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We are deeply saddened by the passing of Dr Li Wenliang. We all need to celebrate work that he did...
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World Health Organisation

China: COVID-19 impact on growth revisited

- The virus outbreak continues to take a significant toll on people and communities. Restrictions on individuals' mobility plus shortages of necessities, such as surgical masks, are delaying the resumption of normal economic activity. It is also disrupting production chains and causing supply shocks to China's economy.
- China's Q1 GDP will likely slow to 3.2-4.0%, according to our scenario analysis. Our revised estimate is lower than our previous projection of 5.0% based on an assumption of a shorter spell of interruption.
- The government will surely step up to secure economic growth and mitigate financial risks. Given the exceptionally low Q1 GDP, we have revised lower our 2020 GDP forecast to 5.5%, implying an average growth of 6.0% in Q2-Q4.

The novel coronavirus (COVID-19) outbreak has spread to 28 countries and territories, infected over 45,000 people and claimed 1,115 lives (as of 12 February). In Hubei province alone, more than 31,700 people are confirmed infected and more than 970 have died.

To contain the spread of the virus, the Chinese authorities have imposed a strong mandate on restricting the mobility of people. Many residential zones now have strict entry measures, such as Beijing's "closed-off management" (小区封闭式管理)¹ such that people who enter a gated residential community must register their personal information and undergo temperature checks.

In addition, only one member per household is allowed to leave the house every day for grocery shopping or work-related trips. Some neighbourhoods are using QR codes to track the movements of residents to avoid physical contact. Although the Ministry of Education has not made any official announcements, it is speculated that schools will remain closed throughout February.

Restricted Entry Policy in a Chinese residential community



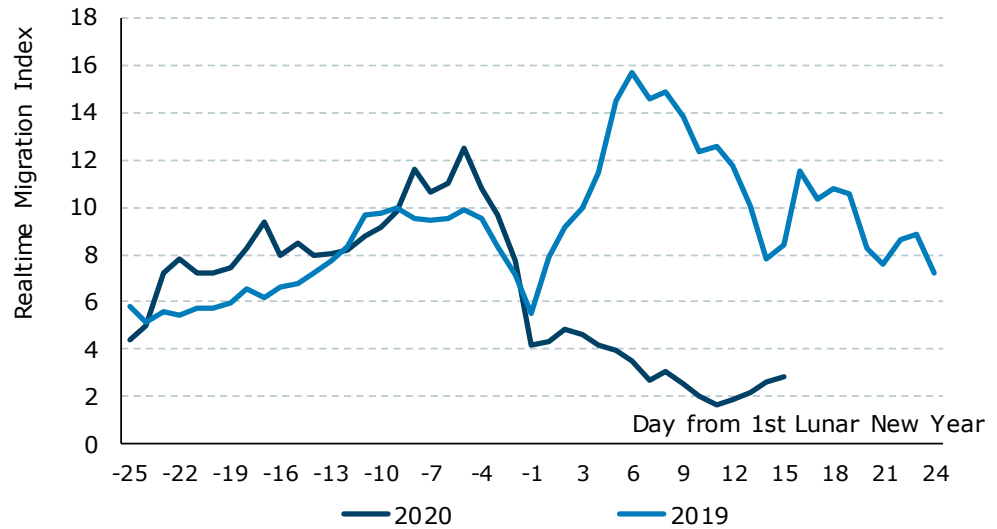
Photo by Yahong Hao. Delivered goods left outside a gated residential community in Beijing, 2020.

¹ <https://www.yicai.com/news/100496996.html>

Lockdown will lead to supply shocks ahead

Wuhan has implemented a 'closed door policy' since 23 January while many other cities have also put in place restrictions on human traffic, such as setting up quarantine checks on roads or reducing public transport services. Although the Chinese government had previously told businesses to resume work on 10 February, traffic flows across the country remain limited. Chinese search engine Baidu has a map tool ("百度迁徙") which tracks real-time migration flows expressed in indices. It shows an apparent pick-up in Shenzhen since 10 February, but overall flows have increased only marginally nation-wide.

