Abstract

In this thesis, we proposed an extension to Warner's and Poole's Randomized Response Models. We use red and white balls instead of the spinner. The probability of drawing a red ball is equals to the probability of spinner pointing to A. We introduce variable Y, the yearly income and we are interested in the average yearly income of the people in group A. Assume that yearly income is another sensitive and evasive variable that interviewee would prefer not to answer, we propose a multiplier marked on each and every ball drawn instead of using random number generator. This multiplier serves as randomizing factor which improves the confidence of interviewees to their interviewers. The set of multiplying factors may be altered to get favoured result. Both mean and domain mean estimations are defined. Mean estimator is unbiased while domain mean estimator is approximately unbiased since we are using ratio estimator. After that, the variance of both estimators are analysed so that we are clear where the variations come from. The understanding of the variation sources may be useful in controlling, or even minimizing, the variance.

Keywords:
Randomized response technique, domain mean estimation, sub-population mean estimation.