

Contents

PREFACE	vii
ACKNOWLEDGMENTS	ix
CHAPTER 1 INTRODUCTION: SCOPE AND PURPOSE	1
1.1 Introduction	1
1.2 State of the Art	3
1.2.1 Recursive CGE Models	4
1.2.2 Intertemporal CGE Models	5
1.3 Contributions of this Book	9
1.3.1 Drawing on Existing Modelling Infrastructure	18
1.3.2 Design of an Efficient and Transferable Solution Algorithm	18
1.3.3 The Implications of Alternative Expectations Assumptions	18
1.3.4 An Application to Tariff Reform	19
1.4 Organisation of the Remainder of this Book	19
CHAPTER 2 AN OVERVIEW OF ORANI-INT	21
2.1 Introduction	21
2.2 Nomenclature for Intertemporal Modelling	21
2.3 The Structure of ORANI-INT	23
2.4 Chapter Summary	25
CHAPTER 3 THE THEORETICAL STRUCTURE OF ORANI-INT	27
3.1 Introduction	27
3.1.1 Notational Conventions	28
3.1.2 Computational Issues and the Presentation of Equations	30
3.2 Industry Behaviour	30
3.2.1 Factor Demands	32
3.2.2 Demands for Composite Commodities and 'Other Cost' Tickets and the Supply of Output	34
3.2.3 Demands for Domestic and Foreign Commodities	34
3.3 Final Demands	35
3.3.1 Household Demands	35
3.3.2 Capital Creation	41
3.3.3 Government Demands	48
3.3.4 Foreign Demands	49
3.4 Zero Pure Profits Conditions	49
3.5 Market Clearing Conditions	52
3.6 Miscellaneous Equations	52
3.7 Chapter Summary	60

APPENDIX A3.1	THE LOG-LINEAR FORM OF THE ORANI-INT EQUATION SYSTEM	61
	A3.1.1 Introduction	61
APPENDIX A3.2	THE INTERTEMPORAL BUDGET CONSTRAINT	91
	A3.2.1 Introduction	91
	A3.2.2 The Effects of Constraining the Growth of Net Foreign Liabilities	92
APPENDIX A3.3	ALTERNATIVE INVESTMENT SPECIFICATIONS	104
	A3.3.1 Introduction	104
	A3.3.2 Cost of Adjustment Models of Investment	104
	A3.3.3 Time-to-build Models of Investment	108
	A3.3.4 Concluding Remarks	109
APPENDIX A3.4	THE IMPLICATIONS OF THE IRREVERSIBILITY CONSTRAINT ON INVESTMENT	111
	A3.4.1 Introduction	111
	A3.4.2 Theoretical Implications	111
	A3.4.3 Results from ORANI-INT	115
APPENDIX A3.5	A NOTE ON DIVISIA INDEXES	118
	A3.5.1 Introduction	118
	A3.5.2 The Differential Form of Divisia Indexes	118
	A3.5.3 The Levels Form of Divisia Indexes	120
	A3.5.4 Why Use Divisia Indexes?	122
CHAPTER 4	SOLUTION METHOD	124
	4.1 Introduction	124
	4.1.1 A Note on the Semantics Used in this Chapter	124
	4.2 Alternative Solution Methods	125
	4.2.1 Shooting Methods	126
	4.2.2 Relaxation Methods	128
	4.3 The ORANI-INT Solution Algorithm	128
	4.3.1 The Euler Method	130
	4.3.2 Newton-Raphson Method	138
	4.3.3 The Hybrid Method	139
	4.4 Modelling Sign Constraints	143
	4.5 Chapter Summary	148
CHAPTER 5	GENERATING THE CONTROL PATH SOLUTION	149
	5.1 Introduction	149
	5.2 Constructing an Intertemporal Base Solution	150
	5.3 The Control Scenarios	151
	5.3.1 The Standard Closure	152
	5.3.2 The BG Control Scenario	156
	5.3.3 The CBG Control Scenario	157
	5.4 Chapter Summary	166

APPENDIX A5.1	THE ORANI-13 DATABASE	167
A5.1	Introduction	167
A5.2	The PMH Database	167
A5.3	The ORANI-13 Database	170
A5.4	The ORANI-13A Database	177
A5.5	The ORANI-13B Database	177
CHAPTER 6	ORANI-INT'S SIMULATION PROPERTIES WITH AND WITHOUT FORWARD-LOOKING BEHAVIOUR	182
6.1	Introduction	182
6.2	An Overview of the Illustrative Experiments	182
6.3	Interpretation of Results	184
6.4	The Benchmark Experiment	184
6.4.1	Long-run Results	186
6.4.2	Results Coinciding With the Implementation of Shock	195
6.4.3	Results Over the Duration of the Shock	196
6.4.4	Pre-shock (Anticipation) Effects	196
6.5	The Investment Experiment	197
6.5.1	Long-run Results	197
6.5.2	Results Coinciding With the Implementation of Shock	200
6.5.3	Results Over the Duration of the Shock	201
6.5.4	Pre-shock (Anticipation) Effects	203
6.6	The Consumption Experiment	204
6.6.1	Long-run Results	207
6.6.2	Results Coinciding With the Commencement of the Shock	208
6.6.3	Results Over the Duration of the Shock	209
6.6.4	Pre-shock (Anticipation) Effects	209
6.7	The Full Intertemporal Experiment	212
6.8	The Surprise Experiment	216
6.9	Chapter Summary	220
CHAPTER 7	SHOULD TARIFF REDUCTIONS BE ANNOUNCED?	221
7.1	Introduction	221
7.2	Simulating the Tariff Reduction Strategies	222
7.2.1	Control Scenario	223
7.2.2	Choice of Exogenous Variables	223
7.2.3	Description of the Tariff Shocks	223
7.3.	Simulation Results	224
7.3.1	Long-run Results	233
7.3.2	The Transition Paths	245
7.3.3	Structural Adjustment	250
7.4.	Summary and Conclusions	252

CHAPTER 8	SUMMARY AND CONCLUSIONS	254
8.1	Introduction	254
8.2	Model Development	254
8.3	Applications	256
8.4	An Agenda for Future Research	257
	8.4.1 Data and Parameters	257
	8.4.2 Treatment of Expectations	258
	8.4.3 Investment Technology	259
	8.4.4 Greater Disaggregation	259
8.5	Final Comments	260
REFERENCES		261
AUTHOR INDEX		269
SUBJECT INDEX		271
LIST OF TABLES		277
LIST OF FIGURES		278