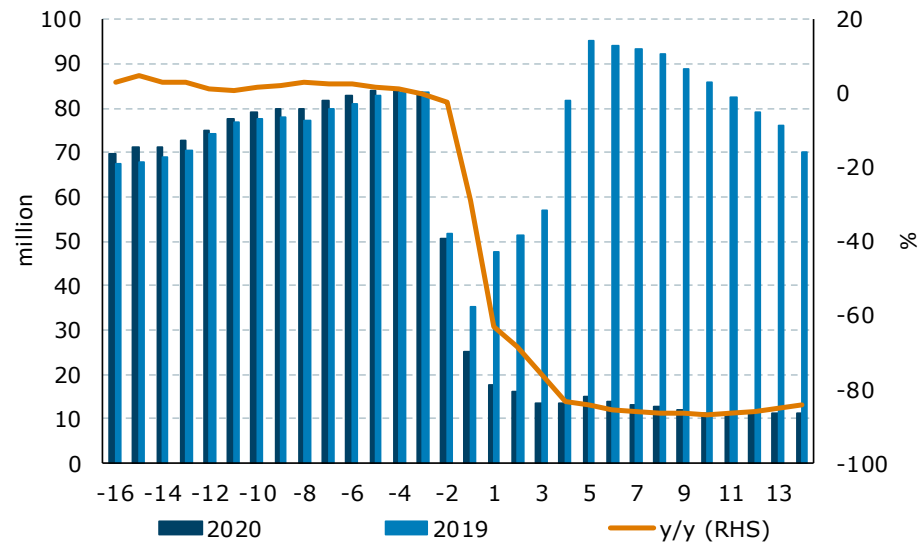
Figure 1. Migration flows before and after Lunar New Year holiday period



Note: We compiled the national index by GDP weighted sum of provincial inflow indices.
Source: Baidu Qianxi, ANZ Research

Daily passenger flows have yet to return to normal levels. For instance, the daily passenger flows via rail, road, vessel and aviation was 11m on 8 February this year, in stark contrast with the peak of 95m on 9 February 2019. It usually takes 10 days (after the first day of the lunar new year) for China's post-holiday human migration to be over; a low number thus implies that there are still around 690m people waiting to resume their trips once the travel ban is lifted.

Figure 2. Daily passenger flows in China's public transportation system



Source: WIND, ANZ Research

Health measures a hurdle to lift productivity

According to our direct sources, the Chinese authorities have issued anti-virus guidelines to local businesses, including a mandatory quarantine of 14 days for returning migrant workers as well as health protection measures such as the wearing of masks. However, there is a mask shortage. The total workforce in the secondary and tertiary industries is 530m. Anecdotally, there are 300-500 mask manufacturing companies in China, with a maximum production capacity of 20m pieces per day. With online e-Commerce shopping platforms also running out of stock worldwide, China will have to rely on ramping up domestic production, on top of some one-off foreign aid donations (Japan: 1.05m; South Korea: 2m).

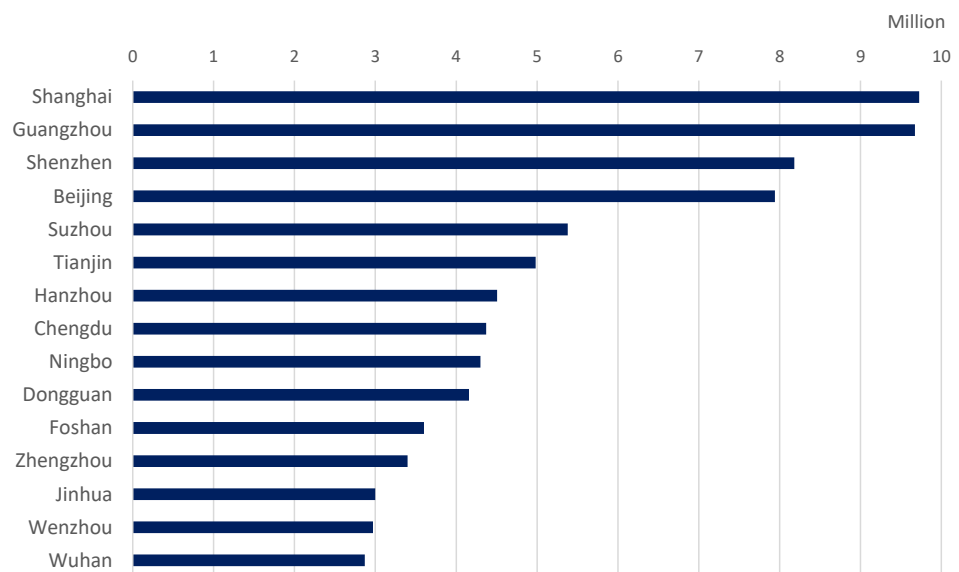
Table 1. Resumption of surgical mask production in China

