

El Departamento Académico de Estadística del ITAM

anuncia la siguiente sesión (No. 241) de

EL SEMINARIO ALEATORIO QUE EN ESTA OCASIÓN SERÁ CONJUNTO CON EL SEMINARIO DE ACTUARÍA

con los títulos:

Nonparametric test to detect (non)monotonic parametric trends in weakly stationary time series.

Impartirá en la primera parte
(en un horario de 12:30 - 13:25) el

Dr. Vyacheslav Lyubchicha
University of Waterloo

Resumen:

Recent studies in finance and environmental sciences have raised the problem of reliable detecting of smooth (non)monotonic trends in time series. In this talk we focus on a bootstrap-based ANOVA-type nonparametric test for assessing parametric assumptions of trends and extend its applicability to linear processes of infinite order and conditionally heteroscedastic processes. Using the Monte Carlo simulations we discuss the finite sample performance of the testing procedure under the most realistic conditions when the underlying structure of the observed process is not known. In order to illustrate the test we analyze several financial and environmental time series with different properties.

The talk is based on joint work with Yulia R. Gel (University of Waterloo) and Abdel El-Shaarawib (The American University in Cairo, Egypt; National Water Research Institute at the Canada Centre for Inland Waters, Canada)

Application of Bootstrap for Returns and Volatility Forecasting and Model Misspecification Testing in ARCH/GARCH Models.

Impartirá en la segunda parte
(en un horario de 13:30 - 14:25) la

Dra. Yulia R. Gel
University of Waterloo

Resumen:

Monitoring and forecasting volatility plays a key role in assessing risks and uncertainties in financial markets, and the family of Autoregressive Conditional Heteroscedastic (ARCH) models remains one of the core techniques for modeling volatility in empirical finance. While there exists a vast literature on point forecasts of volatility from ARCH, relatively little attention has been paid to constructing prediction intervals. Compared to point forecasts, prediction intervals provide an extra assessment of uncertainties associated with the corresponding point forecast, which can better guide risk management decisions. However, construction of prediction intervals requires knowledge of the distribution of the observed data, which is typically unknown in practice. Hence, data are usually assumed to follow some hypothetical distribution, and the resulting prediction interval can be adversely affected by departures from that assumption. An alternative is to employ distribution-free re-sampling techniques, e.g., bootstrap. Since ARCH is a non-linear model, the bootstrap procedures are usually very computationally expensive and are not widely implemented in practice. In this talk we propose to adapt a sieve bootstrap procedure to the non-linear GARCH framework and develop a new efficient and distribution-free re-sampling technique for constructing prediction intervals for returns and volatilities following ARCH models. Our simulation studies indicate that the new re-sampling method provides sharp and well calibrated prediction intervals for both returns and volatilities while reducing computational costs by up to 100 times, compared to other available re-sampling methods for ARCH models. We also discuss how the proposed idea of sieve-based bootstrap can be extended for goodness-of-fit testing, model selection and tracking nonmonotonic trends in data under ARCH effects. We illustrate the proposed methodology by simulations and applications to currency exchange rate data.

- Fecha: Viernes 16 de Noviembre 2012
- Seminario: 12:30 - 14:30 h
- Salón B - 3, Plantel Río Hondo

Lista de seminarios próximos. Visite:

<http://estadistica.itam.mx/seminarios.html>

El Seminario Aleatorio está destinado tanto a profesores como a estudiantes, por lo que el Departamento de Estadística agradece a los profesores que colaboren invitando a sus alumnos a estas sesiones.