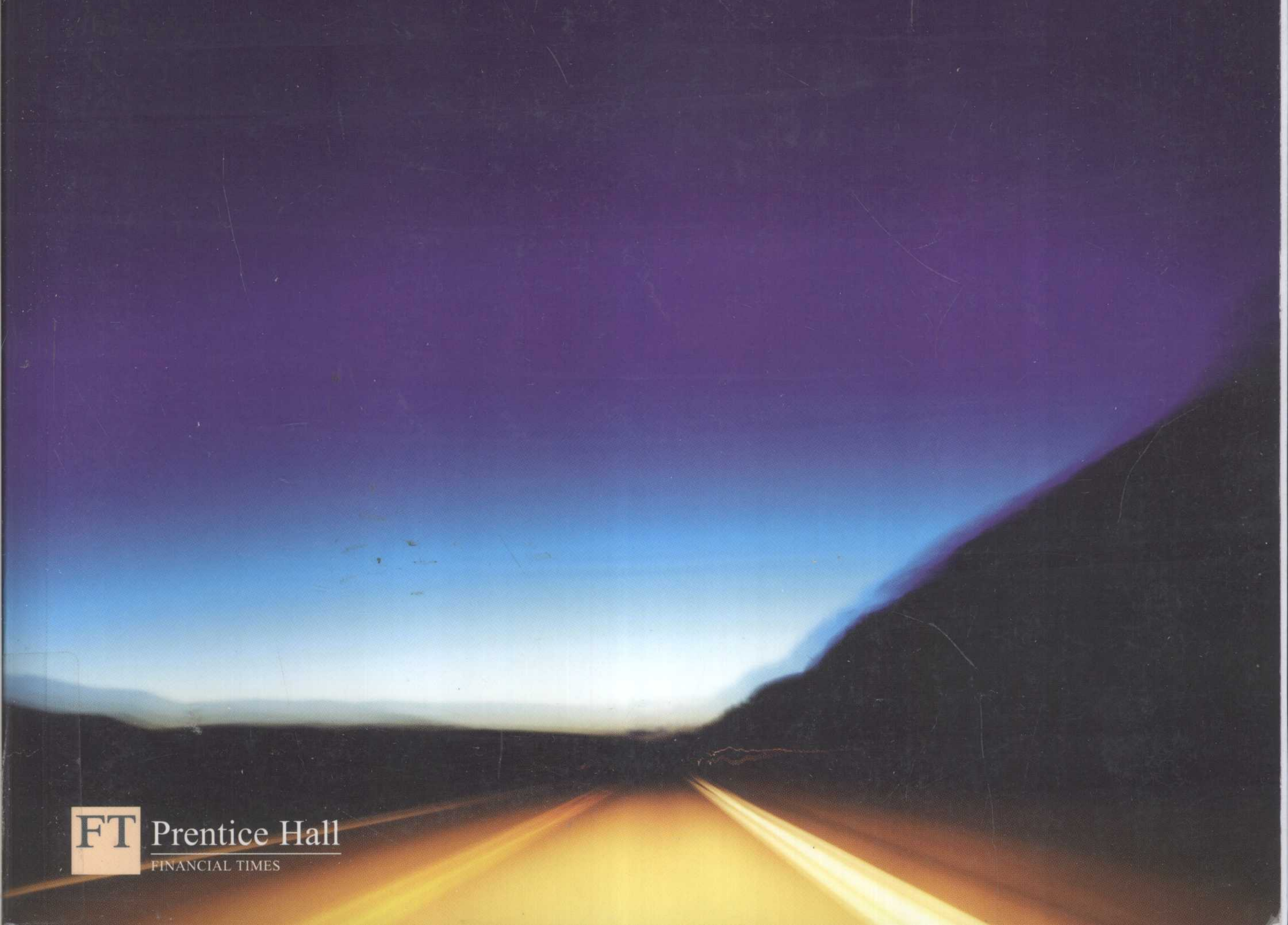
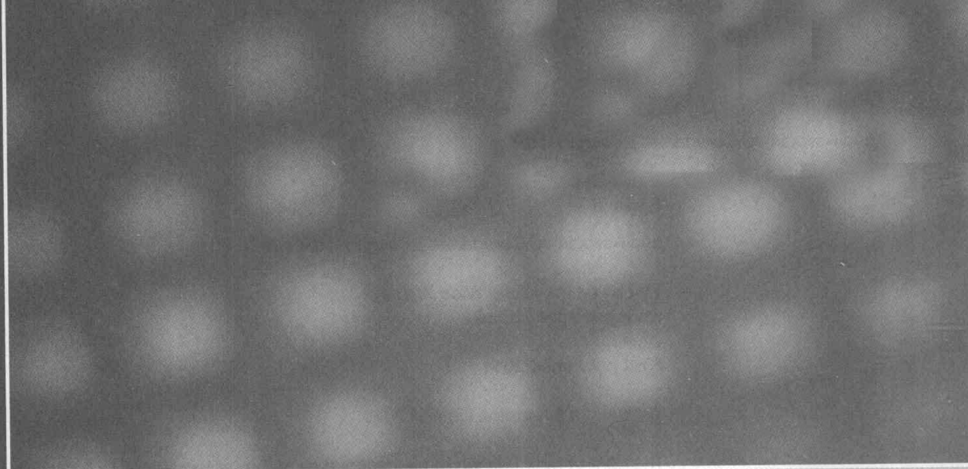
ADVANCED MODERN MACROECONOMICS

