

OPEN ECONOMY MACRO- ECONOMICS

THEORY, POLICY
AND EVIDENCE

RONALD SHONE

OPEN ECONOMY MACROECONOMICS

Theory, Policy and Evidence

Ronald Shone

University of Stirling

Harvester Wheatsheaf
New York London Toronto Sydney Tokyo

First published 1989 by
Harvester Wheatsheaf
66 Wood Lane End, Hemel Hempstead
Hertfordshire, HP2 4RG
A division of
Simon & Schuster International Group

© Ronald Shone 1989

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission, in writing, from the publisher.

Printed and bound in Great Britain at the
University Press, Cambridge.

British Library Cataloguing in Publication Data

Shone, R. (Ronald), 1946–
Open economy macroeconomics: theory,
policy and evidence
I. Macroeconomics
I. Title
339

ISBN 0-7450-0125-4
ISBN 0-7450-0214-5 Pbk

1 2 3 4 5 93 92 91 90 89

PREFACE

This book is the result of dissatisfaction with existing macroeconomics textbooks. Good as many of these are, they concentrate too much on the closed economy. At the same time, macroeconomics is often discussed in the abstract as if the institutional framework does not matter. Since much of macroeconomics is concerned with the short and medium terms of open economies, it appears to me that it is essential to deal with the open aspects of macroeconomics throughout the text and not leave it to the final few chapters. Furthermore, institutions do matter, particularly in the short and medium terms. I thus decided to write a book which dealt with theory, policy and institutions.

I discussed my dissatisfaction with existing works with Edward Elgar, formerly of Wheatsheaf. The same view had been expressed by a number of academics around the UK. Edward Elgar was accordingly keen to see such a book written. At this time I was switching from teaching microeconomics to macroeconomics. I had already been teaching a specialist course in international monetary economics at the University of Stirling, and the time was opportune to bring 'openness' to macroeconomics. Having, however, decided to embark on this project, I was aware that different academics have different needs; and thus Wheatsheaf conducted a small questionnaire in order to establish what macroeconomists would wish to see in an intermediate macroeconomics textbook. I wish to thank all those individuals who responded to this questionnaire.

Besides covering macroeconomics from an open perspective, the book has a number of other objectives. First, it is concerned largely with the UK economy. In other words, macroeconomics is discussed within the context of the UK economy. This is especially true of Part II, which is concerned with policy and Part III which is concerned with problems specific to the UK. In this respect there is a great deal of factual material supplied about the UK economy. This is deliberate. I find it very disheartening to hear undergraduates (and postgraduates) expounding on recent theories and yet having no idea about the magnitudes of basic economic indicators and parameters. This is even more true of institutions. The macroeconomy does not operate in a vacuum. Although it is desirable to have universal theories, it is most unlikely that economics will ever achieve these. I suspect that anything coming close to such a possibility will be a most uninteresting theory. Certainly, when it comes to policy discussion, it is impossible to consider such theories without referring to a particular economy and to a particular point in time.

The multiple aims of the book have made it quite long. Because of the desire to cover theory, policy and institutions it has been necessary to make choices and compromises throughout, the most obvious of which is the brevity of the theory in Part I. Linked to this is

the choice of integration of theory and policy being left until Parts II and III. A student can only apply a theory once the theory is known. At the same time, it is almost impossible in macroeconomics to illustrate just one theory or one macroeconomic concept. In explaining the real world a number of macroeconomic ideas are usually required at the same time. Thus, Part I should be seen as setting down the bare essentials of macroeconomics in order to take up the discussion of policy later. Further theory will, therefore, be found in Parts II and III – although Part II in particular is referred to as ‘policy’.

This book has taken almost four years to write, and in that time the material has been written on three different microcomputers using two different word processors. A variety of programmes have been used, such as spreadsheets, equation solvers, graphics packages and a variety of other statistical packages. I am grateful to all concerned for helping me, not only in the writing of this book, but also in becoming computer literate in the process.

