



Statistics Seminar Series

Session 1, 2007



Ray Chambers

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Robust prediction intervals for unbalanced samples

A confidence interval is a standard way of expressing our uncertainty about the value of a population parameter. In survey sampling most methods of confidence interval estimation rely on assumptions in order to achieve nominal coverage levels. Typically these correspond to replacing complex sample statistics by large sample approximations and invoking central limit behaviour. Unfortunately, coverage of these intervals in practice is often much less than anticipated, particularly in unbalanced samples. In this presentation, I will explore an alternative approach to interval estimation, based on a generalisation of quantile regression analysis, that captures our uncertainty about an unknown population quantity. These quantile-based intervals seem more robust and stable than confidence intervals, particularly in unbalanced situations. Furthermore, they do not involve estimation of second order quantities like variances, which is often difficult and time-consuming for non-linear estimators. I will present empirical results illustrating this alternative approach and discuss implications for its use.

About the speaker: Ray Chambers is Professor of Statistical Methodology in the School of Mathematics and Applied Statistics at the University of Wollongong. He has extensive research interests in the design and analysis of sample surveys, official statistics methodology, robust methods for statistical inference and analysis of data with group structure.

Time: 4pm, Friday, 23rd March

Location: Room 4082, Red Centre

Please join us after the seminar for wine and cheese in the staffroom.

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