The importance of reproducibility in COVID-19 research: the case of population density and the spread of the pandemic

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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. 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, which work to weed out errors and refine our understanding of social and physical phenomena. In this paper, the importance of reproducibility is illustrated for the case of the association between population density and the the spread of SARS-CoV-2. 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 in this paper shows.

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