ANALYSIS AND APPLICATION

Max Gillman



FT Prentice Hall
FINANCIAL TIMES



ADVANCED MODERN MACROECONOMICS

ANALYSIS AND APPLICATION

Max Gillman
Cardiff Business School, Cardiff University

Financial Times Prentice Hall is an imprint of

PEARSON

Harlow, England • London • New York • Boston • San Francisco • Toronto • Sydney • Singapore • Hong Kong
Tokyo • Seoul • Taipei • New Delhi • Cape Town • Madrid • Mexico City • Amsterdam • Munich • Paris • Milan

Pearson Education Limited
Edinburgh Gate
Harlow
Essex CM20 2JE
England

and Associated Companies throughout the world

Visit us on the World Wide Web at:
www.pearsoned.co.uk

First published 2011

ISBN: 978-0-273-72652-4

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

Gillman, Max.
Advanced modern macroeconomics : analysis and application / Max Gillman.
p. cm.
ISBN 978-0-273-72652-4 (pbk.)
1. Macroeconomics. I. Title.
HB172.5.G55 2011
339—dc22

2010037491

10 9 8 7 6 5 4 3 2 1
14 13 12 11 10

Typeset in Stone Serif 9/11.5 by 73
Printed and bound by Ashford Colour Press Ltd., Gosport