Province	No. of factories	Date started	Daily output
Guangdong	22	29 January	na
Shandong	23	29 January	2m
Tianjin	1	29 January	7-8m
Hebei	1	28 January	800k
Guangxi	1	28 January	10k
Shanghai	17	27 January	4m
Anhui	na	27 January	1m
Zhejiang	32	26 January	1m
Hubei	35	26 January	2.7m

Source: Media reports, <https://www.jfdaily.com/wx/detail.do?id=204674>

The manufacturing industry is already taking steps to accelerate mask production. Although non-traditional mask manufacturers (like iPhone-maker Foxconn and auto-maker BYD) are refitting their production lines to help churn out more surgical masks, it will take at least a month for their output levels to make a meaningful contribution to the nation's supply. The operating rates of Chinese mask manufacturers have risen to 76% as of 11 February and is expected to hit 80% soon, according to the National Development and Reform Commission. The new investment in production facilities will increase China's daily mask output to 180m from the current 20m, said the China Textile Commerce Association, although another 7-10 days are needed for the sterilization process.

Figure 3. Top 15 cities with non-'hukou' residents in 2017



Source: China City Mobile Population Integration Report No.1, 2018

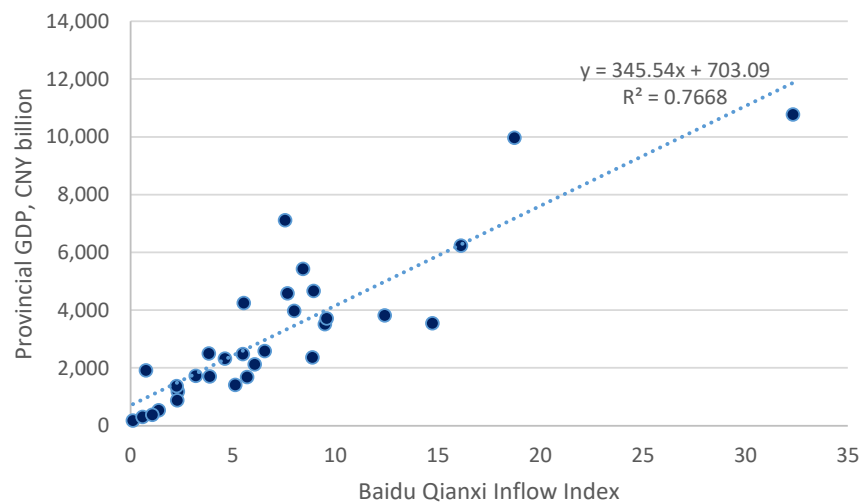
Reassessing the impact on China's Q1 GDP

Needless to say, the unexpectedly severe virus outbreak has put the brakes on the slight improvement in economic activity following the signing of the US-China 'phase one' trade agreement in January. China's industrial production had rebounded to 6.9% y/y in December 2019 from a historic low of 4.4% in August. Exports also registered a decent growth of 7.9% in January after five consecutive months of contraction. However, the virus outbreak will have negative impact on both demand and supply.

- **Demand side.** Economic activity involving human interactions has been halted. These include tourism, catering and onsite services, and property transactions.
- **Supply side.** Logistic activities are constrained by the interruption of transport services. Workers are unable to return to their workplace. The 14-day quarantine on returning migrants will hamper productivity. There is also supply constraints on masks.

Migrant workers are key economic inputs to China's urban economy. The migration data collected by Baidu's map tool has a positive correlation with provincial GDP growth. In addition to blue-collar workers, many professional and skilled workers also remain trapped in their home-towns. The employees of most MNCs have been asked to work from home in the meantime, according to anecdotal reports.

