



UNIVERSITY OF SYDNEY

SCHOOL OF MATHEMATICS AND STATISTICS

Statistics Seminar

Friday, 20 April 2007, 2.00pm

Carslaw 373

## **Empirical Saddlepoint Approximations for Stratified Random Sampling**

**John Robinson**  
(University of Sydney)

### **Abstract**

To obtain confidence intervals or tests concerning a finite population mean from simple random sampling and stratified sampling, it is necessary to use Studentized statistics. Normal or Student-t approximations have been used for many years. Booth, Butler and Hall (JASA, 1994) obtained bootstrap methods for both these situations. For simple random samples, Edgeworth approximations were obtained by Sugden and Smith (JRSS B, 1998, 2000) and Dai and Robinson (SPL, 2001) obtained empirical saddlepoint approximations. We extend the work on empirical approximations to the case of stratified random sampling and note that this gives a saddlepoint approximation to the bootstrap. This is joint work with Zhishui Hu and Chunsheng Ma.

Enquiries about the Statistics Seminar should be directed to  
Rafał Kulik (rkulik@maths.usyd.edu.au)