The adverse impacts of the coronavirus on China’s economy look set to spill over significantly to the rest of the world. In addition to weaker Chinese import demand, a sharp drop in the country’s industrial activity may cause substantial supply-side disruptions elsewhere.

China’s dominant manufacturing position suggests that in the near term, finding substitutes for disrupted suppliers will be difficult. China produces over 10% of global trade in non-energy, non-food intermediate goods, and in some sectors, such as capital goods, its share of intermediate goods exports is far higher.

While the outlook is uncertain, we’ve revised down our near-term growth forecasts substantially. We’ve lowered our 2020 forecasts for Chinese industrial output growth in value-added terms from 4.5% to 2.9%. This will also bring the tentative recovery in global manufacturing to a halt, with Asia Pacific feeling the impact most acutely. We now expect global industrial production growth of just under 1% this year, a post-crisis low.

Further extensions of Chinese New Year holidays have widened the geographic spread of economic disruptions from coronavirus, and it seems inevitable that the economic effects on China will be worse than during the SARS epidemic of 2003. Combined with the fact that China is now a much more dominant player in the global economy than in 2003, this means the impacts on the rest of the world will also be larger (Figure 1).

The global spillovers will come via four main channels: reduced goods imports by China, fewer tourism visits from Chinese nationals, supply-chain disruptions due to shortages of Chinese-produced intermediate goods, and financial market and business confidence effects. Here we’ll focus on supply-chain disruptions.

Figure 1: China’s rising importance in global trade and supply chains mean coronavirus could have a more damaging global impact compared to the 2003 SARS epidemic

China’s share of global GDP has roughly quadrupled since 2003. Although trade shares have risen more slowly, the increases have also been substantial. As a result, compared to 2003, trade will now be a much more important transmission channel of the domestic disruption in China to the rest of the world.
China is entrenched in global supply chains

Since 2003, China’s share of global GDP has increased fourfold, but its share of global goods imports and exports of intermediate goods (used as inputs to produce other goods) have staged almost as dramatic a rise (Figure 1). This suggests that the virus has the capacity to have a much more damaging impact via the trade channel compared to that seen during 2003 when the SARS virus struck China.

We’ve reduced our forecast for Chinese import volumes by 9% in Q1 and 5% in Q2 compared to our January forecast, pointing to notable short-term spillovers. Within this category, the drop in service imports is especially large due to the virus’ impact on tourism (Figure 2).

But another major concern — and arguably a greater source of uncertainty — is the degree to which temporary factory closures in China delay exports of intermediate goods, prompting global supply chains elsewhere to slowdown or even halt. True, intermediate goods exports from China as a share of non-Chinese global production are fairly small across most industries (Figure 3). But in the electronics and electrical equipment sectors, these exports amount to over 10% of total non-Chinese sectoral output.

However, outside of Asia Pacific, Chinese intermediate goods exports to various economies measured as a share of domestic manufacturing production is fairly low (Figure 4).

But these statistics probably understate the potential for serious disruption.

The first issue is that firms are likely to have limited contingencies to deal with supply disruptions from China due to the use of just-in-time manufacturing processes – in sectors such as automotive – and a lack of opportunity to build up inventories beforehand. This may be especially true for goods in which China dominates production. The extension of Chinese New Year holidays will limit Chinese producers’ ability to ramp up production in other factories in China. What’s more, once production in the country resumes, transport and logistics bottlenecks may still lead to slow shipments. Finally, even if substitutes for Chinese suppliers exist, their capacity to increase production and meet global demand may be limited in the short term and could increase production costs across the supply chain.

Figure 2: Chinese services imports are set to be affected far more than goods imports

Figure 3: Chinese intermediate exports are small as share of global production

Figure 4: Supply-chain vulnerability is greatest in Asia
Second, delays in the delivery of particular components could lead to much larger overall losses in production. In a worst-case scenario, the absence of a key part may force the shutdown of a whole production line, severely magnifying the global impacts of the temporary halt to Chinese production. Indeed, anecdotal evidence suggests that the disruption is already taking a heavy toll. Hyundai Motor and Ssangyong Motor have suspended car production in South Korea due to a shortage of a wiring component sourced from China, while Fiat-Chrysler have warned of potential disruption in Europe. The tech sector is also vulnerable, with the share prices of firms exposed to Chinese suppliers initially coming under pressure in anticipation of potential disruptions ahead.

Where is the pain most likely to be felt?

It may be that measuring China’s intermediate goods production as a share of total intermediate goods trade provides a more accurate reflection of the trade disruption. Figure 5 shows the 20 biggest export markets for Chinese/Hong Kong non-food and non-energy intermediate goods (what we call “core”) in US dollar terms, based on UN Comtrade data of Chinese and Hong Kong exports by destination (individual national import data sources may differ). The second column shows the value of these imports as a share of total core intermediate imports.

Clearly, Vietnam’s supply chain in particular is closely tied to China. Over 40% of core intermediate goods that it imports come from China, implying short-term substitution away from Chinese intermediate producers won’t be feasible. After Vietnam, the South Korean and the Philippines economies look vulnerable to coronavirus, based on this metric. The share of intermediate goods imports from China is in excess of 20% in all the other Asian economies on the list, bar Singapore.

