genetic diagnostic technologies and precision medicines for infectious diseases. The firm has built ties with more than 800 hospitals and research institutes across China, such as the Peking Union Medical College Hospital and the Chinese Academy of Medical Sciences. In December 2019, Vision Medicals joined a taskforce for the early detection and genome analysis of the novel coronavirus. Three months later, the firm developed a nucleic acid detection kit for the virus.

The new technologies make it possible to provide some healthcare services to more people, at a lower cost and requiring fewer human resources, partially offsetting the major gaps in the Chinese system

Tencent has also invested in Miaoshou Doctor, an online platform that offers individual health consultations via video

and phone. In March 2020, WeDoctor launched an anti-epidemic online service globally, provided in five languages in 200 countries. The platform allows free access to medical consultations. It is developing in so-called internet hospitals, which have gained significant interest. Other projects lead to Alibaba Health and Ping An Doctor, or Beijing Chaoyang Hospital and Huashan Hospital of Fudan University.

An internet hospital can be defined as a platform to deliver health services, (i.e. consultation, treatment, diagnosis, prescriptions) using internet technologies. After the Covid-19 outbreak, the Central Government issued policies to favour internet hospitals addressing public health emergencies. Online medical services were incorporated into health insurance. Several Chinese hospitals began to establish their own internet-based services. They minimise contacts, reduce costs, and expand and improve service distribution, narrowing the gap between rural and urban areas. They provide prompt telemedicine relying on multidisciplinary experts, enhancing the efficiency of treatment.

After the Covid-19 emergency, they could help, even in normal times, to improve the healthcare system, partially offsetting its weaknesses. In the medium and long term, the pandemic can work as a catalyst for the development of the domestic healthcare system fostered by the adoption of technologies, even if more resources, both human and financial, are needed. The Government is committed to promoting the well-regulated growth of the Internet Plus Healthcare initiatives.[9]

Technologies and Economic Recovery

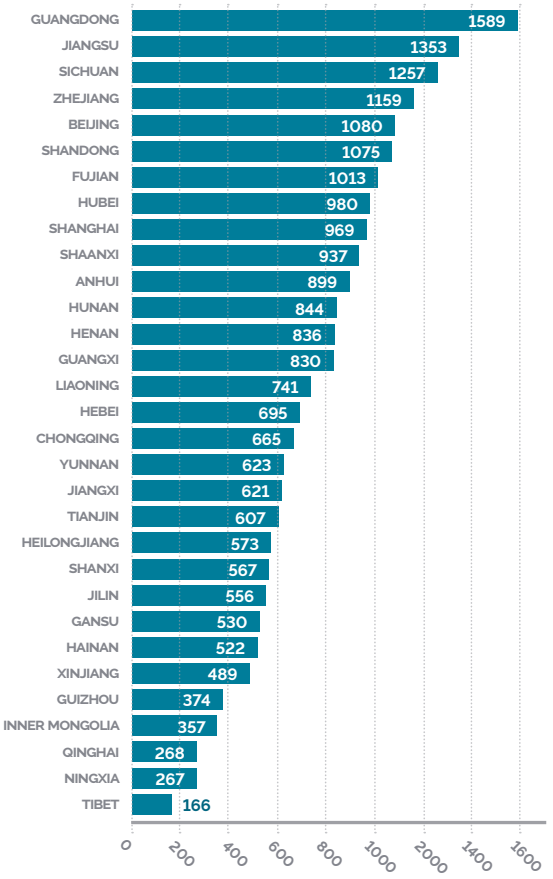
The early control of the spread of the pandemic domestically has allowed China to recover on the economic side too. This

[9] Ibid. In line with the Healthy China 2030 Blueprint (dated 2016), the State Council in 2018 launched Internet Plus Healthcare which aims to help alleviate the problem of inaccessible and expensive public health services especially in the rural area, using internet technologies.

rebound has relied partly on the adoption of technologies across all sectors, and particularly in the most innovative ones, including the digital economy. This strategy, however, has been embraced unevenly in the country, given the major structural differences among Chinese provinces.

As stressed by the World Bank (2020), innovation capacity displays strong geographic discrepancies in China. This is confirmed by the Digital Economy Index reported by Caixin (2021). The index highlights significant variance among provinces.

Fig. 3.1 - China Digital Economy Index by Province



In the most developed regions, it has reached the highest level, relying on high-tech industries, research centres other than export-oriented production, robust urbanisation and advanced education. Even though it remains concentrated in coastal provinces, a few interior ones, such as Chengdu in Sichuan, are also developing high-tech clusters and attracting both public and private investment. This trend may accelerate the shift of coastal regions towards services and innovative industries, to match the more sophisticated needs of the increasingly wealthy urban population. The pandemic is also moderately strengthening this tendency, as part of the effort to find a more balanced growth model.

China has stated its intention to pursue economic rebalancing, trying to move from an export and investment driven growth model to a domestic demand, innovation and services driven one. It is not an easy goal. A rebalancing strategy requires capturing growth potential by investing in research and development, and human capital to increase the capacity to innovate so as to become a global leader in the sector in the medium term.

Infrastructure, especially innovative infrastructure, will play a key role in the recovery of the Chinese economy after the Covid-19 outbreak

Infrastructure, especially innovative infrastructure, will play a key role in the recovery of the Chinese economy after the Covid-19 outbreak. The Government has given robust, broad-based support to new technologies such as internet-based artificial intelligence, data centres, big data, clouding, the Internet of Things and 5G networks. The unusual situation that has arisen inside and outside China has favoured the application of technology in several sectors, from home-working and e-learning to e-commerce and entertainment, leading to a new, wide-ranging digital ecosystem.

Innovative infrastructure that was unthinkable only one year earlier has become part of everyday life, helping the smooth and effective functioning of the overall economy now and in the future. Such infrastructure has fostered trade resilience, reduced

the impact of the pandemic and supported the effectiveness of anti-Covid measures.

The pandemic has led corporates and consumers to adopt digital solutions more than in the past. The most reluctant ones have been forced by lockdown to approach new technologies for the first time, while others have enlarged the scope and frequency of the digital services they use.

The spread of Covid-19 has forced a halt to travel, so several events have been held virtually. Daily work meetings, lessons, large congresses and exhibitions have adopted online platforms and websites. The result has been faster development of smart technology. China has introduced new solutions for online communication, some of which are now being used worldwide. Tencent has been one of the main Chinese tech providers.

Following the pandemic, in China all industries have a digital process in progress, albeit with different degrees of involvement and impact. Digitalisation has entered and become widespread in many industries. In the past, the Government invested heavily to develop domestic technology and a digital sector, with long-term industrial policies, among others Made in China 2025. This approach has been confirmed in the policy adopted to foster the economy's recovery from the pandemic, i.e. the so-called "dual circulation strategy".

The digital sector has developed quickly and to an impressive extent. In China it is very concentrated, anchored to the Big Techs, whose use and influence is both domestic and global. Despite the flourishing of start-ups, the pandemic has strengthened the position of the Big Techs, pushing the Government to take a stronger stand to control them, such as the definition of a new anti-monopoly framework.

Following the sharp and uncontrolled development of the country's platform economy,[10] China's State Council has

[10] The Guidelines (art. 2) define platforms as "Internet platform, which means the form of business organization enabling interdependent bilateral or multilateral entities to interact under the rules provided by particular carriers through network information technologies, so as to jointly create value".

embarked on a new campaign to limit the powerful positions of the Big Tech players. The "Anti-monopoly Guidelines of the Anti-monopoly Commission of the State Council on Platform Economy" were issued on 7 February 2021. The guidelines are intended to ensure fair market competition, in order to promote the "healthy development" of the sector, reaffirming the Government's role. The regulations define the factors for determining or presuming the existence of a dominant market position: not only market share but also control over the market, its accessibility and competitive conditions, including the technical and financial position.

China has favoured the application of technology in several sectors, from home-working and e-learning to e-commerce and entertainment, leading to a new, wide-ranging digital ecosystem

Beijing relied heavily on the Big Techs to fight the Covid outbreak and to support the economic recovery through their expertise, products, and data. In truth, these players can be required by law to cooperate for national security and intelligence purposes.[11] Enforcement can be particularly effective in the Chinese market, characterised by the pervasive role of the State. Beijing originally left ample room for the development of the Big Techs, which have expanded substantially, aided by light regulation. Chinese authorities have recently stepped in to strengthen their control over these giants.

E-Commerce and Supply Chains

During the recent crisis, e-commerce services, which were already widely used in China, developed further, adapting to new and booming needs. They have managed to boost revenues by diversifying what they already offered – from cooked meals to fresh and healthy food to prepare at home – as well as introducing other goods – from cosmetics to books and electronics. They have benefited from consolidated logistics and

[11] L. Khalil (2020).

scale effects. They have been introducing safer business models such as contactless delivery. New vendors were forced to join online platforms, from retail shops to restaurants, to ensure the viability of their business when no customers were entering during lockdown.

The growing number and greater diversity of requests have fostered innovation. This was the case for the use of drones to ensure last-mile delivery. Online sales platforms are being promoted to redesign merchants' internal processes, structures and organisations. Back-office operations have to be digitalised. Systems are introduced to collect orders in real-time, to ensure accurate and instant inventory updating, to systematise business planning – all leading to innovation and greater efficiency. These changes have usually relied on third-party service providers, who can propose additional advanced and effective facilities. They optimise business models through digitalisation to serve customers more efficiently and to increase competitiveness.

The outbreak has hastened the move of offline retail stores to online commerce to reduce the impact of people's isolation and to avoid the shut-down of activities. The anti-Covid measures have shattered retail shops, which recorded extraordinary sales drops, sometimes resulting in the decision to close a business. Several vendors have withstood the crisis by innovating their business models, adopting new strategies, procedures and technologies. The crisis has been a catalyst for change and updating in the retail sector. They have remained linked to their shoppers and reached new ones, offering updated services and adapting to emerging consumer habits.[12] The approach has moved forward to minimise contacts in every step of the shopping process, from selection, to payment and delivery. Online shopping has continued to increase after lockdown, leading to new advertising strategies. This is the case of the livestreaming adopted in the 11.11 event, reaching record

[12] N. Baird, Retail Lessons From China: Innovation, Resilience And Recovery, *The Retail Touchpoints Network*, 25 August 2020.

revenues of RMB 498.2 billion (about US$75.4 billion) compared to RMB 268.4 billion (about US$38.4 billion) in 2019 (+85%). Along with such benefits, e-commerce has led to sector concentration, reducing the share of small vendors and their profit margins. The result has been a major redefinition of China's retail markets, but not necessarily strengthening them.

Livestreaming in China has seen a huge increase in sales activity thanks to social media. WeChat has offered an e-commerce platform to connect retailers with customers, through new affiliates and staff adopting a sales commission approach and running livestreaming incentives. New features have been developed in line with basic marketing strategies by several players, including TikTok. This app, owned by ByteDance, a Chinese company, has focused on video sharing. TikTok's audience is mainly young people, largely not using Facebook (40%) or Twitter (63%).[13] The platform has recorded great success, fostered by the pandemic lockdown. The plan for 2021 sets out aggressive expansion into e-commerce in the US. TikTok is thus starting to cooperate with e-commerce platforms, blurring the line between its selling goals and its specific content. The 2021 plan could represent the first step forward to transform itself into an e-commerce player, based on the experience gained in 2020. In line with this possibility, in China ByteDance is establishing another business line to offer electronic payment services. This project could benefit from the anti-monopoly regulation for the highly concentrated payment sector, recently issued in draft form for comments by the Central Bank.

Chinese people were already used to shopping for all kinds of goods using their mobile phones. People now prefer to buy online, or at least to check on the web for product availability in the store before visiting it. Real-time in-store inventory and prompt refilling has become a critical activity for all shops.

[13] H. Murphy, "TikTok takes on Facebook with US ecommerce push", *Financial Times*, 2021.

The Covid-19 outbreak has highlighted the relevant role of the supply chain at the domestic and global levels. A consolidated supply chain ensures reliable and fast delivery of products to households, guaranteeing full compliance with lockdown measures, supporting retail consumption and accelerating production recovery. Smart supply chains and smart logistics have been strengthened, as the related quality and efficiency can have a relevant impact on the business viability and sustainability of many industries.

The quality of a company's supply chain is increasingly important around the world. It is now recognised as a cornerstone of collaboration among countries, sectors and industries, as a core factor for the development of both services and manufacturing, and as essential for economic growth. Smart supply chains can improve logistic efficiency, thus reducing costs and supporting the economy and social development. At the same time, it requires faster origination and the setting-up of innovative infrastructure.

Innovative infrastructure can also increase consumption, introducing new products and services, and improving their delivery and accessibility. Smart logistics and supply chains, as well as innovative infrastructure, are critical to achieve the kind of high quality economic growth that remains one of the Chinese Government's priorities.

New Technologies in the Financial Sector

With the Covid-19 outbreak, digital solutions have taken centre stage in lives and livelihoods everywhere, including financial services. Central and local governments, as well as national authorities, have supported the digital development and distribution of financial services both directly and indirectly. This was also the case for electronic payments.

Central and local governments, as well as national authorities, have supported the digital development and distribution of financial services both directly and indirectly

China has a well-built and widely distributed mobile payment system that was helpful during the crisis. In the first phase, using cash was one of the ways the virus could spread. The Central Bank adopted measures to sanitise and disinfect banknotes and coins based on the riskiness of the area of origin. The use of cash was discouraged, while electronic payments supported online shopping, especially in the most developed areas, leveraging the potential of smartphones, the consolidated communications infrastructure and the overall digital technology. Mobile payments expanded further in terms of volumes and transactions, based on Central Bank data.

Fig. 3.2a – Volumes of Mobile Payments

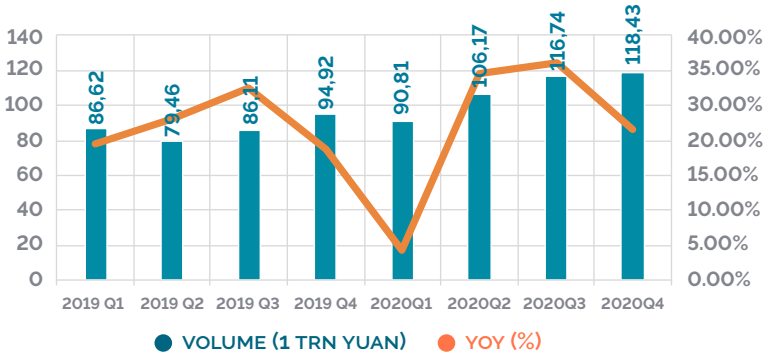
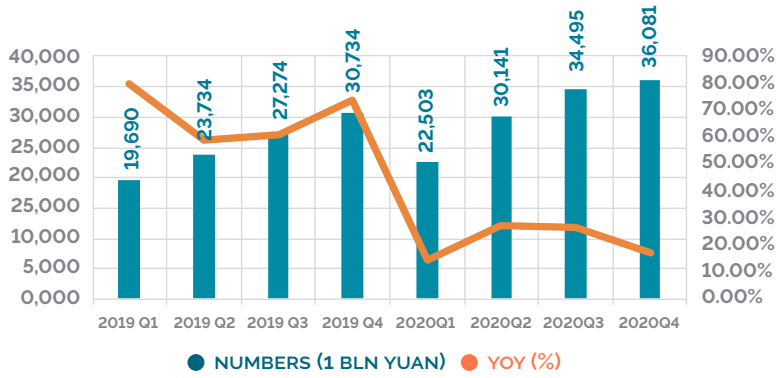


Fig. 3.2b – Transactions of Mobile Payments



The gaps in the most remote and poorest areas pushed towards an acceleration of the project, launched in 2014, for a digital currency issued by the Central Bank, the so-called ECNY. Based on People's Bank of China (PBOC) statements, one of the goals of the project is fostering financial inclusion, particularly relevant for micro and small corporates as well as weaker households. The aim is to release a Central Bank Digital Currency, guaranteeing its status as legal tender and allowing people with no bank deposits/accounts to use digital payments.

Based on publicly available information, China's Central Bank Digital Currency will be established based on a two-tier system, without using block-chains and with the possibility of offline access. The first tier would rely on the PBOC managing the back-up infrastructure, issuing the ECNY and centralising information on e-wallets and transactions. The second tier would be composed of selected, licenced banks that would be in charge of the distribution of the ECNY, exploiting their broad presence, large size and existing infrastructure. They will cooperate with third parties in the payment system. Pilot tests have been launched in five cities. Another session is planned for the Beijing Winter Olympics in 2022. Further pilot programmes will start soon. They involve local authorities, state-owned banks and technology firms in several sectors (e-commerce, food delivery, bike and ride sharing, public mobility), to assess, develop and fine-tune the system.

The ECNY will centralise the control and management of electronic payments, strengthening the role of the State in the digital sector and in data collection of transactions performed by individuals. The data can enhance monetary policy and anti-money laundering, as well as allow the authorities to screen for illegal activities. The PBOC has stated that a "controllable anonymity" will be adopted to balance the legal goals with privacy compliance. The huge amount of near real-time data on transactions performed through electronic payments may be potentially used for a wider range of purposes, raising some data

access and confidentiality concerns, as highlighted by national and international authorities.

The ECNY will centralise the control and management of electronic payments, strengthening the role of the State in the digital sector and in data collection of transactions performed by individuals

Given its advanced position in issuing a Central Bank Digital Currency, Beijing may export its standard-setting and system abroad, especially in the regions where China has more influence and stronger trade and investment relations. The ECNY may become part of China's geopolitical strategy and may accelerate the renminbi's internationalisation, at least on a regional scale.

In China's economic recovery a key role has been played by small and micro companies, which suffered most from the restriction measures. To guarantee their viability and sustainability, adequate financial flows had to be provided. Financial inclusion for smaller corporates is a global policy-makers' concern.[14] Apart from the policies adopted to facilitate access to bank loans, the Big Techs – acting in the financial sector – have helped to tackle the challenges for private companies with structural difficulties to access traditional credit. Covid-19 has only amplified those troubles, in a financial system where risk-averse state-owned banks tend to focus on big corporate clients, while failing to meet demand for consumer and small corporate loans.

This is the case of the Ant Group, which introduced a partnership with traditional banks to strengthen the online micro loans issued to households and small and micro corporates. Most of the beneficiaries were clients with no previous bank financing history. The business model leveraged mobile devices to provide access, digital technologies, big data and artificial intelligence for loans issuance and credit risk assessment, achieving huge economies of scale.

[14] A. Abdulsaleh and A. Worthington, "Small and Medium-Sized Enterprises Financing: A Review of Literature", *International Journal of Business and Management*, vol. 8, no. 4, 2013.

At the end of June 2020, the Ant lending business reached over 500 million users, with an outstanding volume of loans of RMB 2,200 billion (US$340 billion). Given the expected shrinking of Ant's activities after its planned IPO was suspended in the autumn and the issuing of a new micro-loans regulation, other online lending platforms may well emerge. However, they may not necessarily lead to greater competition and better solutions for consumers, given the high fixed costs of setting up the required infrastructure, technologies and procedures, as well as their limited capability to price risks. These risks seem to have led the Central Bank to prefer a prudent approach, implying that Beijing will not rely on micro and online lending to increase consumer credit and loans to small corporates. Banks still need to provide more support to smaller enterprises. Thus, some relevant weaknesses are likely to remain, despite an impressive and rapid economic recovery. Sophisticated systems to assess and manage risk are even more relevant in the post-pandemic context, given the increased probability of default in both the consumer and corporate sectors.

Fintech and overall financial digitalisation could facilitate the recovery, ensuring a larger portion of the population has access to financial services. As also shown by experience in Western countries, investment in financial education may be the best way to protect investors and consumers. The People's Bank of China has invested a lot in financial education and financial inclusion in the past. The combination of emerging innovative business models, on one side, and persistent difficulties in financial accessibility on the other side will mean it has to continue with this and even increase this commitment.

Fintech and overall financial digitalisation could facilitate the recovery, ensuring a larger portion of the population has access to financial services

Conclusion

The outbreak of the pandemic has highlighted that a key driver for the development and application of technologies is the rapidly-evolving needs of consumers, which can stimulate the introduction of new and customer-oriented services. In order to achieve this goal, in China as well as in other countries, it is still essential to reduce the digital gap and to overcome the lack of broadband connectivity in rural and peripheral areas in order to guarantee broader access to online services. The Chinese Government is expected to continue to invest in digital infrastructure, as well as in research and development into the new technologies they require.

In the meantime, governance, management, standards and regulations, including in the area of competition, should be updated and adapted to the emergence of innovative services and new business models at global level. It is essential to open up dialogue with industries. The emerging risks connected to new technologies, from data security and privacy to cybersecurity, may severely affect consumers, investors and corporates. Other and new concerns may arise in the most innovative sectors. In all countries, it is key to prevent and prohibit monopolistic conduct, to protect fair competition in the related markets, to safeguard the interests of consumers and to promote innovative but sound developments in the use of technologies.

Emerging technologies are challenging privacy standards as well as other human rights, although the emphasis put on these issues differs across countries according to the different legal and political frameworks. Governments have a responsibility to address these challenges, adapting laws, safeguards and oversight, to reassure citizens about the protection of their right to privacy as well as other human rights in the digital age. In countries with more protective legal frameworks, this will put stringent limits on the scope for implementing some of the more intrusive technologies.

The Chinese Government has stated its readiness to adapt the legal framework to face the challenges due to new technologies and Big Techs. Several new laws have recently been issued, from anti-monopoly to data protection. Strong enforcement actions have been taken. However, it will only be possible to assess the effects and the adequacy of these measures, as well as the extent to which they move closer to international standards, in the medium to long term.

4. Covid-19: A Resilience Test for China's Political System

Giulia Sciorati

Despite the numerous health, economic and governance challenges the pandemic has posed for China in the last seventeen months, the crisis actually struck at a rather fortuitous time for the country's governing élite. Since Xi Jinping was nominated Secretary-General of the Communist Party of China (CCP) in November 2012 and rose to the Presidency four months later, his policy choices have consolidated Communist rule over the country. When the pandemic began in December 2019, the governing élite was therefore enjoying high levels of support from the people and party members.

Nonetheless, as Adam Ni and Yun Jiang argued while discussing the impact of Covid-19 on China's political system (2021), "when things go right in a dictatorship, the credit goes to the leader. But when things go wrong, the blame can also rise to the top".[1] The pandemic certainly had the potential to bring the leadership's legitimacy to rule into question, especially because China, as an authoritarian regime, is structurally less able to confront major crises effectively.[2] Although the country is distinguished from other authoritarian regimes by the famed

[1] "Why the coronavirus has become a major test for the leadership of Xi Jinping and the Communist Party", *The Conversation*, 4 February 2020.

