

New paper shows how disease can affect economies for generations

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A new paper in the *Review of Economic Studies* indicates that disease can alter the social networks and economic growth of countries for generations, even after the disease itself is eradicated.

Social networks are an important determinant of a country's growth as they affect the diffusion of ideas and the rate of technological progress. But social networks also diffuse diseases that can rapidly spread and dampen growth.

As ideas and germs diffuse through the same human interactions, the network structure of a country ultimately depends on its epidemiological [environment](#). In countries with low prevalence of infectious diseases, high diffusion networks are more likely to emerge as they are better suited to diffuse technology and foster growth. On the other hand, in countries characterized by high prevalence of infectious diseases, low diffusion networks are more likely to emerge as limited connectivity protects people from epidemics. This insight has become particularly pertinent as economists reflect on the long term economic impact of the COVID-19 pandemic.

Using a newly assembled dataset for 71 countries and a theoretical model where germs, networks and technology evolve endogenously, the researchers show that small initial differences in a nation's epidemiological environment can trigger large and persistent differences in network structure that, over time, give rise to substantially different levels of technological diffusion and economic output. Specifically, a one-standard-deviation change in social network structure can increase the growth of output per worker by up to 2% per year.

The researchers then conduct policy experiments in which they hold constant the level of disease in the economy and exogenously change several features of the network structure that determine the speed of diffusion. What is the effect of introducing higher diffusion network on growth? Interestingly, the answer depends on the initial prevalence of disease.

Their benchmark is the United States, which has very low disease prevalence (0.05 percent for communicable diseases). In this environment, they find high-diffusion networks have a strongly positive impact on economic growth. Doubling the number of highly mobile or connected individuals raises growth rates substantially. But in a high-disease environment (using Ghana's 18 percent prevalence), altering the

social [network](#) to facilitate faster diffusion lowers national income. Doubling the number of highly connected people causes output to fall by 90 percent.

The paper shows that how networks affect economic growth depends on the disease environment. In low disease countries, high diffusion networks promote the dissemination of new ideas and enhance growth. However, in a place where [disease](#) is prevalent networks can also lead to epidemics and humanitarian crisis.

"Germs, networks and growth are deeply interconnected," said the paper's lead author, Alessandra Fogli. "Strong networks have allowed our global economy to grow at an unprecedented rate. But they have also made it more vulnerable to the [diffusion](#) of new diseases. As social networks adapt to the new epidemiological environment, the COVID-19 pandemic can have long term consequences on economic growth."

More information: Alessandra Fogli et al, Germs, Social Networks and Growth, *The Review of Economic Studies* (2021). [DOI: 10.1093/restud/rdab008](#)

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