Figure 4. Provincial GDP and average migration flows during the Lunar New Year holidays, 2019



Source: Baidu Qianxi, ANZ Research

According to our previous estimates, the outbreak could trim China's Q1 GDP growth by 0.9ppt to 5.0% (see our [report](#) on 30 January) based on the assumption that factories can resume production on 10 February. But this assumption no longer holds true. We have thus decided to recalibrate and provide a range of GDP estimates in various scenarios.

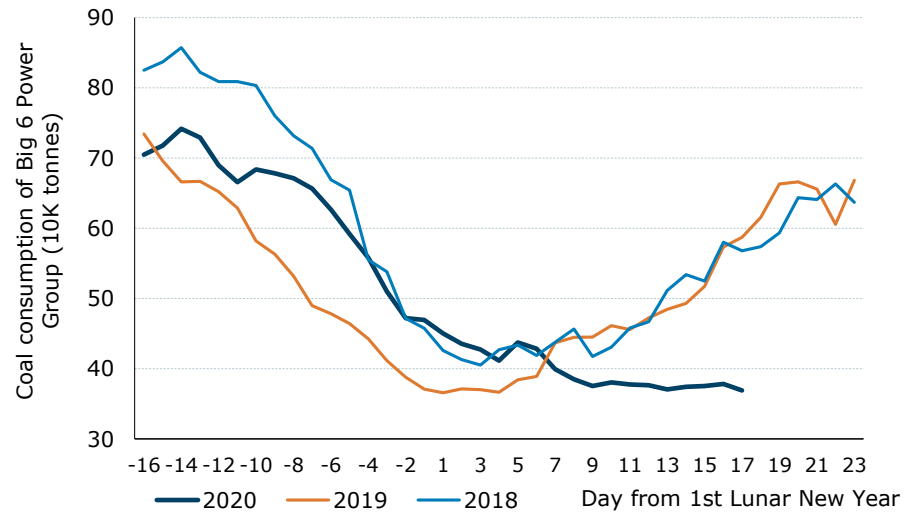
China's National Bureau of Statistics compiles its GDP data using the production approach (ie industry), so we attempted to forecast the GDP of different industries based on different rationales. Our methodology is as follows:

Primary industry. Using the 2002-03 SARS epidemic as precedence, the impact of the novel coronavirus outbreak on agriculture or the like should be minimal.

Secondary industry. The daily coal consumption of the six biggest electricity companies will reflect industrial production levels, which track the GDP of the secondary sector quite well. This is currently still around half of the levels seen before the Lunar New Year holidays. We also noted that in the first two weeks after the holidays, coal consumption is typically lower, around 500-600k tonnes, suggesting that the value-added post-holiday is lower. Thus if we simply count the number of working days lost, we may over-estimate the impact on industrial GDP. Even with a limited workforce amid the outbreak, plant facilities in many

heavy industries such as energy production and the blast furnaces in the steel industry still continue to operate.

