

Contents

Editorial note	xvii
Preface and acknowledgements	xix
1 Introduction	1
PART I: DISAGGREGATED APPROACHES TO ECONOMICS	
2 Accounting Matrices in Economics and Demography	9
2.1. Introduction	9
2.2. Economics: the productive system	10
2.3. Production and consumption: industries and sectors	16
2.4. National accounts and balance sheets	19
2.5. Social demography: the standard matrix	22
2.6. Two basic identities and some simple models.	23
2.7. Variants and generalizations	26
2.8. The fundamental matrix and the life table.	27
2.9. Reconciling preferences: a toy model	29
2.10. Construction of economic and demographic accounting matrices.	31
2.11. References	35
3 Linear Economic Models	37
3.1. Introduction	37
3.2. The Keynesian model	38
3.3. Input–output models	43
3.3.1. The simple input–output system	44
3.3.2. Expanded reproduction	46
3.4. Price systems	47
3.5. A subsistence wage and fixed capital.	48
3.6. A trade model and financial balances	51
3.7. Conclusions	55
3.8. References	55

4	Multisectoral Models and Joint Production	57
4.1.	Introduction	57
4.2.	Linear multisectoral models without joint production.	60
4.2.1.	Simple no joint production systems (NJPS)	60
4.2.2.	More general closed models of production	66
4.2.3.	Perron–Frobenius theorems and an application	67
4.3.	General joint production systems	72
4.4.	Fixed capital as joint product and the Non-Substitution theorem.	81
4.4.1.	The fixed capital case.	81
4.4.2.	Notes on the Non-Substitution Theorem	84
4.4.3.	Generalized Perron–Frobenius theorems	87
4.5.	Concluding remarks	90
4.6.	References	90
 PART II: MACROECONOMIC BEHAVIOUR		
5	The Aggregate Consumption Function	95
5.1.	Introduction	95
5.2.	Keynes and the Keynesian consumption function	95
5.3.	The life-cycle hypothesis	98
5.3.1.	Theory	98
5.3.2.	Evidence	102
5.4.	The permanent income hypothesis and rational expectations	105
5.5.	Recent econometric formulations: The error correction mechanism.	112
5.6.	The effect of inflation on aggregate consumption	114
5.7.	Concluding remarks	119
5.8.	References	119
6	Generalized Adaptive Expectations	121
6.1.	Introduction	121
6.2.	A permanent income hypothesis	122
6.3.	A generalized adaptive expectations hypothesis	124
6.3.1.	Real income	124
6.3.2.	Combining rational expectations and the PIH	125
6.3.3.	An incremental growth term	126
6.4.	Other applications	128
6.5.	Concluding remarks	128
6.6.	References	128
7	Macroeconomic Investment and Employment Functions	131
7.1.	Introduction	131
7.2.	Lags in economic behaviour	132

7.3.	The eclectic approach	136
7.3.1.	General characteristics	136
7.3.2.	Three types of investment theories	137
7.3.3.	Employment theories	143
7.4.	The production function approach	145
7.4.1.	General characteristics	145
7.4.2.	General specifications	145
7.4.3.	Specific investment functions	149
7.4.4.	Specific employment functions	152
7.5.	Concluding remarks	158
7.6.	References	158

PART III: MACROECONOMIC MODELS

8	Macroeconomic Theory and Policy	165
8.1.	Introduction	165
8.2.	Comparative statics and the neutrality argument	166
8.2.1.	The demand side model	166
8.2.2.	The supply side	168
8.2.3.	The complete model and rational expectations	171
8.2.4.	Neo-Walrasian–neo-Keynesian synthesis	176
8.3.	Comparative dynamics and the correspondence principle	179
8.3.1.	Static and dynamic multipliers	180
8.3.2.	Controllability	185
8.3.3.	The assignment problem	186
8.3.4.	Lyapunov stability and optimal policy rules	189
8.3.5.	Income and price stability	190
8.4.	Concluding remarks	192
8.5.	Notes	192
8.6.	References	193
9	The New Classical Macroeconomics: A Critical Exposition	195
9.1.	Introduction	195
9.2.	The natural rate hypothesis	196
9.3.	Adaptive expectations and the rational expectations hypothesis	200
9.4.	The non-uniqueness problem	204
9.5.	New classical policy neutrality proposition	207
9.6.	Cases of policy non-neutrality	210
9.7.	Concluding remarks	212
9.8.	References	213
10	Stochastic Macroeconomic Policy Simulations for a Small Open Economy	217
10.1	Introduction	217