[2] A.J. Nathan, "China's Changing of the Guard: Authoritarian Resilience", *Journal of Democracy*, vol. 14, no. 1, January 2003.

resilience of its authoritarianism,[3] Xi's policy choices also ensured that the CCP would eventually be strengthened by the health crisis. This outcome will be echoed in the upcoming CCP centenary in July 2021, in which the leadership presents the narrative behind the country's policymaking in the "new era".[4]

Under the current presidency, the "social contract" between the people and the party has become even more crucial, as spaces for political activism have been drastically reduced

Under the current presidency, the "social contract" between the people and the party has become even more crucial, as spaces for political activism have been drastically reduced.[5] As Chenjiang Li contended (2020), the social contract in China, requires that people "trade rights for fast economic development".[6] When the CCP came to power, economic development thus became a key component of state-society relations, counterbalancing mounting restrictions on individual freedoms. In particular, after the 19th National People's Congress (NPC) in October 2017, the economic objective of the country's social contract became even more pressing, and the NPC's closing statement hinted at a new centrality for the CCP, arguing that "party, government, military, civilian and academic; east, west, south, north, and centre – the party leads everything" (2017).[7] This short claim was particularly striking, as it immediately forged a connection to the end of the "Cultural Revolution" (1966-76) – China's decade-long socio-political purge – when Mao chose the same words to convey a similar message.[8] Despite the party's

[3] Ibid.

[4] *MERICS China Forecast 2020*, MERICS.

[5] On authoritarianism in Xi's China, see *V-DEM Annual Reports*, from the edition 2017 to 2021.

[6] J. Li, "Chinese people are using 'Les Misérables' and 'Chernobyl' to mourn coronavirus whistleblower", *QUARTZ*, 7 February 2020.

[7] In Chinese, "党政军民学，东西南北中 - 党是领导一切的" (*Dǎng zhèng jūnmín xué, dōngxī nánběi zhōng, dǎng shì lǐngdǎo yīqiè de*).

[8] S.L. Shirk, "China in Xi's 'New Era': The Return to Personalistic Rule", *Journal of Democracy*, vol. 29, no. 2, April 2018.

newfound centrality, China's rapid development shielded the country from contestation: under the current presidency, for instance, China's purchasing power has grown considerably, contributing to stronger relations between state and society.[9]

Since 2017, Xi has also managed to strengthen his position in the party and the government. As many scholars have noted, the 19th NPC in particular proved a critical moment for China's political system.[10] Firstly, the Congress proposed to abolish the two-term limit of the presidential mandate established during the Dengist era (1978-97); secondly, Xi was "name-added" to the party Constitution alongside Mao and Deng – an honour that his immediate predecessors (Jiang and Hu) had been denied.[11] These changes hint at Xi's complete dominance of party and government structures. By abolishing the two-term limit of the presidential mandate, Xi has scaled down the political reforms by means of which Deng attempted to institutionalise power transitions after Mao's rule.[12] Still, it was Deng himself who first weakened these reforms when he gave Jiang control of the three main power positions in the country. After the 1989 Tiananmen protests, Deng nominated Jiang as his successor to the Chairmanship of the Military Commission as well as Secretary-General and President of the People's Republic of China.[13] Xi therefore managed to consolidate a thirty-year-old counter-reform process in his favour. Moreover, by having his name and political thought added to the CCP Constitution, Xi has also risen to the top of the Communist hierarchy, sitting alongside Mao and Deng.

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[9] "China", *Human Development Report*.

[10] Among others, *China's 19th Party Congress*, Brookings, November 2017.

[11] Xinhua, "Full text of resolution on amendment to CPC Constitution", *Xinhuanet*, 24 October 2017.

[12] T. Mitchell and C. Clover, "China poised to end two-term limit on presidency", *Financial Times*, 25 February 2018.

[13] "Debunking three myths about the end of presidential term limits in China", *MERICS*, 6 April 2018.

Since coming to power, Xi has successfully launched an under-the-radar process to reform party ranks, inverting the trend that had been consolidated under his predecessors and that had populated the CCP's highest offices with technocrats

Since coming to power, Xi has successfully launched an under-the-radar process to reform party ranks, inverting the trend that had been consolidated under his predecessors and that had populated the CCP's highest offices with technocrats. This trend was particularly evident under Jiang's second and Hu's first mandates, when the majority of seats in the Politburo Standing Committees (PBSCs) – China's highest decision-making authority – were occupied by party members holding a degree in engineering or the hard sciences.[14] Under Xi, in contrast, the PBSCs have been formed mainly by doctrine theoreticians, intellectuals and members of the CCP aristocracy with strong backgrounds in Marxist studies.[15] As a case in point, Xi himself obtained a doctorate in law and Marxist ideology from Tsinghua University in 2002.[16] As famously reported, when replying to a question on China's future back in 2018, Xi stated that his priorities were "the 86.68 million members of the Communist party" (Xi as cited in Zoellick 2019).[17] Having experts replaced by "reds" made it easier for Xi to centralise decision-making even further: above all, he managed to expand significantly the number of "Leading Small Groups" (LSGs) in the party, appointing himself to the chairmanship of the LSGs overseeing sensitive issues like economic reform or innovation, foreign affairs, security and technology.[18]

[14] See the "China Vitae" database, available at https://www.chinavitae.com/

[15] "Immortals Beget China Capitalism From Citic to Godfather of Golf", *Bloomberg News*, 26 December 2012.

[16] "To make sense of modern China, you simply can't ignore Marxism", *The Conversation*, 28 November 2014.

[17] R.B. Zoellick, *Can America and China Be Stakeholders?*, Carnegie Endowment for International Peace, 4 December 2019.

[18] J. Pomfret, "Opinion: For Xi Jinping, better 'red' than 'expert.' But the coronavirus is challenging that", *The Washington Post*, 29 January 2020.

When the pandemic began to spread around the country, therefore, Xi had on his side a firm grasp over the government, the people and the party. Nonetheless, as reiterated by the traditional warning of losing the "mandate of heaven",[19] Xi was naturally set to bear responsibility for disasters as well as claiming glory for successes.[20] The following sections, therefore, detail the challenges posed by the pandemic to China's political stability. The responses initiated by the leadership to face these challenges and avoid a government crisis are also presented. The chapter concludes by highlighting the centrality of the country's "pragmatic performance legitimacy" in handling the pandemic.

Pandemic-Related Challenges to China's Political Stability

Like anywhere else in the world, the pandemic presented China with several governance issues. Among the most pressing for the country's political system were those challenges that risked undermining political stability, articulated along three lines – systemic, societal and party-related. Taken together, they paint a composite picture of the complexities surrounding the leadership's struggle against the crisis.

When the health crisis started to ease around China in April 2020,[21] the leadership realised that the country's social contract was at risk. The pandemic had affected the international economic system and was threatening to tip national economies around the world into recession. The slowdown in China's growth, however, also risked undermining the CCP's legitimacy to rule. Due to the trade war with the United States,

[19] See Dingxin Zhao, "The Mandate of Heaven and Performance Legitimation in Historical and Contemporary China", *American Behavioral Scientist*, vol. 53, no. 3, November 2009.

[20] "Why the coronavirus has become a major test for the leadership of Xi Jinping and the Communist Party"..., cit.

[21] "Xinhua Headlines: Wuhan reopens after 76-day life-and-death battle against novel coronavirus", *Xinhuanet*, 8 April 2020.

in 2019 the country had already registered annual GDP growth under the customary value of six per cent, and the pandemic was threatening to reduce that figure even further.[22] The economic crisis therefore had the potential to make China fall into what the World Bank termed the "middle-income trap", i.e. a situation in which a country with economic advantages achieves a certain income level but fails to grow further. In light of the pandemic's export restrictions and China's export-based economy, the country was headed down a path that risked damaging its competitive edge.[23]

Secondly, the leadership was also struggling to address issues of political trust. Chinese people had started to voice concerns about the governing authorities' prior knowledge of the epidemic outbreak in Wuhan, as well as suspicions concerning their decision not to inform the population promptly.[24] Furthermore, Chinese civil society also expected a cover-up similar to those witnessed during previous national crises like the 2002-03 Severe Acute Respiratory Syndrome (SARS) and the 2008 Wenchuan earthquake and melamine-laced milk powder scandal.[25] The leadership was thus facing one of its lowest moments in terms of public trust in the government's ability to lead the country out of the health crisis. The famous Caixin report of 29 February 2020 is a prime example of how difficult it was for the governing élite to maintain positive relations with civil society at the early stages of the pandemic.[26] Caixin, one of the few national media outlets that conduct

[22] "GDP growth (annual %) – China", The World Bank, Data.

[23] G. Larson, N. Loayza, and M. Woolcock, *The Middle-Income Trap: Myth or Reality?*, Research & Policy Briefs. From the World Bank Malaysia Hub, Development Research, The World Bank, 1 March 2016.

[24] J. Belluz, "China hid the severity of its coronavirus outbreak and muzzled whistleblowers - because it can", *Vox*, 10 February 2020.

[25] See, among others, L. Ye and A. Pang, "Examining the Chinese Approach to Crisis Management: Cover-Ups, Saving Face, and Taking the 'Upper Level Line'", *Journal of Marketing Channels*, vol 18, no. 4, 2011.

[26] Gao Yu et al., "In Depth: How Early Signs of a SARS-Like Virus Were Spotted, Spread, and Throttled", *Caixin*, 29 February 2020.

investigative journalism, published a report that was extremely critical of the government's measures against the pandemic. The tone of the article hinted at growing discontent around the country, aggravated by the death on 9 February of doctor Li Wenliang, the first to denounce the epidemic openly.[27] The fact that the report managed to avoid the country's censors indicates that the leaders agreed to release the article in order to relieve some of the tension that had been mounting nationwide before it damaged state-society relations even further.

The famous Caixin report of 29 February 2020 is a prime example of how difficult it was for the governing élite to maintain positive relations with civil society at the early stages of the pandemic

Lastly, party-related challenges were undoubtedly among the most threatening for the country's leadership. The postponement of the NPC from March to late May 2020, for example, hinted at Xi's lack of control over key annual state meetings, although infection-related issues were presented as the main justification. After all, the NPC was set to gather about 5,000 attendees in the "Great Hall of the People", which represented an especially severe health hazard in the face of human-to-human-transmissible viruses like Covid-19. Nonetheless, choosing to delay the NPC instead of attempting to hold it through different channels (e.g. digitally) was interpreted by many observers as the sign of a looming political crisis.[28] The structure of the "Central LSG for Work to Counter the New Coronavirus Infection Pneumonia Epidemic" argues for this explanation.[29] Announced on 26 January 2020, the Group made the news because Xi was notably absent. Premier Li Keqiang was placed in charge of it and made

[27] "Li Wenliang: Coronavirus death of Wuhan doctor sparks anger", *BBC News*, 7 February 2020.

[28] "China may delay annual meeting of parliament due to virus outbreak: sources", *Reuters*, 6 February 2020.

[29] J. Dotson, *The CCP's New Leading Small Group for Countering the Coronavirus Epidemic - and the Mysterious Absence of Xi Jinping*, The Jamestown Foundation, 5 February 2020.

several trips to the city of Wuhan, the epicentre of the national epidemic and still on the frontline of Xi's "people's war" against the virus.[30] Conversely, Xi seldom appeared in public at the beginning of the health crisis, only making short visits to medical centres in Beijing on 10 February 2020 and in Wuhan a month later.[31] This division of labour reflects Xi and Li's roles as the leaders of opposite factions inside the CCP – red and elitist, the former; expert and reformer, the latter. Returning power to the experts to confront the national epidemic also signalled that Xi had lost control over the handling of the emergency – at least partially.[32] Moreover, Xi's reluctance to groom a successor particularly worried party members about China's future after the pandemic. The vulnerabilities that the leadership had shown in controlling the emergency raised questions over Xi's ability to reach the short and medium-term goals that had justified concentrations of power during his mandates. Above all, Xi's objective of "national rejuvenation", i.e. a "Chinese century of power and affluence",[33] was especially endangered by the crisis.

Despite the "three-layered" challenges that the pandemic posed to the stability of China's political system, spanning relations between state and civil society and going as far as touching upon the core, underpinning principle of trading individual rights for economic development, and potentially damaging intra-party consensus by weakening Xi's control over crisis management strategies, the highest ranks of the party proved able to adopt policies that eventually solved these challenges effectively, restoring and strengthening the country's pre-pandemic domestic power relations.

Returning power to the experts to confront the national epidemic also signalled that Xi had lost control over the handling of the emergency – at least partially

[30] In Chinese, 人民战争 (*Rénmín zhànzhēng*).

[31] J. Cheng and E. Mendell, "President Xi Inspects Coronavirus Hospital in Beijing After Conspicuous Absence", *The Wall Street Journal*, 10 February 2020.

[32] J. Pomfret (2020).

[33] R. Callick, "How vulnerable is Xi Jinping over coronavirus? In today's China, there are few to hold him to account", *The Conversation*, 19 February 2020.

Strengthening the "Mandate of Heaven"

In China's imperial age, the Zhou dynasty (1046-256 BCE) coined the "mandate of heaven" concept to legitimise their rule over the territories that constituted China at the time.[34] Simply put, the mandate of heaven was a litmus test for emperors and kings and aimed at measuring the rulers' worthiness to govern. Nature would convey messages (mainly natural disasters) to strip the unworthy rulers of support.[35] Conventional wisdom held that the rulers that lost Nature's support would then face uprisings and eventually lose power. The concept was coined to increase the legitimacy of new élites to rule over the country, especially when power was obtained through coups and military campaigns or, more generally, when power transmission deviated from tradition. The mandate of heaven was eventually absorbed by Confucianism, the philosophical and political doctrine that today still lies at the core of China's political system.[36]

In contemporary China, association of the country's Communist leadership with the mandate of heaven began to gain importance during the Hong Kong democracy protests in 2019.[37] The pandemic later strengthened this link, and the crisis was seen as a shock to China's political system that potentially risked eliciting a change in national leadership.[38] Still, that proved not to be the case, as the CCP's response to the crisis proved so effective that the mandate of heaven not only remained intact but ended up stronger than ever. The mixture of policies and narratives that were adopted proved key to China's success.

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[34] In Chinese, 天命 (*Tianming*).

[35] In this chapter, 天 (*Tian*) is translated as "Nature" instead of the literal meaning of "Sky".

[36] "The Confucian Way 14: The Mandate of Heaven and Confucius", *The Confucian Weekly Bulletin*, 9 July 2020.

[37] A. Amighini (Ed.), *Between Politics and Finance: Hong Kong's "Infinity War"?*, Milan, ISPI-Ledizioni, May 2020.

[38] F. Stevens, "Is the CCP losing its 'Mandate of Heaven'?", *EastAsiaForum*, 28 August 2020.

On the policy side, the leadership first attempted to deflect blame for the initial mishandling of the pandemic on to local officials in Wuhan. The Caixin report mentioned in the previous section is a case in point. The report was extremely critical of provincial and city cadres, arguing that the delays in informing central authorities of the outbreak had been the main reason behind the virus spreading around the country. Local authority figures were subsequently removed from their positions.[39] Choosing to hold local cadres responsible for crises, though, is nothing new in the history of China's Communist Party, but a striking reminder of the Maoist era. When the Great Leap Forward, Mao's economic and social plan (1958-62), failed and led China into one of the worst famines in the country's history, responsibility was assigned to thousands of local cadres that were eventually accused of dereliction of duty and punished by law.[40]

In the early phase of the health crisis, whistle-blowers were likewise admonished. The case of Doctor Li Wenliang is a prime example of the leadership's stance towards informants. Li had unwittingly been the first to raise public awareness of the Covid-19 virus. At the end of December, Wuhan's "Centre for Disease Control" circulated a report to local hospitals, including the "Central Wuhan Hospital" where Li worked. The report presented the case of a patient whom medical authorities suspected of having fallen ill with SARS. Li circulated this information among personal acquaintances and news of a potential SARS outbreak in Wuhan quickly spread on social media.[41] The police identified Li as the primary source of the information and the doctor was formally admonished for "making false comments on the Internet about an unconfirmed

[39] S. Lee Myers, "China Ousts 2 Party Officials Amid Outrage About Coronavirus Response", *The New York Times*, 13 February 2020.

[40] F. Wemheuer, "Dealing with Responsibility for the Great Leap Famine in the People's Republic of China", *The China Quarterly*, no. 201, March 2010.

[41] "He Warned of Coronavirus. Here's What He Told Us Before He Died", *The New York Times*, 7 February 2020.

SARS outbreak".[42] After Li died of Covid-19 in early February, an official inquiry revoked the admonishment and the doctor's reputation was salvaged.[43]

Li's story explains the way the CCP changed its approach towards whistle-blowers during the acute phase of the national epidemic. While unofficial information was suppressed at the beginning of the health crisis, once local authorities were identified as being chiefly responsible for mishandling it, whistle-blowers like Li were reinstated. The doctor's family even received an apology from the CCP, as Li's death had provoked harsh opposition on social media.[44]

The measures adopted to pressurise whistle-blowers into silence therefore changed and merged with the narrative authorities constructed around the work of frontline officials and health personnel. Aiming to restore public trust, the authorities juxtaposed the constructs of "heroes" (e.g. public servants) and "villains" (e.g. the virus itself and/or foreign countries that closed borders to China). Italy, for instance, was the first country to limit direct flights from/to China and was therefore heavily criticised in China's media outlets.[45] After Italy turned into the epicentre of Europe's epidemic outbreak, though, China's narrative shifted, emphasising the "brotherhood" that characterised relations between the two countries in the past.[46] By adopting the heroes/villains juxtaposition, Chinese authorities eventually managed to deflect the accusations of civil society by presenting alternative "scapegoats".

A similar approach was chosen by Xi to protect his position in the party and state. When he decided to place Premier Li

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[42] https://web.archive.org/web/20200131074029/http://china.caixin.com/2020-01-31/101509761.html

[43] "He Warned of Coronavirus. Here's What He Told Us Before He Died"…, cit.

[44] Ibid.

[45] Xinhua, "Italy agrees to resume some flights with China", *Xinhuanet*, 7 February 2020.

[46] Xinhua, "Spotlight: Italy, China stand together in joint fight against COVID-19", *Xinhuanet*, 27 May 2020.

Keqiang at the lead of the LSG, Xi conferred power on an "expert" on the one hand but on the other made sure that Li would bear responsibility if the measures adopted were to be ineffective. Indeed, not only was Li leading an opposing party faction, but he also had nationally recognised expertise in epidemic management. During the SARS outbreak, Li had led responses in Henan province, where he served as Communist Party Secretary (2002-04). Li had also been on the frontline of China's fight against the HIV/AIDS epidemic in Henan, which was caused by the established practice of selling untested blood to local blood banks.[47] While fighting HIV/AIDS in Henan, one of the Chinese provinces worst hit by the disease, Li became known for being particularly assertive, going as far as to detain journalists who had written on the epidemic outbreak.[48] An expert and a "reformer", Li was Xi's natural choice to lead the country's fight against the pandemic, as it ensured that Xi's legitimacy within the party and civil society would remain unscathed.

Another tool that the CCP employed to avoid losing the mandate of heaven was to direct national media coverage towards reiterating the support of the World Health Organization (WHO) that the country's anti-Covid-19 strategy enjoyed. For example, supportive statements from WHO Director-General Tedros Adhanom Ghebreyesus were steadily reported by national media, together with the notion that a strong connection between Chinese authorities and WHO representatives had been forged. The visit of Bruce Aylward, WHO Senior Advisor to the Director-General, to China in February 2020, received particularly broad coverage from Chinese and English-language media outlets.[49]

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[47] To contextualise the culture of blood sales in China, see Y. Hua, *Chronicle of a Blood Merchant*, New York, Anchor Books, 2004.

[48] M. Park, "The price of blood: China faces HIV/AIDS epidemic", *CNN*, 30 November 2012.

[49] *Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19)*, World Health Organization (WHO), 28 February 2020.

The party's sophisticated policy-narrative toolbox notwithstanding, it was the mobilisation of government resources and people, and the associated "political theatre" that eventually proved most effective in confronting the three-layered challenges that the national epidemic posed to China's political system. Building fully functioning hospitals in less than a week and asking people to collaborate with government authorities and to observe and report on neighbours, colleagues, friends and family members who appeared sick were all activities reminiscent of a bottom-up approach to the crisis.[50] A cue to the Maoist concept of "mass line",[51] this measure contributed to creating a sense of empowerment in China's civil society by offering it some form of agency in the fight against the virus, and eventually managed to overcome opposition, consolidate the Communist leadership and strengthen the mandate of heaven.

The party's sophisticated policy-narrative toolbox notwithstanding, it was the mobilisation of government resources and people that eventually proved most effective in confronting the three-layered challenges that the national epidemic posed to China's political system

Conclusions: The Centrality of China's Pragmatic Performance Legitimacy

As soon as China's Communist leadership re-gained control over the health crisis at the domestic level, the élite started to realise that the pandemic had affected China's international projection, undermining its position with foreign partners. In a sense, the health crisis risked hindering not just the country's domestic objectives but its international strategy too. Above all, the leadership feared that if they performed inadequately in

[50] Xinhua, "Construction of Huoshenshan Hospital underway in Wuhan", *Xinhuanet*, 29 January 2020.

[51] See, among others, G. Young, "On the Mass Line", *Modern China*, vol. 6, no. 2, April 1980.

handling the internal and external ramifications of the health crisis, millions of party members around the country would voice their dissatisfaction and call for leadership changes at the top of the Communist hierarchy. This dramatic scenario was not verified precisely because the CCP proved effective in countering the challenges posed by the pandemic.

When examining the responses enacted by the élite, what is immediately striking is the consistent emphasis the leadership placed on "performance", as the element that ensures the legitimacy of China's political system. The message that an outstanding performance was being delivered in the health crisis remained central to the measures adopted by the country's leaders. For instance, suppressing whistle-blowers during the first phases of the national epidemic enabled the élite to construct a positive and successful narrative concerning the work of China's central and local authorities. Moreover, over-representation of the WHO's support for the country's policy choices allowed the media to offer an unbiased validation of the success of the leadership's performance. Lastly, developing a seemingly bottom-up approach in response to the outbreak – one that placed civil society at the frontline – meant that successes and failures would be perceived as jointly shared by China's civil society.

The concept of performance legitimacy was therefore consolidated by the country's Communist leadership and has remained key to the country's internal struggles as well as to its approach to the pandemic.[52] After the 1989 Tiananmen protests and the legitimacy crisis that subsequently emerged in the CCP, the concept of performance legitimacy became more pragmatic. As Yuchao Zhu explains (2011), pragmatic performance legitimacy entails that "the government relies on accomplishing concrete goals such as economic growth, social stability, strengthening national power, and 'good governance' (governing competence and accountability) to retain its

[52] Dingxin Zhao (2009).

legitimacy" (123).[53] In a sense, this notion also reinforces the well-established idea that China acts by "utilitarian justification", i.e. the ability of rulers to stay in power by strengthening people's beliefs in their ability to rule.[54]

In light of the above, the main lessons that can be drawn from China's pandemic governance, are, firstly, that the CCP continues to rely on pragmatic performance as a means to legitimise Communist rule in the country, despite evidence of a marked tendency towards autocratisation of the country's political system under Xi.[55] Secondly, this approach continues to be extremely successful, even in the face of large-scale and multi-faceted crises like the pandemic. The Chinese public's responses to the March 2021 European, British, US and Canadian sanctions against four Chinese officials and a party office is a case in point.[56] The public at large showed considerable support for the leadership and went so far as to call for the boycott of Western brands that opposed China's policies.[57] This reaction is especially impressive as it appeared only one year after major public unrest against governing authorities following the death of doctor Li Wenliang. The fundamental implication emerging from the pandemic's reinforcement of pragmatic performance legitimacy is therefore that the leadership's core principles, behavioural norms, short and medium-term objectives and long-term strategies will become even less negotiable in the near future, potentially further hardening China's stance in discussion fora at home and abroad.

