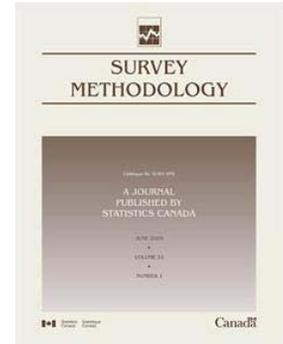


Article

In this issue



December 2009

In this issue

This issue of *Survey Methodology* opens with the ninth paper in the annual Waksberg Award invited paper series in honour of Joseph Waksberg's contributions to the theory and practice of survey methodology. The editorial board would like to thank the members of the selection committee – Bob Groves, chair, Leyla Mohadjer, Daniel Kasprzyk and Wayne Fuller – for having selected Graham Kalton as the author of this year's Waksberg Award paper.

In his paper entitled "Methods for oversampling rare subpopulations in social surveys" Kalton gives an overview of methods for sampling rare populations, what Kish called minor domains. After discussing general issues he describes several different methods including screening, stratification, two-phase sampling, multiple frames, multiplicity sampling, location sampling, and accumulating samples over time. He discusses the advantages and disadvantages of each method, and gives many examples of their use in surveys. In practice a combination of approaches is often used.

Randomized response strategies are often used in order to reduce nonsampling errors such as nonresponse and measurement errors. They can also be used in the context of statistical disclosure control for public use microdata files. In his paper, Quatember proposes a standardization of randomized response techniques. The statistical properties of the standardized estimator are derived. He applies the proposed method to a survey on academic cheating behaviour.

Xu and Lavallée consider the problem caused by link nonresponse when using the generalized weight share method in indirect sampling. Indirect sampling is used when selecting samples from a population that is not the target population of interest but is related to it. Biased estimates may occur when it is not known that a unit in the sampling population is related to a unit in the target population. The authors propose several weight adjustments to overcome the issue of link nonresponse.

In the context of unit nonresponse, the weights of the respondents are often adjusted by the inverse of the estimated response probability. Da Silva and Opsomer propose to estimate the response probabilities using local polynomial regression. Results of a simulation study are presented confirming the good performance of the proposed method.

In their paper, Van den Brakel and Krieg consider a multivariate structural time series model that accounts for the design of the Dutch Labour Force Survey. The model is used to estimate the unemployment rates. An empirical investigation demonstrates that the proposed model results in a significant increase in accuracy.

Zhang considers estimation of cross-classifications where one margin of the cross-classification corresponds to small areas and where non-response varies from area to area. He develops a double mixed model approach that combines the fixed effects and random area effects of the small area model with the random effects from the missing data mechanism. The associated conditional mean squared error of prediction is approximated in terms of a three-part decomposition, corresponding to a naive prediction variance, a positive correction that accounts for the hypothetical parameter estimation uncertainty based on the latent complete data, and another positive correction for the extra variation due to the missing data.

Souza, Moura and Migon propose a Bayesian small area estimation application using growth models that account for hierarchical and spatial relationships. They use this approach to obtain population predictions for the municipalities not sampled in the Brazilian Annual Household Survey and to increase the precision of the design-based estimates obtained for the sampled municipalities.

Shao and Thompson investigate the problem of variance estimation when a weight adjustment is applied to deal with nonresponse in stratified business surveys. They derive two consistent linearization variance estimators under weak assumptions. Naive jackknife variance estimators do not work well unless the sampling fraction is negligible, which is not the case when there are certainty strata. They propose a modified jackknife variance estimator that is consistent even when there are certainty strata but the non-certainty strata must not have a large sampling fraction. They evaluate their variance estimators empirically using real data and a simulation study.

In his paper, Preston investigates the bootstrap variance estimation for multistage designs when units are selected using simple random sampling without replacement at each stage. He proposes an extension to the commonly used rescaled bootstrap estimator that assumes with replacement sampling or negligible sampling fractions at the first stage. The proposed estimator is compared with the rescaled and Bernoulli bootstrap estimators.

Jang and Eltinge address the problem of estimating degrees of freedom values from stratified multistage designs when a small number of primary sampling units (PSUs) are selected per stratum. Due to the small number of PSUs selected, the traditional Satterthwaite-based degrees of freedom can be a severe underestimate. In their paper, they propose an alternative estimator of the degrees of freedom that uses the within PSU variances to provide auxiliary information on the relative magnitudes of the overall stratum-level variances. The proposed method is illustrated using data from the National Health and Nutrition Examination Survey (NHANES).

The article by Wang and Bellhouse explores an application of nonparametric regression techniques to study the relationship between the response variable and covariates, as well as prediction using auxiliary information in the context of complex surveys. The work is an extension of Bellhouse and Stafford (2001) that used a simple nonparametric regression function to the case of several independent variables, including indicator variables that often appear in regression analysis using survey data.

And finally, we are pleased to inform readers and authors that *Survey Methodology* will shortly be covered by SCOPUS in the Elsevier Bibliographic Databases starting with the June 2008 issue.

Harold Mantel, Deputy Editor