I would like to thank my colleagues, past and present, who have helped me at various stages, especially Mick Common and Paul Hare for comments on early material. Thanks are due to Paul Hudson, Wolverhampton Polytechnic, who also read some of the early material. I would especially like to thank Alex Rebmann who read the whole manuscript and provided the most detailed comments I have ever received. Teaching invariably shows up weaknesses, and so I would like to thank all those students who have undertaken my courses in macroeconomics and international monetary economics and have forced me to clarify aspects of open economy macroeconomics. I would like to express my sincere thanks to my wife, Anne Thomson, for her understanding and patience during the writing of this book, especially in the final stages. At an emotionally weak moment she supplied a much needed encouragement. Finally, I would like to thank Sheila Shepherd for the excellent job of copy-editing; also thanks to Tony and, most especially, Margaret Thomson for their help in checking the proofs.

R. Shone
January 1989

FIGURES

PART I

Figure 2.1 The IS curve.	15
Figure 2.2 The LM curve.	16
Figure 2.3 The BP curve.	18
Figure 2.4 Positioning the economy.	18
Figure 2.5 Derivation of aggregate demand.	22
Figure 2.6 Classical aggregate supply.	27
Figure 2.7 Keynesian aggregate supply.	29
Figure 2.8 Summary of the static model.	31
Figure 2.9 P - y combinations for the UK, 1960–87.	32
Figure A2.3.1 The marginal efficiency of capital and investment schedules.	42
Figure A2.4.1 Equilibrium under a fixed exchange rate.	44
Figure A2.4.2 Effect on equilibrium of an increase in government spending.	44
Figure A2.4.3 Effect on equilibrium of a devaluation.	45
Figure 3.1 Wage–unemployment reaction function.	52
Figure 3.2 Derivation of the wage inflation–income relation.	53
Figure 3.3 The short-run Phillips curve.	54
Figure 3.4 The relationship between the short-run Phillips curve and the short-run aggregate supply curve.	55
Figure 3.5 The expectations-augmented Phillips curve and the long-run Phillips curve.	56
Figure 3.6 Dynamics of an economy with zero expected inflation.	57
Figure 3.7 The relationship between aggregate demand and the demand-pressure curve.	59
Figure 3.8 Constant inflation with constant monetary growth.	60
Figure 3.9 An increase in government spending.	61
Figure 3.10 Permanent increase in the rate of growth of the money supply.	62
Figure 3.11 Acceleration in the rate of inflation.	64
Figure 3.12 Scatter diagram of price inflation and real income in the UK, 1960–87.	65
Figure A3.3.1 Equilibrium income and inflation.	70
Figure 4.1 The expectations process.	72
Figure 4.2 Adaptive expectations.	76
Figure 4.3 Price expectations and the AS curve.	78
Figure 4.4 Price expectations in both AD and AS.	79
Figure 5.1 The demand and supply of sterling.	90
Figure 5.2 The BP curve and net capital flows.	93
Figure 5.3 Fiscal and monetary policy under a fixed exchange rate.	94
Figure 5.4 The SPC and exchange rate changes.	100
Figure 5.5 Policy options, the SPC and exchange rate changes.	101
Figure A5.2.1 The EEA and inflows and outflows of currency.	105
Figure A5.3.1 Fiscal stimulus with low capital flow interest-sensitivity.	107
Figure A5.3.2 Fiscal stimulus with high capital flow interest-sensitivity.	107