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[53] Yuchao Zhu , "Performance Legitimacy" and China's Political Adaptation Strategy", *Journal of Chinese Political Science*, vol. 16, 9 February 2011, pp. 123-140.

[54] See L. Dittmer and G. Liu (Eds.), *China's Deep Reform: Domestic Politics in Transition*, Oxford, Rowman & Littlefield Publishers, 2006.

[55] *V-DEM Annual Reports*…, cit.

[56] B. Hall, "Sanctions spat has forced EU to reassess its China strategy", *Financial Times*, 31 March 2021.

[57] "H&M under heat in China for past statement on Xinjiang labor", *NikkeiAsia*, 25 March 2021.

5. Expectations on the Health Silk Road after the Pandemic

Eduardo Missoni

The chapter analyses how and to what extent – through enhanced "global health and vaccine diplomacy" – China may gain leadership in forging global health strategies after the pandemic, influencing existing multilateral institutions and/or redrawing international institutional mechanisms while ensuring linkage with the so-called "Health Silk Road" and its multiple bilateral arms.

At the beginning of the decade, China was the world's largest aid recipient, but by 2011, on the heels of its rapidly growing economy, it had become a net provider of foreign assistance. Despite a slowdown in 2020, when the Chinese economy grew "only" by 2.3% (the lowest since 1976) as a result of the pandemic, a growth of 6.5% was recorded in the last quarter, industrial production increased by 2.8% and the foreign trade surplus grew by 27%. It is estimated that growth could approach 20% in the first quarter of 2021.[1]

Today China is the world's largest emerging donor. Its fast-growing aid programme has contributed to the country's growing influence in the Global South and challenged the international aid system, which was traditionally dominated by the most advanced market economies. According to official sources, from 2013 to 2018, China provided US$41.73 billion

[1] "China's economy zooms back to its pre-covid growth rate", *The Economist*, 18 January 2021.

in financial aid to foreign countries and regions, including grants for US$19.7 billion, accounting for 47.3% of the total.[2]

China's Developing Assistance in Health

In the second decade of the century scholars increasingly focused their attention on a group of emerging economies, notably the BRICS (Brazil, Russia, India, China and South Africa), and their collective action. In global health little evidence was found of a coordinated influence of BRICS as a group, although noting that individual BRICS countries were becoming more active actors in global health movements such as Universal Health Coverage (UHC) or generic drug production.[3] China definitively took the lead.

As many Western donors did for decades, to a greater or lesser degree, China engaged in "health diplomacy" with partner countries, particularly in Africa, but also in Southeast Asia and Latin America, providing development assistance in the health sector with the implicit foreign policy strategy of improving relations and political, economic and/or cultural ties.

China engaged in "health diplomacy" with partner countries, particularly in Africa, but also in Southeast Asia and Latin America, providing development assistance in the health sector

The China model, however, greatly differs from current aid programmes of OECD/DAC (Development Assistance Committee) donors, devoting its international assistance in health particularly to developing infrastructure and providing medical supplies to partner countries with direct delivery of projects, goods and services. This practice common to many OECD/DAC countries in the

[2] See "China publishes white paper on international development cooperation", *Global Times*, 10 January 2021.

[3] A. Harmer, Y. Xiao, E. Missoni, and F. Tediosi, "'BRICS without straw'? A systematic literature review of newly emerging economies' influence in global health", *Globalization and Health*, 15 April 2015.

past, is contrasting today with established principles of Aid effectiveness.[4] These tied aid approaches avoid cash transfers and do not align with recipient government systems.[5]

In Africa, China heavily invested in the health sector, deploying Chinese health professionals to work with locals in health facilities, assisting in the control of infectious diseases, particularly malaria, building several hospitals and other health infrastructure. In 2017, China supported the establishment of the Africa Centers for Disease Control and Prevention in Addis Ababa, where the secretariat of the CDC is provisionally based.[6]

Such a project may be of strategic diplomatic relevance. In December 2020 – ahead of the African Union's decision that was expected in February 2021 – China officially launched the project for the construction of the headquarters of Africa CDC in Addis Ababa, in addition to five satellite centres in Egypt, Gabon, Kenya, Nigeria and Zambia, with the costs covered by the Asian giant. Now the member states of the African Union will have to accept a *fait accompli*.[7] The decision created additional tensions with the United States, which supported Morocco's candidacy to host the CDC. The US was critical of the Chinese initiative and threatened to withdraw the support it had promised. It is important to highlight that the CDC will collect sensitive data from across the continent. According to Murru "It is legitimate to think that the United States is not so much concerned about safeguarding sensitive African data as it is about the well-founded fear that Beijing will be able to get

US is not so much concerned about safeguarding sensitive African data as it is about the well-founded fear that Beijing will be able to get hold of it before and better than they can

[4] OECD, Paris Declaration on Aid Effectiveness. High-Level Forum, Paris, 28 February-2 March 2005.

[5] A.E. Micah et al., "Tracking development assistance for health from China", 2007-2017, *BMJ Global Health,* August 2019.

[6] R. Minghui, "Global health and the Belt and Road Initiative", *Global Health Journal*, vol. 2, no. 4, December 2018.

[7] M. Murru, "La Diplomazia Sanitaria Cinese", *saluteinternazionale.info*, 25 January 2021.

hold of it before and better than they can".[8]

Chinese experts also collaborated with the Africa CDC reportedly contributing in shaping the continent's response to the current pandemic.[9] Indeed, the health workforce is another important entry point and is not new in Sino-African cooperation. It dates back at least sixty years when the People's Republic of China began sending doctors to the continent. Since 1963, when the first group of doctors was sent to Algeria, more than 22,000 Chinese health professionals have been sent to Africa to support local programmes.[10] However, travel and housing expenses for the medical teams were almost always borne by the receiving countries and weighed on their health budget.[11] Doctors were often part of a larger collaboration and were perceived as more of a political necessity than a health necessity, such as when they were sent to Tanzania following workers building the TAZARA (Tanzania - Zambia - Railways).[12]

Towards the Health Silk Road

In 2013, China proposed its Belt and Road Initiative (BRI) to promote trade, infrastructure, and commercial associations with 65 countries in Asia, Africa, and Europe that account for 65% of the world's population, more than 30% of global GDP and 75% of known energy reserves.[13]

Chinese President Xi Jinping later qualified that initiative as "a road of peace, prosperity, openness, green development and innovation and a road that brings together different civilizations".[14]

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[8] Ibid.

[9] "Spotlight: China's medical teams help cement China-Africa friendship amid COVID-19", *Xinhuanet*, 18 August 2020.

[10] Ibid.

[11] J. Youde, "China's Health Diplomacy in Africa", *China: An International Journal*, vol. 8, no. 1, March 2010, pp. 151-163.

[12] M. Murru (2021).

[13] Ibid.

[14] "Full text of Chinese President Xi Jinping's speech at opening ceremony of

The Belt and Road Initiative action plan was released by the National Development and Reform Commission on 28 March 2015. The objectives of the BRI are supposed to be aligned with the development goals of potential host countries, but some of the infrastructural projects may not take into account the long-term host country needs.[15] Social and environmental sustainability concerns are also legitimate.

Health components were formally included in Belt and Road in 2015 and was firmly established during the first Belt and Road Forum for International Cooperation in Beijing in May 2017.

As early as 2015, Beijing asserted its intention to increase China's role in multilateral health governance and in January 2017, China and the World Health Organization (WHO) signed a Memorandum of Understanding on cooperation in the health sector as part of the Belt and Road Initiative, using the phrase "Health Silk Road" for the first time.

China and WHO signed a MoU on cooperation in the health sector as part of the Belt and Road Initiative, using the phrase "Health Silk Road"

According to that agreement a number of specific areas will be prioritised including: (1) implementation of the International Health Regulations (IHR 2005) and public health emergency responses, management and capacity-building, as well as establishment of emergency medical teams; (2) health systems strengthening including universal health coverage; (3) prevention and control of infectious diseases, including HIV/AIDS, tuberculosis, malaria and schistosomiasis; (4) prevention and control of non-communicable diseases; (5) traditional medicine and prequalification of Chinese medicines and vaccines; (6) capacity building and health workforce training; (7) local production of medicines; and (8) other areas of mutual interest.[16]

2018 FOCAC Beijing Summit", *Xinhuanet*, 3 September 2018.

[15] P.J. Buckley, "China's Belt and Road Initiative and the COVID-19 crisis", *Journal of International Business Policy*, vol. 3, 2020, pp. 311-314.

[16] R. Minghui (2018).

Besides increasing its contributions to WHO and maintaining its engagement with the Global Fund to fight HIV/AIDS, tuberculosis and malaria – a partnership dating back to 2001, when China actively supported the process of setting up the Global Fund[17] – in 2016 China started contributing to GAVI, the Vaccine Alliance.[18] However, it has been claimed that China may prioritise "its own" initiatives including South-South cooperation and the Belt and Road Initiative over partnerships such as GAVI and the Global Fund.[19]

According to analysts, China's role in the WHO's governing bodies has always been low-profile in terms of the number of interventions, tabled resolutions and proposed agendas, and it needs to increase its participation and involvement, as well as to institutionalise its practice of influence in order to play its role of global health leader.[20]

The inclusion of the health sector in the gigantic BRI initiative responds to China's aim to position itself as a leader in global health as well.

China's national achievements in health (including the decrease of maternal and child mortality, the extension of coverage of essential health care to over 95% of the population, and granting access to clean water and sanitation to 1.3 billion people) are often indicated as an argument for the country's repositioning as an emerging leader in global health.[21]

The inclusion of the health sector in the gigantic BRI initiative responds to China's aim to position itself as a leader in global health as well

The Healthy China 2030 vision, which consists of five main targets (to improve the health levels, control major risk factors, increase health service capacity, expand health industry scale,

[17] https://www.theglobalfund.org/en/government/profiles/china/

[18] A.E. Micah, et al. (2019).

[19] T Tuangratananon, K Tang, R Suphanchaimat, V. Tangcharoensathien, and S Wibulpolprasert, "China: leapfrogging to become a leader in global health?", *Journal of Global Health*, vol. 9, no. 1, 2019.

[20] Ibid.

[21] R. Minghui (2018).

and improve the health care system), came with a phenomenal investment amounting to US$2.4 trillion, confirming a strong political commitment to advancing the agenda.[22]

An additional asset is attributed by Chinese scholars to China's "whole of government" approach to health, and the prioritisation of sustainable results which align the Belt and Road Initiative to the United Nations Agenda for Sustainable Development and its integrated, indivisible and universal SDGs and health-related targets. China's major role as a supplier of medicines, vaccines and medical devices is well known and it has proved to be a critical resource for many healthcare systems around the world.[23]

The Health Sector Is Strategic

However, difficulties arise when comparing Chinese health aid estimates with health aid data from other donors. This is why current estimates of the total annual volume of Development Assistance for Health (DAH) generally exclude donors such as China, given the unavailability of Chinese data and the need to rely on widely differing estimates. Despite differences in Chinese health aid estimates, these studies suggest that China is among the top 10 bilateral donors for DAH.[24]

Between 2007 and 2017 China's DAH increased from US$323.1 million to US$652.3 million. The majority of DAH from China is channelled through its bilateral agencies

According to estimates by Micah et al., between 2007 and 2017 China's DAH increased from US$323.1 million to US$652.3 million.[25] The majority of DAH from China is channelled through its bilateral agencies. Over

[22] T. Tuangratananon, et al. (2019).

[23] R. Minghui (2018).

[24] K.K. McDade and W. Mao, "Making sense of estimates of health aid from China", *BMJ Global Health*, January 2020.

[25] A.E. Micah, et al. (2019).

that period, the Ministry of Commerce disbursed at least 50% of Chinese DAH, although this share has been decreasing in recent years. An additional large share (15.4% in 2017) was disbursed by the National Health Commission (NHC). A proportion that has held steady over time.[26]

In addition to the increase in its bilateral DAH, China has also increased its contributions to multilateral organisations and public-private partnerships. China has historically supported UN agencies, especially WHO which in 2016 received US$34.7 million, nearly half of all Chinese contributions to multilateral institutions. This choice may be motivated, among others, by the fact that WHO was the first international organisation electing a Chinese director-general.

Other health-related agencies, programs or initiatives that received contributions from China include the United Nations Population Fund (UNFPA), the Joint United Nations Programme on HIV/AIDS (UNAIDS), the United Nations Children's Fund (UNICEF), the World Bank, the African Development Bank, the Asian Development Bank, the Inter-American Development Bank, the Global Fund to fight HIV/Aids, Tuberculosis and Malaria and the Gavi Alliance for vaccines and immunisations. Health system strengthening (US$5.4 billion, 94.1%) is the main area of focus of Chinese DAH. This differs considerably with the priorities of other donors, most of whom disbursed less than 40% of their DAH to health system strengthening. Other relevant health focus areas of Chinese DAH were infectious diseases (US$81.1 million, 1.4%) and newborn and child health (US$63.5 million, 1.1%).[27]

The acceleration of globalisation and the interconnectedness which represents its defining feature has undoubtedly increased pandemic risks. In that sense, it is also acknowledged that BRI infrastructural development could contribute to those risks

[26] Ibid.

[27] Ibid.

through changes in the human environment and intensified flow of people and commodities; "therefore, strengthening global health security should be a critical component of health collaboration within Belt and Road".[28]

The Pandemic as Opportunity

Concerned about a possible cover-up of the emergence of a severe acute respiratory syndrome (SARS) originating in Guandong province, in 2003 governments around the world and the World Health Organization put China under severe scrutiny. It took some time for the Chinese government to change its position and reveal the true severity of the outbreak. Lesson learned?

At the international level the experience led to a review of the International Health Regulations (IHR), with the new edition being unanimously adopted by the 61st World Health Assembly in 2005 and coming into force in 2007 as a binding instrument of international law.[29]

In more recent years China supported West African countries affected by the 2014-15 Ebola outbreak and contributed to post-Ebola reconstruction by supporting recovery efforts. It also participated in the humanitarian health response to the Syria crisis (2016-17), as well as in the response to the dramatic cholera outbreak in Yemen (2017) and to the Ebola outbreaks in RDC (2018).[30]

With the Covid-19 pandemic, China's international image suffered another serious setback. In January 2020 WHO Director General Tedros Adhanom Ghebreyesus praised the country's efforts to control the outbreak and its openness to sharing

[28] R Minghui (2018).
[29] *International Health Regulations (2005)*, Third Edition, World Health Organization (WHO), Geneva 2016.
[30] R. Minghui (2018).

information about the virus and its spread.[31] Soon thereafter, however, the Trump administration in the US spearheaded an effort to attribute to China direct responsibilities for the SARS-CoV-2 outbreak and for hiding information and delaying the international response, this time with the complicity of the WHO, which the US later abandoned.[32] Some authors suggest that Trump was reacting to China's position and growing influence in international governmental organisations in general and WHO in particular, although paradoxically the US withdrawal may have increased China's influence within the WHO.[33]

The origin of SARS-Cov-2 has still to be identified with certainty. Indeed, it has been shown that the virus was already circulating in Europe and elsewhere in November 2020, before the first cases were detected in China. At the time of writing, the much-anticipated report from the WHO-led international mission to China to investigate Covid-19's origins has not yet been published. The team has been working under intense US and Chinese pressure. The US criticised the terms of the visit, under which Chinese experts carried out the first phase of research. The team's plea is to keep the investigation free of political pressure, keeping in mind that several attempts may be necessary before achieving results, and that there are no "guarantees of answers", as declared by WHO emergency chief Mike Ryan at a recent press briefing.[34]

Indeed, the Covid-19 pandemic has also created an opportunity for China to show direct support to countries, adopting health diplomacy as an effective countermeasure.

As of June 2020, when only one-fifth of the global demand

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[31] WHO, *China leaders discuss next steps in battle against coronavirus outbreak*, World Health Organization (WHO), 28 January 2020.

[32] Remarks by President Trump in Press Briefing, Washington, The White House, 14 April 2020.

[33] N. Chorev, "The World Health Organization between the United States and China", *Global Social Policy*, vol. 20, no. 3, 2020, pp. 378-382.

[34] COVID-19 Virtual Press conference transcript - 15 January 2021, World Health Organization (WHO).

China exported 224 billion surgical masks in addition to other personal protection devices, diagnostic tests, and ventilators: the so-called "mask diplomacy"

for Personal Protective Equipment (PPE) and diagnostic tests had been met and many countries had halted their exports, China sent huge quantities to various countries, especially – but not only – in Africa. Between March and December 2020, China exported 224 billion surgical masks in addition to other personal protection devices, diagnostic tests, and ventilators: the so-called "mask diplomacy",[35] which may contribute to tie those countries closer to China.[36]

Amid the ongoing Covid-19 pandemic, China provided assistance to more than 150 countries and 13 international organisations and sent 36 expert medical teams to countries in need.[37] In addition, 46 Chinese medical teams already based in African partner countries were mobilised to help in the response to the pandemic. According to China's National Health Commission nearly 1,000 Chinese medical personnel have been working in Africa long-term.[38]

This effort "was China's most intensive and largest-scale emergency humanitarian assistance mission since 1949".[39]

China's strategy in global health is now adding "vaccine diplomacy" as an additional pillar.

China's strategy in global health is now adding "vaccine diplomacy" as an additional pillar

In May 2020, at the seventy-third "World Health Assembly", Xi Jin Ping promised that the SARS-CoV-2 vaccines being developed in China would be proposed as

[35] M. Murru (2021).

[36] PJ Buckley (2020).

[37] Xi Jinping, "Let the Torch of Multilateralism Light up Humanity's Way Forward", Special Address at the World Economic Forum Virtual Event of the Davos Agenda, 25 January 2021.

[38] "Spotlight: China's medical teams help cement China-Africa friendship amid COVID-19", …cit.

[39] "China publishes white paper on international development cooperation"…, cit.

"a global common good" once available. On 17 June 2020, an "Extraordinary China-Africa Summit on Solidarity against Covid-19" was held, a virtual meeting between the Chinese President Xi Jin Ping and 13 African heads of state and government. Previous commitments to supply medical equipment were confirmed. In turn, African countries confirmed their support of Chinese policies regarding Hong Kong and Taiwan: an evident achievement of "vaccine diplomacy".[40]

In October, China joined the COVAX initiative, the vaccine pillar of the ACT Accelerator, convened by two global public-private partnerships (CEPI and GAVI) and the WHO. This initiative is speeding up the search for an effective vaccine for all countries, supporting the building of manufacturing capabilities, and buying supply.[41] A total of 189 countries are participating, including all members of the EU and 92 low-income countries, with the notable absence – to date – of the US and the Russian Federation.[42]

On 19 January, Sinovac, Sinopharm, and CanSino, the three Chinese companies engaged in the development of anti-covid vaccines, requested their vaccines to be included among those that the COVAX alliance will acquire and distribute.[43]

So while drug manufacturers prioritise regulatory approval in high-income countries where profits are highest, rather than submitting full dossiers to accelerate a WHO-backed global vaccine distribution initiative, and wealthy countries are stockpiling vaccines, mostly from Pfizer-BioNTech, Moderna and Astra-Zeneca, space is created for China, as well as India and to some extent Russia, to develop, produce and supply vaccines to middle and low-income countries.

[40] M. Murru (2021).

[41] COVAX. Working for global equitable access to COVID-19 vaccines, World Health Organization (WHO).

[42] GAVI, COVAX, Commitment Agreements. 2020.

[43] M. Murru (2021).

A peculiarity of Chinese vaccines being tested is that they are based on inactivated viruses or vector viruses and can be stored at normal refrigeration temperatures (2°C - 8°C), making them particularly suitable for use in low-resource settings. Chinese vaccines were the first to enter phase 3. Given the low number of Covid-19 cases in China, trials have taken place in several countries in Latin America, Asia, and the Middle East. In exchange, these countries will have priority access to those vaccines. On 30 December 2020, Sinopharm reported that its vaccine had 75% efficacy, but it did not provide related data. The Chinese Regulatory Agency granted conditional approval for its use the following day and mass inoculation was initiated on the 1st of January 2021 to high-priority groups. The United Arab Emirates and Bahrain had already granted permission based on studies implemented on their territory. The UAE began inoculating 31,000 volunteers with the vaccine in July and Bahrain in August. Both authorised its use in December, declaring an efficacy of 86%. Under their agreement with Sinopharm, they have not published the relevant data. In the coming months they aim not only to administer but also to produce the Sinopharm vaccine, with the possibility of supplying many low-income countries in Africa and elsewhere.[44] Sinopharm also signed an agreement with Morocco allowing for clinical trials of the vaccine to be implemented in that country, priority access to 10 million doses of the vaccine itself and the transfer of technology to an industrial hub in the "Cité Mohamed VI Tanger Tech". The hub is part of a project launched in 2017 after a visit to Beijing by King Mohammed VI, and it aims to host, among others, at least 200 Chinese companies that will enjoy tax incentives and maritime access to the largest harbour in the Western Mediterranean. It will now include a vaccine production unit with its scope extending to the entire African continent.

The "vaccine diplomacy" towards Arab oil producing

[44] Ibid.

countries may obviously be linked to wider economic strategic interests, while the Chinese interest in establishing good relations with Muslim countries also ties in with Sinovac's vaccine approval and distribution in Turkey.[45]

The "Common Destiny" Narrative

Although mainly "concentrated in the export of natural resources and commercial agricultural products",[46] China has been steadily expanding its commercial and financial presence in Latin America. It has become a major trading partner in the region through its Belt and Road Initiative and has recently sent shipments of medical supplies, in addition to the prompt sale of PPE, ventilators, and ambulances, and a promised US$1 billion donation for vaccines to help cope with the pandemic.[47]

Taking advantage of Washington's "taking care of the US first", China has been expanding its presence in Latin America and may beat the United States in what they consider their own "backyard" with vaccine diplomacy (unless the new Biden Administration will somehow revert US policy in this field). Sinovac Biotech has collaborated with Brazil on late-stage trials. CanSino Biologics has a clinical trial underway in Mexico and signed an advance purchase agreement with the government to supply 35 million doses of its a single-dose immunisation vaccine.[48]

The pandemic will possibly require a review of the "Health Silk Road" and the medium-term effect

The pandemic will possibly require a review of the "Health Silk Road" and the medium-term effect of the Covid-19 crisis on the initiative will depend greatly on the flexibility that China is able to build into it and the BRI in general

[45] Ibid.

[46] C.A. Sanborn, *Latin America and China in Times of COVID-19*, The Wilson Center, 30 January 2021.

[47] Ibid.

