

Cambridge University Press

0521850258 - Foundations for a Disequilibrium Theory of the Business Cycle: Qualitative Analysis and Quantitative Assessment

Carl Chiarella, Peter Flaschel and Reiner Franke

Table of Contents

[More information](#)

## Contents

---

<i>List of figures</i>	<i>page</i> x
<i>List of tables</i>	xiii
<i>Foreword by J. Barkley Rosser, Jr.</i>	xv
<i>Preface</i>	xix
<i>Notation</i>	xxii
<b>1 Competing approaches to Keynesian macrodynamics</b>	<b>1</b>
1.1 Introduction	1
1.1.1 General methodological remarks	1
1.1.2 A historical perspective	6
1.2 Neoclassical Synthesis, Stage I: traditional AS-AD dynamics	8
1.2.1 Keynesian AS-AD dynamics with rational expectations	9
1.2.2 Further scenarios of the wage-price dynamics	16
1.3 Neoclassical Synthesis, Stage II: New-Keynesian macrodynamics	21
1.3.1 The baseline model with perfect wage flexibility	23
1.3.2 Staggered wages and prices	27
1.3.3 Combining forward-looking and backward-looking behaviour I	31
1.3.4 Combining forward-looking and backward-looking behaviour II	37
1.4 Keynesian DAS-AD dynamics and the wage-price spiral	42
1.4.1 The D(isequilibrium)AS-AD approach to the wage-price spiral	42
1.4.2 Feedback-guided stability analysis: example 1	47
1.4.3 Feedback-guided stability analysis: example 2	49
1.4.4 D(isequilibrium)AS-D(isequilibrium)AD modelling	52
1.5 Plan of the book	54
1.5.1 Part I: Textbook Approaches	54
1.5.2 Part II: Analytical Framework: Theory and Evidence	55
1.5.3 Part III: Monetary Policy	58

Cambridge University Press

0521850258 - Foundations for a Disequilibrium Theory of the Business Cycle: Qualitative Analysis and Quantitative Assessment

Carl Chiarella, Peter Flaschel and Reiner Franke

Table of Contents

[More information](#)

vi Contents

<b>Part I Textbook Approaches</b>	<b>61</b>
2 AS-AD growth theory: a complete analysis of the textbook model	63
2.1 Introduction	63
2.2 The modelling equations	65
2.3 The model in intensive form	70
2.4 IS-LM analysis and completion of the dynamic system	74
2.5 Local stability analysis	79
2.6 A numerical stability analysis	84
2.7 Basic feedback loops	89
2.8 A representative simulation run	92
2.9 Conclusion	97
2.10 Appendix: The Hopf bifurcation theorem	98
3 Disequilibrium growth: the point of departure	100
3.1 Introduction	100
3.2 An alternative to the neoclassical production function	102
3.3 The remainder of the model	107
3.4 The model in intensive form	112
3.5 Local stability results	116
3.6 A tentative calibration of the real wage dynamics	123
3.7 Numerical stability analysis	127
3.8 Basic feedback loops	135
3.9 The cyclical pattern	142
3.10 Global stabilization through modified adaptive expectations	145
3.11 Conclusion	151
<b>Part II Analytical Framework: Theory and Evidence</b>	<b>155</b>
4 The Keynes–Metzler–Goodwin model	157
4.1 Introduction	157
4.2 Formulation of the model	160
4.2.1 Households	160
4.2.2 Firms	163
4.2.3 The government	167
4.2.4 The wage-price sector	168
4.2.5 Checking on accounting consistency	171
4.3 The model in intensive form	173
4.4 The general strategy of the stability proof	179
4.5 Proving local stability with a cascade of stable matrices	182
4.6 Conclusion	190
4.7 Appendix: The discrete-time approximation	191
5 Calibration of three wage-price modules	196
5.1 Introduction	196
5.2 Stylized facts of wage-price dynamics	201

Cambridge University Press

0521850258 - Foundations for a Disequilibrium Theory of the Business Cycle: Qualitative Analysis and Quantitative Assessment

Carl Chiarella, Peter Flaschel and Reiner Franke

Table of Contents

[More information](#)