CUSTOM PUBLISHING

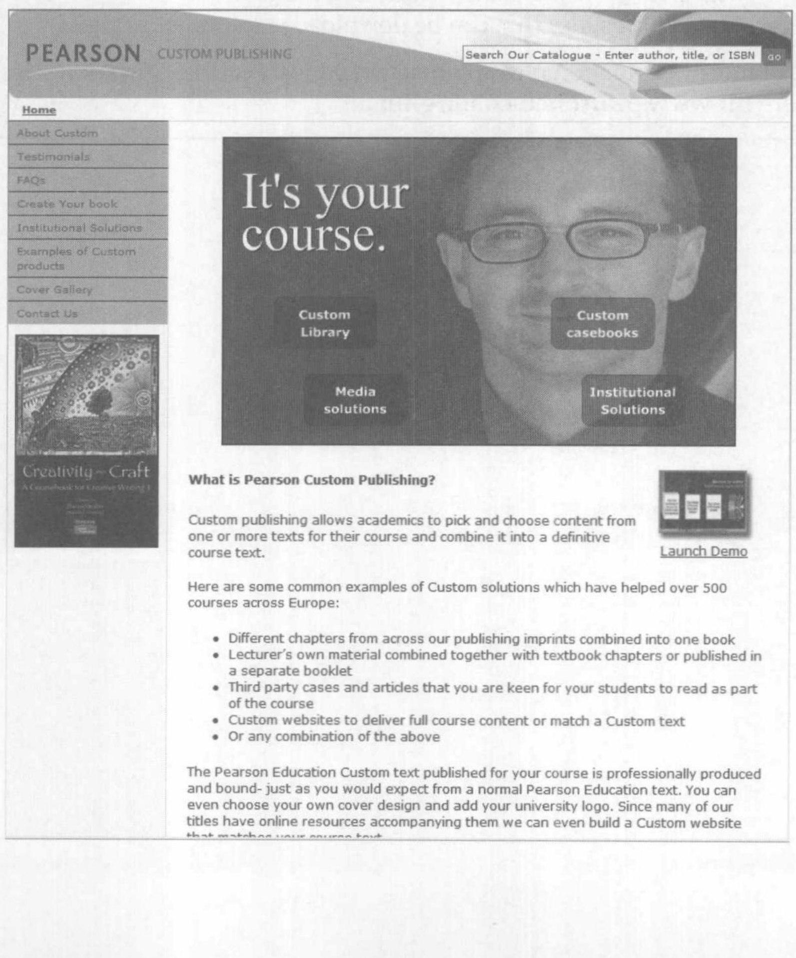
Pearson Education's custom publishing programme began in response to customers' desire to create textbooks and online resources that match the content of their course. Every university course is unique and custom publishing allows a bespoke product created by you for your students and your course.

As a result, content choices include:

- Chapters from one or more of our textbooks in the subject areas of your choice
- Your own authored content
- Case studies from any of our partners including Harvard Business School Publishing, Darden, Ivey and many more
- Third party content from other publishers
- Language glossaries to help students studying in a second language
- Online material tailored to your course needs

The Pearson Education custom text published for your course is professionally produced and bound – just as you would expect from a normal Pearson Education text. You can even choose your own cover design and add your university logo.

To find out more visit **www.pearsoncustom.co.uk** or contact your local representative at: **www.pearsoned.co.uk/replocator**



PREFACE

This book presents the elements of macroeconomics in terms consistent throughout with microeconomics. This gives the book the sense of a fully developed course of 'micro-founded' macroeconomics. It presents a methodologically consistent approach from beginning to end. It starts with the labour–leisure choice and the two-period intertemporal investment decision as a static analysis. And then it presents a fully worked out dynamic analysis.

Aggregate supply and demand for output (*AS–AD*) are presented both in static and dynamic chapters throughout the book. The book's derivation of *AS–AD* is novel for the dynamic analysis. Yet the book shows that by solving the capital stock, the aggregate supply and demand for output can be formulated and graphed. The labour market is also graphed throughout, using only exact functional forms derived in the book, as is done with the *AS–AD* analysis.

The general equilibrium is also graphed with both goods and labour markets implicit in the utility level curve and production function graphs. And in the dynamic analysis, the isoquant and isocost curves are also represented in the input markets, again using exact functional forms of the example economy being examined. Thus the equilibria are graphed both in the separate goods and labour markets along with the general equilibrium output and input dimensions, with the goods market known as the *AS–AD* graphs.

One theme of the book is to explain business cycles and important trends using just comparative static analysis. This approach revives the 'real business cycle' model approach of explaining expansions and contraction using changes in productivity. The goods sector productivity is changed in a comparative static fashion, as is the time endowment, with the result being an ability to explain rudimentary elements of business cycles.

The comparative static analysis is extended in the dynamic equilibrium analysis with endogenous growth so that a change in the productivity of the human capital sector replaces the change in time endowment. And a third productivity change is found in the chapter on banking, with a decrease in bank productivity able to reproduce a bank-led major recession.