The data suggests that US industry might be more vulnerable than the industrial sectors of other advanced economies. However, this is based on 2018 figures and may not account for supply-chain diversification resulting from ongoing US-China trade tensions.

Note that China’s share of global trade in intermediate parts for non-transport capital goods is especially high at 28%, implying that the capital goods sector could be prone to particularly severe disruption. Three economies — India, Japan, and South Korea — import more than a third of their intermediate capital goods from China,

<table>
<thead>
<tr>
<th>Country</th>
<th>$bn</th>
<th>% of core intermediate exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>170.0</td>
<td>17.7</td>
</tr>
<tr>
<td>S. Korea</td>
<td>67.3</td>
<td>26.4</td>
</tr>
<tr>
<td>Japan</td>
<td>65.5</td>
<td>23.2</td>
</tr>
<tr>
<td>India</td>
<td>64.3</td>
<td>25.5</td>
</tr>
<tr>
<td>Vietnam</td>
<td>60.7</td>
<td>41.6</td>
</tr>
<tr>
<td>Germany</td>
<td>34.7</td>
<td>5.8</td>
</tr>
<tr>
<td>Thailand</td>
<td>34.5</td>
<td>24.8</td>
</tr>
<tr>
<td>Singapore</td>
<td>28.5</td>
<td>14.8</td>
</tr>
<tr>
<td>Malaysia</td>
<td>28.2</td>
<td>22.1</td>
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<tr>
<td>Indonesia</td>
<td>27.5</td>
<td>26.6</td>
</tr>
<tr>
<td>Mexico</td>
<td>24.1</td>
<td>9.3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>21.9</td>
<td>11.0</td>
</tr>
<tr>
<td>UK</td>
<td>20.4</td>
<td>7.5</td>
</tr>
<tr>
<td>Brazil</td>
<td>19.6</td>
<td>20.6</td>
</tr>
<tr>
<td>Philippines</td>
<td>19.2</td>
<td>30.8</td>
</tr>
<tr>
<td>Australia</td>
<td>18.8</td>
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<tr>
<td>Russia</td>
<td>17.5</td>
<td>17.5</td>
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<tr>
<td>Italy</td>
<td>16.4</td>
<td>7.5</td>
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<tr>
<td>UAE</td>
<td>14.9</td>
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</tr>
<tr>
<td>Canada</td>
<td>14.8</td>
<td>7.6</td>
</tr>
</tbody>
</table>

Source: Oxford Economics/UN Comtrade database

Figure 5: Asian economies’ import shares of Chinese intermediate goods are significant

Intermediate capital goods imports from China

% of total intermediate capital goods imports that come from China

Vietnam
Germany
Philippines
Mexico
Italy
UK
Poland
Malaysia
Netherlands
Singapore
Hungary
Russia
US
Thailand
Indonesia
Australia
Brazil
S. Korea
Japan
India

Source: Oxford Economics/UN Comtrade Database

Figure 6: Capital goods production is likely to face the biggest disruption

Hubei sectoral employment intensity index

Index (1 = same as China). Manufacturing sub-sectors based on employment share of manufacturing

Transport equipment
Textiles
Food, beverages and tobacco
Chemicals and pharma
Furniture manufacturing
Non-metallic minerals
Basic metals
Electronics and equipment manufacturing
Industrial machinery
Coke and refined petroleum
Paper and printing
Wood and wood products
Other manufacturing
Fabricated metal products
Rubber and plastics

Source: Oxford Economics/2010 China

Figure 7: Wuhan is a major automotive hub, so the impact on this sector may linger for longer
suggesting scope for particularly significant disruption there. Nonetheless, the affected sectors will represent a small share of total output in these economies.

What about more disruption in Hubei?
The extended Chinese New Year holidays in Hubei province (where Wuhan is located) are set to continue until Feb. 13, but other affected regions are due to reopen on Feb. 9. The possibility of a further extension remains and widened transport restrictions in Hubei may sustain disruptions. In addition, if an employee is found to have the virus, firms will face disruption due to quarantines and deep cleaning to prevent its further spread. As a result, a return to business as usual is unlikely any time soon, especially in Hubei.

As long as the extended disruption is largely restricted to Hubei, additional global spillovers would be limited because the province accounts for only about 4.4% of Chinese GDP. Nonetheless, it employs an especially high share of workers relative to the national average in the transport equipment sector, suggesting that the impacts on this sector may linger for longer (Figure 7).

Nascent global industrial recovery is temporarily over
The upshot is that we’ve pencilled in a sharp drop in Chinese industrial production in the shorter term. We now expect the level of value-added output to be more than 2% lower than we previously assumed in early 2020. The direct effects of this, along with the resulting supply-chain disruptions, have prompted us to lower our forecast of global industrial production by almost 1% in early 2020. Over the whole year, we expect global industrial production growth to average just 0.9%, a 0.6ppt cut to our January forecast (Figure 8) and more than double the cut in overall GDP growth for the year. This will at least temporarily halt hopes of a meaningful recovery in global industry (Figure 9).

By sector, Asian industrial goods producers relying on Chinese suppliers — such as South Korean autos and electronics and Japanese textiles — are particularly vulnerable to Chinese industrial disruption. But if coronavirus’ severity and duration were to intensify, the impact on global industrial production and trade could deepen. We’ll publish estimates of the implications of more adverse outcomes in a forthcoming Research Briefing.