`Introduction to Time Series Analysis of Macroeconomic and Financial Data'

Instructor: Dr. Felix Pretis, British Academy Postdoctoral Research Fellow, Department of Economics, University of Oxford

Description:
Economic growth in Japan has seen real GDP per capita increase 20-fold over the past one-hundred years. What statistical tools are needed to study evidence generated by a world that has changed so dramatically? The aim of this course is to introduce econometrics through the empirical modelling of macroeconomic and financial data with a focus on time series analysis. Econometric analysis can lead to discoveries of new relationships in data, as well as provide empirical support (or refutation) of existing theories. Many of the main economic indicators – such as GDP, unemployment, and inflation are best understood from a time series perspective to capture both underlying trends, and the inherent persistence in many of these series. The course will present data analysis emphasizing graphical and verbal intuition based on estimating regression models, ending with more sophisticated theory such as handling non-stationary data using co-integration analysis.

All concepts are introduced in a practical manner through computer lab sessions, instructing students how to use the methods on real-world data. Lab sessions will be based on the econometrics software, *OxMetrics* (developed by Prof. Sir David F. Hendry and Jurgen Doornik at Oxford University). The course instructor is a post-doctoral research fellow at the University of Oxford, having completed his PhD under the supervision of David Hendry.

Objective:
The objective is to prepare students to sensibly analyze, model, and interpret economic, financial, and business data (e.g. obtained from Nikkei NEEDS or other sources) using econometric methods and software in the context of real-world empirical problems. Students will be introduced to one of the leading statistical software packages, *OxMetrics*, used widely at central banks and universities. Computer skills learned are transferrable to other common statistical software such as *Stata* or *EViews*.

Course Material:
Lecture slides and course material will be made available to students during the course. No textbook is required, useful reference books on empirical modelling and *OxMetrics* are:

- Hendry, D.F. (2015) *Introductory Macro-Econometrics: A New Approach*. Timberlake Consultants. Available to download for free at: http://www.timberlake.co.uk/macroeconometrics.html
- Doornik, J.A. and Hendry, D.F. (2013)**.** *Empirical Econometric Modelling Using PcGive 14: Volume I*, London: Timberlake Consultants Press.
- Doornik, J.A., Hendry, D.F., and Ichikawa, Hiroya (2006)**.** *PcGive による時系列分析入門*

Assessment:
The course is assessed via a data-based project to be submitted via email by June 5th 2016, (constitutes 80% of final grade), and the completion of short empirical over-night assignments during the course (20% of final grade). For the data-based project students may choose an economic question of their choice, find data and formulate an econometric model to test their underlying theory. The project should not exceed 10 pages in length. To encourage participation, the short assignments are graded based on completion and submission alone, correctness will be checked but will not influence the grade.

Class schedule:
9:00-11:45, Mon-Fri. 9th May – 13th May, 2016