RAGVIR SABHARWAL

R.SABHARWAL23@IMPERIAL.AC.UK UPDATED: 03 SEPTEMBER 2025

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

BA (Hons) Economics, St Stephen's College, Delhi, India **2001–04**

Award: First Class

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

Visiting Lecturer, Imperial College Business School (BSc level) **2024–2025**

Role: Econometrics II (Time Series) (2nd year BSc EFDS)
MODES[2]: 4.5 in 2024-25

LSE Fellow in Economics/Visiting Lecturer, LSE (BSc, MSc levels) **2022–now**

Lectures: EC402 Econometrics (MSc), EC486 Econometric Methods (MSc)
EC400 Probability and Statistics (MSc), EC451 Econometrics (MSc)
EC2C4 Econometrics II (BSc)
Classes: EC402 Econometrics (MSc), EC484 Econometrics (MSc)
TQARO: 4.2–4.9 across all lectures and classes over 2022–25

Tutorial Lead, Imperial College Business School (BSc level) **2023–now**

Role: Probability & Statistics (1st year BSc EFDS – entire cohort)
MODES: 4.7 in 2023–24, 4.7 in 2024-25

Summer School Class Teacher, LSE (BSc, MSc, PhD levels) **2015–2024**

Recent: EC312 Advanced Econometrics
TQARO: 4.8 in 2023, 5.0 in 2024
Previous: Several other courses prior to COVID lockdowns (e.g. ME116, ME117, ME411, etc.)

Guest Lecturer, EC402 Econometrics (MSc level), LSE **WT, 2022**

Role: Lectured in weeks 7-11 (sabbatical cover)
TQARO: 4.6 in WT 2022

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

Role: Taught entire cohort (around 11-12 groups) since 2020
TQARO: 4.9 in WT 2021; 4.7 in AT 2021; 4.8 in WT 2020 (similar scores historically)

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

Role: Taught entire cohort (3 seminar groups of 60 each)
TQARO: 4.6 in WT 2019 (similar scores historically)

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, supervising student projects, and providing pastoral support. I work both on courses that I manage solo and others that I run in collaboration with colleagues.

[2] The acronyms MODES and TQARO refer to the student evaluation surveys run by Imperial Business School and LSE respectively. Both are on Likert 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 in 2024 LSE Summer School teaching
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**

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)