[48] C. Rosenberg, "China Poised to Be First to Distribute Virus Vaccine in Latin America, U.S. Official Says", *The New York Times*, 14 December 2020.

of the Covid-19 crisis on the initiative will depend greatly on the flexibility that China is able to build into it and the BRI in general.[49]

It has been observed that the type of infrastructure that will be prioritised post-crisis is "soft infrastructure", meaning services – including healthcare, education systems, public administration and others – that rely on personal contact, are politically and culturally sensitive, and in which China largely lacks leadership. Thus, the BRI, which was designed as a long-term (35-50 years) initiative, will need a substantial degree of reform. There are signs of this happening, for example with the shift towards digital health services and infrastructure.[50]

China is well prepared for the shift. According to official documents, China has widely shared technological achievements with other countries, including training around 7,700 people from more than 100 developing countries and regions, and launching training projects on 3D printing and satellite applications,[51] which can obviously be further developed for medical and public health use. The interlinking of the Digital Silk Road with the health BRI is also on the agenda (for instance to facilitate contact tracing).[52]

It has been remarked that the focus of BRI and the "Health Silk Road" is largely bilateral, as opposed to multilateral. Nevertheless, it will necessarily tie in with China's strategies in the global institutional framework, which may themselves undergo important changes as a consequence of the pandemic crisis. "Changes mean that business can no longer take the global institutional

Beijing has increasingly been linking its contribution in the fight against the pandemic with the BRI narrative

[49] J.P. Buckley (2020).
[50] P.J. Buckley (2020).
[51] "China publishes white paper on international development cooperation"…, cit.
[52] R. Moritz, *China's Health Diplomacy during Covid-19. The Belt and Road Initiative (BRI) in Action*, SWP Comment 2021/C 09, January 2021.

framework as given".[53] The BRI, like many other pre-Covid-19 institutions, will require radical reassessment in the post-crisis world.[54]

The Chinese response has been rapid and timely. Beijing has increasingly been linking its contribution in the fight against the pandemic with the BRI narrative (e.g. a "global community of common destiny"), showing a high degree of flexibility, strong political will, and a comparative advantage in logistics. From being a marginal aspect of the BRI, health became a central issue.[55]

The Chinese government clearly perceives the need to contextualise its overall strategy and positioning, and on 10 January 2021 it published a White Paper on its international development cooperation, confirming it would push forward the Belt and Road Initiative as its main platform, further support developing countries, and contribute to tackling international humanitarian challenges. It important to note how China highlights its difference from OECD/DAC ODA by specifying that its engagement falls within the category of South-South cooperation and is centred on "respecting each other as equals" and therefore "is essentially different from North-South cooperation".[56]

The Torch of Multilateralism

China has also been engaged in trilateral cooperation, especially on less politically sensitive issues, such as public health. The Pacific region has been a place of experimentation for China's trilateral partnership. Although the region is a small recipient of Chinese aid globally, China's overseas assistance to this area has

[53] P.J. Buckley (2020).
[54] Ibid.
[55] R. Moritz (2021).
[56] "China publishes white paper on international development cooperation"…, cit.

grown impressively; since 2011, it has become the second largest donor after Australia. The malaria control program in Papua New Guinea – which officially commenced in January 2016 – is a good example of trilateral aid cooperation, with the recipient country being partnered with China and Australia. Trilateral cooperation, at least in theory, is an effective way of making use of each donor's comparative advantages and promoting mutual learning. On the Chinese side there is a genuine interest in learning how traditional donors deliver their aid, although this does not contradict the official discourse that Chinese aid is different from the aid of traditional donors. China's claimed purpose is to selectively learn from some aspects of traditional donors, such as aid monitoring, to improve Chinese aid delivery, rather than accept all of them.[57] According to some authors trilateral cooperation may represent an opportunity for renewed cooperation among donors and for them to rethink how they can provide reliable and affordable public goods in the post-pandemic period.[58]

The Pacific region has been a place of experimentation for China's trilateral partnership. China's overseas assistance to this area has grown impressively

With its recent White Paper, China reaffirms its open and inclusive attitude towards international cooperation, support for multilateralism and active willingness to participate in the reform and creation of the global governance structure; it also reaffirms its engagement with the implementation of the UN 2030 Agenda for Sustainable Development.[59]

"Let the Torch of Multilateralism Light up Humanity's Way Forward" was the title of President Xi Jinping's address at the World Economic Forum Virtual Event of the Davos Agenda

[57] D. Zhang, *A Cautious New Approach: China's Growing Trilateral Aid Cooperation*, ANU Press, The Australian National University, Canberra, Australia, 2020. doi.org/10.22459/CNA.2020.05.

[58] D Zhengua, *China's trilateral cooperation*, The Asia & the Pacific Policy Society, 29 January 2021.

[59] "China publishes white paper on international development cooperation"…, cit.

on 25 January. Among "the four major tasks facing people of our times" Xi Jinping included "to come together against global challenges" specifically referring to public health emergencies like Covid-19, which "may very well recur" and underlining that "global public health governance needs to be enhanced" through upholding multilateralism "on the basis of extensive consultation and consensus-building". In that context "We need to give full play to the role of the World Health Organization in building a global community of health for all".[60]

Undoubtedly, it seems that China is committed to become a global health leader, beyond mere financial contributions, but structuring a more comprehensive collaborative strategy, which has been considered the missing piece of a more powerful Chinese engagement.[61]

China has much to learn from other countries in advancing its medical and health technologies and optimising its own health system, as well as reducing health inequalities among its 56 ethnic groups. China can also benefit from other countries' experiences in correcting social determinants, investing in healthy lifestyles and avoiding unhealthy behaviours as the Chinese society becomes more affluent. The BRI creates many opportunities for Chinese scientists to share China's lessons and successful experiences with other countries and contribute to the development of global health.[62]

"Health diplomacy" needs to be reformulated into global governance for health, i.e. prioritising peoples' health – not just access to health care – in all public policies

The response to the coronavirus pandemic is the highest priority for the international community. Counteracting accusation of China's lack of transparency, Xi Jinping insisted

[60] Xi Jinping, "Let the Torch of Multilateralism Light up Humanity's Way Forward"…, cit.

[61] T. Tuangratananon, et al. (2019).

[62] X. Chen et al., "What is global health? Key concepts and clarification of misperceptions. Report of the 2019 GHRP editorial meeting", *Global Health Research and Policy*, vol. 5, no. 14, 2020, doi: 10.1186/s41256-020-00142-7.

on "closer solidarity and cooperation, more information sharing, and a stronger global response" to defeat Covid-19 globally. Scaling-up cooperation on the R&D, production and distribution of vaccines and "making them public goods that are truly accessible and affordable to people in all countries" may well be identified as the pillar of its "health diplomacy". China "will work for greater accessibility and affordability of Covid vaccines in developing countries".[63]

Conclusion

That new pandemics and other mayor emergencies "may very well recur" [64] is President Xi Jinping's most compelling message. Unfortunately, although they may contribute, anti-Covid19 vaccines are not the solution to this pandemic, nor we can rely only on vaccines and biomedical technology (and "vaccine diplomacy") to respond to future emergencies of international concern.[65] [66] We are in the middle of a long foretold, long-term systemic planetary crisis caused by many factors, most of which having to do with the growth-based market-led development model. "Health diplomacy" needs to be reformulated into global governance *for* health, i.e. prioritising peoples' health – not just access to health care – in all public policies. In that sense, global leadership must be able to interpret the discourse of a "global community of common destiny"[67] engaging in a paradigmatic shift that can revert the unsustainable trends that are stretching planetary limits to the breaking point (natural resources,

[63] Xi Jinping, "Let the Torch of Multilateralism Light up Humanity's Way Forward"…, cit.
[64] Ibid.
[65] R. Horton, "Offline: COVID-19 is not a pandemic", *Lancet*, vol. 396, no. 10255, 26 September 2020, p. 874, doi:10.1016/S0140-6736(20)32000-6.
[66] T. Wu, "The socioeconomic and environmental drivers of the COVID-19 pandemic: A review", *Ambio*, vol. 50, no. 4, 2021, pp. 822-833.
[67] R. Moritz, *op.cit.*

pollution, etc.).[68] The search for and the implementation of such a post-growth alternative can undoubtedly only be guided by "the torch of multilateralism" linking global and local action through cooperation,[69] rather than geopolitical competition. To effectively reduce pandemic risks, the current fragmentation of international cooperation, especially in the health sector, needs to be quickly reversed. All of the major economies – China, the EU and the US – need to provide robust support (financial and other) to WHO and UN institutions to grant effective coordination and direction of global health.[70]

Beyond rhetoric, at the moment, it is difficult to imagine China – or other countries – taking that lead. However, the international community should not dismiss the spaces that the Asian country is opening for new collaboration and reflect together on "the limits of growth".[71]

[68] E. Missoni and E. Morales Galindo, "Health workers and sustainable systems for health in a post- growth society", *Visions for Sustainability*, no. 14, 2020.

[69] E Missoni, "Degrowth and health: local action should be linked to global policies and governance for health", *Sustainability Science*, vol. 10, no. 3, 2015, pp. 439-450.

[70] T. Wu (2021).

[71] D.H. Meadows, D.L. Meadows, J. Randers, and W.W. Behrens III, *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind*, New York, Universe Books, Ed., 1072.

6. Heading Towards US-China Decoupling?

Yukon Huang

Origins of the Trade War

When Deng Xiaoping opened-up China's economy in 1980, the United States enthusiastically supported the nation's integration into an international financial system that it had championed.

But China's economic rise over the past decade combined with Xi Jinping's more assertive foreign policies abroad and firmer controls at home created the environment for the US-China trade war and the decoupling process that intensified during the pandemic.

The trade war was initiated in 2017 with a Section 301 investigation by the US Trade Representative on China's trade and foreign investment policies.[1] This provided the basis for a 25% punitive tariff in July 2018 on US$50 billion worth of Chinese imports. China retaliated with its own tariffs, leading to the White House levying an additional 25% tariff on US$200 billion of Chinese goods and tariffs with lower rates for other products. Under the Phase One Agreement of January 2020,

[1] Office of the United States Trade Representative, Section 301-China. Available at: https://ustr.gov/issue-areas/enforcement/section-301-investigations/section-301-china

China promised to import an additional US$200 billion over the ensuing two years and reform its trade practices.[2] But the more contentious structural issues regarding intellectual property rights and state enterprises were largely left for future negotiations.

Separately on security grounds, in May 2018, the Trump administration sanctioned the Chinese telecommunications firm ZTE for violating US sanctions on trading with Iran and North Korea and later Huawei as a security threat in its provision of 5G telecommunications equipment. Over the past two years, some 450 Chinese firms have been added to the Department of Commerce's Entity List which restricts their access to US high-tech products.[3] Together with other punitive measures, these actions have been characterised as a decoupling of the two economies.

Trade War Driven by Three US Constituents

US foreign policy stakeholders see China through multiple lenses. What America wants has been difficult to fathom since the trade war is being driven by three different constituents.

It began with former President Trump's fixation on America's huge bilateral trade deficits which he blamed for America's economic problems, especially the decline in manufacturing jobs. The business community is more concerned about China's unfair investment practices and "forced" transfer of US technology to Chinese firms. The third group, the US security establishment, is obsessed with China's efforts to become a technological power thereby threatening America's global dominance both economically and militarily.

For President Trump, winning is easy – just get China to buy more American agricultural products, natural gas

[2] "Economic and Trade Agreement between the Government of the United States of America and the Government of the People's Republic of China".

[3] J. Klein, "As Joe Biden faces a China emboldened in its race to tech supremacy, what policies will he pursue?", *South China Morning Post*, 3 December 2020.

and industrial goods. However, the logic is flawed and the mechanics unworkable. Governments cannot simply legislate what another country's households and firms will buy. Nor does the United States produce enough high-end consumer goods that China's rising middle class seeks (and Europe gladly provides) or the raw materials coming from Latin America and Africa needed for infrastructure investments. Moreover, on security grounds, the White House will not sell to China the hi-tech equipment it does want. This leaves only a beggar thy neighbour list of items that China can work with – buy more American soybeans but less from Brazil or more Boeing aircraft but less from Europe's Airbus. This does nothing to moderate China's overall trade surpluses but puts the onus of adjustment on other countries.

Increased tensions have led to a sharp decline in China's investment in the United States and combined with the reduced profitability of American firms because of the tariffs, makes the business community a clear loser in this trade war

Shifting trade balances, however, pale in significance compared with the impact of the tariffs on the welfare of households and businesses. Economists have excoriated Trump's fixation on trade deficits because there is no causal link between trade balances and a country's overall economic well-being.[4] Tariffs, however, can affect consumer and producer prices, employment levels and a country's capacity to innovate. A US Federal Reserve study found that American firms and consumers paid for most of the tariffs, contradicting Trump's assertion that China would be paying.[5] While some jobs were created in tariff-protected industries, many more jobs were lost elsewhere because of the higher costs of imported inputs. An

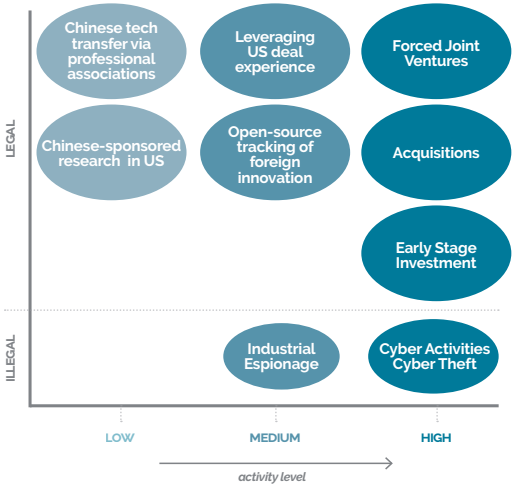
[4] R.Z. Lawrence, Five Reasons Why the Focus on Trade Deficits is Misleading, Policy Brief 18-6, *Peterson Institute for International Economics Policy Brief*, March 2018.

[5] A. Flaaen and J. Pierce. "Disentangling the Effects of the 2018-2019 Tariffs on a Globally Connected U.S. Manufacturing Sector", Finance and Economics Discussion Series 2019-086. Washington, Board of Governors of the Federal Reserve System.

Oxford Economics study for the US-China Business Council estimated that 245,000 jobs were lost because of the tariffs with multiple more if the decoupling process intensified.[6]

Thus, it was no surprise that the outcome of the tariffs turned out to be the opposite of what Trump intended. China's purchases in 2020 were barely half of what was promised in the Phase One Agreement.[7] Although America's bilateral trade deficit with China was smaller in 2020 compared with 2018, its overall trade balance deteriorated and got even worse during the pandemic in 2020. Meanwhile, China's overall trade surpluses increased, as it made up for lower sales to the United States with expanded exports to others, notably the Association of Southeast Asian Nations (ASEAN) and Europe.[8]

Fig. 6.1 – Vehicles for Chinese technology transfer from the US



[6] A Critical Partnership at a Critical Juncture, Oxford Economics and US-China Business Council, January 2021.

[7] US-China Phase One Tracker, Peterson Institute for International, January 2021.

[8] Y. Huang and J. Smith, In U.S. - China Trade War, New Supply Chains Rattle Markets, Carnegie Endowment for International Peace, 24 June 2020.

The US business community does have legitimate concerns about China's restrictive foreign investment policies and weak protection of intellectual property (IP). A major concern has been the transfer of technology to China. As indicated in Figure 1, some actions including cyber theft and industrial espionage are clearly illegal but can be handled through judicial procedures. But what is really driving tensions are practices which are contrary to global norms but not technically illegal.

Accusations that China "forces" the transfer of technology by requiring foreign investors to form a joint venture with a Chinese firm as a condition for entering its domestic market has featured prominently among the accusations.[9] Foreign acquisitions and professional exchanges have also drawn considerable attention. But punitive tariffs are not effective tools for addressing these concerns.

The damage to Chinese firms from being placed on the US Commerce Department's Entity List is a major blow to China's technological ambitions, but American firms will also suffer financially. Many of America's leading hi-tech firms derive 20-50% of their earnings from sales to China.[10] The loss in revenues will crimp their capacity to develop new products. Paradoxically, this has led the defence establishment to warn about the unintended consequences of export restrictions on America's military capabilities.[11] Increased tensions have led to a sharp decline in China's investment in the United States and combined with the reduced profitability of American firms because of the tariffs, makes the business community a clear loser in this trade war.

The only winners so far are the hardliners in the security establishment who ratcheted up their accusations during the

[9] Y. Huang, "Did China Break the World Economic Order?", *New York Times,* 17 May 2019.

[10] P. Van Doorn, "Apple, Nike and 18 other U.S. companies have $158 billion at stake in China trade war", *Market Watch*, 4 April 2018.

[11] M. Rasser, "Rethinking Export Controls: Unintended Consequences and the New Technological Landscape", *CNAS*, 8 December 2020.

pandemic about China as a threat to America's global leadership. Their advocacy for decoupling the two economies is now reshaping bilateral relations. Such efforts intensified towards the end of the Trump administration with the intention of making the separation between the two economies irreversible for the Biden administration.

Intertemporal Impact of the Economic Tensions

Although the United States has suffered economically from the trade war, some argue that these short-term costs are worth it if Beijing is forced to reform its trade and investment policies. Various studies suggest that American companies lose hundreds of billions of dollars annually from IP theft, but creating a strong IP system takes decades, not years.[12] Because of its socialist origins, China is a late comer in protecting IP, having passed a globally recognised patent law only in 2001 as part of the World Trade Organization membership and created three specialised IP courts only in 2014. But there has been steady progress over the past decade. AmCham China's 2019 Business Climate Survey noted that 96% of its member companies said that China's enforcement of intellectual property rights had improved or stayed the same compared with 84% in 2014.[13]

Such considerations, however, may not matter much for US politicians who are swayed by the mounting anti-China sentiments of their constituents.[14] These sentiments are driven largely by political rather than economic factors, exemplified by China's aggressive actions in the South China Sea, its quashing of civil liberties in Hong Kong and Xinjiang and combative

[12] Y. Huang and J. Smith, "China's Record on Intellectual Property Rights Is Getting Better and Better", *Foreign Policy*, 16 October 2019.

[13] AmCham China, Deloitte, *2019 China Business Climate Survey Report*, 2019.

[14] L. Silver, K. Devlin, and C. Huang, *Unfavorable Views of China Reach Historic Highs in Many Countries*, Pew Research Center, Global Attitudes & Trends, 6 October 2020.

rhetoric of its diplomats. Tensions were further exacerbated during the pandemic with Trump repeatedly blaming China for its spread.

For years, the more bearish China watchers have been warning about its weakening economy. They point to a decade long growth slowdown, mounting debt levels and an ageing population. Now add the impact of the trade war and pandemic. But China survived the pandemic in much better shape than either the US or Europe.[15] Its draconian handling of the pandemic facilitated a sharp industrial recovery and a surge in its exports in 2020. Its manufacturing sector is now running at full capacity, while industrial production in the United States and Europe is still grappling with recurrent virus outbreaks. For 2020, China's GDP grew by 2.3%, much better than the 3-10% declines for the US and eurozone economies.

China also benefited initially from strong demand in the United States and Europe for Covid-19 related medical products, followed by electronics and communication equipment for households operating under lockdowns, and more recently for a range of manufactured products that other countries were unable to fulfil because of supply disruptions. The result is that China's 2020 current account surplus more than doubled last year's level. This is mirrored in the sharp appreciation of the renminbi to the US dollar since May 2020 and foreign reserves hitting a five-year high in 2021. All this has made it less likely, at least in the short-term, that foreign firms will relocate out of China.[16]

Decoupling Intensified During the Pandemic

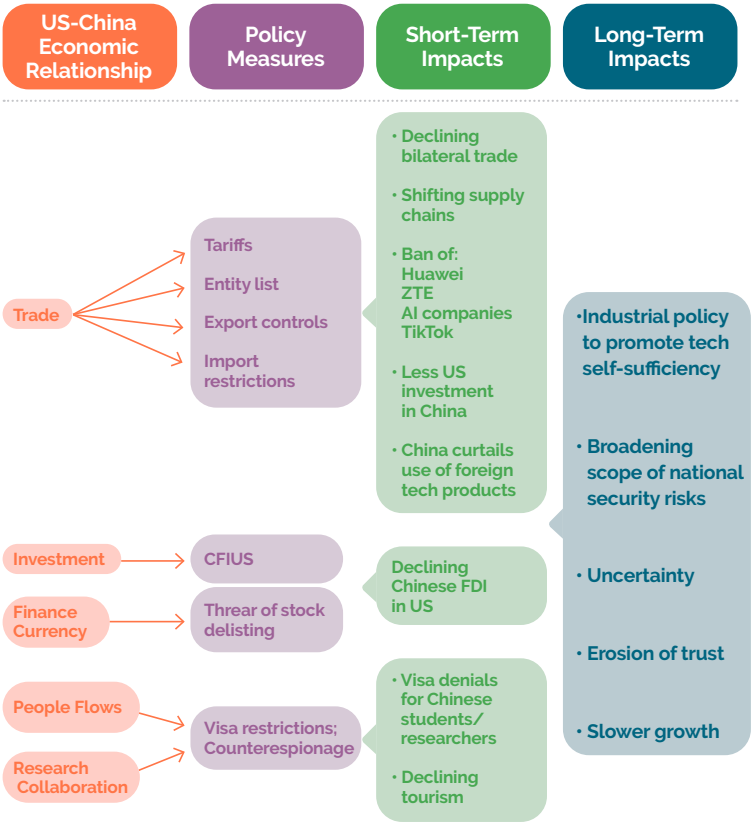
At the outset of the trade war, the Trump administration targeted China with punitive tariffs, export controls and

[15] Y. Huang, "China has the V-shaped recovery of which Trump can only dream", *Foreign Policy*, 29 October 2020.

[16] A. Swanson, "With Americans stuck at Home, Trade with China Roars Back", *New York Times*, 14 December 2020.

investment screening in defence of national security interests. This was broadened during the pandemic to include restrictions on financial flows, collaborative research and expulsion of media representatives. See Figure 6.2.

Fig. 6.2 – Decoupling of the US and China economies



The Committee on Foreign Investment in the United States (CFIUS) is responsible for reviewing security risks with incoming foreign investment. With the announced policy shift, Chinese

inflows into the United States nearly evaporated in 2020. Notable tech related restrictions introduced in late 2020 included placing on the Entity List both China's Semiconductor Manufacturing International Corporation (SMIC) for its military links and the drone maker DJI for enabling China's widespread surveillance of its citizenry.[17] Steps were also taken to ban popular Chinese digital apps including TikTok and WeChat on security grounds.

Several major Chinese companies were delisted from US stock exchanges in 2020 for their military relationships and US financial institutions were instructed to cut back on investments in China. But within the Trump administration, there were differing views of how far such restrictions should go. The US State Department favoured an expansive ban on investing in Chinese companies, but the US Treasury was concerned about the damage to financial markets and wanted a shorter list.[18]

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Academic links were also under attack. The Trump administration tightened visa restrictions for incoming Chinese students and submitted legislation to ban enrolment of students from China in graduate programs in the sciences.[19] Highly publicised criminal charges were brought against some American academics for failing to report their association with Chinese institutions.

China's response to Washington's decoupling measures has been lowkey, exemplified by promulgating its own Unreliable Entities List and a vague Export Control Law. China's leaders

[17] J. Whalen and E. Nakashima. "US banks technology exports to Chinese semiconductor and drone companies, calling them security threats", *Washington Post*, 8 December 2020.

[18] J. Yang and D. Lim. "Government Leaders Clash over Next Steps over Trump's Ban on Chinese Stocks", *The Wall Street Journal*, 17 December 2020.

[19] X. Wang, "Uncertainty for Chinese students in the United States", *East Asia Forum*, 2 January 2021.

are waiting to see what approach the Biden administration will take. They also recognise that retaliation may hurt China's interests more than America's.

Costs of Decoupling

Decoupling has disrupted supply chains and upended the tech industry. Special attention was given to restricting Huawei's capacity to provide 5G equipment globally. The extension of restrictions to other Chinese companies on security grounds and for violating human rights, means that the consequences of the decoupling extend well beyond Silicon Valley and New York to all corners of the world.

