Increasing Survey Statistics Precision Using Split Questionnaire Design: An Application of Small Area Estimation

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A connection between length of a survey questionnaire and the response rate, response burden and precision of survey statistics is an interested topic in survey research methods. Several studies reveal that lengthy survey questionnaires decline the response rates. Split Questionnaire method which introduced as a solution to decrease the non-response rate and response burden, involves splitting the questionnaire into sub-questionnaires and then administering these sub-questionnaires to different subsets of an original sample. As an alternative to this approach we suggest a method of designing and analyzing split questionnaire, using small area estimation. This method relies on the fact that, in the split questionnaire method each sample unit obviously does not respond to all items and consequently, for each item there is not enough sample to support direct estimates of sufficient precision. In a simulation study we show our approach provides more reliable statistics than existed methods.