



## Uncertainty in statistical matching for integration of samples drawn from finite populations

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The goal of statistical matching is the estimation of the underlying joint distribution of variables separately available from independent sample surveys. Unless special assumptions are made, observed data do not identify the distribution to be estimated, that is the lack of joint observations of the variables of interest leads to uncertainty about the joint population distribution function. The aim of this paper is to analyze the statistical matching problem for complex survey data. More specifically, in the first place an estimate of a plausible joint distribution function for the variables not jointly observed via the Iterative Proportional Fitting algorithm is proposed. In the second place, a measure of the reliability of such an estimate for complex sample designs is introduced and its asymptotic normality is proved.

**Keywords:** statistical matching; uncertainty; complex designs; matching error.