But the damage cuts both ways. Banning Huawei's telecoms equipment also means much higher operating costs for American and European households and firms. This will make Western companies less competitive in manufacturing where robotics are important and in new transport initiatives such as smart cars. There will also be less money for research and development, dampening efforts to maintain America's leadership in the semiconductor industry as a notable example. A study indicated that loss in revenues could cost the US semiconductor industry nearly $100 billion and allow other countries to become more competitive.[20]

US restrictions on investing in China, however, have not yet overridden the fundamentals that are driving foreign capital inflows into China given its economic recovery, higher interest rates and appreciating currency.[21] China became the leading destination for foreign investment in

China became the leading destination for foreign investment in 2020, displacing the United States which experienced a sharp decline due to the pandemic

[20] S. Woo, "The U.S. vs China: The High Cost of the Technology Cold War", *The Wall Street Journal*, 22 October 2020.

[21] H. Lockett and T. Hale. "Global investors place Rmb1tn bet on China breakthrough", *Financial Times*, 13 December 2020.

2020, displacing the United States which experienced a sharp decline due to the pandemic.[22]

Discussions of the costs of decoupling often overlook the damage to long-term growth prospects from restricting the transfer of knowledge between firms and nations. Because this exchange is seen as mutually beneficial, the established global trading system was designed to promote knowledge diffusion from more developed to developing economies. The WTO codified these principles in the agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), which mandates that developed countries should encourage technology transfer to developing countries.[23]

If knowledge and technology are the ingredients that make economies more productive, global supply chains are the vehicles that deliver them. These linkages allow countries to share skills and specialise according to their comparative advantage, resulting in efficiency gains for all parties and making the collective effort worth more than the sum of the parts.

Is Decoupling Realistic?

China understands better than anyone the importance of supply chains and tapping external knowledge: a 2011 World Bank study demonstrated that no country has been more successful at absorbing foreign expertise from its global interactions than China.[24] Some of the means used have been viewed by critics as unfair. This has prompted a fundamental review of the notion of economic interconnectivity between nations.

Restructuring of global supply chains, however, has been underway since well before the trade war because of shifting

[22] See UNCTAD database: https://unctad.org/system/files/official-document/diaeiainf2021d1_en.pdf

[23] World Trade Organization, Technology Transfer.

[24] The World Bank, Multipolarity: The New Global Economy. Global Development Horizons 2011, 2011

cost advantages. The question now is whether this process will accelerate because of political considerations. The pandemic has made relocating supply chains away from China more difficult even if its onset was seen as yet another reason to reduce dependency – in this case for medical supplies.

China's huge reservoir of skilled labour, reliable infrastructure, extensive networks of suppliers and a government geared to promoting business interests discourage any largescale relocation of production elsewhere.[25] This is supported by another American Chamber of Commerce survey of US companies, conducted in the midst of the pandemic, that found just 2% of respondents were considering leaving the Chinese market in the next 3-5 years, and a mere 4% were considering relocating some or all manufacturing out of China.[26]

Decoupling has differing implications for the two sides given the nature of their dependencies. China's vulnerability lies in its reliance on imported hi-tech components, especially semiconductors. US dependence on China is much broader, covering a diverse range of manufactures for both consumers and producers. If cut off, the US cannot secure the same range of products from other countries or a comparable sized market for its companies to operate in. Moreover, the willingness of European and Asian firms to collaborate with their American counterparts is uncertain if this means being cut off from the China market.[27]

In short, the economic consequences of a complete decoupling would be catastrophic for both sides.

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[25] Y. Huang and J. Smith, "Why US-China supply chain decoupling will be more of a whimper than a bang", *South China Morning Post*, 30 June 2020.

[26] "Most US firms have no plans to leave China due to coronavirus: survey", *Reuters*, 16 April 2020.

[27] C. Bown, How Trump's export curbs on semiconductors and equipment hurt the US technology sector, Peterson Institute for International Economics, 28 September 2020.

Will Decoupling Impede China's Technological Ambitions?

Decoupling has exacerbated concerns about China's long-term growth prospects. Beijing has attempted a course correction suitable for a new "cold war" with its "dual circulation strategy". The Party media describes this as a development pattern in which domestic and foreign markets boost each other, with the domestic market as the mainstay.[28] The 14th Five-Year Plan prescribes a multitude of programs and initiatives to this effect. The major uncertainty is whether China can become more self-sufficient and technologically advanced despite or perhaps because of the US decoupling efforts.

The irony is that while security hardliners fear China becoming a technological superpower, the conventional wisdom is that China will have difficulty in this regard. The argument points to flaws in China's heavily centralised system, state control over resources and information flow, weak protection of intellectual property and a learning environment generally depicted as stifling for creativity. To the extent that China has been successful, the results have been attributed to copying from abroad rather than developing new knowledge at home.

This pessimism is overdone. Global experience points to five key factors driving innovation: learning, human capital, competition, scale and ownership structure. China scores well on the first four of these factors and while its high degree of state ownership may be sub-optimal, it is unlikely to be crippling.

Trade, foreign investment and participation in global value chains have been powerful drivers in promoting China's absorption of hard technologies like industrial processes and soft technologies such as management. On human capital, China now boasts more researchers than the United States and its share of global research and development expenditures at

[28] Xinhua, "China Focus: Understanding dual circulation and what it means for the world", *XinhuaNet*, 5 September 2020.

22% is second only to the United States' share at 25%.[29]

But what really sets China apart is the combination of its huge market and competitive pressures driving innovation, despite the perceived drawback of lingering socialist dogma. The huge market means that Chinese firms can achieve scale economies at home before having to venture abroad, and that global firms cannot avoid investing heavily in China, for fear of losing their main avenue of growth. Competition arises both externally – from trade and foreign investment – and internally, from cross-provincial rivalry. Finally, a relatively homogeneous culture combined with inherently curious Chinese consumers who are willing to embrace new products provide an attractive market for innovation.

These factors may be more important than the top-down innovation policies from Beijing that attract so much attention and criticism. Because China's Leninist political system makes it easy to over-commit resources to national priorities, waste is inevitable. But state support also makes it easier for China to capture the benefits of scale and coalesce efforts.

Because China's Leninist political system makes it easy to over-commit resources to national priorities, waste is inevitable. But state support also makes it easier for China to capture the benefits of scale and coalesce efforts

The combination of bottom-up energy and top-down support has already yielded significant achievements. China has tested the first commercial quantum communication network and become a world leader in high-speed rail transport. In e-commerce and e-payments, Alibaba and Tencent copied the West initially but they are now well ahead of their Silicon Valley stalwarts in the race to provide digital banking services.

Yet, China has not yet been able to produce its own globally competitive car and is struggling to produce commercial aircraft and second-generation semiconductors. What this illustrates

[29] J. Jin, "How China's technological independence strategy will transform its economy", *EastAsiaForum*, 27 November 2020.

are the limits to "leapfrogging" up the innovation ladder even with strong state support. Studies indicate that a country's capacity to innovate is closely tied to its income levels.[30] China's technological achievements may be much greater than normal for a country with a per capita GDP of US$10,000 but this is still just one sixth that of the United States and Western Europe.

Two near-term markers on China's likelihood of becoming a global innovative power are its progress in producing advanced semiconductors and the government's adeptness in regulating its internet giants without stifling entrepreneurial initiative.

The future for Chinese firms that rely on imported hi-tech components, particularly semiconductors, depends on the country's success in making these products at home. Production of semiconductors is arguably the world's most complex technology involving a combination of design skills, specialised equipment and manufacturing capacity that China thus far has been unable to replicate. China has been producing less than 20% of the semiconductors it needs for domestic use, with the more advanced chips coming mostly from the United States and Taiwan.[31] Experts suggest that even with herculean efforts, it would take at least a decade for China to narrow the gap significantly enough to achieve an acceptable degree of independence from foreign suppliers.[32]

Logic tells us that the win-win solution has China continuing to import semi-conductors, while gradually developing its own capacity to produce more of its needs in the future. The United States can maintain its position as the global leader in technological innovation by continuing to specialise in the more cutting-edge semiconductors and exporting these

[30] Global Innovation Index 2020, "The Global Innovation Index (GII) 2020: Who Will Finance Innovation?".

[31] C. Bown, How the United States marched the semiconductor industry into its trade war with China, Working Paper 20-16, Peterson Institute for International Economics, December 2020.

[32] J. Holdiak and S.W. Harold, "Can China become the world leader in semiconductors?", *The Diplomat*, 9 September 2020.

products to China. As discussed later, realising this win-win outcome, requires an agreement for handling the security risks which would allow both sides to produce and trade in line with their respective comparative advantages.

China's likelihood of becoming a major innovative power will also depend on how its regulators deal with the increasing power of its internet giants. Their prominence has raised concerns about monopolistic practices and financial risks stemming from their control and use of data as evidenced in Beijing's recent actions to rein in the Ant Group, an affiliate of Alibaba.[33]

More generally, President Xi's initiative to insert the Party's influence into the operations of private firms for political and regulatory purposes could have a dampening effect on innovation. In Europe as well as the United States, the size and power of tech giants like Google, Facebook and Apple are also being scrutinised for their anti-competitive behaviour and concerns over data security. Finding the right balance between state involvement for strategic purposes and reliance on market friendly regulatory policies will be challenging for both Beijing and Western governments.[34]

Post-Pandemic Expectations: Will Biden Be Different?

President Biden will need a strategy for China that differs from Trump's chaotic decoupling. He is focusing on strengthening America's economy and rebuilding global alliances. A supportive theme is that foreign policy will be guided by the interests of the middle class.[35] But how this will affect the China relationship,

[33] L. Wei, "Chinese Regulators Try to Get Jack Ma's Ant Group to Share Consumer Data", *Wall Street Journal*, 5 January 2021.

[34] R. Zhong, "With Alibaba investigation, China gets tougher on tech", *New York Times*, 23 December 2020.

[35] S. Ahmad et al., *Making U.S. Foreign Policy Work Better for the Middle Class*,

especially trade policies and technological conflicts, remains to be seen.

The new administration's efforts to rebuild America's productive and innovative capacity is noncontroversial as are actions to address global trade distortions and China's unfair investment practices. Biden, unlike Trump, is less concerned with trade deficits as a marker for success but he has similar protectionist sentiments in elevating the interests of workers above consumers or vested interests, such as financial institutions and drug companies seeking better access to China.[36] Instead of tariffs, Biden will rely more on "Buy America" initiatives and tax incentives to encourage domestic production. Preliminary indications suggest selective use of "industrial policies" to support innovative industries and green technologies such as electric vehicles – an approach that meshes well with Biden's climate change agenda.[37] But Biden's administration may be reluctant to alter Trump's Phase One purchase commitments even if they made little sense to begin with.[38]

The Biden administration shares the concerns of its predecessor about China's technology related security risks but will reassess the logic of the more aggressive decoupling actions. Trump's push for a forced sale of TikTok to US companies was recently suspended by the Biden administration pending a review of the data risks.[39] Biden may not retract Trump's policies to restrict exports of hi-tech components to

Biden may not retract Trump's policies to restrict exports of hi-tech components to China, but he is likely to take a more alliance-based approach to pressuring China

Carnegie Endowment for International Peace, 23 September 2020.

[36] A. Swanson, "Biden's Pick for Trade Representative Promises Breaks With Past Policy", *New York Times*, 25 February 2020.

[37] N. Sheiber, "The Biden Team Wants to Transform the Economy. Really", *The New York Times Magazine*, 11 February 2021.

[38] W. Wu, "US-China trade deal: Biden's team seem unlikely to relent on Beijing's commitments", *South China Morning Post*, 28 February 2021.

[39] J. McKinnon and A. Leary, "TikTok Sale to Walmart, and Oracle is Shelved as Biden Reviews Security", *The Wall Street Journal*, 10 February 2012.

China, but he is likely to take a more alliance-based approach to pressuring China. His administration will also be tough on China's military capabilities but tempered by the need to coexist with a rising power. Putting political considerations aside, however, major industrial supply chains linking the two economies remain intact and American investors are still pouring funds into Chinese equity markets.[40]

When Biden thinks allies, he primarily thinks Europe although Asia may matter more. Getting Europe on the same page will be challenging.[41] Biden's "America is Back" theme may not resonate as well as something closer to "America Listens". Europe shares the same ideological concerns as the US, but it is not as enmeshed in great power conflicts and is more closely intertwined with China's economy. The EU is China's largest trading partner and its foreign investment flows to China have been much higher than America's over the past decade. Europe may be worried about China's technological ambitions, but it is also concerned about US dominance in digital services and technological sovereignty as exemplified in its General Data Protection Regulation.[42] Asia is more worried about America's presence as a security blanket but does not want to be forced to choose between the two powers given its greater economic dependence on China than the EU.

China's Intentions in the Post-Pandemic Period

China missed a unique opportunity to improve its global image during the years in which the Trump administration was

[40] N. Lardy and T. Huang, Rising foreign investment in onshore Chinese stocks and bonds shows accelerating financial integration, Peterson Institute for International Economics, 4 January 2021.

[41] M. Crowley and S. Erlanger, "Biden's Plan to Link Arms with Europe Against Russia and China Isn't So Simple", *New York Times*, 18 February 2021.

[42] European Commission, "Data protection in the EU".

antagonising the world with its America First doctrine. Beijing was driven by a naive and unhelpful mindset that the United States was a fading power and the West needed to recognise the superiority of China's system. This coincided with Xi's nationalistic vision ensconced in the "Chinese Dream"[43] which led to a strategy that it was better to be feared than loved. The result has been an inclination to lash out at anyone who violates the country's sensitivities.

China lacks the natural alliances and soft power skills of the United States to provide global leadership and often resorts to punitive commercial gestures to express its sentiments.[44] This stems from Beijing reliance on economic links to influence foreign policies namely: trade to establish relationships, foreign investment to create a presence, and the Belt and Road Initiative (BRI) to provide more leverage.

China remains the largest trading partner for some 120 countries and a major destination for foreign investment despite the pandemic. Financial pressures and restrictions, however, have led to a sharp decline in China's outbound investment in recent years. More significant politically is the retrenchment in the BRI because of domestic financial constraints, debt problems of some borrowers and external scepticism about Beijing intentions and lending practices.[45] Nevertheless, a refocused BRI is likely to be revived in the future.

Under US pressure, China will step up its efforts to forge economic relationships with others, with the Comprehensive Agreement on Investment (CAI) with the EU concluded in December 2020 viewed as a major accomplishment.[46] This complemented the Regional Comprehensive Economic

[43] P. Mendes, "What does the Chinese dream really mean?", *South China Morning Post*, 14 March 2013.

[44] Y. Huang and J. Smith, "How China and US Threaten the World Trading System", *The Diplomat*, 4 November 2020.

[45] T. Greer, "One Belt, One Road, One Big Mistake", *Foreign Policy*, 6 December 2018.

[46] European Commission, "EU and China reach agreement in principle on investment", Press Release, 30 December 2020.

Partnership (RCEP), approved in November 2020, which provides Beijing with a vehicle for influencing economic relations in Asia.

Rebuilding US-China Relations

The challenge for Biden is that depending on the issue China is a partner, competitor and rival all at the same time. Security concerns now dominate the agenda, making mutually beneficial economic gains more difficult to achieve. Many differences cannot be readily resolved, but there are incremental actions that can change the atmospherics for engagement.

The first step is partnering with China where there is a shared interest such as combating the pandemic and strengthening the World Health Organization. Rejoining the Paris Climate Agreement is another obvious option given China's similar interests. But such progress may be tempered by Biden's intentions to elevate issues relating to human rights and democracy.

Dealing with China as a competitor – largely on trade and investment issues – may be just as contentious as it was with Trump given Biden's middle-class focus. Biden could end up mimicking China in using government subsidies to promote new industries and create better paying jobs. His alliance-based approach to constrain China's technological development may exacerbate tensions although Biden's administration will likely be more sensitive to the negative consequences for both sides.[47]

Many issues cannot be resolved bilaterally and need to be addressed within a broader political framework. Recent US signals about forming a coalition of democratic nations may be interpreted poorly by Beijing. The G20 framework could provide a less contentious multilateral approach for addressing economic concerns, including reform of the WTO. This could

[47] D. Ignatius, "Biden's ambitious plan to push back against techno-autocracies", *Washington Post*, 11 February 2021.

also include issues relating to cross-border data flows and the power of the internet giants, both American and Chinese. Progress in this regard, would make it much easier to draw on the recent investment agreement between the EU and China to revive the US-China Phase Two trade discussions which were derailed by the presidential elections.

Eventually the United States must find a means to engage Asia on trade and investment issues. Overcoming domestic resistance to joining the original Trans-Pacific Partnership (TPP) will be difficult.[48] It was a mistake for the United States to withdraw from the TPP, but the oft-made argument that if the West does not set the rules of the game, China will, is not helpful. The world is far better off having China involved and bound by the rules than operating as a rogue outsider.

Mitigating security concerns where China is seen as a rival or enemy is the most challenging undertaking. Lowering tensions in the South China Sea is a must for both sides to improve the atmospherics. China needs to signal that it is more interested in being viewed as a peaceful neighbour than pursuing hegemonic territorial claims. The most tangible action would be formal support for the proposed Code of Conduct with ASEAN.[49] Beijing also needs to tone down its repressive actions in dealing with security concerns in Hong Kong and Xinjiang despite their sensitivity as core issues.

The provision of globally sensitive infrastructure services such as 5G may need an international regulatory agency to mitigate risks and set standards, similar to the role played by the Nuclear Non-Proliferation Treaty

There are equally thorny problems to be resolved in dealing with tech transfer issues and the sanctions against Huawei in particular. The provision of globally sensitive infrastructure services such as 5G may need an international regulatory agency to mitigate risks and set

[48] C. McBride, et al., *What is the Trans-Pacific Partnership?*, Council on Foreign Affairs, 1 February 2021.

[49] N.M. Quang, "Negotiating an Effect China-ASEAN South China Sea Code of Conduct", *EastAsiaForum*, 31 July 2019.

standards, similar to the role played by the Nuclear Non-Proliferation Treaty. The alternative of having Huawei partner with a European company like Nokia to mitigate security concerns is far better than the decoupling options. More cooperative approaches relating to data security and industrial standards also need to be developed.

The complexity and sensitivity of China's relations with the West means that a series of both modest and ambitious actions are needed to mitigate tensions, but this should be done within a broader political understanding that recognises the legitimate concerns of both sides. Europe along with other Asian powers can play a critical role given America's renewed support for multilateral institutions – an approach also supported by China. This would promote a better environment for reconciling economic and security concerns and move the conflict away from being just a US-China great power rivalry.

7. Withstanding the Storm: The Digital Silk Road, Covid-19 and Europe's Options

Tyson Barker

In April 2016, President Xi captured China's sense of technological vulnerability in an arresting way:

> Our dependence on core technology is the biggest hidden trouble for us. Therefore, having a good command of core Internet technology is our mission. Heavy dependence on imported core technology is like building our house on top of someone else's walls: No matter how big and how beautiful it is, it won't remain standing during a storm.[1]

By that point, the logic of Xi's statement had informed China's pursuit of cyber sovereignty – through fits and starts – for the better part of two decades. But as China's capacity to produce core Internet and Communication Technology (ICT) hardware, effectively regulate Internet traffic and transform its ICT and digital services have grown, Beijing's Digital Grand Strategy, itself, has shifted – from a feature of the country's domestic development to a frontline domain in the global race for technological leadership and a key vector in the export of China's model of authoritarianism.

[1] CRI Online, "Core technology depends on one's own efforts: President Xi", *People's Daily Online*, 19 April 2018.

In the eyes of the Chinese Communist Party (CCP), the Covid-19 crisis has in many ways vindicated its model of development. The crisis exacerbated political fissures in the US; economic stagnation in Europe and Japan; and debt-reliance in the Global South – all the while, fuelling a massive acceleration in global technological adoption. China posted 2.3% growth in 2020. China's 14th Five-Year Plan seems to indicate that the country withstood the Covid-19 storm.[2] It also seems to show that the Covid-19 crisis has, in many ways, validated China's methodical quest for cyber sovereignty, rooted in state control that intermediates technologically-enabled social relationships at home, as well as China's broad technological connective tissue with the outside world through the Digital Silk Road (DSR).

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The first post-Covid Five-Year Plan envisions China continuing to move up the food chain of advanced research, through progress in the following 7 "frontiers of science and technology": 1) next-generation AI; 2) quantum technology; 3) integrated circuits; 4) brain research and neural networks; 5) genetics and biotechnology; 6) clinical medicine and health; and 7) exploration of space, the deep layers of the earth, the deep sea and the polar regions.[3] The 192-chapter plan – which shifts the focus away from GDP growth targets and towards consolidated power and global leadership – also recasts national security in terms that extend the logic of end-to-end control beyond technology, to areas like food, finance and energy.

[2] GT staff reporters, "China's 5-year plan to lead global recovery", *Global Times*, 8 March 2021.

[3] Bundesverband der Deutschen Industrie e.V. (BDI), *Nationaler Volkskongress: Arbeitsbericht der Regierung*, National People's Congress, Government Work Report, 9 March 2021.

At the heart of China's Covid-19 strategic shift is the "dual circulation" model, unveiled by President Xi in September 2020.[4] Under this model, China aims to use the DSR to push forward with global technological integration on Chinese terms, while inoculating itself against external technological dependencies. This, of course, is set against the backdrop of 3 geopolitical realities that could pose headwinds to the DSR's post-Covid development. First, the increasingly sophisticated American approach to US-China strategic competition under the Biden Administration, which is now couched in the language of multilateralism and increasingly embedded in a network of allies. Second, global collapse of trust in China due to its opacity around the Covid outbreak and its aggressive "wolf warrior" diplomacy, particularly during the first wave, combined with deteriorating fiscal conditions in partner countries. And finally, an ambivalent Europe, whose economic dependence on China accelerated during the crisis, but whose political orientation is simultaneously more suspicious of China's intentions and more rooted in its own aspirations for digital sovereignty.

This chapter attempts to provide a topography of the DSR during the Covid-19 crisis and what it means in a global context, particularly for the European Union. In order to do so, the piece first examines the primary elements of technological development in China, which serve as the domestic basis for the country's "going out" strategy in the ICT arena. The second section examines the slow yet steady rise within the Belt and Road Initiative (BRI) of its digital connectivity pillar, the DSR with its emphasis on ICT infrastructure, technology and digital services. The third section looks at the changes in emphasis that

Under the dual circulation model, China aims to use the DSR to push forward with global technological integration on Chinese terms, while inoculating itself against external technological dependencies

[4] K. Yao, "What we know about China's 'dual circulation' economic strategy", *Reuters*, 15 September 2020.

have characterised some areas of the DSR's Covid era evolution, namely the growing role of digital services, greater use of mergers and acquisitions, an increased focus on the domestic market focus as part of a "reverse-flow" DSR, and new emphasis on regulatory mirroring and global governance. The final section concludes with a consideration of the potential blind spots of the EU, as it grapples with the logic of the DSR at home and globally. This essay does not aspire to provide exhaustive analysis of the next chapter of the DSR, not least because the geopolitical and economic conditions shaping China's Geotech ambitions necessitate constant recalibration. It does, however, attempt to capture the intellectual foundation – and its features – upon which Beijing has structured its quest to build a digital hub-and-spoke system on a global scale.

