Population density and the spread of the COVID-19 pandemic: a reproducible research example

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Abstract

The emergence of the novel SARS-CoV-2 coronavirus and the global COVID-19 pandemic has led to explosive growth in scientific research. Of interest has been the associations between population density and the spread of the pandemic. In this paper, population density and the basic reproductive number of SARS-CoV-2 are examined in an example of reproducible research. Given the high stakes of the situation, it is essential that scientific activities, on which good policy depends, are as transparent and reproducible as possible. Reproducibility is key for the efficient operation of the self-correction mechanisms of science. Transparency and openness means that the same problem can, with relatively modest efforts, be examined by independent researchers who can verify findings, and bring to bear different perspectives, approaches, and methods—sometimes with consequential changes in the conclusions, as the empirical example of the spread of COVID-19 in the US shows.

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