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*

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

RESEARCH

ECONOMETRICS THEORY

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

BSC, MSC, PHD LEVELS

LSE Fellow in Economics **2022–25**

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: 4.2-4.9 across all lectures and classes over 2022-24

Tutorial Lead, Imperial College Business School **2023–25**

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

TQARO: 4.7 in 2023-24

LSE Summer School Class Teacher **2015–2024**

Recent: EC312 Advanced Econometrics

TQARO: 4.8 for EC312 in summer of 2023

Previous: Many courses every year prior 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**

COURSE DESIGN

ONLINE DELIVERY

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

Summary: Designing course on machine learning and data analytics
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 separate courses in probability theory and statistics.
LSE collaboration with external partner 2U

HONOURS

TEACHING & RESEARCH

Teaching Awards **2015–22**

Summary: Awards in 2016 and 2020 (for Statistics), and 2020 (for Economics)
Award nominations in various years (in both Economics and Statistics)
Asked to write *Teaching Essentials: Delivering Engaging Classes* (for Statistics)

Research Scholarships **2015–18**

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

EMPLOYMENT

PRIOR TO 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

MISCELLANEOUS

Software

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

Languages

English (Fluent), Hindi (Conversational), French (Intermediate)

REFERENCES

ON REQUEST

For Research

Professor Matteo Barigozzi (supervisor in Statistics department since 2015)

For Teaching

Dr Vassilis Hajivassiliou (colleague in Economics department since 2018)

For Course Design

Dr Milt Mavrakakis (colleague in Statistics department since 2017)