Figure A5.4.1 Stop-go policies of the 1950s and 1960s.	108
Figure A5.6.1 Equilibrium in the money market under flexible exchange rates.	111
Figure A5.6.2 Equilibrium in both money and goods markets under flexible exchange rates.	112
Figure A5.6.3 Equilibrium with purchasing power parity established.	112
Figure A5.6.4 Exchange rate overshooting.	113
Figure 6.1 The budget surplus/deficit.	117
Figure 6.2 Measuring fiscal stance.	118
Figure 6.3 Tax financed increase in government spending.	123
Figure 6.4 Money financed increase in government spending.	124
Figure 6.5 Bond financed increase in government spending.	125
Figure 6.6 Comparing the methods of financing.	126
Figure 6.7 Money financed increase in government spending and the wealth effect.	127
Figure 6.8 Bond financed increase in government spending and the wealth effect.	128
Figure 6.9 Budget deficit/surplus and desired size of the public sector.	129
Figure A6.1.1 Budget surplus and a rise in the marginal rate of tax.	131
Figure A6.4.1 Three relative measures of UK government spending.	136
Figure 7.1 Optimal holdings of precautionary balances.	140
Figure 7.2 Tobin's liquidity preference model.	141
Figure 7.3 The derivation of Tobin's speculative demand for money.	142
Figure 7.4 A change in the speculative demand for money.	143
Figure 7.5 A problem of money demand instability.	146
Figure 7.6 Relationships among monetary and liquidity aggregates and their components.	148
Figure 7.7 Commercial banks treated as firms.	152
Figure 7.8 A constraint on bank lending.	153
Figure 7.9 The money supply and a country's reserves.	156
Figure 7.10 A change in reserves and the AD curve.	157
Figure A7.1.1 Income velocity of circulation of money.	159
Figure 8.1 Targets and instruments: various possibilities.	166
Figure 8.2 Internal and external balance.	169
Figure 8.3 (a) Convergent and (b) divergent assignment rules.	171
Figure 8.4 Meade's assignment.	173
Figure 8.5 Desired solutions in a macromodel: (a) averse to inflation; (b) more y preferred up to $y = y_n$.	174
Figure 8.6 Desired solutions and long-run conflicts in a macromodel.	175
Figure A.8.1.1 Targets, instruments and indicators.	178
Figure A8.2.1 Result on internal and external balance of a rise in government spending.	180
Figure A8.2.2 Result on internal and external balance of a rise in the actual rate of inflation.	181
 PART II	
Figure 9.1 UK indicators of fiscal stance, 1965–84.	192
Figure 9.2 Equilibrium in a long-run stationary economy.	199
Figure 9.3 General government spending to GDP (f_c), 1964–87.	203
Figure A9.1.1 Organisation of the Treasury.	209
Figure 10.1 Policy measures to achieve full employment.	215
Figure 10.2 Money base control and interest rate control with no uncertainties.	225
Figure 10.3 Money base control and interest rate control in the presence of uncertainties.	226
Figure 10.4 Money base control and variable interest rates.	227
Figure 10.5 Monetary policy under a fixed exchange rate.	229
Figure 10.6 Monetary policy under a flexible exchange rate.	230
Figure 11.1 Bank of England support for sterling.	240
Figure 11.2 Dollar–sterling exchange rate, 1973–87.	245
Figure 11.3 External balance constraint on internal balance.	248

Figure 11.4 Balance of payments constraint on internal balance under a floating exchange rate.	249
Figure 11.5 NSO impact on the exchange rate during oil exploration.	253
Figure 11.6 NSO impact on the exchange rate after 1977.	253
Figure 11.7 NSO, the exchange rate and policy options.	255
Figure A11.2.1 The snake in the tunnel.	260
Figure 12.1 Inflation in an AD-AS diagram.	267
Figure 12.2 UK inflation, 1950-87.	268
Figure 12.3 Rising AD and rising price expectations.	272
Figure 12.4 Rising AD and the impact on inflation.	272
Figure 12.5 Supply shock and a rise in the price level.	273
Figure 12.6 The Conservative government's strategy for reducing inflation.	278
Figure 12.7 Monetarist and Keynesian impacts of monetary contraction.	279
Figure 12.8 Prices and incomes policy and a movement in SPC.	283
Figure 12.9 Inflation under a flexible exchange rate.	285
Figure 12.10 Inflation under a fixed exchange rate.	286
Figure A12.2.1 The Phillips curve.	290
Figure A12.3.1 Trend inflation in the presence of shocks.	291
Figure A12.3.2 Shocks to the UK economy, 1960-79.	292
Figure A12.4.1 Result on nominal interest rates of a rise in expected inflation.	293
Figure 13.1 Income and price stabilization.	299
Figure 13.2 Pure cycle deviation and perfect stabilization.	302
Figure 13.3 Mistiming of stabilization policy.	302
Figure 13.4 Income stabilization and fiscal and monetary policy under a fixed exchange rate.	309
Figure 13.5 Income stabilization and fiscal and monetary policy under a flexible exchange rate.	309
Figure A13.1.1 Convergent and divergent series.	313
Figure A13.1.2 Phase diagram.	313
Figure A13.1.3 Phase line for a globally stable variable.	314
Figure A13.1.4 Characteristics of periodic variables.	314
Figure A13.1.5 Damped fluctuations.	315
Figure A13.1.6 Explosive fluctuations.	315
Figure A13.1.7 Equilibrium with no trend.	315
Figure A13.1.8 Equilibrium with rising trend.	316
Figure A13.1.9 Phase line for a cyclic variable.	316
Figure 14.1 UK unemployment, 1950-87.	321
Figure 14.2 Classical unemployment.	326
Figure 14.3 Keynesian unemployment.	328
Figure 14.4 Job-search unemployment and the supply curve of labour.	331
Figure 14.5 Job-search unemployment and vacancies.	331
Figure A14.2.1 The $U-V$ relationship.	342
Figure A14.2.2 Construction of the $U-V$ relationship.	342
 PART III	
Figure 16.1 A goods market disturbance.	368
Figure 16.2 A money market disturbance.	368
Figure 16.3 Aggregate supply shock and policy solutions.	370
Figure 16.4 Long-run result of a demand shock.	371
Figure 16.5 Long-run result of a supply shock.	372
Figure 16.6 Long-run result of supply shock which also shifts LAS.	373
Figure 16.7 Extinguishing policy towards inflation.	374
Figure 16.8 North Sea oil shock.	376
Figure 16.9 A domestic shock under a fixed exchange rate.	376