Broad Political Elements of Chinese Technology Development

Over recent decades, China's domestic technological modernisation had been characterised by four key elements, all of which interact with China's internationalisation efforts. First, it has long used a form of import substitution in the digital sector to harness the power of its indigenous market to incubate local players. The Great Chinese Firewall – and legal restrictions on foreign operations of many digital services like Facebook and Google within China – have created a protected single market of 802 million Internet users. That has provided fertile ground for scalable growth and an accommodating market. Even if competition among Chinese tech companies in areas like AI, platform provision and e-commerce can be ferocious, it is relatively sheltered from the asymmetric degree of competition that international competitors would have provided.

The centrality of the domestic market remains an important, although changing feature of China's tech foreign policy. Even though China has 111 Fortune 500 companies – a fifth of the

global total – over 80% of their business is done domestically.[5] Despite advances in technological research in frontier areas like artificial intelligence and telecommunications equipment, China continues to be a global taker of intellectual property (IP) – the primary basis for technological development – importing 6 times more global IP than it creates. That asymmetric relationship is highly concentrated. A majority of China's tech IP imports stem from just 3 countries: the US (31%), Japan (21%) and Germany (10%).[6] As such, cyber economic espionage, once called the greatest wealth transfer to China in the history of the world, continues and has increased in sophistication. IP theft and other forms of tech transfer are at the root of some of China's most successful tech companies, such as Qihoo, Meituan, Dianping and SMIC.

Second, the relationship between the state and Chinese enterprises does not reflect the independent and, at times, deeply antagonistic behaviour between democracies on the one hand and their private sector on the other. The intermediation role of the state – and of the Chinese Communist Party in particular – governing and legitimising all social and commercial encounters cannot be overstated. The PRC's constitution "prohibits any organisation or individual to damage the socialist system" rooted in the legitimising wellspring of the CCP.[7]

This logic of state/CCP intermediation and control extends to the digital sphere. The de facto fusion of state and enterprise into a single vertical entity takes different forms, from state-owned enterprises, to the structure of management boards and the legal overhang granted by broadly-worded statutes, such as the sweeping data localisation requirement that "important

[5] J. Woetzel et al., *China and the world: Inside the dynamics of a changing relationship*, McKinsey Global Institute, July 2019, p. 29.

[6] Ibid., p. 3.

[7] D.K. Tatlow, "China's Technological Rise. Implications for Global Security and the Case of Nuctech", Rahvusvaheline Kaitseuuringute Keskus (RKK), International Centre for Defence and Security (ICDS), and Estonian Foreign Policy Institute (EVI), January 2021, p. 2.

data" must be stored in accordance with the 2017 Cyber Security Law. The 2017 National Intelligence Law contains blanket mandates for "all organisations and citizens" to support national intelligence efforts (Art. 7) and grants China's intelligence services authority to request support (Art. 14).

In the past, the government has effectively conscripted Chinese tech companies to render data collection, surveillance and processing for government use. Frequently, individual Chinese IT specialists and even Chinese companies are forced into a relationship with the government, under which they are required to perform services around data collection and processing. In combination with the increasing development of enabling, general-purpose technologies and the fusion of China's innovative industrial base with its military, China's tech industry is becoming a core component of the People's Liberation Army's (PLA) modernisation and range of capabilities.

Third – and this is connected with the fusion of state and enterprise – are the governing principles of Chinese ICT development. At their heart, these are rooted in the notion of "social harmony", with its communitarian basis, where state control is legitimised by creating a harmonious society through a strict hierarchical order.[8] The second-order principles – sovereignty, opacity, a perceived justification of end-to-end surveillance as a "public good", the de-emphasis of human rights, unlimited data availability and non-individual control – reinforce the bond between the state/CCP, telecommunications state-owned enterprises (SOEs), state adjacent tech champions and start-ups. Grafted together by state investment, procurement structures that advantage state-favored companies, forced joint ventures and sharing of technology IP gathered through state-backed industrial espionage with copy-cat companies at home. This co-dependence, with the state/CCP as the undisputed senior partner, is a hallmark of China's domestic technology and

[8] *NextGen Network: How AI Can Work for Humanity*, The Aspen Institute, 18 November 2020.

digital services market. Failure to adhere to the arrangement can have serious consequences.[9] At the same time, China has instrumentalised key technologies to enforce its authoritarian governance model through industrial-grade AI-surveillance, suppression and control at home, particularly in areas of political unrest like Xinjiang and Hong Kong.[10]

Fourth – and flowing from the first three elements – is the consistent state ambition to control technical standards both domestically and internationally. These aims have been expressed over the years but often been blocked due to lack of control over external technological ecosystems and capacity within the global technical standard setting community. In 2004, for instance, China's attempt to establish an autarkic national wireless LAN authentication and privacy infrastructure (WAPI) ran into massive pushback among China's IT sector and the international community because it was feared that the rival standard to the internationally recognised WLAN would create another cleavage between the Chinese national Internet and its global counterpart. Amid mounting pressure, and in view of the collateral damage the WAPI standard would have done to the competitiveness of Chinese IT, Beijing ultimately backed down from the WAPI standard.

TD-SCDMA (Time Division Synchronous Code Division Multiple Access) is another example. TD-SCDMA was China's attempt at developing the leading standards for 3G mobile, developed in conjunction with the German industrial conglomerate, Siemens.[11] China Mobile was forced into accepting the exclusive rights from the Chinese government in 2009, despite its desire to use the more globally interoperable

[9] In the first 3 weeks of 2019, the Chinese government shutdown 700 websites and 9000 mobile apps. A. Polyakova and C. Meserole, *Exporting digital authoritarianism*, Brookings, August 2019.

[10] K. Sahin et al., *The West, China, and AI Surveillance*, Atlantic Council, 18 December 2020.

[11] "China's 3G Technology Gamble: Who Has the Last Laugh?", *Knowledge@Wharton*, Wharton University of Pennsilvanya, 6 July 2011.

Wideband Code Division Multiple Access (WCDMA). But because it was air-gapped from the global standard, developers were less interested in developing hardware and services for China's autarkic standard. As a result, the perception in 2011 was that the telecoms market remains beholden to foreign technology. Ultimately, China Mobile was allowed to pull the plug on TD-SCDMA in favour of the more interoperable TD-LTE 4G in 2014, after having invested more than US$32 billion in network infrastructure.[12] In 2011, only 7% of China's mobile users were on 3G systems, as opposed to 100% of Japanese users, 47% of Europeans and 40% of Americans.[13] Today the adoption picture is different. Across a number of areas – such as 5G connectivity, health tech, mobile payments and digital currency – China is a leader in adoption and is now positioned as a standard setter.

As China's homegrown R&D, ICT production overcapacity and indigenous capabilities have increased – particularly in AI, connectivity hardware, and increasingly platforms and fintech – it has moved some of its tech champions up the ranks of global competitiveness

As China's homegrown R&D, ICT production overcapacity and indigenous capabilities have increased – particularly in AI, connectivity hardware, and increasingly platforms and fintech – it has moved some of its tech champions up the ranks of global competitiveness. Chinese tech champions have begun to aggressively internationalise and diversify – including Huawei and ZTE in its first wave. Alibaba aims to generate 40% of its revenue from outside China by 2027 and have 1 out of 2 billion net buyers located outside China by 2036. China's more robust ICT "going out" strategy has been a particular driver of new frictions with the United States, which has recognised the geostrategic implications. Between 2017 and early 2020, the US scaled up the use of the Entity List, which forbids the

[12] S. Kinney, "RIP: China Mobile's TD-SCDMA 3G network (2009-2014)", *RCR Wireless News*, 14 December 2014.

[13] "China's 3G Technology Gamble: Who Has the Last Laugh?"…, cit.

export and IP usage of American technology by named Chinese companies, and doubled the number of CFIUS (Committee on Foriegn Investment in the United States) investigations.[14] In response, China has pointed to its own ICT supply chain choke-holds on rare earths[15], cobalt[16] and even essential patents for 5G technology, and has hinted at a possible willingness to exploit them.

The DSR in the Context of the Belt and Road Initiative

China's digital development began to attract greater global attention around 2015, following the launch of the Made in China 2025 (MiC2025) plan, which outlines a 10-year industrial policy aimed at transforming 10 core industries into world leaders in their respective sectors. The plan was updated in 2017, with a closer focus on domestic autonomy in key emerging technologies. Its Internet+ subset outlined the intention to integrate manufacturing and services with digital technology more fully by design. The 13th Five-Year Plan included specific GDP and R&D targets, with a view to powering economic growth through innovation. It was followed by China's 2016 AI Strategy and China Standards 2035, each citing specific targets, as well as industrial and capacity resources, with an eye to Chinese technological leadership.

The DSR as an app plug-in for the BRI

The Digital Silk Road (2015) draws on three core state-driven strategies: Made in China 2025, the Belt and Road Initiative and China Standards 2035. The DSR integrates all three, while

[14] From 73 annually under Obama to 147 under Trump.

[15] Yun Li, "'Don't say we didn't warn you': A phrase from China signals the trade war could get even worse", *CNBC*, 29 May 2019.

[16] L.Ch. Savage, "How America got outmaneuvered in a critical mining race", *Politico*, 12 February 2020.

simultaneously seeking to generate network effects for the competitiveness of China's ICT stack; creating new markets and digital service relationships to the Middle Kingdom, and export Chinese industry standards in next-generation technologies.[17] Over 6000 tech enterprises are registered on the BRI Portal and over one third of Chinese FDI in BRI countries is in technology areas.

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The BRI combines the land-based economic belt, made up of 6 development corridors, with the XXI century maritime silk road. The initiative names 5 key priorities: 1) policy coordination, 2) infrastructure connectivity, 3) unimpeded trade, 4) financial integration, and 5) connecting people. The initiative is funded by a mix of Chinese state-owned and state-controlled banks and funds, as well as a number of international finance institutions (IFIs), including the Asia Development Bank and European Bank for Reconstruction and Development (EBRD).[18] As of January 2021, China has signed BRI Memoranda of Understanding (MoUs) with 140 countries, including 34 in Europe and Central Asia and, by Chinese accounts, 18 EU countries (although many of these dispute or have not confirmed their formal participation).[19]

DSR projects were initially perceived as primarily plug-in projects to core BRI projects in rail, maritime and road infrastructure. The BRI model is a highly integrated infrastructure ecosystem that links ports to research parks and cities. This pairs connectivity along transport infrastructure with more specific AI-surveillance and security monitoring at stations, ports and shipping and storage facilities. It also allows

[17] J.E. Hillman, *Competing with China's Digital Silk Road*, Center for Strategic & International Studies, 9 February 2021.

[18] *The EBRD and BRI*, European Bank for Reconstruction and Development, 2021.

[19] *Countries of the Belt and Road Initiative (BRI)*, Green Belt and Road Initiative Center, January 2021.

for latent control over a broader infrastructure ecosystem that can make the recipient country susceptible to normative influence in benign times, extract concessions in competitive times or be weaponised at times of hostility.

The defining feature of the DSR, however, has been its core focus on connectivity infrastructure, both in telecommunications/5G hardware and smart cities. Most attention in Europe has therefore centred on equipment sourcing for core and radio access network (RAN) 5G infrastructure from Huawei and ZTE. Together Huawei and ZTE account for 38% of the global mobile equipment market.[20] An aggressive push for external market share in partner countries has been aided by two factors: first, the relatively low cost of Chinese technologies, particularly telecommunications equipment, due to massive state subsidy support, and second, aggressive state-backed diplomacy, marketing and in-country availability, which long went unchallenged by competitors from Europe, the US, Japan and South Korea. Across the global south in particular, ZTE and Huawei have secured exclusive rights as the countries "sole equipment supplier", allowing them to work with the government and telecom networks to create conditions for digital surveillance, repression and control.[21]

China's campaign for telco infrastructure extends beyond 5G equipment, to undersea and space-based aspects of Internet connectivity as well. Chinese companies have developed fibre optic cable networks in 70 countries and have been involved in at least 32 undersea cable projects in South East Asia.[22] Papua

To date, Chinese companies have signed more than 116 smart-city or safe-city partnerships, including 70 in BRI-participant countries and deals signed by Huawei in countries like Kenya, Singapore, Spain and Germany

[20] B. Dekker, M. Okano-Heijmans, and E.S. Zhang, *Unpacking China's Digital Silk Road*, Clingedael Report, Clingendael Institute, July 2020, p. 5.

[21] S. Feldstein, *Testimony before the U.S.-China Economic and Security Review Commission Hearing on China's Strategic Aims in Africa*, 8 May 2020.

[22] D.R. Russel and B.H. Berger, *Weaponizing the Belt and Road Initiative*, Asia Society Policy Institute, September 2020, p. 21.

New Guinea partnered with Huawei Marine to lay undersea fibre optic cables in the island nation, despite considerable political opposition from the US, Australia and Japan. Argentina and ZTE have entered into a fibre optic cable system agreement. In February 2021, China and Pakistan completed the PEACE fibre optic cable network connecting China to Europe through Pakistan and significantly reducing Pakistan's reliance on Indian Internet infrastructure.[23] The China-Myanmar International (CMI) terrestrial cable has been a key node in Chinese support to build out Myanmar's network coverage, with the focus on Myanmar as a DSR connectivity bridge between East, South East and South Asia.[24]

In addition, through the Belt and Road Space Information Corridor, China is exporting a space Internet connectivity ecosystem, primarily to the Indo-Pacific. Its Beidou Navigation Satellite System (BDS) network is available to BRI-participating countries, as an alternative to GPS and Galileo. 30 BRI countries are connected. Together, China and Pakistan built the first Beidou base-station in the city of Karachi, as part of the "Space Silk Road".[25] With 40 satellites, Beidou has already outstripped GPS's 31 operational satellites and Galileo's 24. This satellite network is also a strong standard-setting vehicle. In 2016, the State Council called the Beidou satellite network, the "digital glue" that would bind core infrastructure components of the BRI, such as ports and railways, to cities and smart manufacturing facilities – all premised on Chinese government intermediation.[26] The network would also create a protected extraterritorial communications ecosystem for the PLA, inoculated against GPS dependency.

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[23] M. Haq, "China builds Digital Silk Road in Pakistan to Africa and Europe", *NikkeiAsia*, 29 January 2021.

[24] S.Rajaratnam School of International Studies (RSIS), "China's Digital Silk Road: The Integration of Myanmar - Analysis", *Eurasia Review*, 30 April 2019.

[25] S. Siddiqui, "BRI, BeiDou and the Digital Silk Road", *Asia Times*, 10 April 2019.

[26] D.R. Russel and B.H. Berger (2020), p. 21.

To date, Chinese companies have signed more than 116 smart-city or safe-city partnerships, including 70 in BRI-participant countries and deals signed by Huawei in countries like Kenya, Singapore, Spain and Germany. Safe-city solutions, built around AI-powered surveillance, big data processing, facial recognition and traffic and sewage management, have been a means of exporting China's "sharp eyes" approach to high-tech urban policing. Interestingly, the region with the highest concentration of Chinese-built smart-city projects is Europe.[27] China's suite of off-the-shelf urban management technologies not only automates public services, but also yields massive amounts of rich data. All of this data could be subject to intelligence service collection based on laws currently on the books. Sensetime, a Chinese AI-powered facial recognition specialist, announced a US$1 billion deal to build an AI research park in Malaysia, focusing on autonomous driving, health, education and smart-city ecosystems, with a view to establishing "AI governance" principles in the country.[28] Many of these projects, however, exist primarily on paper. In Germany, for instance, the Huawei-planned smart city in Duisburg, an industrial city with the world's largest inland port, which is also seen as a DSR endpoint, has largely stalled.[29]

A China-centric connectivity ecosystem would be sourced end-to-end with each component of physical Internet infrastructure, including copper and fibre cables, 5G equipment, satellite networks and mainframe computers for data processing, AI and cloud services. One underexplored aspect is normative capture. Third-country market adoption

[27] J. Kynge, "From AI to facial recognition: how China is setting the rules in new tech", *Financial Times*, 7 October 2020.

[28] GCR Staff, "China's SenseTime to help build $1bn AI park in Malaysia", *Global Construction Review*, 30 April 2019.

[29] M. Verfürden, "Duisburg will 'Deutschlands China-Stadt' sein – doch Jobs fehlen und die Zeit läuft ab" ("Duisburg wants to be Germany's China-city - however jobs are missing and time is running out"), *Handelsblatt*, 9 February 2021.

has an acculturating effect. Usage can necessitate implicit agreement, through contracts and terms of use, and create tacit acceptance of Chinese-centric conditions. Normative change can be hard to dislodge, given technological lock-ins and the effect of latent socialisation that comes through everyday use.

Technology becomes the heart of the BRI

The DSR gradually moved into the mainstream of China's efforts to promote outbound China-led development. Four factors contributed to this

By 2017, the political prioritisation of the DSR had risen, as senior CCP and government officials consistently emphasised the BRI's digital component. The DSR gradually moved into the mainstream of China's efforts to promote outbound China-led development. Four factors contributed to this.

First, the Chinese state and the CCP began to shift emphasis away from state-led ICT import substitution towards international strategies, thus aligning domestic capabilities and objectives with international capabilities and objectives. This alignment began to take shape in a subsequent series of plans addressing sectoral and policy issues, each with significant ICT subsets. At least 16 countries have signed MOUs relating to the DSR, but participant structure is less state-centric and can be less formal than the BRI. Up to 138 countries have an active DSR project.[30]

Second, even before 2020, public sentiment in BRI recipient countries was often hostile. Highly visible use of Chinese labour in countries where employment was a political priority was resented by local populations. The Chinese financing of infrastructure projects that mainly funded Chinese construction and infrastructure companies was perceived as corrupt and as a pathway into onerous loan conditions that the US labelled a

[30] RSIS, "China's Digital Silk Road: The Integration Of Myanmar", *Eurasia Review*, 30 April 2019.

"debt trap".[31] This has been exacerbated by the deteriorating economic outlooks for many of the BRI's most debt-ridden client countries, such as Pakistan. Amid construction delays and debt overhang, the shift to high-tech projects and services has already displaced some rail and transportation projects.

Third, the DSR's more normative character gives it greater operational flexibility. In essence, DSR projects can operate as plug-ins sitting on top of the more formalised, state-driven BRI. That said, experts have identified three core objectives: 1) driving greater digital integration of China into partner markets; 2) promoting the development, modernisation and upgrading of BRI-participant partners, using Chinese technology and 3) creating new regional or sectoral ecosystems based on China-centred tech value chains that either lock Western actors out or force them into conformity.[32] China's industrial innovation base – a mix of SOEs, private Chinese tech champions and start-ups – have become the federated emissaries of Chinese services, infrastructure, standards and ultimately, governance.

Unlike the traditional core of the BRI, which generally focuses on capital-intensive infrastructure projects and can involve state-finance, insurance and large teams of often Chinese workers visibly active in the construction process, the DSR is a hybrid of federated projects. Some of these are large, such as 5G network infrastructure projects, but many involve smaller Chinese private-sector actors operating under a loose mandate. The DSR umbrella is a mutually reinforcing campaign to establish market access – and ultimately competitiveness – across telecommunications infrastructure, data centres, IoT, smart cities, e-payment systems and social media. In the data governance space, such infrastructure capacity-building creates conditions for setting rules on enabling content moderation, filtering, data localisation and surveillance. Even when the state/CCP demands on Chinese companies are dormant, they

[31] A. Han and E. Freymann, "Coronavirus Hasn't Killed Belt and Road", *Foreign Policy*, 6 January 2021.

[32] B. Dekker, M. Okano-Heijmans, and E.S. Zhang (2020), p. 4.

remain present and can be activated through a thicket of laws and power relationships.

Lastly, the role of ICT technical standards and Internet governance is a central feature of the DSR. The CCP's desire to repatriate ICT standard-setting has long been an ambition of China's approach to the Internet. China's experience with TD-SCDMA and WAPI was telling. There is a well-known Chinese saying that third-tier companies make products, second-tier companies make technologies and first-tier companies set standards. But the integrated logic of the DSR aims to concentrate all three within the Sino-centric system.

The Standards Administration of China (SAC) established a dashboard to assist in the use and comparison of Chinese national standards, as part of its capacity building to create greater alignment with BRI-participating countries.[33] Currently, it has 85 agreements with more than 49 countries. In its 2019 Standardisation Development report, China listed technology standards exports as a BRI priority. SAC has explicitly shifted its focus from standard-setting cooperation with the United States and Europe to a greater emphasis on the Global South, with regionalised interest in Asia. China has fuelled discussion of a potential Asian Standardisation Organisation – a China-centric regional standard-setting body akin to the Asian Infrastructure Investment Bank – that would anticipate and feed up to ISO and IEC positioning it upstream of the global standard-setting process. The DSR exports technical standards and Internet governance models, reinforced through on-the-ground adoption of technologies that create path dependencies in user behavior.

Equally important, China has made a concerted effort to build capacity and influence in the multilateral standard-setting community. In 2013, it joined Germany, France, the US, Japan and the UK as a permanent member of the ISO Council.[34]

[33] P. Triolo et al., *The Digital Silk Road: Expanding China's Digital Footprint*, Eurasia Group, April 2020, p. 12.

[34] Embassy of the People's Republic of China in the Republic of Liberia, "China

From 2015-18, the ISO's President was a Chinese national. In 2020, the electrotechnical standard-setting body IEC, appointed a Chinese national, Yinbiao Shu, as President. Zhao Houlin, the Chinese national heading the UN's International Telecommunications Union (ITU), has been unabashed in his defence and support for BRI, Huawei and the DSR. The China Electronics Standardization Institute (CESI) leads the ISO working group on AI standards.[35] Chinese high-voltage grid standards are currently under consideration for the IEC's Global Energy Interconnection standards which, if adopted, would help to consolidate Chinese leadership in grid infrastructure.[36]

DSR in the Year of the Rat: Covid-19 and Changing Trends in Chinese Tech Foreign Policy

In many ways, the DSR accelerated during the Covid-19 crisis. The jolt to digital adoption drew new technological dependency into the spotlight, as platform services – such as video-conferencing and streaming services, e-commerce, social media, gaming, cloud-supported logistics and health tech – are all reliant on telecommunications infrastructure. At the same time, it fuelled a massive purchasing increase in smartphones, computers and IoT in the Global North. The hardware demand spike, in conjunction with decreased semiconductor production and greater awareness of supply chain vulnerabilities, fuelled new tensions in the China-US tech competition and created new urgency for Europe to pursue indigenous technological capabilities.

Against this backdrop, four broad trends can be identified in DSR development in the Covid-19 era. Each has nuances.

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becomes ISO permanent member", 17 October 2018.

[35] https://sg.news.yahoo.com/china-aims-strengthen-ductor-supply-065031004.html

[36] J. Kynge and Nian Liu, "From AI to facial recognition: how China is setting the rules in new tech", *Financial Times*, 7 October 2020.

None reflects a complete shift in the characteristics that defined the broadly eclectic and differentiated DSR in the years prior to 2020. However, certain trends are noticeable and worthy of further exploration. Each of them expands the scale and scope of the DSR beyond what was originally envisaged, and certainly far beyond current perceptions and expectations regarding its deep and massive impact on China's rising influence both abroad and at home. While this section will draw on global data and information, the primary focus will remain on Europe.

