

Table of Contents

Introduction	1
---------------------------	----------

Part I. Methodology

1. Importance of Stylized Facts	9
1.1 Limitations of statistical testing	9
1.2 Evaluating economic models	11
2. Further Methodological Issues	13
2.1 Continuous versus discrete time models	13
2.2 Models of cyclical growth versus models of fluctuations	14
2.3 Detrending the data	15
2.4 Annual versus quarterly data	16
2.5 Applying models to more than one country	17

Part II. Business Cycle Stylized Facts

3. Stylized Facts: Method	21
3.1 Characterizing deviations from trend: spectral analysis	21
3.2 Spectral estimation: the maximum-entropy spectrum	24
3.3 Cross spectral analysis: interpretation and estimation	25
4. Stylized Facts: Results	27
4.1 Main aggregates of national accounts	27
4.2 Longer series of fixed investment	34
4.3 Private consumption	36
4.4 Nominal variables	39
4.5 Relationship between real and nominal variables	44

Part III. Business Cycle Models

5. SOA Models	53
5.1 The SOA of equipment investment	54
5.2 Recent research on inventories	57
5.3 The SOA of production and inventories	58
5.4 Errors in measurement	60
5.5 Empirical results	62
6. Consumption	73
6.1 Two models of consumption	73
6.2 Estimated consumption equations	76
6.3 Complete models	80
6.4 Empirical results	82
6.5 Appendix: computation of permanent income	84
7. Prices and Wages	97
7.1 Introduction	97
7.2 Price and consumption equations	98
7.3 Complete model	100
7.4 Empirical results	100
7.5 Summary: explaining business cycle stylized facts	107

Part IV. Cyclical Growth

8. Determinants of Growth	119
8.1 Growth, saving and productivity	119
8.2 Design of the model	122
9. A Real Model of Cyclical Growth	125
9.1 Formulation of the cyclical growth model	125
9.2 Steady state	133
9.3 Deviations from steady state and stability	137
9.4 Time-varying productivity growth	139
9.5 Parameter restrictions and exogenous variables	140
9.6 Empirical results	140
9.7 Appendix I: Linearizations	147
9.8 Appendix II: Linearization error	152

Part V. Continuous Time Econometrics

10. Estimating Continuous Time Models	159
10.1 Linear stochastic differential equations	159
10.2 Estimation of a first order system	161
11. The Discrete Kalman Filter	163
11.1 The state space model	163
11.2 The Kalman filter: recursive formulas and ML-estimates	164
11.3 Initialising the Kalman filter	166
12. An Exact Gaussian Estimator for General Linear Continuous Time Models	169
12.1 The exact discrete analogue	169
12.2 Evaluation of integrals	172
12.3 Efficient computation of the filter	175
12.4 Exogenous variables	177
12.5 Fixed-interval smoothing	179
13. Further Topics	181
13.1 Asymptotic properties of the estimators	181
13.2 Sensitivity analysis	182
13.3 A Monte-Carlo study	182
13.4 Spectral densities of continuous time models	185
13.5 Numerical maximization	186
13.6 Partial adjustment equations	187
Conclusions	189
A. Abbreviations	193
B. Data	195
References	207