



INSTITUT DE STATISTIQUE, BIostatistique ET SCIENCES  
ACTUARIELLES

CORE

UNIVERSITE CATHOLIQUE DE LOUVAIN

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## Joint Econometrics and Statistics Seminar ISBA / CORE (in the frame of ARC Time Series)

**Abdelaati DAOUIA**  
ISBA, UCL, Belgium

### "On Projection-Type Estimators of Multivariate Isotonic Functions"

#### Abstract

Let  $M$  be an isotonic real-valued function on a compact subset of  $\mathbb{R}^d$  and let  $\hat{M}_n$  be an unconstrained estimator of  $M$ . A feasible monotone estimator is to take the largest (smallest) monotone function that lies below (above) the estimator  $\hat{M}_n$  or any convex combination of these two envelope estimators. When the process  $r_n(\hat{M}_n - M)$  is asymptotically equicontinuous for some sequence  $r_n > 0$ , we show that these projected estimators are  $r_n$ -equivalent in probability to the original unrestricted estimator. Our first motivating application involves a monotone estimator of the conditional distribution function that has the distributional properties of the local linear regression estimator. Applications also include the estimation of econometric (probability-weighted moment, quantile-based) and biometric (mean remaining lifetime) functions.

**Monday, February 27, 2012 - 14:30 - at Core b-135**