Beyond hardware: Digital services, digital health, and FinTech

Covid-19-driven debt accumulation in middle- and low-income countries could slow demand for BRI-based infrastructure projects, making it more difficult for China to knit itself to partner states that then absorb excess Chinese capacity and labour

On connectivity and 5G infrastructure, the picture has been mixed. The threat of a US-China tech-stack split – combined with the economic uncertainty around Covid-19 and changing perceptions of China's intentions – have prompted countries to hedge their ICT infrastructure roll-out. The uncertainty overhang has been compounded by the US Entity List designation, and the 5G trustworthy equipment standards currently under development have changed the calculus of some countries, which do not want to get caught in the crossfire centred on Huawei. Japan, Australia, the United States and others have barred Huawei 5G equipment from their networks and raised concerns about cyber threats relating to back doors, service disruption and data manipulation.

Some predict that Covid-19-driven debt accumulation in middle- and low-income countries could slow demand for BRI-based infrastructure projects, making it more difficult for China to knit itself to partner states that then absorb excess Chinese capacity and labour. China's pattern of loan extension – rather than forgiveness – has proven a stumbling

block for large BRI-related infrastructure projects, including in telecommunications and connectivity.[37] For instance, the US has created new financing instruments, specifically the International Development Finance Corporation (DFC), to provide alternative financial support, including labour and environmental standards, to counter Chinese loans, including for connectivity infrastructure. In January 2021, the DFC provided Ecuador with the financial resources to pay back Chinese debt in exchange for guarantees to avoid Huawei and ZTE in its 5G infrastructure.[38]

In Europe, while efforts remain uneven, the EU's 2020 Toolbox Of Risk Mitigating Measures for Cybersecurity of 5G Networks has led to some degree of convergence on trustworthy standards for network equipment in mobile carrier infrastructure. Combined with the US Clean Network Initiative, the effect has been to narrow the space somewhat for usage of Huawei and ZTE equipment in Europe's 5G core and RAN networks. Countries like Romania, the Czech Republic and the Baltic states have deep security ties to the United States and have come under considerable pressure to ban Chinese equipment providers. Others, like the UK, France and Italy, have made a U-Turn away from Huawei sourcing, given the acute cybersecurity concerns, compounded by Chinese behaviour during the Covid crisis. Others again, such as Hungary, have been more open to Chinese connectivity and tech infrastructure. In a fourth category, Greece has tried to strike a delicate balance between the US and China on Huawei, in light of the changing security landscape in the Eastern Mediterranean. Greece signed on to the American 5G Clean Network, but it remains unclear what the Clean Network means to Greece and its acquisition intentions.[39] Serbia did likewise,

[37] K.M. Sutter, A.B. Schwarzenberg, and M.D. Sutherland, "China's "One Belt, One Road" Initiative: Economic Issues", Congressional Research Service, 22 January 2021.

[38] Ibid., p. 2.

[39] E. Gkritsi, "Huawei in Greece: How Snowden shaped EU's approach to

but at the same time uses thousands of Hikvision AI-powered surveillance cameras in Belgrade.

Globally, the picture has become more politically sensitive for Huawei and ZTE as well, although not always leading to declines in market share. The Blue Dot Network between Japan, Australia and the US creates similar certification mechanisms for connectivity infrastructure, among other things.[40] At the same time, reliance on Chinese 5G vendors has also grown in some places. For instance, 11 telcos in Gulf Cooperation Countries (GCC) signed massive 5G contracts with Huawei, as the oil-rich Middle East became increasingly tied economically to Chinese growth during the Covid crisis.

The geopolitics surrounding Huawei have also impacted on China's rise as a smartphone power. Chinese smartphones made up 60% of market share in ASEAN in 2019 and 25% in Europe. The hit to the Huawei brand – combined with chip shortages resulting from US Entity List Designations – has affected the company's global market share, with sales of Huawei smartphones declining from 18% of the global market in Q3 2019 to 8% in Q4 2020. It would be a mistake, however, to associate Huawei's geopolitically-driven decline with an overall hit to Chinese dominance in smartphones. Other Chinese smartphone makers – Xiaomi, Oppo, realme, Transsion and Vivo – have absorbed most of Huawei's share. In Europe, Xiaomi and Oppo took a major bite out of both Huawei and Samsung in 2020.[41]

The user base for China's data-intensive platforms and digital services remains largely limited to China, their data sets lack the diversity of data pools held by US technology companies

Even as the demand for Chinese ICT hardware has hit some headwinds, Chinese digital services have flourished. Because the user base for China's data-intensive platforms and digital

Huawei", *technode*, 21 January 2021.

[40] U.S. Department of State, "Blue Dot Network", 2021.

[41] A. Walker, "Xiaomi, not Samsung or Apple, is taking advantage of Huawei's woes in Europe", *Android Authority*, 1 March 2021.

services remains largely limited to China, their data sets lack the diversity of data pools held by US technology companies. China only has 20% of the cross-border data flows that the US has.[42] That has started to change, as both Chinese hardware and OTT (Over The Top) offering become available outside of China. TikTok was 2019's second-most downloaded app globally,[43] and shot up to number one in 2020, with more than 100 million active users in Europe.[44] The Covid-19 crisis has also been tied to growth in usage of AliExpress, including across some areas of Europe. Today it stands as the leading non-homegrown e-commerce platform in multiple countries throughout Europe, particularly in Central Europe and the Balkans. WeChat adoption outside of China remains insignificant. But the company is focused on expanding the ecosystem in China's Asian perimeter.

The Covid-19 crisis has also brought with it increased demand for sophisticated AI-powered digital health surveillance and diagnostics equipment. China has been maximalist in its deployment of health surveillance in the crisis and its companies subsequently became exporters.[45] China's use of a QR health code system for tracking and sharing travel and interaction authorisations became a mainstay of the country's management of the spread of Covid-19 within the country. Early in the pandemic, similar QR code certifications were in development to allow for cross-border tracking and verification as a component of travel, accommodation and restaurant booking systems across East Asia.[46] Alibaba offered its cloud services to host-countries early in the pandemic, to model and

[42] J. Woetzel et al. (2019), p. 3.

[43] A. Freer, "TikTok was the most downloaded app of 2020", *Business of Apps*, 15 December 2020.

[44] J. Firsching, "TikTok Statistiken 2020: 100 Mio. Nutzer in Europa & über 800 Mio. weltweit" ["TikTok Statistics 2020: 100 Mio. Users in Europe and over 800 Mio. worldwide"], *Future BIZ*, 15 September 2020.

[45] K. Sahin et al. (2020).

[46] Li Bo, "The Digital Belt and Road program yields fruits amid the coronavirus pandemic", *Beijing Review*, 14 May 2020.

track regional transmission patterns. Moreover, China has proposed to export its Corona Apps globally. With access to all data stored on smartphones, the Chinese Corona App has been cited as a proto-authoritarian governance tool providing the nascent basis for social scoring systems in countries like Saudi Arabia.

Chinese AI-powered diagnostic equipment has become standard across hospitals in middle-income countries like Ecuador.[47] Biotech companies, like the Beijing Genomics Institute, have offered to provide Covid-19 testing in other countries for free, as a means of collecting DNA data.[48] Efforts by groups like the Beijing Genomics Institute (BGI) have included genetic data collection even in places like the United States. Adding DNA data to a data profile stack that includes personal information, such as financial, insurance and employment data, could provide a powerful body for AI/ML training and analysis.

In Europe, AI-powered health surveillance tools have also increased. This is not insignificant, in view of the divergences in this area between Europe and the United States. For instance, the US added a number of facial recognition technology makers, such as Hikvision and SenseTime, to the Entity List on security and privacy grounds, as well on the grounds of their role in Xinjiang detention camps. But the European Union – a leading proponent of data protection – has deployed Hikvision biometric video technology at European institution entrances in order to monitor for Covid-19 symptoms.[49] Other biometric surveillance technology produced by companies like Dahua has also seen increased attention to their usage during the crisis.

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[47] J. Kurlantzick, "China's Digital Silk Road Initiative: A Boon for Developing Countries or a Danger to Freedom?", *The Diplomat*, 17 December 2020.

[48] G. Myre, "China Wants Your Data - And May Already Have It", *npr*, 24 February 2021.

[49] C. Sebastiani, "Open letter: Are the cameras and scanners used at the entrances of the Commission and EP buildings …", *Renouveau & Démocratie*, 11 November 2020.

A high rate of mobile payment adoption will concentrate financial transactions through Chinese based fintech gatekeepers. E-payment adoption could leapfrog purchasing behaviour in the EU and other Western countries. 95% of Chinese consumers already use mobile payment technology, compared to 64% globally and 24% in the United States. The 2019 value of Chinese digital transactions was more than that of the US, Japan, the UK, Germany and France combined.[50]

Lastly, China's rapid domestic adoption of payment systems is driving standard-setting on payment verification, dual offline technology, tax avoidance, money laundering and financial surveillance. It has also become a new front line for the government to assert control over fintech, in order to rein in financial, political and national security risk. Digital currency could be a key element of the DSR, by providing greater control of the monetary system layer in e-wallet transactions that can both enhance – but also tighten control on or circumvent – Chinese intermediary e-payment applications like WeChat Pay, Aliexpress/AliPay and a broad class of smaller lending platforms. The e-yuan will tighten centralised control of monetary transactions in the hands of the Chinese state within the "digital RMB-zone". Adoption would provide the People's Bank of China with the capability for real-time monitoring of global RMB-denominated transactions. It would also facilitate the displacement of the dollar as a global exchange currency and help lock in the RMB as a means of international exchange within DSR ecosystems.

Beyond tech transfer: Investments and acquisitions

There has also been an accelerated move towards Chinese Big Tech acquisitions of key external technology companies as a primary vector for gaining IP, market share and human capital in key technology sectors. This has long been true in

[50] J. Kynge and Sun Yu, "Virtual control: the agenda behind China's new digital currency", *Financial Times*, 17 February 2021.

the e-ecommerce space, but is increasingly the case in other areas as well, particularly fintech and gaming. Alibaba acquired Myanmar's largest e-commerce platform and the Myanmar Payment Union; took a US$1 billion stake in Indonesia's e-commerce champion, Tokopedia; and bought a controlling stake in Lazada, South East Asia's largest e-commerce platform with strengths in Malaysia and Singapore.

In Europe, the M&A trend in Over The Top (OTT) platforms has also accelerated since 2019. Tencent has been an investor in the German mobile banking platform, N26. Didi invests in the Estonian ride-sharing unicorn, Bolt. In the gaming industry – the hidden incubator for key strategic technologies like AI and augmented reality/virtual reality (AR/VR) – Tencent has gobbled up Europe's champions like the Finnish SuperCell in 2019 and the Czech Bohemia Interactive in 2020.[51] Offshoot strategic benefits remain unrecognised. After all, artificial intelligence would not have been possible had the demand for killer graphics spawned a Graphic Processing Unit (GPU) boom in the 1990s.[52] Tencent has joined with major Silicon Valley investors like Andreessen Horowitz and has focused on an acquisition strategy in social media and gaming.

Partnerships with foreign firms allow Chinese companies to deploy more rapidly, often leveraging higher quality technology from partners and benefiting from the added credibility, reputational advantages and geopolitical certainty that international partners bring, even as DSR comes under more intense international scrutiny. Alibaba has focused on a fast growth strategy, relying more on strategic partnerships with on-the-ground infrastructure, such as BT Cloud in the UK and SK Group in South Korea, to ramp up its overseas presence more quickly. This is partly intended to quickly create the enabling infrastructure for Chinese tech services, as they

[51] N. Watanabe, T. Wakasugi, and N. Matsumoto, "Tencent uses game business to expand global empire", *Nikkei Asia*, 23 January 2021.

[52] R. Toews, "Artificial Intelligence Is Driving A Silicon Renaissance", *Forbes*, 10 May 2020.

expand outside China, and avoid data localisation challenges. Thus far, AliCloud has more than 22 data centres abroad.[53]

Beyond outbound DSR: "Reverse-Flow" DSR

Even within China, questions have arisen as to whether investing in massive infrastructure projects along the BRI is sound, given the Covid-19 climate of financial risk. Many Chinese companies, particularly ICT state-owned and state-adjacent enterprises, have turned towards greater investment and consumption at home. Even as the first wave reached its peak in China itself, the CCP Politburo's Standing Committee called for accelerated 5G network development. China Mobile, China Telecom and China Unicom set themselves the task of establishing 550,000 5G base-stations by the end of 2020 as part of the country's Covid-19 recovery stimulus plan. This boosted domestic investment and the state's confidence in its capacity to monitor, control and capture.

In March 2021, Beijing announced the pledge to gradually lift certain foreign investment restrictions covering the telecommunications industry.[54] As part of its dual-circulation model, the Ministry of Industry and Information Technology's decision is a demonstration of greater confidence in China's capacity to control critical technological choke-points within its domestic production, while further integrating its telecommunications sector into the global ICT supply chains on China's terms. The logic behind this liberalisation of FDI also underscores China's negotiation of the Comprehensive Agreement on Investment (CAI) with the EU. Under the deal, the EU gains greater access to invest in the broader ecosystem around smart manufacturing. Manufacturing accounts for 50% of EU FDI in China, the majority of which is concentrated in the automotive industry.[55] As manufacturing and automotive

[53] P. Triolo et al. (2020), p. 12.

[54] "Plan to open telecom sector a bold move", *China Daily*, 5 March 2021.

[55] Z. Keck, "Outrage Over NSA Spying Spreads to Asia", *The Diplomat*, 31

move towards smart, systems-based operations – where data centres play a key role – the EU automotive sector will become more embedded in the DSR ecosystem, once tech-driven consumption and the thirst for ICT infrastructure upgrades pick up in key DSR markets.

In that sense, the EU's CAI with China should be viewed within the context of the DSR. This is particularly true of Germany, which held the EU Presidency at the time of the CAI negotiation's conclusion. Germany was already too dependent on China's massive market for it to emancipate itself from its reliance on Chinese consumers, a reality only accentuated by China's post-Covid economic snapback. China accounts for 40% of VW's global sales in China.[56] But as Germany's reliance on China grows, Germany's industrial base could be more closely grafted to China, in a fusion of systems governing smart cities, autonomous vehicles and manufacturing.

It is possible that the CAI could support the gradual incorporation – i.e. lock-in – of European manufacturing into the Chinese digital ecosystem, making it a point of leverage for DSR objectives globally. Siemens Advanta developed its Smart City digital hub in Hong Kong and is supporting DSR projects on advanced manufacturing, energy infrastructure and facilities managements in South East Asia. Baidu's move into autonomous vehicles focuses on its open-source Apollo platform and partnerships with Daimler on road navigation, voice command, sensors and visual recognition technology.

Beyond standard setting: Regulatory mirroring and global governance

Technical standard setting continues to remain at the heart of China's quest to establish greater control within the DSR space. For instance, amid the acute semiconductor crisis in 2021, the

October 2013.

[56] K. Ulrich, "Are German carmakers too dependent on China?", *Deutsche Welle*, 27 December 2020.

China Electronics Standardization Institute (CESI) launched a new semiconductor standardisation committee in order to formalise end-to-end control over its chip industry in the medium term.

China is aware that if its AI and other technology is perceived as under-regulated and authoritarian, its data-driven technology could be locked out of key countries, particularly in Europe

At the same time, heightened US-China tensions amid the Covid crisis have triggered new impulses in digital regulatory diplomacy geared towards states caught between the two tech superpowers. China is aware that if its AI and other technology is perceived as under-regulated and authoritarian, its data-driven technology could be locked out of key countries, particularly in Europe. In 2019, China stepped up its efforts to mirror Europe's digital regulatory discourse – on the market power of tech giants and data protection – in an effort to mollify international narratives of conflict, while at the same time consolidating the absolutist power of CCP rule at home. The US antitrust investigations and the introduction of the Digital Markets Act, examining the market power of tech platforms, coincided with China's moves against Ant Group, the Alibaba affiliate, which was blocked from going public in October 2020, and has increased Big Tech scrutiny on competition as a means of tightening state control on increasingly internationalised champions like Alibaba and Tencent. China's 2021 Blocking Statute – which invalidates extra-territorial sanctions in China – was explicitly modelled on the EU law in order to prevent Chinese Big Tech from complying with sanctions in other powers like Europe, where these companies are growing players.[57]

But perhaps the most evident area of increased sophistication and focus is data governance. As a counter-offensive to the US Clean Network Initiative, the Chinese Foreign Ministry

[57] K. Austin et al., *China's 'Blocking Statute' – New Chinese Rules to Counter the Application of Extraterritorial Foreign Laws*, Gibson Dunn, 13 January 2021.

launched its Global Data Security Initiative.[58] The diplomatic initiative aims to reinforce the notion of cyber sovereignty, while critiquing the perceived hypocrisy and bullying of the US in data access for intelligence (Snowden) and law enforcement (the CLOUD Act). Coupled with China's domestic push for a Personal Information Protection Law (PIPL) – which plays on the rhetoric of GDPR but in fact tightens state control over data *vis-à-vis* the private sector – the diplomatic effort at a new personal data order is aimed at appealing to Europeans, particularly Germans. Both efforts were launched immediately prior to the first high-level EU-China Digital Dialogue. This does not mean that Beijing is adopting the spirit of data protection centred on the notion of informational self-determination. China is not a party to APEC's Cross-Border Data Privacy Rules and has made no effort to achieve adequacy with the European Commission under the EU's data protection rules. In fact, the Chinese state is bank-rolling a tool to support Bytedance and WeChat in circumventing Apple's rules on privacy and user consent for data collection.[59]

Moreover, China is inching its way ever closer to the centre of digital multilateralism. Several UN agencies – including the UN Center for Trade Facilitation and Electronic Business and the ITU – have adopted the language supporting the DSR as a development avenue. As part of the UN's 2030 sustainable development agenda, the UN and China announced at the 75th General Assembly of the United Nations that they would set up two UN Data Centers in China – one focused on geospatial information and technology to be located in Deqing and a second UN Center on Big Data research to be located in Hangzhou. Both centres are less than an hour's drive from each other in Zhejiang. By wrapping these two strategically important, dual-use data classes in multilateralism, the Chinese

[58] Ministry of Foreign Affairs of the People's Republic of China, "Global Initiative on Data Security", 9 August 2020.

[59] P. McGee, "China's tech giants test way around Apple's new privacy rules", *Financial Times*, 16 March 2021.

government can lean on the UN's legitimacy when approaching third countries to provide data access in areas with evident and highly sensitive military potential.

Post-Covid-19 Outlook and Lessons for Europe

Like the US, China views technology as the necessary foundation of global power. Covid-19 has driven a reinvention of the DSR to focus more on M&A, health, fintech and digital services, and ICT adoption through domestic tech upgrades and new models of tech governance. The crisis has also helped to unwind the BRI's dependency on finance-intensive infrastructure projects at a moment when BRI recipient countries are coming under strain from the Covid-19 economic slowdown.

But the shift to a tech-centric BRI bumps up against the priorities of China's global competitors, particularly the United States, but increasingly the EU's geopolitical Commission and key Member States. Like other actors, the EU is increasingly aware that it could get caught in the crossfire – forced to choose between access to the Chinese market or US technology. The notion of technological decoupling from China or the United States is not an option for Europe. Europe is too dependent on China's massive market for it to emancipate itself from its reliance on Chinese consumers, a reality only accentuated by China's post-covid economic snapback and the reverse-flow DSR. Yet as its technological power grows, China's approach to technology has become more confident, belligerent, untrustworthy and ideologically incompatible with the European political system. Conversations in Brussels, Berlin and other capitals have become more pointed, as leaders ask to what extent Europe's accommodation with China on technology could ultimately help to midwife China's authoritarian dominance.

The EU is increasingly aware that it could get caught in the crossfire – forced to choose between access to the Chinese market or US technology

Europe's quest for digital sovereignty must address the DSR and Chinese techno-authoritarianism more directly. While American Big Tech, the Trump Administration and the general deterioration of American democracy have driven a justifiable desire in Europe to hedge its bets, the recent era has engendered a structural imbalance in the EU's regulatory enforcement and industrial policy. This has been defined primarily by the EU's perception of US tech dominance as a threat, rather than China's increasingly important role as a digital player or the ideological clashes between democratic and authoritarian visions for the digital international system. As the DSR shows, a more balanced and global approach would better suit Europe's strategic interests.

This means EU member-states have begun to make more effective use of screening of Chinese investment in strategic tech,[60] by expanding it to areas like online gaming, social media and fintech. Second, the EU must rethink trade controls, both on dual-use exports and on market access for imports, particularly of AI-powered surveillance equipment used in smart cities, digital services and Chinese health tech. Third, the EU and its Member States must examine the degree to which European industry is drawn into the DSR by reverse flow, particularly at this moment of acute Covid-induced economic fragility. Fourth, the EU must look at how its regulatory discourse – on data protection, competition, taxation and content moderation – can be distorted and ultimately deployed to support techno-authoritarianism. Finally, the EU must step up its efforts to build a positive ICT infrastructure and digital services agenda in the Global South. Efforts to extend the Ellalink undersea cable system between Europe and Latin America, the EU's space-based Secure Connectivity Initiative and the creation of a Digital Connectivity Fund for joint projects show that the muscle-memory here is slowly building. Ultimately, Europe

[60] Germany, for example, blocked Chinese takeovers of German firms developing strategic technology, such as the satellite communications technology company, IMST, the toolmaker, Leifeld, and the power grid operator, 50Hertz.

must see the power element in digital competition as one that binds infrastructure and services with universal values, such as human dignity and data privacy.

8. China in the Post-Pandemic World Economy

Alessia Amighini

After a short domestic lockdown, China emerged early from the pandemic, and suffered less economic setback. This has somehow convinced the rest of the world it will be able to play a driving role in the world economy. As was the case from 2009 to 2012, after the Great Financial Crisis, many hope the Chinese economy can still act as a driver of global growth. Since the summer of 2020, the economic data confirm China's position leading the post-coronavirus global recovery and the data for 2021 seem to confirm these assumptions. 2021 will achieve a remarkable 6%, announced by Premier Li Keqiang as a target, but the good results in 2021 are not here to stay.

This is because the recovery in 2021 is mainly due to three effects: a statistical effect (base-effect); a massive dose of fiscal stimulus, through increased infrastructure spending, which began boosting growth significantly as early as the second half of 2020; and external demand, as Chinese exports performed better than expected, even though world trade continued to weaken. But none of these are expected to last for more than a few quarters, so the duration of the recovery in 2021 will require a shift in the sources of growth towards consumption, including those services that suffered most from the pandemic.

Consumer demand is recovering in 2021, as auto sales, a key indicator of consumer confidence, are well above 2019 levels. The New Year's holidays have seen an improvement in consumer

confidence, and residential real estate has also recovered, supported by an increase in household income. However, despite great expectations for household consumption to play a more important role in driving China's economic growth next year as well, structural factors still loom over the chances China will be a major engine for the whole world again.

