

Preface

Asking questions about sensitive and stigmatizing characteristics in surveys of human populations is not an easy matter. Gathering information on issues like sexual orientation, drunkenness, HIV positivity, experience in induced abortion, maltreatment of spouse, habits of wilful tax evasion, bribery, cheating, and fraud by means of direct questions and conventional survey methodology is likely to produce large nonsampling errors particularly due to nonresponse. People are not willing to provide information which might be considered as incriminating and stigmatizing. In cases they agreed to participate in such a survey, it is very reasonable to assume that many of them give false answers and provide misleading information.

Warner (1965) was the first to offer a way out as a pioneer with his Randomized Response Technique. A participant in a survey employing his technique, using a so-called randomization device, provides information from which it is not possible to infer whether he/she has the stigmatizing characteristic and thus his/her privacy is protected. However, based on the information collected from all participants, it is possible to make inferences about the prevalence of the stigmatizing attribute. This principle, namely that the information provided by a participant is not adequate to make inferences about his/her status as related to the sensitive characteristic but the information collected from all participants together is sufficient to estimate certain parameters of the population, is the one which governs all indirect questioning techniques devised so far.

Prospective readers may be familiar with the three treatises, namely (1) *Randomized Response and Indirect Questioning Techniques in Surveys* (Chapman & Hall, CRC Press, Boca Raton, Florida, USA, 2011) by Arijit Chaudhuri, (2) *Randomized Response: Theory and Techniques* (Marcel Dekker, NY. USA, 1988) by Arijit Chaudhuri and Rahul Mukerjee, and (3) *Randomized Response: A method for Sensitive Surveys* (Sage, London, 1986) by J.A.Fox and P.E.Tracy.

Warner and most of his followers did not clarify if their theories are related to a theoretical or a survey population of labeled individuals. Consequently most of the published works including (2) and (3) above dealt with analysis confined to simple random sampling with replacement alone. A few published papers and Chap. 7 in Chaudhuri and Mukerjee (1988) considered labeled finite survey populations

and general sampling schemes allowing selection without replacement and even selection with unequal or varying probabilities. The monograph (1) noted above provides a comprehensive review opening an avenue for further research in theory and practice in randomized response. It is a research publication out and out. Its emphasis is on thrashing out the point that for every randomized response technique employed in respect of the people selected in a sample, no matter how, data analysis is possible to throw up unbiased estimators for the proportion of people bearing a sensitive attribute in a community throwing up estimated measures of accuracy in estimation only provided that every person is given a positive inclusion-probability in a sample and that every pair of distinct persons also has a positive inclusion-probability in a sample. Chaudhuri (2011) and Chaudhuri and Mukerjee (1988) covered estimation of survey population totals of stigmatizing variables. In addition, taking account of certain emerging criticisms of randomized response techniques in general, alternative data-gathering procedures in indirect manners are also briefly studied by Chaudhuri's (2011) text.

However, recognizing that the monographs above involve a good deal of analytical sophistication not quite tasteful to social scientists enjoying less pleasure in their perusal but really more interested in the essentials of these Indirect Techniques for gathering sensitive data, the present monograph attempts at presenting a compendium of useful techniques with straightforward analytical tools in rather condensed forms. Although randomized response techniques account for the lion's share of indirect questioning, more recent approaches move away from the idea of using a randomization device. This monograph attempts to give the most basic and important aspects of indirect questioning. In addition to randomized response and other indirect questioning approaches such as the item count technique, the nominative technique, and the three-card method which have been known for quite some time, this monograph contains modern approaches such as non-randomized techniques and surveys with negative questions not to be found in any of the three monographs mentioned above.

In this book, the issue of the protection of privacy has a prominent place. But here we just do not view it as a concept on which one builds mathematical formulas and numerical indicators. We put emphasis on the perceived protection of privacy, i.e., the protection of privacy as how participants perceive it. Although the book does not offer any solutions to the issue of quantification of the perceived protection of privacy, we firmly believe that it will provide incentives to researchers, in particular social scientists to join forces with mathematical statisticians on this important issue.

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