

CONTENTS

1	Applied Macroeconometrics: an introduction	1
1.1	Introduction	1
1.2	From theory to data: the neo-classical growth model	1
1.3	Estimation problem: ordinary least squares	3
1.4	OLS estimation of the Solow growth model	9
1.5	Residual analysis	10
1.6	Elements of distribution theory	12
1.7	Inference in the linear regression model	14
1.8	Estimation under linear constraints	19
1.9	The effects of mis-specification	22
1.10	Human capital in Solow's growth model	24
1.11	Importance of time-series in macroeconomics	26
1.12	Alternative research strategies in macroeconometrics	28
1.13	References	30
2	Probabilistic structure of time-series data	31
2.1	Introduction: what is a time-series?	31
2.2	Analysing time-series: fundamentals	34
2.3	Persistence: Monte-Carlo experiment	40
2.4	Traditional solution: asymptotic theory	42
2.5	Stochastic trends and spurious regressions	44
2.6	Univariate decompositions of time-series	50
2.7	Multivariate decompositions and dynamic models	56
2.8	Multivariate cointegration: an application to US data	71
2.9	Multivariate decompositions: some considerations	79
2.10	References	81
3	Identification problem in macroeconometrics	85
3.1	Introduction	85
3.2	Identification in the Cowles Commission approach	88
3.3	Great critiques	91
3.4	Identification in LSE methodology	94
3.5	Identification in VAR methodology	96
3.6	Identification in intertemporally optimized models	99
3.7	References	101
4	Cowles Commission approach	103
4.1	Introduction	103
4.2	Estimation in the Cowles Commission approach	103

4.3	Simulation	117
4.4	Policy evaluation	118
4.5	A model of the monetary transmission mechanism	120
4.6	Assessing econometric evaluation of monetary policy	126
4.7	What is wrong with econometric policy evaluation?	128
4.8	References	130
5	LSE approach	132
5.1	Introduction	132
5.2	The LSE diagnosis	133
5.3	Reduction process	134
5.4	Test, test and test	137
5.5	Testing a Cowles Commission model	140
5.6	Searching for a congruent specification	142
5.7	Cointegration analysis	144
5.8	Specifying a structural model	144
5.9	A model of the monetary transmission mechanism	153
5.10	Simulating monetary policy	154
5.11	What have we learned?	158
5.12	References	160
6	VAR approach	162
6.1	Introduction: why VAR models?	162
6.2	Identification and estimation	164
6.3	Why shocks?	172
6.4	Description of VAR models	174
6.5	Monetary policy in closed economies	176
6.6	Monetary policy in open economies	180
6.7	VAR and non-VAR measures of monetary policy	191
6.8	Empirical results	201
6.9	Conclusions	207
6.10	References	210
7	Intertemporal Optimization and GMM method	214
7.1	Introduction	214
7.2	Euler equations and closed form solutions	215
7.3	Estimating Euler equations: the GMM method	219
7.4	The limits to Euler equation–GMM approach	225
7.5	Application to the consumer's problem	228
7.6	GMM and monetary policy rules	229
7.7	Interest rate rules and central banks' preferences	235
7.8	References	238
8	Calibration (with M. Maffezzoli)	241
8.1	Introduction	241
8.2	Model design	242

8.3	Dynamic equilibrium	245
8.4	An IS–LM interpretation	247
8.5	Choice of parameters	248
8.6	Calibration	253
8.7	Model solution	255
8.8	Implementation	262
8.9	Model evaluation	266
8.10	Policy analysis	274
8.11	References	275
Index		278