Survey Methodology

Tribute to Chris Skinner, a colleague and friend

by Danny Pfeffermann
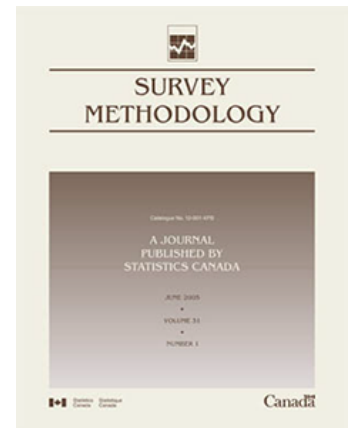
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Tribute to Chris Skinner, a colleague and friend

Danny Pfeffermann[1]

Abstract

This brief tribute reviews Chris Skinner's main scientific contributions.

Key Words: Analysis of complex surveys; Statistical disclosure control; Official statistics.

Chris passed away about three years ago, only a few months after Fred Smith passed away. In November of last year, Tim Holt, passed away. So, within 3 years, the three legendary survey sampling statisticians from Southampton, who edited the famous Wiley 1989 book *Analysis of Complex Surveys Surveys* (Skinner, Holt and Smith, 1989), passed away. The book summarized 10 years of research at the University of Southampton and in the rest of the world devoted to this topic, paving the way for new research and applications, which continue to evolve in all kind of directions. A second Wiley book on the same topic, edited by Chambers and Skinner, *Analysis of Survey Data*, which surveyed the rapid developments in the field during the 90's, had been published in (Chambers and Skinner, 2003). Since the early 1980's, Southampton became a leading international centre in social statistics and survey sampling, led by Chris, Fred and Tim, attracting top class researchers and students in this field from all over the world.

Chris' work covers many topics related to survey sampling theory and inference, making him one of the top social and survey statisticians in the world. In what follows, I mention briefly a few of them. Starting with his PhD thesis, supervised by Tim Holt, Chris was one of the first statisticians to note that the complex sampling designs, which are in common use to collect multivariate social data, are rarely non-informative as far as statistical modelling is concerned, and that there is a need for suitable adjustments to standard inference methods to correct for this, thus avoiding possible bias and wrong inference. He continued his work in this area throughout his academic career.

Another major research area of Chris was in Statistical Disclosure Control (SDC), focusing on estimating the probabilities of re-identification of survey micro data and using them for computing inclusive disclosure risk measures. For this, Chris developed statistical models, which accounted for the type of data under risk (the key variables), the sampling method used for the sample selection and the method that might be used by the intruder to achieve disclosure. Later, Chris and Natalie Shlomo, showed that probability sampling methods as well as non-perturbative SDC methods, do not satisfy the requirement of differential privacy, a hot topic in SDC, nowadays researched jointly by statisticians and computer scientists, following among others Chris' stimulus. I refer the readers to the paper by Natalie Shlomo on Chris' very significant contributions to SDC, published in this issue of *Survey Methodology*.

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In 2013, Chris chaired an independent review of plans for the 2021 Census in the UK. The resulting parliamentary report recommended that census data should be collected online rather than following more traditional ways of census data collection. This recommendation had been implemented very successfully, with an incredible high response rate.

Throughout his academic career, Chris was heavily involved in the work of statistical agencies in the UK and internationally. He established strong research relationships with the Central Statistical Office and the Office of Population Censuses and Surveys in the UK, and later with the Office for National Statistics (ONS), when the two offices merged. Since then, the University of Southampton is the primary source of methodological advice for the ONS. During that research relationship, Chris led many high-profile projects, including variance estimation for the Labour Force Survey and the sample allocation for the Retail Prices Index. Variance estimation was one of Chris' favourite research topics. He was also instrumental in setting up the MSc program in Official Statistics at Southampton, which is training official statisticians from the UK and other countries. During the years 2000-2011, Chris was a member of Statistics Canada Statistical Advisory Committee. In 2012, Chris moved to the London School of Economics (LSE), the university where he studied for his MSc degree in 1976, before moving to Southampton. His involvement with official statistics continued after his move to the LSE.

So far for a brief review of Chris' professional achievements and seminal contributions to survey sampling inference, social statistics and SDC. Chris and I came to Southampton in 1978, I as a postdoc student and Chris as a lecturer, starting in parallel his PhD under the supervision of Tim Holt. Being two young lecturers sharing similar interest in survey sampling inference, we soon became friends, which also included our respective families. Our friendship lasted until his tragic death. However, it was only in 1998 that we published two joint articles, the first on estimation of gross flows, which was applied experimentally at the Central Bureau of Statistics in Israel, and the second on weighting in multi-level modelling. The later article has been read at a meeting of the royal Statistical Society and received a lot of attention in the literature since then. Chris authored more than 80 peer-reviewed journal papers and co-edited the two influential books on the analysis of complex survey data, which I mentioned before.

In 2019, Chris was awarded the Waksberg award, one of many awards that he received during his academic career. As part of the award ceremony, he was supposed to present his Waksberg award paper during the annual symposium of Statistics Canada, on a topic of his choice. Chris initially refused to accept the award, stating that he is not sure that he will be able to travel to Canada because of his health condition. How noble of him, showing what a wonderful person he was, leave aside his outstanding professional achievements. As the Chair of the 2019 Waksberg Award Selection Committee, I used all my convincing powers to change his mind and somehow I succeeded, and Chris started working on his presentation on New Developments in Statistical Disclosure Control.

How sad that Chris was unable to finish what he had started to prepare, and we are grateful to Natalie Shlomo for agreeing to complete and present it at the 2021 symposium. J.N.K. Rao and Jae-Kwang Kim

provided testimonies at the end of Natalie's presentation, and they have kindly agreed to put them in writing in this issue, following Natalie's paper.

Chris was a highly respected statistician and a joy as a colleague. His immense scientific contributions will continue to be applied and form the basis for new research in the future.

References

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