Centre for International Macroeconomic Studies
School of Economics
University of Surrey
20-23 April, 2020

DSGE MODELLING FOR EMERGING OPEN ECONOMIES

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1 Introduction

The Centre for International Macroeconomic Studies (CIMS) in the School of Economics, University of Surrey will run a 3-day Course on DSGE Modelling for Emerging Open Economies from 20–23 April, 2020, followed by a one-day Conference. The Course is aimed at MSc, MRES and PhD students, early researchers, and research staff from central banks ministries and the private sector, all with some prior experience of macroeconomic modelling. It will provide a good preparation for the Advanced DSGE Modelling Course held at the University of Surrey in the Summer.

The Course assumes a basic knowledge of Matlab. It then begins with the basics of Dynare and proceeds to the construction, in stages, of a DSGE model of an open economy with emerging economy features. It will then progress to the estimation of the model by Bayesian methods, using data from emerging economies. The Course will finish by showing how the model can be used to study policy using monetary, fiscal and foreign exchange intervention instruments.

The course material has been prepared by Dr Vasco Gabriel, Professor Paul Levine, Dr Maryam Mirfatah and Professor Ricardo Nunes from the Centre for International Macroeconomic Studies, School of Economics, University of Surrey. The instructors will be Vasco Gabriel, Paul Levine and Ricardo Nunes. Their profiles are as follows.

2 Instructors

Vasco Gabriel in a Reader and was until recently the Head of the School of Economics at the University of Surrey. He graduated in Economics from the Technical University of Lisbon in 1995, where he was awarded the ICEP prize. He received a masters degree in Econometrics in 1998 from the same institution. In 2002, he completed his PhD in Economics at Birkbeck College, University of London. He taught at the University of Minho, Portugal, before being appointed as a Lecturer at the University of Surrey in 2004 and Senior Lecturer in 2010. Vasco’s main field of specialization is Macroeconometrics, focusing on non-linear methods, general inference issues with applications to both advanced and emerging economies. He has published extensively in these areas including publications in Economic Letters, the Journal of Macroeconomics, the Journal of Money, Credit and
Banking and the Oxford Handbook of the Indian Economy.

**Paul Levine** is a Professor in the School of Economics at the University of Surrey. He received a first-class BSc and a PhD, both in Mathematics, from the University of Manchester and an MSc in economics (distinction) at Queen Mary, London. In 1984 he became a senior research officer at the Centre for Economic Forecasting, London Business School and was appointed Professor of Economics at the University of Leicester in 1989. In 1994 he moved to the University of Surrey. He has acted as a consultant and/or visiting researcher at the IMF, the ECB, the central banks of Peru and Nigeria, and the World Bank. His main research is on the use of empirically-based DSGE models for the study of macroeconomic policy in both advanced and emerging economies. He has published over 100 refereed articles or chapters and 2 books.

**Ricardo Nunes** is a Professor in the School of Economics at the University of Surrey. He graduated from Universitat Pompeu Fabra (Barcelona, Spain) obtaining a MSc in Economics in 2003 and a PhD in Economics in 2007. After graduating he spent 10 years in the Federal Reserve System under various roles. In 2007 he joined the Board of Governors of the Federal Reserve System, where he worked as an economist and senior economist. In 2014 he moved to the Federal Reserve Bank of Boston working as a senior economist and policy advisor. He was also a visiting researcher at the Bank of Portugal and the IMF and has given talks at various central banks. His main research is on monetary and fiscal policy. He has published extensively in these areas including the Quarterly Journal of Economics, Journal of Monetary Economics, Journal of Economic Theory, Journal of European Economic Association, among others. For further details of publications see https://sites.google.com/view/ricardonunes/home

### 3 Course Contents

The contents of lectures given by the instructors over the three days are as follows:

- **Day 1**
  - Introduction to the 3-Day Course
  - Dynare Basics
– Construction of a basic SOE NK model proceeding in stages from the RBC model, NK Closed Economy to NK Small Open Economy
– Exercises (all day)

● Day 2
– Incorporation of emerging economies features
  * Credit Constrained Consumers
  * A Non-Traded Informal Sector
– Bayesian Estimation of the model using data from Emerging Economies
  * Bayesian Methodology
  * Estimation
  * Identification
  * Variance and Historical Decomposition

● Day 3
– Model Comparison and Validation
  * Model Comparisons by Likelihood Races
  * Comparison of Second Moments of Model with Data
– Policy
  * Monetary interest rate rules
  * Foreign Exchange Intervention
  * Fiscal Policy
– Exercises (all day)

● Day 4 Conference
– Keynote speaker tba
– Presentations of selected papers by Course participants and by University of Surrey School of Economics members.
– Discussants
– Poster Session
4 Time-Table

Day 1: 9.00-9.30; Course registration.

Then for each day the time-table is as follows:

9.30 - 11.00 am: Session 1
11.00 - 11.30 am: Coffee and Tea
11.30 am -1.00 pm: Session 2
1.00 - 2.00 pm: Lunch
2.00-3.30 pm: Session 3
3.30 - 4.00 pm: Coffee and Tea
4.00 - 5.30pm : Session 4