ΣΕΜΙΝΑΡΙΟ

Το Τμήμα Μαθηματικών και Στατιστικής του Πανεπιστημίου Κύπρου, διοργανώνει σεμινάριο την Τετάρτη 25/01/17, ώρα 11:00-12:00, στην αίθουσα ΘΕΕ01/037 στην Πανεπιστημιούπολη.

Ομιλητής: Ioannis Kasparis (Department of Economics, University of Cyprus)

Τίτλος: *Regressions with Fractional d=0.5 and Weakly Nonstationary Processes*

Περίληψη: Despite major advances in the statistical analysis of fractionally integrated time series models, no limit theory is available for sample averages of fractionally integrated processes with memory parameter d=0.5. We provide limit theory for sample averages of a general class of nonlinear transformations of fractional d=0.5 (I(0.5)) and Mildly Integrated (MI) processes e.g. Phillips and Magdalinos (2007). Although I(0.5) processes lie in the nonstationary region, the asymptotic machinery that is routinely used for I(d), d>1/2 processes is not valid in the I(0.5) case. In particular, the usual tightness conditions required for establishing FCLTs fail in the case of I(0.5) processes and a different approach is required. A general method that applies to both I(0.5) and MI processes is proposed. We show that sample averages of transformations of I(0.5) and MI processes converge in distribution to the convolution of the transformation function and some Gaussian density evaluated at a possibly random point. The class of nonlinear transformations under consideration accommodates a wide range of regression models used in empirical work including step type discontinuous functions, functions with integrable poles as well as integrable kernel functions that involve bandwidth terms. Our basic limit theory is utilised for the asymptotic analysis of the LS and the Nadaraya-Watson kernel regression estimator. Both estimators we have either normal are mixed normal limit distributions (when the covariate is I(0.5)-type I). The NW estimator attains slower convergence rates than those known for stationary processes. On the other hand the LS estimator attains faster convergence rates than those attained under stationarity.

This is joint work with James Duffy, Oxford University.