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NEW SCRAMBLING RANDOMIZED RESPONSE MODELS

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ABSTRACT. In this article, a new randomized response model has been proposed. It is shown that Gupta and Thorntons (2002) and Hussains (2012) randomized response models are particular member of the proposed model. The proposed model is found to be more efficient than the randomized response models studied by Gupta and Thornton (2002) and Hussain (2012) under a realistic condition. The relative efficiency of the proposed model has been studied with respect to the Gupta and Thorntons (2002) and Hussains (2012) models. Numerical illustrations are also given in support of the present study.

1. INTRODUCTION

One of the leading cogs for obtaining data pertaining to human populations is the social survey. To measure opinions, attitudes, and behaviors that cover a wide band of interests, the social survey has been established as being tremendously practical. The surveys are conducted due to many reasons, non availability of certain facts / information in the archives being the most understandable and apparent. For instance, if one is interested in knowing crime rate, information about unseen crimes or unreported victimization experience is not available in formal records on crimes. Sometimes the facts about the individuals (in a population) are inaccessible to the investigators for legal reasons. Questionnaires, in particular social surveys, generally

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