10.2.	A short-run model of a small open economy	218
10.2.1.	The output market	219
10.2.2.	The wage-price sector	219
10.2.3.	The monetary sector.	220
10.2.4.	The government budget constraint and wealth accumulation	220
10.2.5.	Expected exchange rate changes and perfect capital mobility	221
10.2.6.	Summary of short-run model.	222
10.2.7.	Long-run equilibrium	222
10.2.8.	Linearization of the model	225
10.3.	Policy rules	226
10.4.	The complete continuous-time dynamic model	228
10.5.	The solution of dynamic stochastic models under rational expectations	233
10.6.	A simple example of the solution procedure	235
10.7.	The stability of the complete model	238
10.8.	Simulation results and policy consequences	241
10.9.	Suggestions for further reading.	247
10.10.	References	247
11	Macro-dynamic Theories of Economic Growth and Fluctuations	249
11.1.	Introduction	249
11.2.	Warranted and natural rates of economic growth	251
11.3.	Post-Keynesian descriptions of class conflict	253
11.3.1.	The basic model of perpetual conflict	253
11.3.2.	Structural perturbations in wage formation.	257
11.4.	Neoclassical versions of economic growth	260
11.5.	Profitability and unemployment in a growing economy	261
11.5.1.	Gradual adjustment of the capital intensity or optimal choice of technique	261
11.5.2.	Analysis of the hybrid model of cyclical growth	263
11.6.	The trade cycle and Keynesian demand management	266
11.6.1.	Demand-oriented explanations of the trade cycle.	266
11.6.2.	Frustration of planned investment	268
11.6.3.	Autonomous demand and reaction functions for economic policy	270
11.7.	Effective demand, the class struggle and economic growth	273
11.7.1.	Description of a hybrid economy	273
11.7.2.	Structural form systems	276
11.7.3.	Equilibrium and local stability	276
11.8.	The political business cycle	278
11.8.1.	Government popularity and economic performance	278
11.8.2.	Short-sightedness in political decision making.	281

11.9. Concluding remarks	283
11.10. References	283

PART IV: MICROECONOMICS

12 Theory of the Firm	289
12.1. Introduction	289
12.2. Basic concepts in production theory	289
12.3. Homogeneous production functions	292
12.4. The equilibrium of the competitive firm	293
12.5. The minimization of costs	294
12.6. Properties of the cost function	297
12.7. The maximization of profits	299
12.8. The comparative statics of the firm	300
12.9. A numerical example	302
12.10. Perfect competition	305
12.11. Imperfect competition: monopoly and monopsony	306
12.12. Monopolistic competition	309
12.13. Competition among the few: oligopoly	311
12.13.1. The Cournot–Nash solution	311
12.13.2. The Stackelberg solution	312
12.13.3. Collusion	313
12.14. Concluding remarks	313
12.15. References	313
13 Theory of the Household	315
13.1. Introduction	315
13.2. Basic concepts in consumption theory	315
13.3. The equilibrium of the consumer	317
13.4. Indirect utility and the expenditure function	319
13.5. The Slutsky equation	321
13.6. Properties of the demand functions	322
13.7. Relationships between commodities	324
13.8. Market demand	325
13.9. Revealed preference	326
13.10. The linear expenditure system	327
13.11. References	330
14 General Equilibrium Theory	331
14.1. Introduction	331
14.2. An exchange economy	332
14.2.1. Allocations	332
14.2.2. Preferences and maximal elements	334

	14.2.3. Pareto optimality and Walrasian equilibrium . . .	335
14.3.	Preferences.	336
	14.3.1. Assumptions on preferences	336
	14.3.2. Assumptions on preferences related to the consump- tion set	338
	14.3.3. Existence of maximal elements	341
14.4.	Existence of equilibrium in an exchange economy . . .	342
	14.4.1. The budget correspondence	342
	14.4.2. Pareto optimum and equilibrium	344
	14.4.3. Existence.	346
14.5.	An economy with production	350
	14.5.1. The economy	350
	14.5.2. Allocations and equilibria	353
	14.5.3. Interpretations of the commodity space	354
	14.5.4. Existence of an equilibrium	356
14.6.	An abstract economy	359
	14.6.1. The model	359
	14.6.2. Nash equilibrium	360
	14.6.3. Examples of abstract economies.	361
	14.6.4. Existence of a Nash equilibrium	362
14.7.	Concluding remarks	364
14.8.	Appendix: Mathematical concepts	366
14.9.	References	368
15	Social Choice, Interpersonal Comparability and Welfare Economics	371
	15.1. Introduction	371
	15.2. A framework for analysis.	373
	15.2.1. Some useful technicalities	373
	15.2.2. A statement of the social choice problem	375
	15.2.3. Aggregation conditions.	376
	15.2.4. Comparing individuals	379
	15.3. Non-comparability and dictatorship.	382
	15.3.1. Arrow's Impossibility Theorem	382
	15.3.2. Relaxing Arrow's conditions	385
	15.4. Positional dictatorship and the maximin social welfare function.	385
	15.4.1. A possibility theorem	385
	15.4.2. Equity and the maximum social welfare function. .	389
	15.5. Utilitarianism and beyond	391
	15.5.1. Intensity of preference and utilitarianism	391
	15.5.2. Levels and differences	393
	15.6. Single-profile social choice	396
	15.7. Conclusions	399
	15.8. References	399

