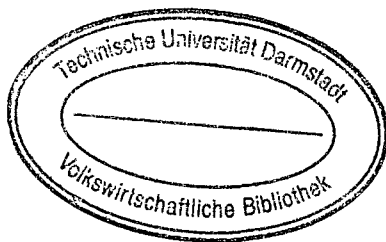


# Macroeconomic Modelling in a Changing World

Towards a Common Approach

*Edited by*

Chris Allen and Stephen Hall



JOHN WILEY & SONS

Chichester • New York • Brisbane • Toronto • Singapore

# Contents

List of Contributors	xi
Acknowledgements	xiii
Preface	xv
<b>Introduction Macroeconomic Modelling: A Perspective, Stephen G. Hall</b>	<b>1</b>
1 Introduction	1
2 Dynamics, Identification and the Long Run	3
3 Expectations and Learning	4
4 Theory and Systems	8
5 Alternative Approaches: CGE and VAR Methodology	10
6 Conclusion	12
7 Acknowledgements	13
<b>SECTION 1: MODEL BUILDING</b>	<b>15</b>
<b>1 A Survey of Flexible Functional Forms Applied to Production Analysis, Chris Allen</b>	<b>17</b>
1.1 Introduction	17
1.2 Early Work on Flexible Production and Cost Functions	18
1.3 Flexible Functional Forms: Diewert's Generalized Leontief Function	20
1.4 The Translog Production and Cost Function	23
1.5 Alternative Definitions of Flexible Functional Forms	25
1.6 Imposing Curvature Conditions	28
1.7 Regional Domains of Theoretical Consistency	31
1.8 Further Functional Forms	33

1.9 Weak Separability and the Inflexibility of Flexible Functional Forms	35
1.10 Conclusions and Some Outstanding Issues	38
1.11 Acknowledgements	39
1.12 Endnotes	39
<b>2 Modelling Investment with Adjustment Costs Using Flexible Functional Forms, Chris Allen</b>	<b>41</b>
2.1 Introduction	41
2.2 A Model of Investment	42
2.3 The Empirical Model	45
2.4 Deriving an Empirical Investment Equation	46
2.5 Econometric Considerations	48
2.6 Stationarity and Cointegration in the Investment Equation	50
2.7 Estimation Results for the Forward-Looking Model	51
2.8 Testing the Forward-Looking Model Against a Backward-Looking Model	53
2.9 Evidence from Backward-Looking Models	55
2.10 Conclusions	59
2.11 Acknowledgements	59
2.12 Endnotes	59
Appendix 1: Testing for the Order of Integration of the Capital Stock	60
Appendix 2: Tests of Model Stability	63
Appendix 3: Equations for Marginal Processes	64
<b>3 Forward-Looking Consumption and Financial Liberalisation in the United Kingdom, Hong Bai and John Whitley</b>	<b>69</b>
3.1 A Review of Research on Aggregate Consumer Expenditure	69
3.2 An Aggregate Forward-Looking Consumption Model	72
3.3 Estimation and Results	78
3.4 Comparison between Forward-Looking and Backward-Looking Consumption Models	81
3.5 Conclusion	86
3.6 Acknowledgements	87
3.7 Data Sources and Definitions	87
Appendix 1: Model 1 (Backward-Looking Model)	88
<b>4 Stockbuilding, Risk and the Forward-Looking Behaviour of the Firm, Hong Bai, Stephen G. Hall and John Whitley</b>	<b>91</b>
4.1 Introduction	91
4.2 An Aggregate Model of Stockbuilding	94
4.3 Estimation and Results	96

4.4 Comparison between Forward-Looking and Backward-Looking Models	100
4.5 Conclusion	103
4.6 Data Sources and Definitions	103
Appendix 1: The Error Correction Model for Stocks (Backward-Looking)	104
<b>5 UK Fiscal Policy Over the Medium Term, Stephen Hall, John O'Sullivan and Andrew Sentance</b>	<b>105</b>
5.1 Introduction	105
5.2 Modelling Public Finances	107
5.3 Estimation	112
5.4 Analysing Public Finances	121
5.5 Conclusion	124
Appendix 1: Data Sources	124
Appendix 2: Time-Series Properties	129
<b>6 Two Concepts of the NAIRU, Chris Allen and James Nixon</b>	<b>131</b>
6.1 Introduction	131
6.2 A Few Stylised Facts	132
6.3 Existing Models of the NAIRU	135
6.4 Two Stylised Models	140
6.5 General Framework for the Supply Side	144
6.6 Conclusions	150
6.7 Endnotes	151
Appendix 1: Derivation of the Short-Run Price Equation	152
Appendix 2: Derivation of the Long-Run Price Equation	152
Appendix 3: Compatibility of Technology Trends	154
<b>7 Investigating Structural Breaks in UK Manufacturing Trade, Anindya Banerjee and Giovanni Urga</b>	<b>155</b>
7.1 Introduction	155
7.2 Data-Generation Process, Methods and Models: Violations of Strong Exogeneity	158
7.3 Conclusions	166
7.4 Acknowledgements	167
7.5 Endnotes	167
<b>8 A Supply-Side Model of the UK Economy: An Application of Non-Linear Cointegration, Chris Allen</b>	<b>169</b>
8.1 Introduction	169
8.2 An Empirical Model of Pricing and Factor Demands	171
8.3 Empirical Results	178
8.4 Conclusions	191

8.5 Acknowledgements	192
8.6 Endnotes	193
8.7 Data Appendix	194
Appendix 1: Derivation of the Dynamic Cost Function	196
Appendix 2: Restrictions on the Cointegrating Vector	197
<b>SECTION 2: USING MODELS</b>	<b>199</b>
<b>9 Controlling Inflation: Modelling Monetary Policy in the 1990s, Stephen Hall and James Nixon</b>	<b>201</b>
9.1 Introduction	201
9.2 Optimal Policy Rules	203
9.3 Simple Feedback Rules	208
9.4 Conclusion: Building a Strengthened Monetary Regime	215
9.5 Endnotes	216
<b>10 The Stability of Expectational Equilibria in the LBS Model, Anthony Garratt and Stephen Hall</b>	<b>217</b>
10.1 Introduction	217
10.2 Expectations, Learning and Non-Linear Models	219
10.3 Effects of Varying the Expectations Rule	228
10.4 Effects of Varying the Hyperparameters	234
10.5 Conclusion	242
10.6 Endnotes	244
Appendix 1	244
<b>11 Modelling the Effects of Changing Military Expenditure, Hong Bai, Stephen Hall, James Nixon and Ron Smith</b>	<b>247</b>
11.1 Introduction	247
11.2 The Evolution of UK Defence Expenditure	249
11.3 Simulation Design under Alternative Fiscal and Monetary Policy Rules	251
11.4 Results	254
11.5 Interpretation	259
<b>12 Modelling Economies in Transition, Stephen Hall and John O'Sullivan</b>	<b>263</b>
12.1 Introduction	263
12.2 Model Reduction when the Structure is Undergoing Change	264
12.3 Time-Varying Parameter Estimation	267
12.4 Using Extra Information	268
12.5 An Example Using the Polish Foreign Exchange Market	271
12.6 Kalman Filters in a Full Macro Model	273

12.7 An Example Using Romania	275
12.8 Conclusions	278
12.9 Endnote	278
12.10 Data Sources	279
Appendix 1: Romanian Model Manual	279

<b>References</b>	<b>283</b>
-------------------	------------

<b>Index</b>	<b>301</b>
--------------	------------