Figure 16.10 A foreign shock under a fixed exchange rate.	377
Figure 16.11 A domestic shock under a flexible exchange rate.	378
Figure 16.12 A foreign shock under a flexible exchange rate.	378
Figure 17.1 UK net exports of manufactures, 1975–87.	383
Figure 17.2 Growth of industrial production, 1960–85.	384
Figure 17.3 UK import penetration of manufacturing industry, 1955–87.	388
Figure 17.4 UK exports of manufactures relative to 'world' exports, 1960–85.	394
Figure 17.5 Policy solutions to Britain's manufacturing decline.	396
Figure 18.1 Neoclassical growth.	406
Figure 18.2 Neoclassical growth and the marginal propensity to save.	407
Figure 18.3 Neoclassical growth and technological progress.	407
Figure A18.2.1 Equilibrium in a neoclassical growth model.	420
Figure A18.2.2 Phase diagram for neoclassical growth model.	420

TABLES

PART I

Table 2.1 Relative slopes in the IS–LM–BP model.	20
Table A2.1.1 Intercept and slopes for IS, LM and BP curves.	35
Table A2.5.1 Aggregate supply and the expected price level.	46
Table 4.1 Geometric weights for different adjustment coefficients.	75
Table 5.1 The balance of payments accounts: main categories.	88
Table 5.2 UK balance of payments in real terms, 1963–87.	89
Table 6.1 General government receipts and expenditure, 1960–87 (figures at 1980 prices).	115
Table A6.4.1 Total government expenditure as a percentage of GDP at factor cost 1964–87.	136
Table 7.1 Estimates of changes in UK money multipliers, 1977–87.	152

PART II

Table 9.1 Relationship between M3 and PSBR, 1964–87.	193
Table 9.2 The components of UK government spending, 1964–87 (percentage ratios with respect to GDP at factor cost).	203
Table 10.1 UK monetary targets, 1976–87.	222
Table A10.3.1 Summary of 1980–81 UK banking reforms.	235
Table A11.2.1 An example of a possible 9% cross-parity variation within the snake arrangements.	260
Table A11.2.2 European monetary chronology, 1972–79.	261
Table A11.4.1 Range and standard deviation for the dollar–sterling rate, 1972–87.	263
Table A11.4.2 Coefficient of variation of currencies against sterling, 1972–87.	264
Table 12.1 One-off shocks and the rate of inflation.	267
Table A13.2.1 UK macroeconomic models.	317
Table 14.1 Long-term unemployment in Great Britain, 1948–87.	321
Table 14.2 The changing structure of UK employment, 1978–87.	322
Table 14.3 Regional unemployment rates, 1965–87(%) (average of quarterly figures, seasonally adjusted).	324
Table 14.4 Policies for correcting UK unemployment.	338
Table 15.1 Competition legislation.	346
Table 15.2 The public interest: the Fair Trading Act 1973, Section 84.	348
Table 15.3 Acquisitions, divestments and buy-outs, 1969–1986/Q3.	350
Table 15.4 Merger referrals to the Monopolies and Mergers Commission, 1965–85.	350
Table 15.5 Types of acquisition/merger with legislation, 1970–87 (%).	350
Table 15.6 Privatization, 1979–87.	354
Table 15.7 The government's strategy for jobs (Cmnd 9474).	355
Table A15.2.1 Examples of 5-firm concentration ratios (gross value added), UK manufacturing industry, 1982.	359
Table 17.1 UK merchandise trade by source and destination, 1955–87.	382

