# NON-PROBABILITY SAMPLE INTEGRATION IN THE SURVEY OF LITHUANIAN CENSUS

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## Abstract

The sample of the Statistical survey on population by ethnicity, native language and religion 2021 consists of the voluntary sample and the probability sample drawn from the rest of the census population. A natural post-stratified calibrated estimator tends to underestimate minor religions and other small proportions of interest. Alternatively, to correct the bias of estimates based on the non-probability sample, we evaluate the propensity scores for individuals using the sociodemographic and the previous census data. We show that the combination of the corrected estimates with the calibrated ones improves the estimation accuracy for minor religions.

**Keywords:** population census, missing at random, propensity score, variance estimation.