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China Coronavirus: Evaluating the potential economic impact

In this report, we try to quantify the potential economic impact of the coronavirus outbreak using a province-specific, three-sector, production-based GDP framework. This method allows us to take into account variations in the length and extent of disruptions across provinces, as epidemic severity and idiosyncratic countermeasures would result in factory and business closures of differing duration. Using provincial data allows us to dynamically adjust the evaluation as the severity of local outbreak continues to develop. Using sectoral data allows us to evaluate the likely different impact on the services sector (mainly hitting retail sales, transportation, hotels and catering) and manufacturing and industrial activity across different provinces (such as supply-chain disruptions to the auto and electronics industry, due to Hubei's lockdown).

Our model looks at three groups with "length of disruption" being a key parameter

A key parameter to evaluate the potential growth impact would be the length of the disruption to activity for a particular region, which will vary across the nation depending on the severity of the local outbreak. For our current analysis, we divide the country's 31 provinces into three groups, based on their cumulative infections as of 31 January 2020: 1) epicenter (Hubei province, the capital of which is Wuhan), 2) heavily hit (including Zhejiang, Guangdong, Hunan, Henan, and Anhui provinces), and 3) the rest of China.

In terms of GDP size, the three groups account for about 5%, 30%, and 65% of the national total, respectively. Note that a province may move to a different group if its outbreak intensifies or eases, which may result in a change in return dates/quarantine period set by the local governments. For the latest return-to-business dates, see the map in Figure 6 and "Bloomberg: Chinese Cities and Provinces Extend Holiday on Virus Outbreak", 31 January.

"Extent of the disruption" is another parameter

Based on the disruption duration, we can broadly estimate possible economic losses to GDP in manufacturing and services for a particular group, and their corresponding drag on GDP growth. In addition, we assume different degrees of impact from the disruption *across groups* - eg, the same duration of disruption should mean a greater % of losses for the epicenter as more restrictive measures and stronger enforcement are expected. We also assume different degrees of disruption effect *across sectors* - eg, 60% of the losses for manufacturing and 30% for services will be paid back in the following three months once the production/services begin to (gradually) return to normal. Based on this, we can estimate the size of payback in March-Q2 (depending on when the disruption ends).

Figure 1: Potential impact on GDP growth of disruption scenarios

GDP, % y/y	Mild*	Medium**	Heavy***
Q1	-80 ~ -100bp	-160 ~ -180bp	-200 ~ -220bp
Q2	+10 ~ +30bp	-20 ~ -40bp	-160 ~ -200bp
Q3	0.0	+20 ~ +40bp	-60 ~ -100bp
Q4	0.0	0.0	0 ~ +30bp
2020	-10 ~ -30bp	-30 ~ -60bp	-80 ~ -130bp

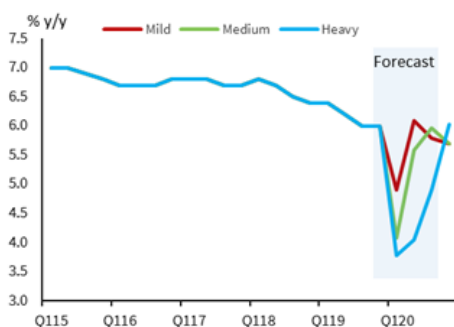
*Mild: Disruption ends in end Apr, end Feb, mid Feb, for Group 1 (Hubei province), Group 2 and Group 3, respectively.

**Medium: Disruption ends in end Jul, end Apr, and mid Apr, for Group 1, Group 2 and Group 3, respectively.

***Heavy: Disruption ends in end Sep, end Jul, and mid Jul, for Group 1, Group 2 and Group 3, respectively.

Source: Barclays Research

Figure 2: Growth trajectory by scenarios



Sources: Haver, Barclays Research

Figure 3: 2019-nCoV vs SARS



Sources: China NHC, DXY.cn, WHO, Barclays Research

We examine three scenarios – mild, medium, and heavy disruption

In a mild scenario, we assume the outbreak stabilises around mid-Feb (as gauged by new infection cases outside Wuhan/Hubei; see below section: Disease outlook), and the business in non-Hubei provinces returning to normal from end-Feb (Group 2) and mid-Feb (Group 3). Sequentially, a more significant downturn looks inevitable in January-February, while some visible rebound from March (mainly in non-Hubei provinces) would be expected. Reflecting this, we estimate a material drag on Q1 GDP growth by 80~100bp in Q1, while Q2 GDP growth could be pushed up by 10~30bp (Figure 1 and Figure 2).

