



Handbook on the use of Mobile Phone Data (MPD) for Dynamic Population Mapping

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Abstract:

Since the Middle Ages, we have counted the number of people in our cities. It is becoming increasingly difficult to monitor the changes in population. The population is more dynamic than ever before, and we need new data sources for monitoring population figures that work in the new world. Data gathered in the mobile network operator's networks can be turned into dynamic population maps.

Mobile phone data can be used for several applications where dynamic population figures are needed:

- Monitoring population redistributions caused by COVID-19 mobility restrictions,
- 'Dynamic denominators' to estimate disease incidence,
- Disaster preparedness planning and response,
- Infrastructure and resource planning,
- Creating dynamic sample frames for surveys,
- Population projections,
- Daytime population,
- Census.

The UN Committee of Experts on Big Data and Data Science for Official Statistics has prepared guiding materials for the use of mobile positioning data for dynamic population mapping for the statistical community. The Handbook on the use of Mobile Phone Data (MPD) for Dynamic Population Mapping has been completed through a consultative process of experts.

Population figures provide the underpinnings for many other domains of statistics and when proper attention is provided to challenges with mobile phone data, there are ways to overcome the main methodological questions:

- How to build the right data model?
- How to detect place of residence and select the right home detection algorithms?
- How to ensure data coverage and representativity?
- How to model population density?
- How to validate the results?

The handbook will be able to function as a guide to navigate the applications and methodological challenges of the use of mobile phone data for dynamic population mapping.

Keywords:

Big data; mobile phone data; mobile positioning data; population; de facto population

References: UN Committee of Experts on Big Data and Data Science for Official Statistics website: <https://unstats.un.org/bigdata/index.cshtml>