

Selection always matters

T.M.Fred Smith*

Southampton Statistical Sciences Research Institute, University of Southampton,
Southampton, SO17 1BJ, UK. (tmfs@soton.ac.uk)

Roger A. Sugden

School of Mathematical Sciences Queen Mary, University of London, London,
E1 4NS, UK.

In 1977 Tim Holt and Fred Smith were funded by the UK Economic and Social Research Council for a programme of research into the Analysis of Complex Surveys. Gad Nathan was one of the visiting researchers. After reviewing the position of survey inference in the 1970's we consider some of Gad's work on regression analysis of survey data. An early belief was that random sampling selection could be ignored for model-based inference. This is explored and shown to be false under many circumstances. Our basic premise, following Rubin, is that all data models should include indicators for sample selection and for response. Both indicators should be modelled by the analyst, together with the survey variables, and only ignored if this follows from the models, the targets for inference and the type of inference; randomisation, frequentist, likelihood or Bayesian

Keywords: Inference from sample surveys, model-based inference, ignorable and informative designs, non-response.