



UNIVERSITY OF SYDNEY

SCHOOL OF MATHEMATICS AND STATISTICS

Statistics Seminar

Wednesday 10 December, 2008.(Note unusual day and room) 2.00pm, Carslaw 351

On the M fewer than N bootstrap approximation to the trimmed mean

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Abstract

We show that the M fewer than N (N is the real data sample size, M denotes the size of the bootstrap resample) bootstrap approximation to the distribution of the trimmed mean is consistent without any conditions on the population distribution F , whereas Efron's naive (i.e. $M=N$) bootstrap as well as the normal approximation fails to be consistent if the population distribution F has gaps at the two quantiles where the trimming occurs. We illustrate our asymptotic results with some simulations. Our results supplement previous work by P.J.Bickel, F.Gotze, W.R.van Zwet (1997), 'Resampling fewer than n observations: gains, losses and remedies for losses, *Statistica Sinica*, V.7, pp 1-31 and by N.V.Gribkova and R.Helmers (2007) 'On the Edgeworth expansion and the M out of N bootstrap accuracy for a Studentized trimmed mean, *Math. Meth. Statist.*, V.16, pp 142-176. This is joint work with Nadezhda Gribkova (St.Petersburg).

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