Table 17.2 Commodity composition of UK imports, 1955–87.	382
Table 17.3 Commodity composition of UK exports, 1955–87.	383
Table 17.4 Indicators of UK manufacturing decline, 1960–87.	385
Table 17.5 Measures of UK trade competitiveness, 1963–87.	386
Table 17.6 UK import penetration for manufacturing, 1975–86.	388
Table A17.2.1 Association between competitiveness and the exchange rate, 1971–87.	399
Table A17.2.2 Association between competitiveness and the exchange rate, 1975/Q2–1987/Q4.	399
Table 18.1 A breakdown in the growth of output.	409
Table 18.2 UK sources of GDP growth, 1913–84.	410
Table 18.3 UK measures of productivity (reducing the residual), 1913–84.	412
Table 18.4 UK employment structure as a percentage of total employment, 1870–1984.	412
Table 18.5 UK sectoral labour productivity growth (value added per person employed), 1913–84.	412
Table A18.1.1 The aggregate production function.	418

KEY VARIABLES

<i>Variable</i>	<i>Description</i>
$£M3$	broad definition of money (now M3)
σ	output-capital ratio
μ	technical progress (Chapter 18 only)
μ	expected capital gain/loss (Chapter 7 only)
a	real autonomous consumption
A	yield
AD	aggregate demand
a_L	labour productivity
\hat{a}_L	percentage change in labour productivity
APP_L	average physical product of labour
AS	aggregate supply
b	marginal propensity to consume
B	amount spent on bonds
bd	real budget deficit
BL_g	sterling bank lending to the government
BL_p	sterling bank lending to the UK non-bank private sector
bp	real balance of payments
bs	real budget surplus
c	real consumption
C_b	notes and coins held by the banks
cf	net capital inflow
cf_0	autonomous net capital inflow
C_p	notes and coins held by the public
D	bank deposits
D_L	demand for labour
drs	change in real foreign exchange reserves
e	real expenditure
E	earnings on a bond (Chapter 7 only)
E	effective exchange rate
E	employment
F	forward exchange rate
G	expected capital gain/loss (Chapter 7 only)
G	nominal (general) government spending
G_n	natural rate of growth
go	real government spending
G_p	sale of government debt to the non-bank private sector
G_w	warranted rate of growth
H_D	money base arising from government debt
i	real investment
IB	internal balance
im	real imports
im_0	real autonomous imports
i_0	real autonomous investment

I_{t-1}	information at the end of time period $t-1$
K	capital
\hat{k}	percentage change in Cambridge k
k	capital labour ratio (K/L)
\hat{k}^*	percentage change in foreign country's k
L	volume of bank lending (Chapter 7 only)
L	labour
l_b	real central bank loans to the commercial banks
L_n	natural level of labour input
\dot{M}	growth of money supply
m	marginal propensity to import
\dot{M}^*	monetary growth abroad
M^*	money supply abroad
$M1$	narrow definition of money
M_b	commercial banks' deposits at the Bank of England
M_d/P	real demand for money balances
M_0	exogenous money supply
$M0$	money base
MPP_L	marginal physical product of labour
M_s	nominal money supply
M_s/P	real money supply
M_T	transactions demand for money
n^*	optimal number of withdrawals
nx	real net exports
P	domestic price level
\hat{P}	actual inflation
P^*	overseas price level
\hat{P}^*	inflation abroad
P_m^*	foreign price of raw materials
P_b	price of a bond
P^e	expected price level
\hat{P}^e	expected inflation
P_b^e	expected selling price of a bond
P_g	average price of government spending
P_m	price of raw materials
PPP	purchasing power parity
$psbr$	real public sector borrowing requirement
$PSBR$	public sector borrowing requirement
$PSL2$	private sector liquidity 2
q	money multiplier
\hat{R}	percentage change in relative prices
R	return (Chapter 7 only)
R	relative price ratio (real exchange rate)
r	nominal interest rate
r^*	overseas nominal interest rate
r^e	expected interest rate
r_n	natural rate of interest
s	standard deviation of bond earnings
S	spot exchange rate
\hat{S}^e	expected change in spot exchange rate
S_K	capital share in total output
S_L	labour share in total output
S_L	supply of labour
s_R	standard deviation of return
T	transactions balances
T^*	optimal transactions balances
t_1	marginal rate of tax
t_0	real autonomous taxes
U	total unemployment

