



## **Fine level estimates and future scenarios: What are the links and differences between small area estimation and spatial microsimulation?**

Stephen Haslett

Institute of Fundamental Sciences – Statistics and Bioinformatics, Massey University,  
New Zealand– [s.j.haslett@massey.ac.nz](mailto:s.j.haslett@massey.ac.nz)

Using and combining a variety of data sources, including sample surveys and existing administrative databases, can be an effective way of reducing the cost of producing sound statistics, especially when they are needed at a finer level than any single source will permit. Connecting and analysing multiple data sources via statistical models is not however a simple task, especially where the aim of the modelling is to explore a range of long term scenarios rather than produce fine level statistics for the period in which the data was collected. This paper considers conditions under which Official Statistics data sources, particularly surveys and censuses or surveys and administrative sources, can properly be combined using statistical models based on spatial microsimulation and certain related types of small area and small domain estimation. Theoretical connections between these techniques are explored. The research also considers the relevant literature, extends existing statistical methods, and considers their application in principle in social policy, sociology, and economics. Guidelines for use of these techniques are also given, based on this research.

**Keywords:** scenarios; small area estimation; social policy; spatial microsimulation.