Title of the paper:

New methods for small area estimation with linkage uncertainty

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Abstract:

In official statistics, interest for data integration has been increasingly growing, due to the need of extracting information from different sources. However, the effects of these procedures on the validity of the resulting statistical analyses has been disregarded for a long time.
In recent years, it has been largely recognized that linkage is not an error-free procedure and linkage errors, as false links and/or missed links, can invalidate the reliability of estimates in standard statistical models. In this paper we consider the general problem of making inference using data that have been probabilistically linked and we explore the effect of potential linkage errors on the production of small area estimates.
We describe the existing methods and propose and compare new approaches both from a classical and from a Bayesian perspective. We perform a simulation study to assess pros and cons of each proposed method; our simulation scheme aims at reproducing a realistic context both for small area estimation and record linkage procedures.