Logistic regression analysis of employment behavior data using randomized response technique.

Abstract

Direct survey techniques deal with collecting information on sensitive issues data, such as induced abortion, drug addiction, and so on. RR (randomized response) techniques are available for many interviewees, who do not feel comfortable to disclose their personal data due to privacy risks. RR techniques are used in the estimation of the number of people having a sensitive attribute say A. When the research is conducted on the disgraceful or ignominious characteristics of persons like rash driving, tax elusion, induced abortion, testing HIV (human immunodeficiency virus) positive etc., RR techniques are used to make sure that the estimates obtained are efficient and unbiased. During these types of surveys, privacy of the respondent is also managed. Among others, the conflict between efficiency and protection of privacy was also discussed by Nayak in 1994. In RR-related techniques, the SRS (simple random sampling) is statistically used in the sample selection. In this paper, RR procedure is used that allows us to estimate the population proportion in addition to the probability of providing a truthful answer. This study also quantifies a method for the estimation of the model having one variable (univariate) while studying logistic regression, where the dependent variables are subject to RR. In addition, an efficiency comparison is carried out to investigate the performance of the proposed technique. It is also assumed that during the study, the respondents will respond keeping in view the instructions of the RR design. The general idea about findings of current study, though, is so as to perform RR techniques comparatively fine.