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In This Issue

It is with great sadness that we note the recent passing of M.P. Singh, Editor of the *Survey Methodology* journal since the very first issue in 1975. This issue of the journal opens with a brief obituary in memoriam.

This issue of *Survey Methodology* also contains the fifth paper in the annual invited paper series in honour of Joseph Waksberg. A short biography of Joseph Waksberg was given in the June 2001 issue of the journal, along with the first paper in the series. I would like to thank the members of the selection committee- Michael Brick, chair, David Bellhouse, Gordon Brackstone and Paul Biemer – for having selected Jon Rao as the author of this year's Waksberg paper.

In his paper entitled "Interplay Between Sample Survey Theory and Practice: An Appraisal", Rao traces how survey methods are stimulated by new theoretical developments, and how theory is challenged by survey practice. After summarizing fifty years of contributions from 1920 to 1970, he presents more detailed discussions of more recent developments in several areas. Finally, he discusses several examples of important theory that is not yet widely applied in practice.

In their paper, Fuller and Kim develop and study an efficient hot-deck imputation method under the assumption that response probabilities are equal within imputation cells. Their proposed method is based on the idea of fractional imputation and uses regression techniques to obtain an approximation of the fully efficient version of fractional imputation. Variance estimation is developed for replication methods. Their proposed method is shown to work well in a simulation study.

The paper by Brick, Jones, Kalton and Valliant compares through a simulation study three variance estimation methods in the presence of hot-deck imputation: the model-assisted method, the adjusted jackknife method and multiple imputation. The goal of the simulation study is to study the properties of these variance estimators when their underlying assumptions do not hold. They found that the coverage rate of confidence intervals is not close to the nominal level when the point estimates are biased due failure to take into account the domains of interest at the imputation stage. They conclude by noting that the differences between the variance estimators were too small and inconsistent to support claims that any one of them is superior in general.

Little and Vartivarian study the effect of nonresponse weighting on the Mean Squared Error (MSE) of a population mean estimator. Nonresponse weighting adjustments are obtained by adjusting design weights by the inverse of response rates within cells. They come to the conclusion that a covariate must have two characteristics to reduce nonresponse bias: it needs to be related to both the probability of response and to the survey outcome. If the latter is true, nonresponse weighting can also reduce nonresponse variance. Estimates of the MSE are proposed and used to define a composite estimator. This composite estimator worked well when evaluated in a simulation study.

O'Malley and Zaslavsky present generalized variance-covariance modeling functions (GVCFs) for multivariate means of ordinal survey items, for both complete data and data with structured non-response. After developing and evaluating their methods, they give an illustration using data from the Consumer Assessments of Health Plans Study. In the concluding section they discuss some issues related to the application of GVCFs.

The paper by Singh, Shukla and Kundu develops spatial and spatial-temporal models for small area estimation, as well as estimation of the MSE of the resulting EBLUPs. The models are applied to monthly per capita consumption expenditure data, and they conclude that the models can be very effective when there are significant correlations due to neighborhood effects.

Belsby, Bjørnstad and Zhang discuss modeling to estimate the number of households of different sizes when there is nonignorable nonresponse. They model the response mechanism conditional on household size, using registered family size as supplementary data. After developing their modeling approach, they produce and evaluate estimates using data from the 1992 Norwegian Consumer Expenditure Survey.

Nandram, Cox and Choi consider an analysis for categorical data from a single two-way table with both item and unit nonresponse or, in their terminology, partial classification. They propose to use a Bayesian approach for modeling different patterns of missingness under ignorability and non-ignorability assumptions. The methods are illustrated using incompletely-observed bivariate data from the National Health and Nutrition Examination Survey where the variables subject to missingness are bone mineral density and family income.

In the first of three short notes in this issue, Beaumont discusses the use of data collection process information in nonresponse weight adjustment. He then presents an example from the Canadian Labour Force Survey using the number of attempts to contact a survey unit. An important result is that if the collection process information can be treated as random, then this approach does not introduce any bias.

Starting from basic principles, Bustos derives an explicit form for the probability function of an ordered sample. Using this function, he shows how it can be used to compute inclusion probabilities with illustrations for common sample designs. Finally, he gives the general form for the correlation matrix of sample units, which depends solely on the inclusion probabilities.

Finally, the paper by Wu briefly reviews some theory about the Pseudo Empirical Likelihood (PEL) method in survey sampling, and presents algorithms for computing maximum PEL estimators and for constructing PEL ratio confidence intervals. Functions using the statistical software R and S-PLUS are given to help implement these algorithms in real surveys or in simulation studies.

Harold Mantel