

**Estimation under a probabilistic editing procedure**

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Measurement error is one kind of nonsampling error appearing in surveys, censuses and administrative data. Thus, data editing is always part of data processing. However, editing all inconsistent or suspicious data records is time consuming and costly. To save resources selective editing is often considered by national statistical agencies. Selective editing aims to correct only the most influential erroneous responses without lowering the quality of final estimates. Due to its nature, selective editing approach lacks a basis in probabilistic theory and there has been no suggestion as to how to establish the properties of estimators, especially the bias properties. This paper proposes to choose for editing only responses selected through probability sampling procedure. Probability proportional-to-size sampling design is considered for the purpose. Two-phase design approach is applied for the bias estimation. The properties of calibration estimator in case of probability editing are presented. A simulation study is carried out to examine the effectiveness of proposed approach.

*Keywords:* measurement error, unbiased estimation, two-phase design