The medium or heavy disruption scenarios assume longer disruption due to a more sustained outbreak, with (for example) Group 2 not returning to normal until end April (medium disruption) and end-July (heavy disruption). We see much deeper cuts to Q1 growth, at 160~180bp and 200~220bp for the medium and heavy scenarios, respectively, while the negative drag could continue in the following quarters and, in the heavy scenario, last until Q3.

The level of uncertainty is admittedly high around our estimates, depending on 1) mortality outlook, 2) varying business disruptions across provinces, and 3) government policy.

A deeper and longer impact on growth

While we assume the government and Chinese public will strictly enforce business closures and self-quarantine to contain the virus, such measures inevitably come with a cost in terms of disruption to economic activity, especially in the near term. Even after the outbreak peaks, caution regarding contagion risks means that business may not return to normal as quickly as we saw post the SARS period in 2003 (Figure 7-8). Screening and other restrictive measures may remain in place for a meaningful period until the outbreak reduces to the extent that it is no longer deemed a serious risk by the public, which suggests the economic impact may linger, albeit to a lesser extent than during the outbreak peak.

We expect the Chinese government to step up easing to mitigate the downturn, especially in view of its signaling 'stabilising growth' as the priority for 2020 (versus de-leveraging and containing the housing bubble) even before the virus outbreak. The PBoC has sounded dovish in their December-January communications, in our view, highlighting countercyclical measures, ensuring ample liquidity, and judiciously using all available tools. Hence we expect both broad-based monetary easing and more targeted fiscal, tax, interest rate and credit support (already happening) for the worst-affected regions/sectors.

What can we expect:

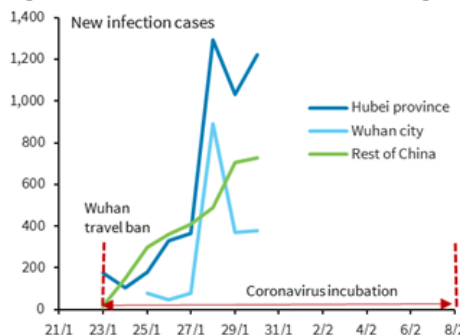
- 1) LPR rates to be guided lower, and MLF rate cuts, including a 5bp cut as early as next week;
- 2) RRR cuts for more liquidity support; another 50bp of cuts or more in Q1 are likely;
- 3) Fiscal support beyond the committed local government bond issuance with more frontloading in support of medical and health infrastructure, with the government allowing a budget deficit exceeding 3%, the red line at the 5 March NPC meeting.

Figure 4: Coronavirus appears less fatal than SARS



Sources: China NHC, DXY.cn, WHO, Barclays Research

Figure 5: Watch for new infection in coming weeks



Sources: China NHC, DXY.cn, Barclays Research

Disease outlook: mild scenario: outbreak to peak in Feb with some key dates to watch

The new virus is more widespread and more easily transmissible but less deadly

The latest clinical results and assessment by epidemic experts seems to still support our earlier assessment that the Wuhan virus is 1) more widespread, 2) more contagious, but 3) less deadly than SARS (Figure 3-4). Unlike SARS, which was mainly concentrated in Beijing, Guangdong, and Hong Kong, the new virus has spread to all provinces across the nation in a short period of time. However, thankfully the fatality rate appears to be lower than SARS. Thus far, deaths have been largely concentrated in older patients and middle-aged people with other underlying/chronic diseases. Deaths among younger patients have been few, and those with healthy immune systems seem to recover.