U	unemployment (%)
U_d	demand-deficient unemployment
U_f	frictional unemployment
U_j	job-search unemployment
U_n	natural level of unemployment
U_r	residual unemployment
U_s	structural unemployment
U_v	voluntary unemployment
V	velocity of circulation of money
V	vacancies (Chapter 14 only)
V_s	suitable vacancies
V_u	unsuitable vacancies
\dot{W}	wage inflation
W	wealth
\bar{W}	nominal wages
w	real wages ($= W/P$)
w	real wealth
w^e	expected real wages
w_n	real wage associated with the natural rate of employment
x	real exports
XB	external balance
x_o	real autonomous exports
y	real income
y_d	real disposable income
y^e	expected real income
y_f	full employment real income
y_n	natural level of real income
z	premium/discount on the dollar

CONTENTS

<i>Preface</i>	ix
<i>Figures</i>	xi
<i>Tables</i>	xv
<i>Key variables</i>	xvii

PART I THEORY

1 Introduction	3
1.1 What is assumed	5
1.2 The static and dynamic models and expectations	5
1.3 The open economy	7
1.4 Economic policy	8
1.5 UK problems	9
1.6 The use of appendices	10
1.7 Percentages and hat notation	10
Appendix 1.1 Useful properties of percentages	10
2 The Static Model	12
2.1 Introduction	12
2.2 The IS–LM–BP model	12
2.3 The Monetarist–Keynesian controversy: early version	19
2.4 Aggregate demand	21
2.5 Classical aggregate supply	24
2.6 Keynesian aggregate supply curve	28
2.7 A summary of the static model	30
2.8 Prices and output for the UK	31
Appendix 2.1 Some mathematics of the IS–LM–BP model	34
Appendix 2.2 The consumption function	38
Appendix 2.3 The investment function	41
Appendix 2.4 IS–LM–BP model: a numerical example	43
Appendix 2.5 AS and price expectations: an arithmetical example	45
3 The Dynamic Model	48
3.1 A reconsideration of the demand for labour	49
3.2 The relationship between prices and wages	50
3.3 Two reaction functions	51
3.4 The dynamics of an economy with zero expected inflation	56
3.5 The demand-pressure curve	58
3.6 The long-run Phillips curve	63
3.7 Inflation and output for the UK	65
Appendix 3.1 The derivation of price inflation	66
Appendix 3.2 Okun's law	68
Appendix 3.3 A numerical example of DP and SPC	69

