Ending coronavirus lockdowns quickly can be more costly than relaxing them gradually

UCI, other researchers use disaster footprint model to assess COVID-19 supply chain impacts
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Referring to a study published today in Nature Human Behaviour, co-author Steve Davis, UCI associate professor of Earth system science, said, “Pandemic economy management in one country is a public good that benefits other nations. Our work clearly shows that a gradual approach to easing lockdowns is economically preferable to a swift return to pre-pandemic activities followed by another round of global lockdowns.”

Picture Credit:
Steve Zylius / UCI Steve Zylius / UCI

Irvine, Calif., June 3, 2020 — “We’re all in this together” is a commonly heard phrase during this global pandemic, as much of the world practices social distancing. And now researchers at the University of California, Irvine and other institutions have shown that there is some scientific validity to this assertion.

In a study published today in *Nature Human Behaviour*, Chinese, European, American and British researchers demonstrate that the number of countries implementing COVID-19 lockdown measures – and the duration of those efforts – have a greater influence on the gross domestic products of nations than the severity of the restrictions. They also found that easing containment edicts gradually leads to smaller economic losses than lifting them swiftly and then having to reintroduce closures.

Another key finding in the study is that smaller, poorer and less economically diverse countries – even those hit not as hard by the public health aspects of the pandemic – will bear a relatively larger brunt from economic damage caused by COVID-19.

“Because the economies of many developing countries are less immune to disruptions in the global supply chain, they are more severely impacted by the effectiveness – or ineffectiveness – of wealthier nations’ coronavirus countermeasures,” said co-author Steve Davis, UCI associate professor of Earth system science. “Countries not directly affected by COVID-19 could experience losses of more than 20 percent of gross domestic product due to declines in consumer demand and supply chain stoppages.”

Examples given in the paper for such economic impacts include Caribbean counties that rely on tourism and central Asian nations that count on energy exports. For instance, if global economies open and are later required to go back on lockdown, New Zealand’s food services sector and Jamaica’s hospitality industry could suffer losses of up to 90 percent.

The researchers used a “disaster footprint” economic model to assess potential global supply chain effects of COVID-19 lockdowns, analysing the impact of restrictions on 140 countries, including countries not directly affected by COVID-19.

They estimated that gradually easing lockdown measures over 12 months would lead to an economic cost at 40 percent of global gross domestic product, while lifting restrictions more quickly, over two months, and then introducing a second round of lockdowns in January next year would increase the cost to 60 percent.

“Pandemic economy management in one country is a public good that benefits other nations,” Davis said. “Our work clearly shows that a gradual approach to easing lockdowns is economically preferable to a swift return to pre-pandemic activities

followed by another round of global lockdowns."

Davis' collaborator on the project, Dabo Guan of the department of Earth system science at Tsinghua University and the Bartlett School of Construction and Project Management at University College London, 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."

This project, which was funded by the National Natural Sciences Foundation of China, included researchers from Tsinghua University, Beijing, China; University College London; Shanghai University of Finance and Economics; Shandong University, China; the Chinese Academy of Science; University of Edinburgh; Spark Ventures, London; and the University of Groningen, the Netherlands.

About the University of California, Irvine: Founded in 1965, UCI is the youngest member of the prestigious Association of American Universities. The campus has produced three Nobel laureates and is known for its academic achievement, premier research, innovation and anteater mascot. Led by Chancellor Howard Gillman, UCI has more than 36,000 students and offers 222 degree programs. It's located in one of the world's safest and most economically vibrant communities and is Orange County's second-largest employer, contributing $5 billion annually to the local economy. For more on UCI, visit www.uci.edu.

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