Containment strategies after the first wave of COVID-19 using mobility data

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In their response to the COVID outbreak, governments face the dilemma to balance public health and economy. Mobility plays a central role in this dilemma because the movement of people enables both the economic activity and spreading of the virus. In our work, we quantify the trade-off between mobility and infection spreading, and propose strategies for restricting mobility in such a way that the restrictions are minimal while the spreading of infection can be effectively prevented. Mobility is quantified using aggregated origin-destination data in the Netherlands before the outbreak (normal economic activity), and the spreading of infection is predicted using compartmental epidemic models that include geography of contacts. Using Network Science methodology, we obtain effective policies of mobility restrictions and compare their results in two scenarios: when the infection has already spread throughout the country, and when many people are infected in one location – a so-called superspreader event.

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