The infection continues to rise daily but the peak of the outbreak could still happen by mid-Feb

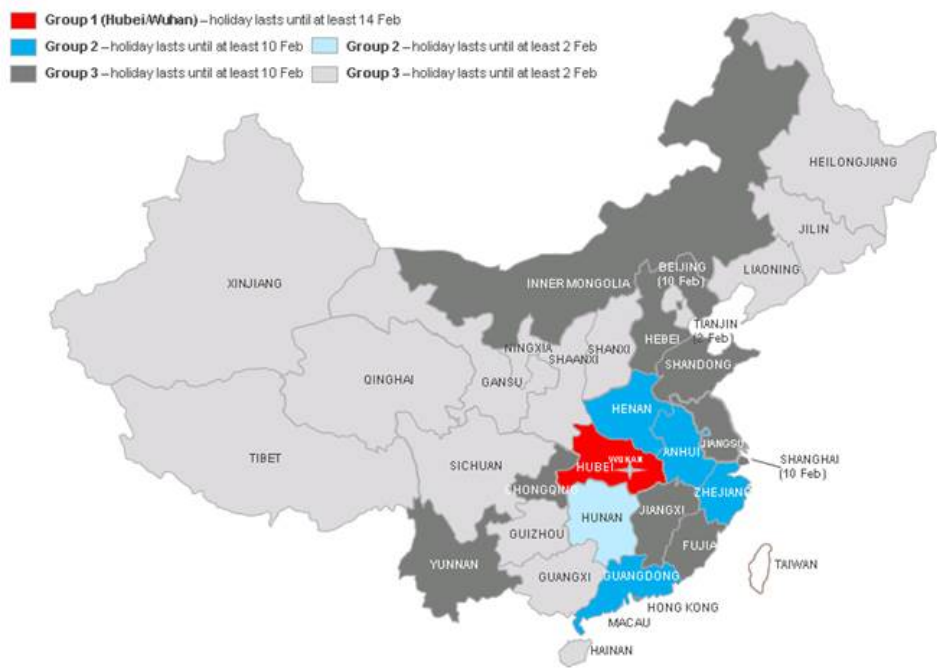
Despite its higher contagion risk, we think the extended holidays (with likely further extension, especially in severely hit regions), delayed returns to work, and the 14-day quarantine periods strongly suggested will be strictly followed, hence helping to contain transmission. Prof. Zhong Nanshan, China's most authoritative respiratory diseases expert, said on 28 January (in a Xinhua interview) that 1) the outbreak may reach its peak in one week or around 10 days, and 2) he didn't expect a massive build-up in cases, nor large-scale infection due to the LNY return trips.

Near term we think the next signs/indicators to watch are new infections (especially outside Wuhan/Hubei) from now to 6-8 February (Figure 5), as a critical period to gauge the effectiveness of virus detection and quarantine outside Wuhan/Hubei province, following the intensified measures over the past week. Given 5 million people had left Wuhan prior to the travel ban on 23 January, and with a virus incubation of 10-15 days, most of the infected (if exposed) should be detected and quarantined by 6-8 February. If the quarantine (both self-imposed and forced) works well, we expect the outbreak will likely peak by mid-February. This would be roughly two months after the report of the first case, earlier than during the SARS outbreak (3-4 months after the first case).

The next key window to watch is likely to be end-February. We are mindful that if mid-Feb fails to see the outbreak brought under control, likely due to ineffective containment or second-generation contagion being discovered, it could bring a greater risk that one of our medium/heavy cases eventuates. The

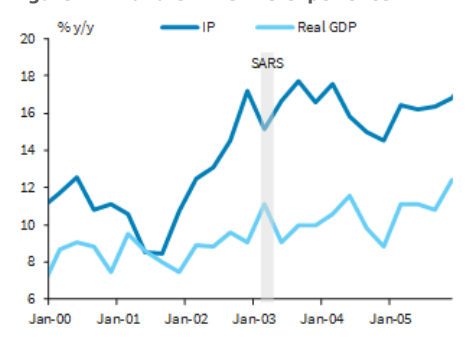
next key window to watch is likely to be end-February, allowing a two-week incubation period following the return of the population to their places of work near the end of the extended LNY holiday. With stronger quarantine enforcement being expected if no stabilisation is seen by mid Feb, the outbreak development around the end of the month would be another indicator of the effectiveness of those quarantine measures.

Figure 6: Return-to-business dates set by provincial governments



Note: The decisions are as of 31 January official announcements. Sources: Xinhua, Bloomberg, Barclays Research

Figure 7: IP and GDP: SARS experience



Sources: Wind, Barclays Research

Figure 8: Retail sales: SARS experience



Sources: Wind, Barclays Research

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