	Contents	vii
5.3	The three wage-price modules	209
5.3.1	The common nominal wage dynamics	209
5.3.2	Inflation module CCP: countercyclical prices	211
5.3.3	Inflation module PPC: the extended price Phillips curve	214
5.3.4	Inflation module VMK: a variable markup	216
5.4	Preparing the calibrations	218
5.4.1	The exogenous sine wave oscillations	218
5.4.2	Productivity and employment	221
5.5	Wage-price dynamics with inflation module CCP	223
5.6	Wage-price dynamics with inflation module PPC	230
5.7	Wage-price dynamics with inflation module VMK	233
5.8	Evaluation of the calibration results	236
5.9	The cyclical properties under the empirical utilization series	238
5.10	Conclusion	243
5.11	Appendix: The empirical time series	245
6	Calibration of the full KMG model	247
6.1	Introduction	247
6.2	Stylized facts of the goods market	248
6.3	The calibration levels	251
6.3.1	Recapitulation of the wage-price dynamics	251
6.3.2	The money market	253
6.3.3	Production and the goods market	254
6.3.4	Endogenous utilization	257
6.4	Calibration under exogenous fluctuations of utilization	259
6.4.1	Steady-state values and other constant ratios	259
6.4.2	Interest rate oscillations	261
6.4.3	Goods market dynamics	262
6.5	Synopsis of the calibration results	265
6.6	Empirical fluctuations of utilization	266
6.7	The fully endogenous model and its dynamics	268
6.7.1	A nonlinear investment function	268
6.7.2	Calibrating investment and the long-run dynamics	271
6.7.3	Evaluation of the cyclical features	275
6.8	Conclusion	279
6.9	Appendix 1: The empirical time series	280
6.10	Appendix 2: A semi-structural econometric model and its eigenvalues	281
7	Subsystems and sensitivity analysis of the KMG model	287
7.1	Introduction	287
7.2	The Metzlerian subdynamics	289
7.2.1	Mathematical two-dimensional stability analysis	289
7.2.2	The Metzlerian feedback mechanisms	293
7.2.3	The Metzlerian adjustment parameters in the full KMG model	298
7.3	The wage-price subdynamics	302
7.3.1	Mathematical two-dimensional stability analysis	302
7.3.2	The real wage feedback mechanisms	309

Cambridge University Press

0521850258 - Foundations for a Disequilibrium Theory of the Business Cycle: Qualitative Analysis and Quantitative Assessment

Carl Chiarella, Peter Flaschel and Reiner Franke

Table of Contents

[More information](#)

viii	Contents	
	7.3.3 Parameter diagrams for the two-dimensional and six-dimensional dynamics	312
7.4	The monetary subdynamics	317
	7.4.1 A necessary condition for stability in the three-dimensional system	317
	7.4.2 The role of the output–inflation nexus	320
	7.4.3 Can a negative output–inflation nexus be detected in the data?	323
	7.4.4 Parameter diagrams for the three-dimensional and six-dimensional dynamics	327
7.5	Towards a landscape of the parameter stability effects	336
	7.5.1 Reference to the $(\beta_{Iu}, \beta_{Iq})$ parameter plane	336
	7.5.2 Reference to different stability intervals	340
	7.5.3 A succinct characterization of the parameters	343
	7.5.4 Stability regions in the plane: the six elementary contours	348
7.6	Properties of the dynamic trajectories	350
	7.6.1 Stable limit cycles from a Hopf bifurcation	350
	7.6.2 Is there scope for complex cyclical behaviour?	354
	7.6.3 Are countercyclical government expenditures stabilizing?	359
7.7	Conclusion	366
	<b>Part III Monetary Policy</b>	<b>369</b>
8	The Taylor rule in small macromodels	371
	8.1 Introduction	371
	8.2 The concept of the Taylor rule	372
	8.2.1 The interest rate as a policy variable	372
	8.2.2 Specification of the Taylor rule	376
	8.2.3 Estimation of the Taylor rule	379
	8.3 Four prototype models	385
	8.3.1 Model 1: Taylor interest rate and static IS	386
	8.3.2 Model 2: Taylor interest rate and dynamic IS	389
	8.3.3 Model 3: Interest rate smoothing and static IS	391
	8.3.4 Model 4: Interest rate smoothing and dynamic IS	392
	8.4 An estimated Keynes–Phillips–Taylor model from the literature	394
	8.4.1 Formulation and estimation of the Rudebusch–Svensson model	394
	8.4.2 Stability analysis	397
	8.4.3 Dynamic properties	403
	8.4.4 A note on low rates of interest	413
	8.5 Appendix: The reduced form of forward-looking models	415
	8.5.1 A neoclassical specification	416
	8.5.2 A New-Keynesian specification	421
9	Incorporating the Taylor rule into KMG	427
	9.1 Introduction	427
	9.2 The Keynes–Metzler–Goodwin–Taylor model	428
	9.2.1 Formulation of the model	429
	9.2.2 Possible non-uniqueness of the equilibrium	434
	9.2.3 Mathematical stability analysis and its limitations	444
	9.2.4 Numerical support for sufficient stability conditions	453

Cambridge University Press

0521850258 - Foundations for a Disequilibrium Theory of the Business Cycle: Qualitative Analysis and Quantitative Assessment

Carl Chiarella, Peter Flaschel and Reiner Franke

Table of Contents

[More information](#)

	Contents	ix
9.3	Global dynamics of the KMGT model	459
9.3.1	Setting up a stable and an unstable scenario	459
9.3.2	Dynamics in the stable case: the Frisch paradigm	463
9.3.3	Dynamics in the unstable case: endogenous cycles	469
9.4	The role of the policy coefficients in the Taylor rule	474
9.4.1	Stability effects	474
9.4.2	Policy changes and their impact on the dynamics in the stable case	479
9.4.3	Policy changes and their impact on the dynamics in the unstable case	486
9.5	Towards a landscape of the parameter stability effects in KMGT	491
9.5.1	Reference to the $(\beta_{lu}, \beta_{lq})$ parameter plane	491
9.5.2	Reference to different stability intervals	495
9.5.3	A succinct characterization of the parameters in KMG and KMGT	498
9.6	Appendix: The detailed Jacobian matrix of the KMGT model	502
	<i>References</i>	505
	<i>Index</i>	514