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Automated Name Selection for the Network Scale-up Method

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The distribution of the number of acquaintances among members of a society is a relevant feature of its social structure. Furthermore, the number of acquaintances (or "degree") is used for estimating other societal features, such as the size of hard-to-count subpopulations or social cohesion. To estimate the degree, the Network Scale-Up Method (NSUM) asks survey respondents about the number of people they know with a set of first names for which name statistics are available. For this method to be precise, a set of names needs to be selected for the survey that jointly represent the population on a smaller scale in terms of relevant traits such as gender or age. Finding the optimal set of names is a combinatorial problem for which this paper provides a solution approach. The approach can serve other NSUM users, and can be applied to any population for which name statistics distributed over different categories are available. We empirically show that our approach successfully provides subsets of names replicating the population distribution for six countries with very different name statistics.

Keywords

network scale-up method, aggregate relational data, network data collection

Topics

• Statistical methods and models for network analysis

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