The other main focus is on economic growth. This is presented with 'exogenous growth' and then with 'endogenous growth', using human capital. Trend changes in the human capital sector productivity also allow for explanations of rising growth, falling labour hours, and rising education levels. Thus the real business cycle and growth theory approach of changing productivities is extended to include changes in human capital productivity.

Another focus is how taxes affect the equilibrium, both in the static and dynamic analysis. The main taxes are the labour income tax, the capital income tax, the goods 'value added' tax, and the implicit inflation tax. And with endogenous growth, the effect of taxes on growth can also be discerned.

Who this book is for

The book is intended for those with a background only in microeconomics, and with basic mathematics skills in terms of taking derivatives and solving systems of equations. The book probably appeals most to those wanting to teach and learn macroeconomics in a way consistent with advanced methods that are found in graduate school and university research. It makes for a more seamless transition to higher level study, as compared to books that present aggregate analysis without derivation from microeconomic methods.

Inevitably there may be some greater appeal to teachers who have learned advanced research methods in their own graduate study, in that use of the book avoids the typical compromise of using models that are mostly obsolete at advanced levels. The book hopefully offers a respite from the chore of teaching what we may not think of as modern macroeconomics.

The book can be used in intermediate or advanced undergraduate courses, as well as in introductory graduate level courses.

ACKNOWLEDGEMENTS

I owe elements of Part 2 of the text to the undergraduate class notes of Professor Robert E. Lucas, Jr. These notes stimulated the idea of laying out the elements of modern macroeconomics in a comprehensive fashion that is accessible to undergraduates. The book benefited from the support from my wife Anita, the guidance of my editors Ellen Morgan, Kate Brewin, Philippa Fiszzon, Linda Dhondy, my proofreader – Philip Tye, and the interaction with Cardiff University, Central European University and the University of New South Wales faculty and students. I am indebted to the price-theoretic heritage of Milton Friedman, Gary Becker and George Stigler, to manuscript revisions suggested by Joe Peng Zhou, Robert E. Lucas, Jr., Michal Kejak and Helmuts Azacis, to discussion with Glenn Otto, Viatcheslav Vinogradov, Mark N. Harris, Charles Nolan, Christoph Theonissen, Robert Kollmann, Toni Braun, Bob McNabb, Patrick Minford, Mike Wickens, Kent Matthews, Laurence Copeland, Anton Nakov, Szilard Benk, and Parantap Basu, and also to Lucy Moon, and to Narayana Kocherlakota for emphasising banking, and to research assistance from Joe Peng Zhou, Jing Dang, Hao Hong, and Szilard Benk. Also I am grateful for recurrent participation in conferences of the Society of Economic Dynamics, the Center for Dynamic Macroeconomic Analysis, the Euro Area Business Cycle Network, the Konstanz Seminar on Monetary Theory and Policy and the European Monetary Forum; and for association with the Institute of Economics of the Hungarian Academy of Sciences and with the Academy of Sciences of the Czech Republic, along with annual visits to CERGE-EI in Prague, and a research semester at the University of Melbourne. Responsibility for the contents of the text resides solely with me.

Publisher's acknowledgements

The publishers wish to thank the following reviewers for their valuable input:

Hector Valle, University of Bristol
Joe Byrne, University of Glasgow
Paul Scanlon, Trinity College Dublin
Wlodek Bursztyn, University of Gothenburg
Petra Geraats, University of Cambridge
Espen Henriksen, University of Oslo

We are grateful to the following for permission to reproduce copyright material:

Figure
Figure 17.1 from Robert J. Shiller, http://www.econ.yale.edu/~shiller/

In some instances we have been unable to trace the owners of copyright material, and we would appreciate any information that would enable us to do so.

BRIEF CONTENTS

CONTENTS

Part 7
FISCAL AND MONETARY POLICY

Supporting resources

Visit **www.pearsoned.co.uk/gillman** to find valuable online resources:

For instructors

- Complete, downloadable Instructor's Manual
- PowerPoint slides that can be downloaded and used as OHTs

For more information please contact your local Pearson Education sales representative or visit **www.pearsoned.co.uk/gillman**