

## PROGRAMME

### Workshop on “Modern Research Topics on Time Series Econometrics”

Lisbon, ISEG, March 11, 2022

Room: Auditório 5 (Ed. Novo Quelhas)

---

**Chair Session: Jorge Caiado** (ISEG, University of Lisbon)

**14:30-15:00: Daniel Peña** (Universidad Carlos III de Madrid, Spain)

**Title:** *Some Recent Methods for Analyzing High Dimensional Time Series*

**Abstract:** This presentation will describe three recent advances that are useful for the analyses of high dimensional time series. The first one is new ways for visualizing large sets of time series. Dynamic quantiles will be introduced and some multivariate plots will be shown to illustrate ways to summarize the information in the set of time series. The second one is clustering, a field in which Prof. Crato has made important contributions. Some of their results will be reviewed and a new way to cluster the series by their linear dependency will be described and shown to be able to split the set of series into homogeneous groups. The third one is modeling and forecasting high dimensional time series by dynamic factor models, and some examples will be given. The future evolution of the field of dependent high dimensional data will be discussed in the conclusions.

---

**Chair Session: Paulo Rodrigues** (Bank of Portugal and Nova School of Business and Economics)

**15:00-15:30: Paolo Paruolo** (Joint Research Centre, European Commission, Italy)

**Title:** *Surfing the Trends*

**Abstract:** Trend analysis is central in many science fields that are relevant for society. Examples include: trends in CO2 emissions for climate change, trends in Gross Domestic Products in developing economies, trends in the number of people in Intensive Care Units during the SARS-CoV-2 spread etc. This talk will surf over major scientific progress made in the last century on how to analyze trends and their relationships. The notion of integration and cointegration will be reviewed as means to solve the spurious regression problem, which is approaching its 100 birthday. The talk argues that trend analysis is an important, fascinating, and relatively under-researched area of science.

**Chair Session: Nuno Sobreira** (ISEG, University of Lisbon)

**15:30-16:00: Pilar Poncela** (Universidad Autónoma de Madrid, Spain)

**Title:** A personal overview of some topics in time series

**Abstract:** Time series are key to many disciplines, among them, Economics and Business. For instance, they are widely used for monitoring and forecasting economic activity and/or as an input for policy analysis. Time series models may be conditioned by the data that we have. Ideally, a large (although not too large) time series or group of them (although not too numerous as to not being able to be handled with a personal computer). In the first part of this talk, I will present a personal overview of some issues that, in my opinion, might condition time series research. Afterwards, and with the focus on economic analysis, I will go over some topics in time series analysis as the combination of forecasts, regularization methods, non-parametric signal extraction or some aspects of dynamic factor models with the aim of pointing out aspects that might need further research.

---

**16:00-17:30: Scientific Walk to a Spectral Integrator / Coffee-Break**

---

**Chair Session: Luís Martins** (ISCTE, Instituto Universitário de Lisboa)

**17:30-18:00: Esther Ruiz** (Universidad Carlos III de Madrid, Spain)

**Title:** *Dynamic Factor Models: The New World Meets the Old World*

**Abstract:** Dynamic Factor Models (DFMs) are the main *big data* tool used in empirical macroeconomics and finance (among many other disciplines) during the last 30 years. There is a large number of important applications in which the main interest focuses on the underlying unobserved factors of a DFM. For example, the factors can be an index for the business cycle or they can represent the term structure of interest rates or the trend of temperatures in climate change analysis. The factors are unobserved and, consequently, one needs to estimate them, with several alternative procedures available for this task. When, as in the examples above, the interest lies on the factors themselves, it is important to obtain measures about the uncertainty with which they are estimated in order to properly use them in the context of decision making. In the context of Bayesian procedures for factor extraction, credible intervals are routinely provided for them. However, this is not the case when popular frequentist procedures, either parametric or non-parametric are used for factor extraction. There are several proposals in the literature to measure factor uncertainty and it is important to understand and use them adequately in empirical applications.

---

**Chair Session: João Nicolau** (ISEG, University of Lisbon)

**18:00-18:30: António Garcia Ferrer** (Universidad Autónoma de Madrid, Spain)

**Title:** *The dangers of using Seasonal Adjustment and other filters in Econometrics*

**Abstract:**

A customary practice in Time Series Econometrics today, is the use of seasonally adjusted (SA) stationary data (usually the  $\Delta \log$  transformation) to be used as the variable of interest. Independently of the size of the model, such variables are going to be the main focus of interest and the subsequent estimation and testing procedures are solely based on them. Also, in many cases, posterior forecasting exercises are based on this transformed data. This practice is so widely spread, that most Statistical Institutes around the world only provide seasonally adjusted data in their official statistics, as if this information originated from truly observed sample data. But what if this SA data still shows a considerable amount of seasonality on it? In this case, what are the consequences in estimating and testing large econometric models built on this (dubious) assumption? Or, what if an unexpected residual seasonal behavior becomes evident after estimating the model? As far as I know, these issues have not been addressed in recent econometric research and might be an issue of interest for young students who are beginning to work with traditional and new econometric methodologies. This presentation sheds some empirical evidence about the numerous cases where the final “official” SA data shows considerable seasonal behavior. Dangers of using filtered data are not exclusively restricted to SA procedures. It can also be observed in many time series decomposition procedures like the Hodrick-Prescott filter, and others, when the choice of the smoothing parameter ( $\lambda$ ) is arbitrarily decided it by the user.