Figure 5. Daily coal consumption of China's six biggest electricity companies

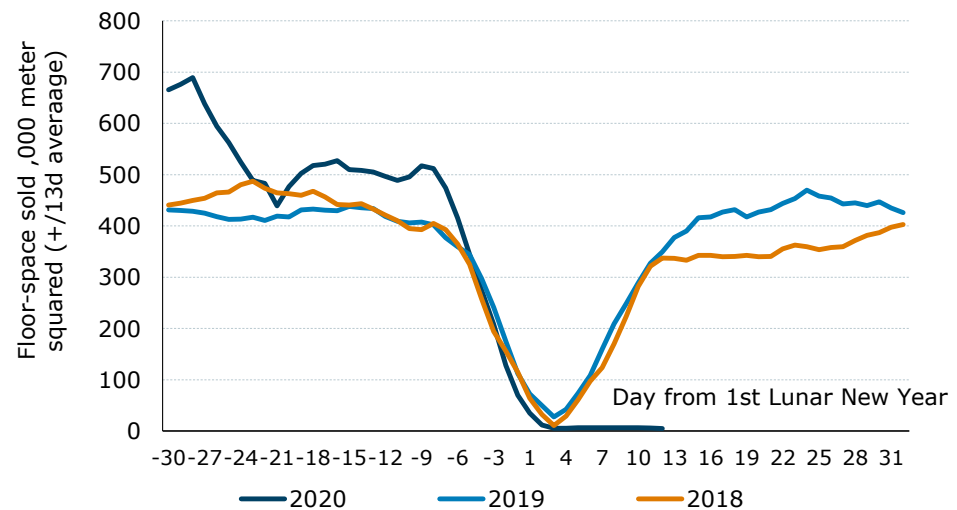


Source: WIND, ANZ Research

We assumed two scenarios: the secondary industry will resume operations on 1 March or 31 March (ie end of Q1). Although epidemiological experts have not reached a consensus view on when COVID-19 will die down, it is reasonable to expect that the government will not want the economy to remain idle after 31 March if the number of newly confirmed cases continues its current falling trend.

Services sector. The different services segments face varying conditions. For instance, the property sector is severely affected as transaction volumes plummet. And while there is a decline in tourism-related retail sales, increases in e-Commerce and household spending on healthcare items (for precautionary purposes) could partially offset any losses (assuming CNY10bn per person). IT/computer services are assumed to be relatively immune from the impact of the virus.

Figure 6. Home sales sold during LNY holidays, in terms of floor space



Source: WIND, ANZ Research

For other services segments, we use the precedence of SARS in Q1 2003 and Q2 2003 as a reference point. Since the magnitude of the COVID-19 and the travel restrictions (including the stay-at-home policy) are larger than previously, we have scaled up the impact, using a factor of 1.5 and 2.0 respectively in the two different scenarios. However, China's property sector was over-heating and retail/tourism related industry was under-developed in 2003. We thus chose not to apply the impact factor methodology on these industries.

Our analysis has provided a range of Q1 GDP estimates from 3.2% to 4.0%. We first forecast the GDP growth of different industries before we applied the expected impact factor due to the virus outbreak. In our model, the GDP of the secondary industry is invariant to service sector impact factor. China's industrial GDP growth will decline to 4.4% (2019: 5.7%) if production is resumed on 1 March, and drop to 3.8% if it is delayed to 31 March. For the services sector, growth will likely slide to 4.1% if work resumes on 1 March, and slow to 3.6% if it is postponed to 31 March. The COVID-19 will hit the services industry more severely as this sector registered strong growth of 6.9% in 2019.

Table 2. 2020 Q1 GDP y/y estimates in different scenarios

Impact factor on services industry	50% higher	100% higher
Work resumption date is 1 March	4.0	3.6
Work resumption date is 31 March	3.7	3.4

Source: ANZ Research

Growth outlook is still overcast

The COVID-19 will have a massive impact on growth, regardless of what the precise Q1 GDP figure will be. However, the Chinese government has taken steps to support the economy. The People's Bank of China (PBoC) injected a significant amount of liquidity through reverse repos, totalling CNY1.04trn of net injection between 3 and 11 February. The Ministry of Finance has also launched a refinancing scheme to support loans related to anti-virus activity and subsidized 50% of interest rate payments, with a cap on the loan rate at 1.6%.

From an economic point of view, the virus outbreak is an external shock rather than a structural issue. The impact should be one-off. Thanks to the government's supportive measures, we expect an economic rebound as the situation stabilises. However, gauging the timing of this rebound remains difficult. Therefore, we decided to keep our GDP forecast for 2020 at 5.8% at the present time.

This means that if Q1 GDP growth can attain 3.6% as the mid-point of our range of 3.2-4.0%, the economy will still need to achieve an average growth of 6.4% from Q2 to Q4 in order to hit 5.8% for full-year growth. This is difficult, but not entirely impossible. In 2003, China witnessed a post-SARS economic recovery in the second half of the year. However, the economy was in expansion mode in the early 2000s and the global environment was favourable to an export-oriented economy. Now China's growth momentum is on a declining trend. Any rebound will unlikely be spectacular. Last month, the IMF revised higher its 2020 GDP forecast, reflecting the improving US-China trade relations. We expect government stimulus to lift the growth momentum to slightly higher than our previous forecast. We now expect China to maintain average growth of 6.0% from Q2 to Q4, leading to a full-year figure of 5.5%.



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[28 January 2020]

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