Title

Analysing changing mobility patterns during the pandemic using mobile network data

Abstract

Highly granular and up-to-date mobility indicators offer a better understanding of people's movement patterns as well as valuable insights into the effect of restriction measures during the Covid-19 pandemic. In the current context, the need for national statistical offices to adapt to an ever-evolving environment, shaped by rapid economic, technological, and social change, is more acute than ever. At the same time, the availability of new digital data is creating opportunities to produce more relevant and timely information, and thereby offer crucial support to political and economic decision-makers. In Germany, as in many other countries, measures to contain the Covid-19 pandemic included closing down shops, workplaces, and educational institutions, as well as further movement restrictions aimed at reducing in-person contact. Population mobility as a proxy for social contact has been found to be one of the key factors affecting disease transmission.[1] In order to describe and illustrate changes in population mobility, the German Federal Statistical Office (Destatis) has acquired fully anonymised and aggregated mobile network data. The data show the number of moving mobile devices per region and time span, with a geographical resolution as high as 500m x 500m and a temporal frequency up to hourly data. To provide an overview of the current mobility dynamics for political decision-makers and the public, Destatis compiles and publishes indicators on a daily basis. The data also allow, among others, to analyse the impact of movement restrictions, study the interplay between regional mobility patterns and virus transmission, and understand changes in preferred means of transport. Further areas in official statistics that may benefit from using mobile network data include population statistics, commuter statistics and tourism statistics.

Keywords

mobile network data, mobility, new digital data, covid-19

[1] Nouvellet, P., Bhatia, S., Cori, A. *et al.* Reduction in mobility and COVID-19 transmission. *Nature Communications* **12,** 1090 (2021).