PART V: ECONOMIC METHODOLOGY

16 The Measurement and Decomposition of Inequality and Poverty 403

- 16.1. Introduction 403
- 16.2. Positive measurement: inequality as statistical dispersion 404
- 16.3. Normative measurement: the Social Welfare Function approach 410
- 16.4. Criteria for inequaility measures 415
- 16.5. Decomposition of inequality 418
- 16.6. Measurement of poverty 425
- 16.7. Some problems of grouped data 428
- 16.8. Concluding remarks 430
- 16.9. Notes 431
- 16.10. References 431

17 Decision Under Uncertainty. 433

- 17.1. Introduction 433
- 17.2. Subjective Expected Utility theory 434
 - 17.2.1. A framework for analysis 434
 - 17.2.2. Von Neumann–Morgenstern utility theory . . . 436
 - 17.2.3. Subjective probabilities 441
 - 17.2.4. Measuring risk aversion and measuring risk . . 442
 - 17.2.5. A simple illustration 446
- 17.3. Some economic applications 447
 - 17.3.1. Insurance 447
 - 17.3.2. The competitive firm and output price uncertainty 449
 - 17.3.3. Consumer search 450
- 17.4. Alternative approaches 452
 - 17.4.1. Objections to SEU theory. 452
 - 17.4.2. Some alternatives. 453
- 17.5. Conclusions 454
- 17.6. References 454

18 Actuarial Mathematics 457

- 18.1. Introduction 457
- 18.2. Collection of data 458
- 18.3. Computation of actuarial functions 464
- 18.4. Reinsurance 469
- 18.5. Theory of risk 471
- 18.6. Population mathematics 473
- 18.7. Concluding remarks 475
- 18.8. References 476

PART VI: OPTIMIZATION OVER SPACE AND TIME

19	Aspects of the New Urban Economics	479
19.1.	Introduction	479
19.2.	The urban stage	480
19.3.	Urban land rents	484
19.3.1.	Agricultural rents	484
19.3.2.	Residential rents	486
19.3.3.	Industrial rents	488
19.4.	The optimal allocation of suburban land for transport and residential use	490
19.4.1.	The Mills–de Ferranti problem	490
19.4.2.	Extensions of the Mills–de Ferranti problem	496
19.5.	Industrial and business location	500
19.5.1.	The CBD city	500
19.5.2.	The optimum CBD city	501
19.5.3.	Mills' market model of the CBD	502
19.5.4.	A comparison of market and social solutions for the CBD	504
19.5.5.	The optimum factory town	507
19.5.6.	A disaggregated faculty town	509
19.6.	Extensions and other urban themes	511
19.6.1.	Congestion in a unified CBD and suburban plan	511
19.6.2.	Square cities	513
19.6.3.	Non-malleable cities	514
19.6.4.	Market power	514
19.6.5.	Other themes	515
19.7.	References	515
20	The Economics of Oil	519
20.1.	Introduction	519
20.1.1.	The problem of dynamic consistency	521
20.1.2.	Chapter plan	524
20.2.	Partial equilibrium formulation for a single producer	525
20.2.1.	Hotelling's arbitrage principle	525
20.2.2.	Special case: constant marginal cost, perfect competition or pure monopoly	527
20.2.3.	Terminal conditions	528
20.2.4.	More on the backstop technology	533
20.2.5.	The effect of market structure on dynamic inconsistency	535
20.3.	The taxation of oil produced in a closed economy	536
20.4.	Optimum tariffs on competitively supplied oil	539

20.4.1.	Simple two-period model of oil tariffs	541
20.5.	Modelling the world oil market	544
20.5.1.	Solving for the price trajectory	547
20.5.2.	Fringe delay extraction until end of monopoly phase	548
20.5.3.	Cartel's costs above fringe costs.	550
20.5.4.	The Nash–Cournot equilibrium.	552
20.5.5.	Different discount rates.	556
20.5.6.	Dynamic inconsistency by price shading.	560
20.5.7.	Conclusions for modelling the world oil market .	562
20.6.	Practical problems	563
20.6.1.	Enforcement of international contracts	563
20.6.2.	Supply constraints	564
20.6.3.	Incomplete rationality	564
20.6.4.	Uncertainty.	564
20.6.5.	Cohesiveness of OPEC.	564
20.7.	Conclusions	565
20.8.	Appendix: Sequencing of monopoly and competitive phases	565
20.9.	References	566
Index		569