

Slow easing of lockdowns may be better for global economy: study

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A cautious approach to easing lockdown restrictions that reduces the risk of later lockdowns may be better for the global supply chain in the long run, according to a new modeling study led by UCL and Tsinghua University.

The paper, published today in *Nature Human Behaviour*, is the first peer-

reviewed study to comprehensively assess potential global supply chain effects of Covid-19 lockdowns, modeling the impact of lockdowns on 140 countries, including countries not directly affected by Covid-19.

The study found that stricter lockdowns imposed earlier—such as the two-month [lockdown](#) imposed in China—are economically preferable to more moderate lockdowns imposed for four or six months, as duration of lockdown matters more to economies than their severity. This is because businesses can absorb the shock of a brief lockdown better by relying on reserves and because shorter lockdowns cause less disruption to regional and [global supply chains](#).

Researchers also found that countries not directly affected by Covid-19 may nonetheless experience large losses of more than 20% of their GDP due to falls in consumer demand and bottlenecks in supply chains.

Particularly at risk are open or highly specialized economies, such as Caribbean countries that rely on tourism and Central Asian countries such as Kazakhstan that rely on energy exports. Also vulnerable are globalized industries that rely on difficult-to-replace suppliers, such as automobile manufacturing, where production is estimated to fall by up to half.

Lead author Professor Dabo Guan (UCL Bartlett School of Construction & Project Management and Tsinghua University) said: "Our study shows the ripple effects caused by lockdowns along global supply chains, with countries not directly affected by Covid-19 still experiencing heavy economic losses.

"While predicting the true cost of lockdowns is not possible at this stage, our research suggests that shorter, stricter lockdowns minimize the impact on supply chains, while gradually easing restrictions over the course of a year may also be less disruptive than a swift lifting of

restrictions followed by another lockdown."

The researchers estimated that gradually easing lockdown measures over 12 months would minimize supply chain impacts compared to lifting restrictions more quickly, over two months, and then introducing a second round of lockdowns in January next year, which they estimated would increase the cost by one-third.

Co-author Professor Steven Davis (University of California, Irvine) said: "Our analysis quantifies the global economic benefits of robust public health responses and suggests that economic justifications to re-open businesses could backfire if they result in another round of lockdowns."

Looking ahead to a potential second wave, the researchers found that a strict, globally co-ordinated lockdown implemented for two months would be less economically costly than lockdowns happening in different parts of the world at different times—risking a potential economic loss to global supply chains by 50% rather than 60%. This is because the economic cost of a lockdown goes beyond national borders and a shorter, one-off shock is easier to absorb.

Professor Guan said: "Companies will survive the supply chain failures that lockdowns cause by relying on reserves of stock or finding new suppliers. If a second shock hits, reserves may be low and supply chains only recently repaired—making a new break much more costly."

If recurrent global lockdowns occur, New Zealand's food services sector and Jamaica's tourism industry would face estimated productivity losses of about 90%, while China's electronics business and Iran's oil industry would face productivity losses of about two thirds.

The cost to the UK economy, meanwhile, would rise from a potential supply chain loss of 38% (one lockdown gradually eased over 12

months) to 57% (recurrent global lockdowns happening at different times in different countries).

In the United States, the cost to the financial sector would nearly double if a second global lockdown occurs, with potential supply chain loss rising from 33% (one lockdown gradually eased over 12 months) to 57% (recurrent global lockdowns happening at different times in different countries).

The most important factor affecting the global economic cost of lockdowns, the study found, was the number of countries implementing them, highlighting the importance to the global economy of one country containing an epidemic.

Co-author Professor D'Maris Coffman (UCL Bartlett School of Construction & Project Management) said: "Just as individuals staying at home protect others as well as themselves, so countries imposing strict lockdowns provide a public good to other countries.

"In preparing for the next pandemic, a global facility, in all likelihood administered by the IMF, could ensure that the costs of containing an outbreak are not borne by one country alone. This would remove some of the disincentives to early action and provide enormous health and economic benefits over the long term."

The paper used a "disaster footprint" economic model to quantify the direct costs of lockdowns in terms of labor reduction as well as the cascading effects of loss of labor on the [supply chain](#), simulating how constraints to output affect upstream suppliers as well as the firms to which the goods are being supplied. Supply chain data was drawn from the Global Trade Analysis Project (GTAP) database, which divides the world into 141 economies, with 60 sectors within each economy.

Researchers simulated three kinds of lockdown: strict lockdown in which 80% of travel and labor ceases; a more moderate lockdown with a 60% reduction; a third, lighter lockdown with a 40% reduction in travel and labor. The strict, 80% reduction is based roughly on China's lockdown, during which data suggests 80% of travel stopped, while the 60% lockdown broadly reflects the approach taken in Europe and the United States.

More information: Global supply-chain effects of COVID-19 control measures, *Nature Human Behaviour* (2020). [DOI: 10.1038/s41562-020-0896-8](https://doi.org/10.1038/s41562-020-0896-8)

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