Dual circulation suggests Beijing sees increasing domestic demand, upgrading supply chains and seeking more independence in key technologies as ways to protect itself from external uncertainties and challenges

Moreover, in October 2020, at their fifth "plenum" meeting in Beijing, Chinese party leaders outlined their 14th five-year plan for economic and social development. The guidelines for the plan focused on President Xi Jinping's theory of "dual circulation", which includes domestic circulation and external circulation. Although this might not seem dramatically different from what has actually been the case in the past, when growth relied on both the internal and external markets, the tone now is set very differently. Dual circulation suggests Beijing sees increasing domestic demand, upgrading supply chains and seeking more independence in key technologies as ways to protect itself from external uncertainties and challenges. All of this will happen while maintaining integration with the world, i.e. not in autarky. If increased demand is to be met by domestic production, it means it will not be satisfied by imports, therefore China cannot be expected to support global growth through high import demand as in the years between 2009 and 2012. Dual circulation means China is determined to become less vulnerable than before to the global economic and international trade cycle.

Dual circulation also implies the need for greater reliance on domestic technology, so we expect a trend towards greater spending on research and development in investment budgets in the coming years. In addition to the next five-year plan, President Xi also updated the longer-term modernisation targets for 2035, which were first introduced in 2017. The

targets include raising China's GDP per capita to the level of "moderately developed countries" 15 years ahead of the original target set by Deng Xiaoping in the 1980s. This would require GDP growth averaging around 4.8% a year in order to double the size of the economy by precisely 2035 (according to the famous "rule of 70", which gives the number of years it will take for a variable to double, 70 divided by its growth rate; in the case of China, 70/4.8 = 15 years from 2021 until 2035).

In May 2020, the Chinese government had already formulated a one policy response to the potential challenges indicated above. China will be trying to build up the so-called dual circulation development pattern, where internal circulation (domestic market) will play a dominant role and external circulation (foreign market) will play a supplementary one. The relationship between the two circulations is intended to be complementary, but internal circulation is set to become the "basic foundation" to enable China to sustain any external shock.

Dual circulation also implies the need for greater reliance on domestic technology, so we expect a trend towards greater spending on research and development in investment budgets in the coming years

Expansionary policies in China may support both the domestic economy and therefore also partly import demand to the benefit of third countries in 2021, but it is not clear what the extent of the positive effects on the rest of the world will be: in the current emergency phase, international trade is in the doldrums and supply chains have shortened, from global to regional; moreover, the rapid acceleration of the economic integration process in Asia suggests China's recovery may be reflected by a greater positive impact on Asian countries than on the rest of the world.

What many tend to overlook about the potential for China's growth to act as a boost for other large economies is that it has also been, in turn, dependent on the world economy most of the time. Only during the years between 2009 and 2012 was it partly domestic, when the massive investment in real

estate and transport infrastructure compensated for the sharp reduction in exports. But today there is no more such room for manoeuvre. National debt has reached unprecedented levels and, on top of that, real estate and infrastructure have reached overinvestment levels. So, two sets of factors are casting shadows on China's future growth potential, at home and abroad. 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 challenges and are undergoing a progressive change in their geographic patterns. In order to understand the role China will play in the world economy after the pandemic, we should pay attention to the following issues.

Inward FDI Is Regionalising

As regards the external factors, it is widely acknowledged IFDI has played an important role in China's economic development process. According to Yao and Wei (2008), IFDI improved industrial production efficiency and accelerated technological progress, it opened new foreign markets and spurred exports, all of which then allowed the Chinese economy to grow rapidly for more than four decades since the country's economic reforms and opening-up policies were implemented in 1978. Over the years from 2008 to 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.

Similar to other developing countries, China experienced a severe lack of capital and advanced technologies in its initial stage of economic development. This is exactly what the selective openness policy articulated by the late Deng Xiaoping

was intended to overcome. Deng's famous South Tour in 1992 triggered a high wave of IFDI, particularly in the Special Economic Zones and the 14 other coastal open cities in eastern China. Economic growth in China went together with massive IFDI, and the two are deeply interrelated, i.e. IFDI is an important growth factor through imported capital equipment, inputs, technology, and also knowledge and learning within Sino-foreign joint ventures, the most frequent form IFDI took in China. Through the 1990s, China became the world's second-largest recipient of FDI for five consecutive years from 1992 to 1997, accounting for more than 10% of global cross-border FDI. IFDI contributed significantly to capital accumulation, directly or indirectly. The whole process of industrialisation in China relied on the presence of firms with foreign investment (foreign-invested firms), which acted as a catalyst for domestic firms in a variety of ways.

Despite entering the so-called New Normal, foreign investors have been confident in the country's economic potential and mostly in its lively consumer demand, which explains the continuing growth of IFD2I in China. In 2019, total IFDI reached a record high of US$141.2 billion. However, there has been a significant change in the geographical pattern of IFDI.

China has received IFDI from all major countries in the world, the most significant coming from East Asia, Southeast Asia, Europe, North America, and Australia. Although statistics show that for a long time, the most important source of FDI to the mainland was Hong Kong, China's special administrative region, most of Hong Kong's investment in mainland China is due to "round-tripping", i.e. investment financed by Chinese capital was registered as coming from Hong Kong to benefit from the advantages accorded to foreign-invested firms compared to domestic firms. 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.[1]

[1] J. Fanga, A. Collinsb, and S. Yaoa, "On the global Covid-19 pandemic and

If one drops Hong Kong and Macao from the group of third countries, then mainland China's biggest cross-border investor in 2000-02 was the United States, followed by Japan and Taiwan. In 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 2009-12, Japan and Singapore became the top two investors in mainland China, while South Korea, the US, and Taiwan were in third to fifth positions. From 2013, Singapore remained the largest home country for China's IFDI up to 2019. During the same period, Japan was the second-largest home country for China's IFDI. In 2014, Germany replaced Taiwan as the fifth largest investor in mainland China, and European countries such as the UK, France, and the Netherlands continued to increase their FDI flows into China. This notwithstanding, by 2019, the group of East Asian countries including Singapore, South Korea, Japan and Taiwan accounted for more than US$18,400 million, while western countries, including the United States, Germany, the United Kingdom, France, Luxembourg and Canada all together invested only US$7,000 million. So, regardless of individual country positions, East Asia is gaining a lot more importance compared to other foreign investors in China.

RCEP will improve the integration of Asian markets by immediately eliminating tariffs and quotas on more than 65% of goods traded in the bloc

These recent dynamics explain the rationale for the largest trade megadeal ever signed, the Regional Comprehensive Economic Partnership (RCEP). On 15 November last year, the 10 countries of the Association of Southeast Asian Nations (ASEAN), China, Japan, South Korea, Australia and New Zealand signed the RCEP after eight years of negotiations. This major agreement originally covered 16 economies, but

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India withdrew in November 2019 due to concerns about the possible impact on some of its manufacturing, agricultural and dairy industries, and disappointment over progress on services liberalisation. However, a fast-track accession procedure has been created should India wish to re-join RCEP in the future. For this to happen, at least three non-ASEAN countries and six ASEAN countries must ratify the proposal. Together, these 15 economies account for nearly 30% of global GDP, merchandise trade volume and population, and form the world's largest free trade agreement (FTA). Intra-ASEAN trade accounted for about 60% of total ASEAN trade in 2019, with ASEAN countries becoming China's largest trading partners this year.

RCEP will improve the integration of Asian markets by immediately eliminating tariffs and quotas on more than 65% of goods traded in the bloc. This share is expected to rise to around 90% within 20 years. However, some agricultural and sensitive goods will be excluded from the tariff cuts. Customs procedures will be simplified and trade facilitation provisions strengthened. The world's largest free trade agreement aims to promote managed trade and economic integration in Asia as common rules encourage "Made in Asia for Asia" type supply chains.

The new regional strength through complementarities and synergies within RCEP helps explain why, after the early months of 2020 as Covid-19 spread in China, the total amount of IFDI contracted sharply by 25.6% and 14.1% in February and March because of the nationwide lockdown, but the country's ability to attract IFDI recovered relatively quickly. From April to November, China's IFDI grew positively for eight consecutive months, largely making up the losses 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 17 December. China's IFDI monthly inflows and year-on-year growth rates have increased slightly since March, compared to previous years.

RCEP represents a major step towards greater Asia-Pacific trade integration. A new set of common rules of origin with harmonised rates and standards would be beneficial for supply chain efficiency, market access and investment. It would also provide greater incentives for companies in participating countries to build their supply chains and production centres within the bloc. RCEP should further stimulate investment from China, Japan and Korea in ASEAN countries. RCEP will impact industries to the extent that it will foster regional value chains. A major example is the redesign of supply chains within ASEAN and Chinese and Korean investment in automation and innovation to improve the value chain. RCEP is likely to generate both trade and investment in the region, to the possible detriment of flows to third countries.

The world's largest free trade agreement aims to promote managed trade and economic integration in Asia as common rules encourage "Made in Asia for Asia" type supply chains

Outward FDI Is Focusing More and More on BRI Countries

China's development process has always benefited from increased investment in infrastructure construction. But even more so since 2009 and especially since 2014, when the Chinese government, to counter China's rapidly slowing economic growth, returned to large infrastructure investment not only as a driver for economic development, but also to achieve the high rate of GDP growth expected by the government. Concerns over debt-fuelled infrastructure investment caused Beijing to stop approving such projects in 2017, but in 2018 the need to stabilise the economy led to the approval of the top 10 infrastructure projects by expected investment value, each costing over 50 billion yuan (US$7.41 billion). The National Development and Reform Commission (NDRC) has approved 27 infrastructure projects with a total expected investment of 1.48 trillion yuan (US$219.43 billion) since the start of 2018,

in an effort to foster growth amid rising trade tensions with the United States.[2]

As a developing country, China has started large-scale investment in infrastructure construction in other developing countries. China has started investing in a broad range of countries, including both developing and developed economies. China remained one of the four largest investors in the world: US$117 billion in 2019, accounting for 8.9% of the world's total. From 2017 to 2019, a significant shift occurred in the geographic pattern of China's OFDI. The most important recipient countries for China's OFDI include those covered by the Belt and Road Initiative. BRI is a major international development project from which China is also obtaining numerous benefits. The initiative should also strengthen cooperation with countries along the route with economic initiatives, investment, and trade promoting regional multi-lateral partnerships that resist the impact of the counter-globalisation trends triggered by the US-Sino trade war and technological embargo. From 2015 to 2019, China's annual OFDI flowing to countries along the BRI remained at around US$15 billion, and its proportion of China's total OFDI gradually increased to 12.8%.

From 2017 to 2019, a significant shift occurred in the geographic pattern of China's OFDI. The most important recipient countries for China's OFDI include those covered by the Belt and Road Initiative

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 US$86.38 billion, contracting by 3.2%. Although China's OFDI outflows contracted in the first ten months of 2020 as a whole, its OFDI to the BRI members increased, indicating a serious contraction of China's investment in developed economies, particularly in the US and western Europe.

[2] A. Amighini, "A geopolitical perspective on China's infrastructure development, at home and abroad", in C. Secchi and A. Belladonna, *Infrastructure in a Changing World: Trends and Challenges*, Milan, ISPI- Ledizioni, 2019.

The standard BRI framework works through commercial loans given by the Chinese government to recipient countries where projects are to be carried out. The construction of infrastructure in BRI projects is usually assigned to Chinese firms using Chinese labour and suppliers. At the same time, however, the central goal of the BRI is not only economic, but also political and strategic: through cross-border infrastructure China aims at facilitating business deals, channelling aid and commercial loans, thereby increasing its influence in the rest of the world, under the pretext of facilitating economic development. Although officially presented as an infrastructure project for economic development through greater regional and international integration for the country, BRI has in fact an established link with the People's Liberation Army (PLA) and its navy (PLA Navy). Through BRI projects, China is acquiring the ability to extend its geo-strategic reach beyond regional borders.

In the increasingly challenging and complex global situation, the BRI 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 BRI route reached US$14.11 billion in the first ten months of 2020.

East and Southeast Asia will be an important future investment focus for China's OFDI, which will match their increasing role as investors in China's IFDI, as discussed before. Singapore and Taiwan 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 drop in 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, East Asian countries have converged to what seems to be a more pragmatic than ever approach in the pursuit of post-pandemic recovery. It seems they see it as increasingly important to set aside historical disputes and promote the acceleration of economic ties in Asia, although the process towards a more formal and comprehensive agreement – the China-Japan-Korea FTA – might still be difficult to achieve.

China's latest development strategy is based on so-called dual circulation to sustain its economic growth. This will also have implications for China's overall FDI strategy, both inward and outward. The continuous escalation of the US-Sino trade war and technological embargo catalysed by the pandemic have 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 external circulation.

China's latest development strategy is based on so-called dual circulation to sustain its economic growth. This will also have implications for China's overall FDI strategy, both inward and outward

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. 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 United States. This is due to advantages accumulated over time that have not been significantly eroded by the Covid-19 pandemic. These advantages are mostly its large-scale domestic market, together with medium to high per capita income. This suggests it could significantly outperform the gloomier prediction for global cross-border FDI by UNCTAD and other multi-lateral organisations. With regard to OFDI, China's most severe challenge comes from shrinking investment caused by

technology and market blockades and restrictions in developed countries. Thus, China might usefully expand OFDI in neighbouring areas to promote shared regional prosperity while resisting counter-globalisation and decoupling sentiments and actions. These movements seem likely to prompt deeper economic and investment cooperation with countries along the BRI route because these countries are geographically close and have a greater willingness for two-way trade and investment with China. It can also focus more on bilateral investment and partnerships 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 RCEP and the Sino-EU Bilateral Investment Agreement to improve China's resilience and ability to withstand future external shocks.

Future Scenarios, Starting from 2022

2021 optimism does not consider medium to long term growth scenarios, since as early as 2022 there will be three major factors contributing to a significant reduction in the growth rate: falling labour productivity, falling fertility, and the necessary return from current expansionary policies. According to economic research by Natixis, since early 2021, after a positive fourth quarter, there are clear signs of a deceleration in industrial profits. Although increased household income and declining unemployment should support consumption, retail sales are not yet as dynamic as the government would like, even in the services sector.

Productivity is back on the centre stage of the debate about China's growth potential. According to a new report by the International Monetary Fund, China's economy is only 30% as productive as the world's best-performing economies like the US, Japan or Germany, based on measuring average productivity across sectors, as this is a gauge of overall economic efficiency. China's economy grew by around 10% per year over

four decades. Among the factors that drove that expansion were productivity improvements in sectors and gains from resource reallocation between sectors and ownership groups. However, according to a study by the World Bank, a sharp drop in productivity growth is an important driver of China's declining economic growth. China has experienced a marked slowdown in growth in output per worker since the global financial crisis. In 2015-18, average GDP growth fell below 7% for the first time since 1991, to a large extent due to slowing growth in total factor productivity (TFP). Aggregate TFP growth slowed from 2.8% in the 10 years before the global financial crisis to 0.7% in 2009-18. In 2017, signs of improving labour productivity and TFP growth emerged but both remain significantly lower than their pre-crisis levels. Although weaker productivity growth in China has coincided with – and likely been affected by – the recent decline in world productivity growth, the deceleration in China has been sharper.[3] To enhance productivity growth in recent years, China's policymakers have focused on fostering innovation. By some measures, China's innovation capacity has improved steadily in recent years, placing the country 14th on the Global Innovation Index. At the same time, China remains, on average, quite distant from the global technology frontier and thus has substantial remaining potential for catch-up growth.

Although weaker productivity growth in China has coincided with – and likely been affected by – the recent decline in world productivity growth, the deceleration in China has been sharper

A further factor that will affect potential growth in the future is the ageing population. It is expected to further age with a declining labour force participation rate. The origin of such a dramatic acceleration in population ageing is the prolonged period of below-replacement fertility over the past two decades. Low fertility and the associated rate

[3] L. Brandt et al., *China's Productivity Slowdown and Future Growth Potential*, World Bank Policy Research Working Paper 9298, June 2020.

of population aging pose daunting challenges for policymakers. The ratio between the working-age population aged 20-59 and retired persons aged 60 and above will have more than halved over a 20-year period – from almost five workers for every elderly person in 2010 to only two in 2030. A rise in the mandatory retirement age could partially offset such a trend. But policy responses have been extraordinarily slow. It took researchers almost a decade to confirm the drop in fertility, and it took the Chinese government another decade to accept the findings of scholars. After years of resistance and denial, the government seems to have finally come to terms with the new demographic reality. In addition to lifting the one-child policy, China also announced a gradual extension of the retirement age.[4]

China's growth will need more reliance on the domestic economy (internal circulation) but technology is still very import intensive, innovation is still state-led and financed with an obvious impact on fiscal deficits and debt, and the overall efficiency of the innovation process. China will continue being a growth pole, but increasingly for its economic partners in Asia, compared to western partners. 2020 might not be significant for trade patterns, but China's imports from Europe registered a dramatic fall, while exports continued growing. In the meantime, the United States is also financing what is likely to be a very strong recovery after the pandemic. The world is heading towards a scenario of two poles of world growth, despite the fact that many do not consider a real disconnect between the US and China to be plausible.

[4] Wang Feng, *Policy Response To Low Fertility In China: Too Little, Too Late?*, Asia Pacific Issues, No. 130, East-West Center, Analysis, April 2017.

Conclusions and Implications for the EU

Alessia Amighini

China's recovery from the pandemic and from the recession caused by lockdowns and social distancing has been faster than in any other country. This recovery has relied on two pillars: digitisation and regionalisation.

The digital economy has been at the heart of the economic and health recovery in China. Innovative digital infrastructure – such as internet-based artificial intelligence, data centres, big data, cloud computing, the Internet of Things and 5G networks – has been heavily supported by the Government, which has promoted several applications of such technology in a variety of sectors, from home-working and e-learning to e-commerce and entertainment, leading to a brand-new digital ecosystem. This is shaping the new domestic economy and will influence the country's foreign relations in the future.

At home, digitisation has not only entered service industries, but also manufacturing ones. The future of manufacturing will largely depend on digital technologies (IoT, digital platforms, etc.), so access to and acceptance of those new digital technologies will be necessary for firms that want to continue operating in and with China. Mobile payment systems have already rapidly expanded to cover 95% of Chinese consumers and this will eventually extend to cross-border transactions. As a result, all economic relations with China will tend to become more and more embedded in the digital sector and rooted in digital technologies. Regulating and governing the digital economy is therefore central to the future of Europe-China relations, and of global relations.

Regionalisation is the second pillar of China's recovery. The Regional Comprehensive Economic Partnership (RCEP) is a major step towards building an Asia-Pacific ecosystem, as a response to the increased uncertainty about the future of economic relations between the United States and most of Asia during the Trump administration. Member countries are already quite integrated trade-wise and investment-wise, and the Partnership will further promote interdependences. Importantly, a major challenge for China's domestic recovery is the need for strong demand from external markets: Southeast and Northeast Asia will provide huge markets for China should relations with Washington not improve and those with Brussels turn sour.

Despite official statements strongly supporting multilateralism, China invariably tends to promote foreign economic and political relations through a hub-and-spoke framework model, i.e., through a series of bilateral relations that build links between China and third countries (which is rather different from a network model of external relations where countries are linked to one another more symmetrically). Digitisation of the renminbi is a key step in China's domestic recovery as well as in its ability to forge asymmetrical relations. The People's Bank of China's own domestic central bank digital currency (CBDC) project, the e-CNY, is the most advanced initiative of its kind in the world. The Hong Kong Monetary Authority and Bank of Thailand last year developed a prototype allowing banks in the two countries to use a CBDC to transfer funds and make payments between themselves. Moreover, the expanded programme, which the Central Bank of the United Arab Emirates has also joined, paves the way for stock exchanges, banks and corporates from multiple jurisdictions to make payments across borders and different time zones. Thus, e-CNY is an important part of China's geopolitical strategy to accelerate the renminbi's internationalisation, at least on a regional scale. This will also facilitate the dollar's replacement as an exchange currency in what could become a renminbi bloc,

i.e. a group of countries that will accept the RMB as a means of international exchange (grouped together into a so-called "Digital Silk Road" - DSR).

So far, Europe has been encircled by two competing narratives from the United States and China, both contending that the EU needs to acknowledge the progressive economic and technological decoupling between the world's two largest economies, and therefore to eventually decide its strategic position towards them. As a response to those competing narratives, the EU should leverage its balanced position between the two 'strategic/systemic rivals', the US and China, to promote a less confrontational approach. The EU is structurally and strategically linked to the US and the liberal democracies but, at the same time, it is a unique promoter of rule-based competition and institutions, values and cooperative attitudes worldwide.

In contrast with the idea that two growth poles are emerging a global level – namely the United States and China – Europe should acknowledge and highlight that it is crucial to both. The green recovery supported by the Next Generation EU rescue plan is a huge potential engine of regional growth, and also a complement to both US high-tech services and to China's high-tech manufacturing ambitions. Should a progressive decoupling materialise, it will have differing implications for the two countries. On the one hand, China is very far from being technologically independent and still relies on imported high-tech components, especially semiconductors (about 80% of total demand is imported), which are now key across all manufacturing. On the other hand, US dependence on China is much broader, covering a diverse range of products for both consumers and producers. As US firms do not intend to pursue a massive reshoring strategy, nor a shift in offshoring locations, the incentives in favour of a substantial decoupling appear to be limited.

As regards the most urgent policy issues in Europe, they mostly relate to technology, to the extent that the latter is the

necessary foundation of global power. Although the debate in Europe about security issues related to imported Chinese digital technologies has been lively, it has mostly revolved around hardware, so that the demand for Chinese ICT hardware has plateaued, while Chinese digital services have flourished. China so far only has 20% of the cross-border data flows that the US can boast, but that has started to change as both Chinese hardware and OTT (Over The Top) offerings become available outside of China. AliExpress has grown in usage, including in some areas of Europe. Asia is the company's target area for expansion. Today it also stands as the leading non-homegrown e-commerce platform in multiple countries throughout Europe, particularly in Central Europe and the Balkans. As digital platforms have both a scale and a lock-in effect, increasing expansion abroad serves as an effective vehicle for both financial and political influence.

Finally, Europe should be prepared to acknowledge that increasing mobile payment adoption is a vehicle not just for the economic and financial power of digital platform providers, but also for the political strength that will accrue to the home countries of those providers. If and when e-payment adoption leapfrogs current purchasing behaviour in Europe, as is already the case in China, the power of e-commerce and e-payment platforms will be significant. Therefore, regulating the digital sector so as to not be locked-into two parallel digital ecosystems – US-based and China-based – is vital for political independence in the future. Moreover, the recent e-RMB is a key element of China's political upgrading strategy through financial leveraging. To the extent that the People's Bank of China will be able to forge a "digital RMB-zone", it will help the RMB to become a means of international exchange and accelerate the replacement of the dollar as an exchange currency at least in DSR ecosystems. In this context, partnering with Chinese firms either through cross-border M&A, or increasing use of Chinese-centred digital platforms will translate into indirect support for China's search for its own independent

digital ecosystem. In this perspective, it is not unlikely that the recently signed Comprehensive Agreement on Investment between the EU and China could also support the gradual and increasing lock-in of European manufacturing in the Chinese digital ecosystem.

As a consequence, the EU should promote a series of dialogues, and policy proposals aimed at regulating competition in the digital sector, most of all in the form of concerted action against digital monopolies, the so-called Big Techs, which are present and very powerful both in the United States and China. At the same time, the EU should also ensure that its own regulatory discourse on data protection, competition, taxation and content moderation effectively works towards ensuring its own rules do not contribute to building potential barriers that prevent a free global internet. The EU's traditional rule-based and value-based approach provides the basis for pursuing such a gigantic task, which neither the United States nor China are willing to do.

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