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## **PROTECTION OF PRIVACY FOR RESPONDENTS IN A RANDOMIZED RESPONSE SURVEY WITH A CONTINUOUS RESPONSE VARIABLE**

### **Abstract:**

In some socioeconomic surveys, the interviewer has to collect information on variables which are sensitive or stigmatizing in nature. For example, one may need to ask about the respondent's criminal activities or convictions, the amount of income unreported to tax authorities, the duration of alcohol or illegal drug addiction, and similar other incriminating issues which could nevertheless be socially and economically relevant. The interviewer cannot ask direct questions on these issues for fear of getting either no response or incorrect responses. A preferred option in such surveys is the use of randomized response techniques where the reported responses are generated via a randomization device, and thus, the privacy of the respondent is protected. In this talk, we propose a measure for the amount of privacy protection accorded to a respondent through the use of a randomized response technique. We show that given a desired level of privacy protection, we can choose the parameters of our randomization method in such a way that this given level of protection can be achieved and also efficient estimates for the parameter of interest may be obtained. It is expected that respondents will be willing to participate in such surveys if they can be assured a certain level of protection of their privacy.

### **Keywords:**

linear model, posterior distribution, privacy, product model, randomized response

**JEL Classification:** C83