# Conformal Methods in Official Statistics: Perspectives and Challenges

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## Abstract

*Survey sampling and, more generally, Official Statistics are experiencing an important renovation time. On one hand, there is the need to exploit the huge information potentiality that the digital revolution has made available in terms of data. On the other hand, this process occurred simultaneously with a progressive deterioration of the quality of classical sample surveys, due to a decreasing willingness to participate and an increasing rate of missing responses. The switch from survey-based inference to a hybrid system involving register-based information has made more stringent the debate and the possible resolution of the design-based versus model-based approaches controversy. In this new framework, the need of statistical techniques which provide exact coverage guarantees to model-based procedures is essential. Here we explore the use of conformal prediction methods, very popular in modern statistics, yet not very common in survey statistics. We argue that this approach can be beneficial both in design-based and model-based approaches to survey sampling.*

**Keywords:** Finite sample coverage, Design-based coverage, Frequentist-Bayesian agreement, Prediction Intervals

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