

Contents

On the Theoretical Relevance and Empirical Validity of Augmented Real Business Cycle Models: An Introduction	1
1 Why to Consider Augmented Real Business Cycle Models?	2
2 Walrasian <i>ARBC</i> Models	3
3 Non Walrasian Models and Other Developments	6
4 Looking at the Future : Beyond <i>ARBC</i> Models	10
I Advances into RBC Framework	19
1 Presentation and Evaluation of the Real Business Cycles Approach	21
1.1 Presentation of the Canonical <i>RBC</i> Model	25
1.1.1 Exposition of the Model	26
1.1.2 The Resolution Method	28
1.1.3 The Economic Mechanisms at the Heart of <i>RBC</i> Models	31
1.2 The Evaluation of <i>RBC</i> Approach	39
1.2.1 The Stylized Facts of the French and US Fluctuations	40
1.2.2 Calibration	42
1.2.3 Cyclical Properties of the Model	43
1.3 Concluding Comments	47
1.4 Appendix : Solving the Linear System	48
2 A RBC Model for Explaining Cyclical Labor Market Features	55
2.1 Productivity, Labor Productivity and Business Cycle . .	58
2.1.1 The Solow Residual in <i>RBC</i> Models	59
2.1.2 Labor Productivity Cycle : a Stylized Fact	60
2.2 The Model	63
2.2.1 The Firms	64
2.2.2 The Households	65
2.2.3 The Government	66
2.2.4 The Planner's Decision Rules	66
2.3 Solution Method and Calibration	68
2.4 Impulse Response Functions for Technological and Government Spending Shocks	73

2.4.1	Technological Shocks	73
2.4.2	Government Spending Shock	76
2.5	Simulation Results	78
2.5.1	The USA	78
2.5.2	France	84
2.5.3	Conclusion of the Quantitative Analysis	86
2.6	Concluding Comments	88
2.7	Appendix	90
3	Cash-In-Advance Constraint and the Business Cycle	107
3.1	The Model	109
3.1.1	The Neoclassical Growth Model with Cash-In-Advance	109
3.1.2	How to Solve the Model?	114
3.2	Dynamic Features of the Cash-In-Advance Constraint Model	120
3.2.1	Transitional Dynamics	121
3.2.2	Instantaneous Responses to a Technological Shock	123
3.2.3	Instantaneous Responses to a Monetary Shock	125
3.3	Can a Cash-In-Advance Constraint Account for the Role of Monetary Shocks in the Business Cycle?	127
3.3.1	Simulation Method and Calibration Issues	127
3.3.2	The Specific Role of Monetary Shocks in Cash-In-Advance Models	128
3.3.3	Monetary Shocks and Cash-In-Advance Constraint: a Counter-Factual Impulsion-Propagation Scheme	131
3.4	Concluding Comments	134
3.5	Appendix	135
4	The International Transmission of Real Business Cycles	143
4.1	A One-Sector, Two-Country Model	146
4.1.1	Preferences	147
4.1.2	Technology	148
4.1.3	Constraints	149
4.1.4	Model Resolution	150
4.2	Impulse Response to Productivity and Government Spending Shocks	156
4.2.1	Effects of Productivity Shock	156
4.2.2	Effects of Government Spending Shock	157
4.3	Model Predictions and International Business Cycles	158
4.3.1	The Stylized Facts	158
4.3.2	Model Predictions	160
4.4	Concluding Comments	167
4.5	Appendix	169
5	A Small Open Economy RBC Model: the French Economy Case	173
5.1	The <i>RBC</i> Model of the French Economy	175
5.1.1	Technology and Preferences	175

