

Anouar EL GHOUGH,
Institut de statistique,
UCL - Belgium

Joint Seminar STAT/ULB

*"Measuring the Discrepancy of a Parametric Model via
Local Polynomial Smoothing"*

Friday, 11 December 2009

14:30

Room : c 115 (STAT)

Abstract

In the context of multivariate mean regression we propose a new estimator of the minimum L^2 -distance between the true but unknown regression curve and a given parametric family. The method is based on local polynomial averaging of residuals with a polynomial degree that increase with the dimensional of the covariate. Under some weak assumptions we give a Bahadur-type representation of the estimated distance from which $n^{1/2}$ -consistency and asymptotic normality are derived for strongly mixing variables. We then show how to use the proposed method to: (i) test the goodness of fit hypothesis, (ii) measure the explanatory power of a parametric model and (iii) estimate the ration of noise to signal. We conclude with a small simulation study that aims to check the finite sample properties of the theses techniques.

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