

Adjusting Self-Protective and Non-Response Behaviours in Sensitive Prevalence Estimation by a Two-Stage Multilevel Randomised Response Technique

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Abstract

When using the customary direct questioning approach to collect sensitive information in a survey, some respondents may have no problem disclosing their true status or opinion, while others may be reluctant to reveal them. The problem of response bias is likely to arise as some responses tend to be more socially desirable than truthful. Hence, the indirect questioning approach can be used to guarantee privacy protection and reduce the influence of social desirability bias. This paper introduces a new technique which combines, both the direct and indirect questioning approaches and allows Bayesian estimates of the prevalence of multisensitive attributes to be obtained by taking into account the estimated proportion of honest respondents under direct questioning. Our proposal stems from a real survey in Taiwan and is illustrated with two motivating examples concerning voting behaviours and sexual identity. The empirical analysis reinforces that the proposed two-stage multilevel method is satisfactory in mitigating the effects of respondents' self-protective behaviour, and produces results that are more reliable than those based on the traditional direct questioning approach and better than a previous version of the multi-level randomised response method that ignores the presence of cheating behaviours in the direct questioning stage.

Keyword: Bayesian estimation; cheating behaviours; honest responses; indirect questioning techniques; sexual identity; social desirability bias; voting behaviour.