RAGVIR SABHARWAL

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EDUCATION

ECONOMICS & STATISTICS

PhD in Statistics (Time Series), LSE **2015–23**

Thesis: *On factor models for high-dimensional time series* (available here)

Advisor: Professor Matteo Barigozzi (now at University of Bologna, Italy)

MSc in Financial Statistics, LSE **2013–14**

Award: Merit

Courses: Statistics, Financial Statistics, Time Series, Multivariate Methods, Derivatives, Fixed Income Markets, Quantitative Risk Management

Advanced Econometrics, LSE Summer School **Jul 2013**

Award: A+

MSc in Economics, LSE **2004–06**

Award: Distinction

Courses: Microeconomics, Macroeconomics, Econometrics, Industrial Economics

BSc in Economics, St Stephen's College, Delhi, India **2001–04**

Award: First Class with Honours

RESEARCH

THEORETICAL ECONOMETRICS

Overview

In my thesis, I develop statistical methods for use with factor models for high-dimensional time series. I consider estimation, change-point detection, and determination of number of factors.

Summary of Job Market Paper

My most developed work establishes theoretical properties of a frequency-domain procedure to estimate the factors and parameters in an approximate dynamic factor model:

> *Specifically, I present a spectral expectation-maximisation (EM) algorithm, whereby I derive the E and M step equations in the frequency domain. My E step relies on the Wiener-Kolmogorov smoother, the frequency domain counterpart of the Kalman smoother, and my M step is based on maximisation of the Whittle Likelihood with respect to the parameters of the model. I initialise my procedure using dynamic principal components analysis, and I prove consistency-with-rates of my spectral EM estimator of the parameters and factors as both the dimension and the sample size go to infinity.*

TEACHING[1]

BSC, MSC, PHD LEVELS

LSE Fellow in Economics **2022–now**

Lectures: EC402 Econometrics (MSc), EC486 Econometric Methods (MSc)
EC400 Probability and Statistics (MSc), EC2C4 Econometrics II (BSc)

Classes: EC402 Econometrics (MSc) (around 7 groups)

TQARO:[2] 4.2–4.9 across all lectures and classes over 2022–24

Tutorial Lead, Imperial College Business School **2023–now**

Role: Probability & Statistics (1st year BSc EFDS — entire cohort)
Econometrics 2 (upcoming in 2024–2025 — 2nd year BSc EFDS — entire cohort)

MODES: 4.7 in 2023–24

LSE Summer School Class Teacher **2015–now**

Recent: EC312 Advanced Econometrics

TQARO: 4.8 for EC312 in summer of 2023

Previous: Several courses every year prior to COVID lockdowns (e.g. ME116, ME117, etc.)

Guest Lecturer, EC402 Econometrics (MSc), LSE **LT, 2022**

Role: Lectured in weeks 7-11 (sabbatical cover)

TQARO: 4.6 in LT 2022

Teaching Fellow, EC402 Econometrics (MSc), LSE **2018–22**

Role: Taught entire cohort (around 11-12 groups) since 2020

TQARO: 4.9 in LT 2021; 4.7 in MT 2021; 4.8 in LT 2020 (similar scores historically)

Graduate Teaching Assistant, ST202 Probability and Statistics (BSc), LSE **2016–19**

Role: Taught entire cohort (3 seminar groups of 60 each)

TQARO: 4.6 in LT 2019 (similar scores historically)

Teaching Assistant, ME411 Factor Models (PhD), LSE Executive Summer School **2016–17**

Role: Taught theory; designed and ran Matlab workshops

Teaching Assistant, Various LSE Courses in Statistics (e.g. ST102, etc.) **2015–19**

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[1] To summarise, my experience includes large-group (over 300) and small-group (under 10) teaching at BSc, MSc, and PhD levels in the Economics and Statistics departments at LSE and also at Imperial College Business School. My duties include creating and delivering lecture notes/slides and problem sets and solutions, drafting exams, overseeing marking and feedback processes, managing teaching assistants and virtual learning environments, and providing pastoral support. I work on a variety of courses, some that I manage solo, and others that I run in collaboration with senior colleagues.

[2] The acronyms TQARO and MODES refer to the student evaluation surveys run by LSE and Imperial College Business School respectively. Both are on similar scales of 0 to 5, with 5 being a perfect score.

CURRICULUM & COURSE DESIGN

SIDE PROJECTS

Course Content Designer, LSE Career Accelerator **2021-22**

Summary: Designed online course on machine learning and data analytics.
The project was an LSE collaboration with external partner FourthRev.

Course Content Designer, University of London External Programme **2020–21**

Summary: Designed asynchronous content for ST2133 and ST2134,
which are online courses in probability theory and statistics.
The project was an LSE collaboration with external partner 2U.

HONOURS

FOR TEACHING & RESEARCH

Teaching Recognition **2015–24**

Summary: Awards in 2016 and 2019 (for Statistics), and 2020 and 2024 (for Economics)
Award nominations in various years (in both Economics and Statistics depts)
Tasked with writing a guidebook titled *Teaching Essentials: Delivering Engaging Classes* (by Statistics dept); and tasked with supporting colleagues in helping design/streamline their own personal teaching materials (by Economics dept)

Research Scholarships **2015–18**

Summary: UK ESRC studentship (funding for doctoral studies)
UK ESRC "AQM" (for use of advanced quantitative methods in research)

PAST EMPLOYMENT

PRIOR TO MY PHD

Senior Associate, Financial Conduct Authority (FCA) **2014–15**

Summary: Worked in the Chief Economist's Department within the competition team

Associate Principal, Charles River Associates (CRA) **2006–12**

Summary: Worked as a competition economist, providing advice to clients in merger control (eg Thomson/Reuters) and cartel investigations (e.g. logistics) before EU authorities
Promoted from Consulting Associate (2006-08) and Senior Associate (2008-11)

Research Assistant, STICERD, LSE **2004–05**

Summary: Assisted with data and basic empirics for Professor Schankerman's work
on the effect of royalty sharing agreements on inventions in US universities

OTHER

Software

LaTeX, Matlab, Stata, R, VBA (for Excel), SAS

Languages

English (Fluent), French (Basic)

Personal Details

Nationality: British

Pronouns: He/Him/His

REFERENCES

For Teaching

Professor Dimitra Petropoulou
Deputy Head of Department (Education)
Department of Economics, LSE
(my employer and mentor at LSE since 2018)

Dr Fanyin Zheng
Assistant Professor in Management Science and Business Analytics
Imperial College Business School
(senior colleague at Imperial College since 2023)

For Research

Professor Matteo Barigozzi
Department of Economics, University of Bologna
(my PhD supervisor at LSE, 2015–2023)