4	Expectations and Market Clearing	71
4.1	What do we mean by 'expectations'?	71
4.2	Adaptive expectations	74
4.3	Rational expectations: meaning	77
4.4	Policy implications of rational expectations	79
4.5	Comments and criticisms of rational expectations	81
	Appendix 4.1 Policy implications of rational expectations	83
5	Balance of Payments and the Exchange Rate	87
5.1	Balance of payments accounts and equilibrium	88
5.2	More on the BP curve	92
5.3	Purchasing power parity	95
5.4	Interest rate parity	97
5.5	The Phillips curve for an open economy	99
	Appendix 5.1 Spot and forward exchange rates	103; Appendix 5.2 Exchange equalization account
	Appendix 5.3 Relative slopes of LM and BP curves	104; Appendix 5.4 Stop-go policies of the 1950s and 1960s
	Appendix 5.5 A simple monetarist model of world inflation	106; Appendix 5.6 Exchange rate expectations and overshooting
		110
6	The Government Budget	114
6.1	The budget surplus	116
6.2	The balanced budget theorem	119
6.3	Financing the government budget	121
6.4	Wealth effects	125
6.5	Size of the public sector	127
	Appendix 6.1 Budget surplus: a numerical example	130; Appendix 6.2 Balanced budget multipliers
	Appendix 6.3 Balanced budget in IS-LM framework	131; Appendix 6.4 Size of the public sector
		135
7	The Demand and Supply of Money	137
7.1	The demand for money	138
7.2	Demand for money: stable or unstable?	145
7.3	The supply of money	145
7.4	Money supply and the rate of interest	151
7.5	Money supply in an open economy	154
	Appendix 7.1 Income velocity of circulation of money	158; Appendix 7.2 The instability of the demand for money function
	Appendix 7.3 Money multiplier in the presence of non-bank financial intermediaries	159; 160
8	The Theory of Economic Policy	162
8.1	Targets and instruments	163
8.2	Some principles of fixed target models	165
8.3	The assignment problem	168
8.4	Flexible-target policy models	173
8.5	Other approaches to policy-making	176
8.6	Rational expectations and economic policy	177
	Appendix 8.1 Targets, instruments and indicators	178; Appendix 8.2 Internal and external balance: a numerical example
		179
PART II POLICY		
9	Fiscal Policy	185
9.1	Definition and role	185
9.2	Brief summary of UK budgetary policy 1964-87	188
9.3	The PSBR and the money supply	192
9.4	The medium-term financial strategy	195

9.5	Fiscal rules	198
9.6	Size of the public sector	202
9.7	Fiscal policy in an open economy	205
Appendix 9.1 The Treasury 208; Appendix 9.2 Some simple analytics of the MTFs		210
10	Monetary Policy	212
10.1	Definition and role	212
10.2	The changing role of monetary policy in the UK	215
10.3	The banking reforms of 1971 and 1980–81	218
10.4	Which monetary target?	220
10.5	Money base control	222
10.6	Monetary policy in an open economy	228
10.7	Monetary targets and exchange rate indicator	231
Appendix 10.1 History and role of the Bank of England		232; Appendix 10.2 The 'corset'
Appendix 10.3 Summary of the 1980–81 reforms		234; Appendix 235
11	Exchange Rate Policy	237
11.1	The international monetary system since 1945	237
11.2	A balance of payments constraint?	247
11.3	Government intervention in the foreign exchange market and exchange rate targets	249
11.4	Exchange rate policy and North Sea oil	252
11.5	The European monetary system: Britain in or out?	255
Appendix 11.1 Ten features of the Bretton-Woods System		258; Appendix 11.2 The snake in the tunnel
Appendix 11.3 The sterling crisis of 1976		259; Appendix 11.4 Exchange rate volatility
		263
12	Inflation Policy	265
12.1	What is inflation?	265
12.2	The causes of inflation	268
12.3	The costs of inflation	275
12.4	Policies for reducing inflation	279
12.5	Inflation in an open economy	284
Appendix 12.1 Measuring inflation		287; Appendix 12.2 The Phillips curve
Appendix 12.3 Supply shocks in the 1970s: an analysis		288; Appendix 12.4 The relationship between the nominal interest rate and anticipated inflation
		290; Appendix 292
13	Stabilization Policy	295
13.1	The economic system: stable or unstable?	295
13.2	Static stabilization	297
13.3	Dynamic stabilization	300
13.4	The traditional argument for rules	304
13.5	New classical arguments for rules	306
13.6	What type of rules?	307
13.7	Stabilization in an open economy	308
Appendix 13.1 Cycles and their characteristics		312; Appendix 13.2 The main UK macroeconomic models: a summary
		315
14	Unemployment Policy	318
14.1	Some characteristics of UK unemployment	319
14.2	Theories of unemployment	323
14.3	Structural or demand-deficient unemployment?	333
14.4	Policies towards unemployment	336
Appendix 14.1 Various definitions of unemployment		340; Appendix 14.2 The $U-V$ relationship
		341