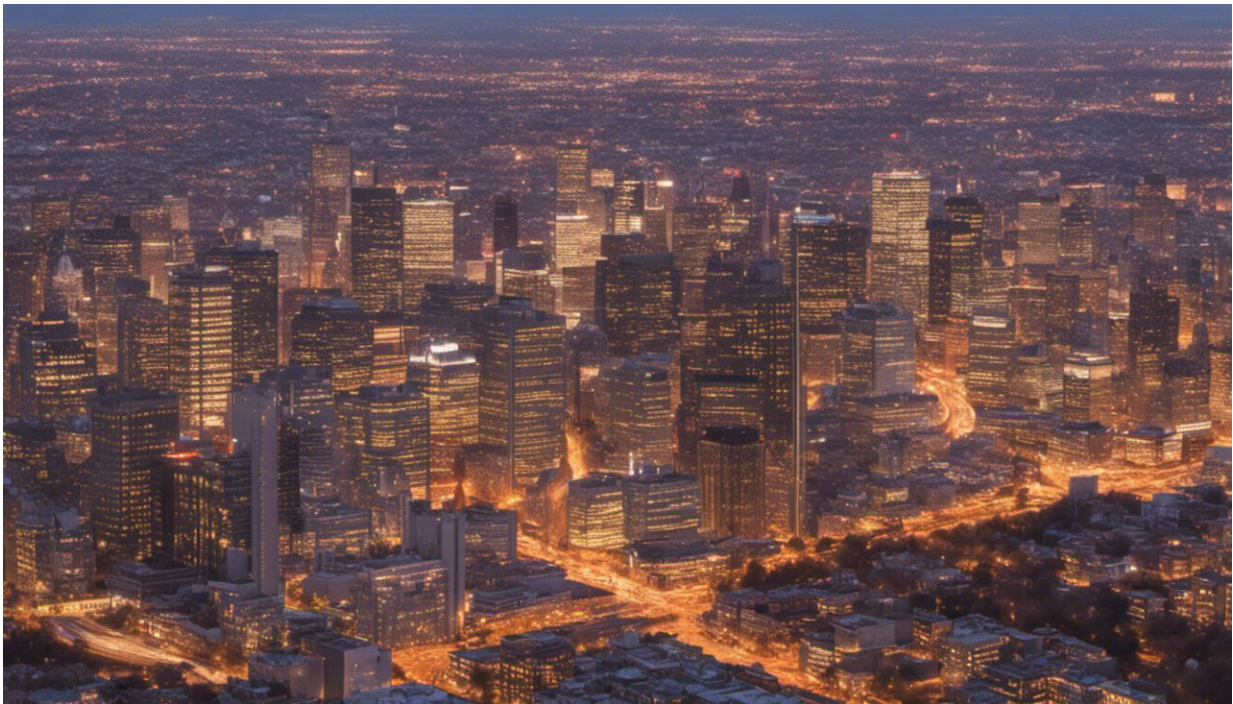


To reopen cities during pandemic, focus on neighborhoods

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Credit: AI-generated image ([disclaimer](#))

With unemployment rising to its highest rate since the Great Depression and labor participation plummeting, many local government leaders in the United States have taken steps to reopen their cities—worrying not only about financial costs, but also about the public health implications of widespread job loss, income insecurity and food insecurity.

But University of Chicago economists suggest that some methods of reopening local economies are costlier than others. According to Prof. John R. Birge and Assoc. Prof. Ozan Candogan of the Booth School of Business, a neighborhood-by-neighborhood approach could be more effective than a city-wide policy that targets specific business sectors.

In a new working paper co-authored with Yiding Feng, a Northwestern University doctoral candidate, Birge and Candogan find that local urban planners can reduce overall infections by strategically keeping some [neighborhoods](#) shut down while allowing others to serve as hubs for commercial activity. The success of such strategies, however, would be contingent on coordination with neighboring counties and state government.

"This could simultaneously reduce the [economic losses](#) and curb the spread of the disease," they write.

Policymakers have generally favored uniform approaches, regarding them as easier to implement and sell to the public. But Birge, Candogan and Feng find that the economic sacrifices of a blanket approach could be three to four times greater than the costs of deliberately targeting neighborhoods.

The researchers looked at quarantines and economic shutdowns in spatial and geographic terms, searching for a way to bring down overall infection rates at the lowest possible economic cost. Their model finds that although some urban neighborhoods and public spaces may serve as hotspots for [disease transmission](#) and should be targeted for closure, certain neighborhoods could remain open under a plan meant to minimize risk to public health.

Take New York City, for example. In scenarios involving an outbreak of a highly or moderately infectious disease, midtown Manhattan is such a

substantial economic hub that it should be permitted to maintain some level of activity. Meanwhile, officials could effectively control the spread of disease by shuttering other neighborhoods, including the city's financial district in lower Manhattan.

Midtown is such an economic juggernaut, the researchers argue, that the cost of shutting it down is too high given the opportunities to better control [disease](#) spread elsewhere. Their model also makes use of anonymized mobile phone data to estimate and weigh movement between neighborhoods.

"Even among adjacent neighborhoods with similar economic values," they write, "it may be optimal to resume activity at those with higher infection rates depending on the structure of the spatial spread patterns between these neighborhoods and the others."

Effectively targeting urban neighborhoods will depend on coordination with other local and state governments. New York City doesn't exist in isolation, so a refusal to halt activity by counties in New Jersey, for example, can undo even the best-laid plan for Manhattan.

Because of the interdependence of neighboring communities, the researchers suggest that this single-city model might be scalable to the country, enabling federal planners to more effectively deal with larger pandemics.

More information: Controlling Epidemic Spread: Reducing Economic Losses with Targeted Closures: [bfi.uchicago.edu/wp-content/up.../BFI_WP_202057-1.pdf](https://bfi.uchicago.edu/wp-content/uploads/2020/05/BFI_WP_202057-1.pdf)

Provided by University of Chicago

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