

Multiple Frame Surveys: A Resilient Framework for Digital-Era Challenges

by Fulvia Mecatti - Dpt of Sociology & Social Research, University of Milano-Bicocca

The seminar will review and critically discuss the development of Multiple Frame (MF) surveys over more than six decades, from their first appearance in the sampling literature of the 1960s–1970s to the re-assessment of their role in today’s fast-evolving landscape of digital data sources and emerging data needs. An MF survey uses two or more sampling frames, usually with partial coverage and overlapping units, which together adequately cover the target population. MF surveys are especially useful when no single complete frame exists and no sufficient resources are available to construct one via record linkage. They can also be cost-effective even when a complete frame is available, which was, in fact, the practical motivation behind their initial introduction in the sampling statistics literature. Since then, MF surveys have undergone a significant and resilient evolution in their objectives, application areas, and estimation approaches. The initial cost-saving motivation has expanded to include applications to difficult-to-sample populations (e.g., undocumented immigrants), the handling of attrition in longitudinal studies, agricultural surveys combining satellite and field data, and MF-based strategies addressing long-standing challenges in sample surveys, such as rising costs and declining response rates. A parallel evolution in MF estimation has also occurred, mainly due to the inherent methodological difficulties associated with complex survey designs and notational cumbersome. This initially led to several seemingly disconnected estimation approaches, which can now be simplified and unified under the Multiplicity approach and the Generalized Multiplicity-Adjusted Horvitz–Thompson framework. The unprecedented availability of new digital and Big Data sources, together with the recent surge of interest in combining information from probability and non-probability samples to address budget constraints, the demand for timely estimates, and lack of respondent cooperation, calls for a re-assessment of MF practices and outlines directions for future research.