

Econometric Methods for the Analysis of
Business Cycles
NCER Lectures to be Given at the University
of Melbourne , May 28-29 2007

Don Harding and Adrian Pagan

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Organization

As a rough guide Lectures 1 and 2 will be given on the 28th and Lectures 3,4 on 29th. Sessions will run from 9-12.30 and then 1.30-5.00 on each of these days.

There will be three hours of lectures in the morning made up of two 1.5 hour sessions. In the afternoon there will be one 2 hour lecture and one hour on the use of computer programs to perform cycle analysis

Lecture 1

Defining and Describing the Business Cycle

1.1 Introduction

1.2 Detecting the Business Cycle with a Single Series

1.2.1 Oscillations

1.2.2 Turning Point Cycles

1.3 Turning Point Rules

1.4 Parametric Model and Non-parametric Termination Rules

1.5 Comparing turning point and termination rules

1.6 Which Segmentation Method is Best?

1.7 Locating Turning Points in the Business Cycle with Multiple Series

1.7.1 Aggregation of Turning Points

1.7.2 Turning Points in an Aggregate

Lecture 2:
Cycles and Their Description

- 2.1 Introduction
- 2.2 Filtering of Univariate Processes: Permanent and Transitory Components
- 2.3 The Average Cycle
 - 2.3.1 Amplitudes and Durations of Phases
 - 2.3.2 The Shapes of Phases
 - 2.3.3 The Diversity of Cycles
 - 2.3.4. The Transition Between Phases
- 2.4 The DGP of the Binary States
 - 2.4.1 Serial Correlation in the States
 - 2.4.2 Effects of Censoring Rules on the DGP of the States
 - 2.4.2 Testing the Order of a Markov Chain
- 2.4 Multiple Cycles and their Relationship
 - 2.4.1 Defining and Measuring Synchronization
 - 2.4.2 Density Measures for Bivariate Cycles
 - 2.4.3 Bivariate Test Statistics
 - 2.4.4 Measures Based Upon Phase States for Binary Cycles
 - 2.4.5 An Application to Industrial Production
 - 2.4.6 Multivariate Synchronization
 - 2.4.7 Co-Movement of Cycles

Lecture 3:
Understanding the Nature of the Empirical Evidence on Cycles

- 3.1 Introduction
- 3.2 Cycles Generated by Linear Models
- 3.3 Understanding Business Cycle Outcomes
 - 3.3.1 The average cycle- The Probability of a Turning Point
 - 3.3.2 The Conditional Transition Probabilities of Moving Between Phases
- 3.4 The Business Cycle in a Range of Series
- 3.5 A Miscellany of Issues
 - 3.5.1 Oscillations Versus Turning Point Cycles
 - 3.5.2 Fluctuations and Cycles

Lecture 4:
Using Cycle Information

- 4.1 Introduction
- 4.2 Analyzing the role of non-linearities in the business cycle
 - 4.2.1. A Bounceback Model
 - 4.2.2 A Look at MS Models with the Bounceback Model
- 4.3 Duration Dependence in the Business Cycle
 - 4.3.1 'Testing for Duration Dependence
 - 4.3.2 Some Basic Considerations
 - 4.3.3. Two Weak Form Tests in Discrete Time
 - 4.3.4 Strong-Form Tests
- 4.4 Constructed Binary Variables as Regressors
- 4.5 Constructed Binary Variables as Regressands
- 4.6 Forecasting Recessions
- 4.7 Business Cycles in Multivariate Systems
 - 4.7.1 A New Keynesian Model
 - 4.7.2 A Structural VAR Analysis
- 4.8. What do Variance Decompositions Tell us about the Cycle?