

Don't Be Too Quick to Dismiss Travel Restrictions

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You might dislike the ban on travel from Europe into the United States for any number of reasons but the inconvenient truth is this: travel restrictions can play an important role in getting epidemics under control, including the current coronavirus one. In a highly connected world we cannot wish away the role travel plays in spreading disease.

Travel restrictions are a powerful tool because they can reduce the rate at which a disease spreads from one place to another, giving us a chance to control it where it is. This is hard but can be done, as it was in the Hubei province of China.

The reason why reducing the amount of additional infections by limiting travel can be an important instrument lies in the exponential nature of contagion. In China, South Korea, and Iran the number of new cases multiplied by a factor of 1.5 each day. If we started with 100 new cases we had 1,700 cases seven days later. After just two weeks we had 30,000 cases.

The purpose of containment and mitigation measures is to reduce this multiplier. Consider a set of strong mitigation measures that reduce it from 1.5 down to 1.1. Starting from the same base of 100 cases we would have just 195 new cases after a week. After two weeks we would be at 380 cases. If we did even better and achieved a factor that was smaller than 1 the epidemic would contract quickly. With a factor of 0.9, for example, we would have 48 new cases after a week, just 22 after two weeks, and we would be well and truly on the way to stopping the outbreak.

But getting this multiplier below 1 requires enormous amounts of effort. Without travel restrictions we potentially have to make such interventions everywhere. If we can restrict the outbreak, including with the help of travel restrictions, to a smaller number of places, we can focus our attention there.

This is why we should take them seriously. They prevent infected individuals from entering a new place. This way we can prevent new outbreaks and stop additional infections from happening, which would have happened otherwise once travelers start the chain of transmission at their destination.

The provinces outside Hubei were able to provide assistance to the worst-hit area precisely because they themselves were not as badly hit. This help could be rendered because, thanks to the travel restrictions, the number of infected travelers which started new chains of transmissions outside of Hubei was limited.

Such restrictions need not be perfect in order to have a substantial effect. They can also be refined and improved over time. Because of the exponential nature of contagion it is preferable to start with strict measures that are relaxed over time rather than the other way around.

This pandemic cannot be stopped with just one intervention. Travel restrictions alone are not enough, they cannot stand on their own and they must be deployed in conjunction with other measures. But they are one of the tools available to us which can, like it or not, make a meaningful contribution to controlling this pandemic.