5.1.2	Optimal Behavior of Households and Firms	178
5.1.3	Competitive Equilibrium of the Economy	179
5.1.4	Stationarization and Linearization of the Model	180
5.2	Two Exercises of Model Validation	181
5.2.1	Parameter Calibration of the Benchmark Model	181
5.2.2	Traditional Validation by Moment Comparison	183
5.2.3	Impulse Response Functions of the <i>RBC</i> and <i>VAR</i> Models	186
5.3	Concluding Comments	191
II	Advances beyond RBC Framework	195
6	Nominal Rigidities and Monopolistic Competition: A New-Keynesian View	197
6.1	The Model	200
6.1.1	A Monopolistic Competition Model with Money in the Utility Function	200
6.1.2	Definition and Resolution of the Equilibrium	206
6.2	Monetary Disturbances and Business Cycle in France and the United States	211
6.2.1	Parameter Calibration	213
6.2.2	Estimation of the Exogenous Shocks Processes	215
6.2.3	The Effect of Monetary Shocks, Monopolistic Competition and Price Stickiness	218
6.2.4	The Effect of Increasing Returns	221
6.2.5	The Model and the Business Cycle on US and French Data	223
6.2.6	Impulse Responses to Technological and Monetary Shocks	227
6.3	Concluding Comments	227
6.4	Appendix	229
7	Nominal Wage Contracts and the Short-Run Dynamics of Real Wages	241
7.1	The Model	244
7.1.1	The Economic Environment	245
7.1.2	The Competitive Equilibrium of the Economy without Wage Contracts	247
7.1.3	The Equilibrium with Nominal Wage Contracts	249
7.2	The Mechanisms of the Model	255
7.2.1	Calibration	256
7.2.2	The Walrasian Model with Interrelated Adjustment Costs	258
7.2.3	The Model with Interrelated Adjustment Costs and Contracts	260
7.3	Validation	266
7.3.1	The Stylized Facts	266
7.3.2	Does the Model Match the Data?	270

7.3.3	Nominal Shocks and Short-Run Dynamics of Real Wages	274
8	Unemployment and Business Cycle : a General Equilibrium Matching Model	287
8.1	The Model	291
8.1.1	The Labor Market	291
8.1.2	The Firm	293
8.1.3	The Household	295
8.2	The Symmetric General Equilibrium	297
8.2.1	The Wage Bargaining Process and the Search Intensity Decision	298
8.2.2	Rational Expectations Equilibrium	300
8.2.3	Resolution Method	302
8.3	Results	305
8.3.1	Impulse Response Functions	305
8.3.2	Does the Model Match the U.S. Business Cycle?	309
8.3.3	Does the Model Match the French Business Cycle?	315
8.4	Concluding Comments	321
9	Business Cycle and Endogenous Growth : Learning by Doing versus Rationalizing	327
9.1	Presentation of the Model	330
9.1.1	The Households	330
9.1.2	The Government Expenditures	332
9.1.3	The Firms	332
9.1.4	Accumulation Processes	333
9.2	Solving the Model	335
9.2.1	The Representative Firm Problem	335
9.2.2	The Household Problem	336
9.2.3	The Competitive Equilibrium	337
9.2.4	Simulation Methodology	338
9.3	Analysis of the Dynamics	342
9.3.1	Transitional Dynamics	342
9.3.2	Responses to Stochastic Shocks	346
9.4	Cyclical Implications of the Sign of Persistence	354
9.4.1	Stochastic Simulation Methodology	354
9.4.2	Simulation Results	355
9.5	Concluding Comments	360
9.6	Appendix	362
10	Statistical Evaluation of the RBC Model	371
10.1	The Canonical Real Business Cycle Model	375
10.1.1	The Model	375
10.1.2	Solution Method	380
10.2	Estimation Method, Testing and Stochastic Simulation	382
10.2.1	Implementing the Generalized Method of Moments	383
10.2.2	Testing	389

10.2.3	Parameter Uncertainty and Stochastic Simulations.	390
10.3	Empirical Results	392
10.3.1	Estimation of the Structural Parameters Ψ_1	393
10.3.2	Statistical Tests of the <i>RBC</i> Propositions	395
10.4	Concluding Comments	403
10.5	Appendix	405