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Letters to the Editor

Letters to the Editor will be confined to discussions of papers which have appeared in the Journal of Official Statistics and of important issues facing the statistical community.

Comments on Cohen, Xanthopoulos, and Jones

The article by Cohen, Xanthopoulos, and Jones (JOS, Vol. 4, No. 1) contains what I consider to be an unfortunate error. The authors maintain that regression analysis in survey work assumes the usual form of the multiple regression model with independent and identically distributed errors (pp. 19, 20). It does not. If it did, then one could use OLS without fear.

The usual design-based approach is to avoid introducing the regression model all together and to treat the full population regression coefficient, $(X'X)^{-1}X'Y$, as the goal of estimation (for example, see Shah, Holt, and Folsom (1977)).

An alternative model-based approach might invoke the usual multiple regression model but allow for the possibility of an error structure with a complicated pattern of correlations within primary sampling units (PSU's) and maybe even across PSU's within strata. In this model-based framework, the inclusion of weights in the regression estimator is driven by the fear that the model may be missing regressors (Holt, Smith, and Winter (1980)).

References

Cohen, S. B., Xanthopoulos, J. A., and Jones G. K. (1988): An Evaluation of Statistical Software Procedures Appropriate for the Regression Analysis of Complex Survey Data. Journal of Official Statistics, 4, pp. 17–34.

Holt, D., Smith, T. M. F., and Winter, P. D. (1980): Regression Analysis of Data from Complex Surveys. Journal of the Royal Statistical Society, Series A, 143, pp. 474–487.

Shah, B. V., Holt, M. M., and Folsom, R. E. (1977): Inference About Regression Models from Sample Survey Data. Bulletin of the International Statistical Institute, 47, pp. 43–57.

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Reply

Our intent was to state the classical assumptions and to indicate how complex survey designs depart from them. The paper then moved on to the evaluation of statistical software procedures appropriate for the regression analysis of complex survey data.

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