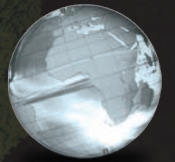


GLOBAL
EDITION



MICROECONOMICS

Daron Acemoglu
David Laibson
John A. List

Second
Edition



Second Edition

MICROECONOMICS

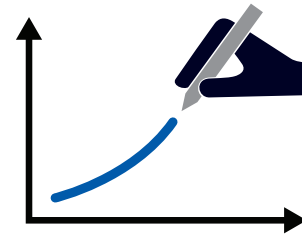
Global Edition

Practice, Engage, and Assess



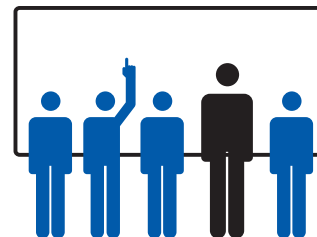
- **Pearson eText**—The Pearson eText gives students access to their textbook anytime, anywhere. In addition to note-taking, highlighting, and bookmarking, the Pearson eText offers interactive and sharing features. Students actively read and learn through auto-graded practice, real-time data-graphs, figure animations, author videos, and more. Instructors can share comments or highlights, and students can add their own, for a tight community of learners in any class.

- **Practice**—Algorithmically generated homework and study plan exercises with instant feedback ensure varied and productive practice, helping students improve their understanding and prepare for quizzes and tests. Draw-graph exercises encourage students to practice the language of economics.



- **Learning Resources**—Personalized learning aids such as Help Me Solve This problem walkthroughs and Figure Animations provide on-demand help when students need it most.

- **Personalized Study Plan**—Assists students in monitoring their own progress by offering them a customized study plan based on Homework, Quiz, and Test results. Includes regenerated exercises with unlimited practice, as well as the opportunity to earn mastery points by completing quizzes on recommended learning objectives.



- **Dynamic Study Modules**—With a focus on key topics, these modules work by continuously assessing student performance and activity in real time and, using data and analytics, provide personalized content to reinforce concepts that target each student's particular strengths and weaknesses.

- **Digital Interactives**—Digital Interactives are engaging assessment activities that promote critical thinking and application of key economic principles. Each Digital Interactive has progressive levels where students can explore, apply, compare, and analyze economic principles. Many Digital Interactives include real time data from FRED® that displays, in graph and table form, up-to-the-minute data on key macro variables. Digital Interactives can be assigned and graded within Pearson MyLab Economics, or used as a lecture tool to encourage engagement, classroom conversation, and group work.



with Pearson MyLab Economics[®]

- **NEW: Math Review Exercises in Pearson MyLab Economics**—Pearson MyLab Economics now offers an array of assignable and auto-graded exercises that cover fundamental math concepts. Geared specifically toward principles and intermediate economics students, these exercises aim to increase student confidence and success in these courses. Our new Math Review is accessible from the assignment manager and contains over 150 graphing, algebra, and calculus exercises for homework, quiz, and test use.

$$P = c + dQ_s$$



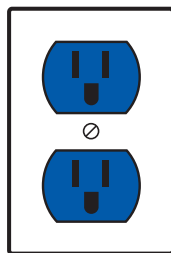
- **Real-Time Data Analysis Exercises**—Using current macro data to help students understand the impact of changes in economic variables, Real-Time Data Analysis Exercises communicate directly with the Federal Reserve Bank of St. Louis's FRED[®] site and update as new data are available.

- **Current News Exercises**—Every week, current microeconomic and macroeconomic news articles or videos, with accompanying exercises, are posted to Pearson MyLab Economics. Assignable and auto-graded these multi-part exercises ask students to recognize and apply economic concepts to real-world events.



- **Experiments**—Flexible, easy-to-assign, auto-graded, and available in Single Player and Multiplayer versions, Experiments in Pearson MyLab Economics make learning fun and engaging.

- **Reporting Dashboard**—View, analyze, and report learning outcomes clearly and easily. Available via the Gradebook and fully mobile-ready, the Reporting Dashboard presents student performance data at the class, section, and program levels in an accessible, visual manner.



- **LMS Integration**—Link from any LMS platform to access assignments, rosters, and resources, and synchronize MyLab grades with your LMS gradebook. For students, new direct, single sign-on provides access to all the personalized learning MyLab resources that make studying more efficient and effective.

- **Mobile Ready**—Students and instructors can access multimedia resources and complete assessments right at their fingertips, on any mobile device.



The Pearson Series in Economics

Abel/Bernanke/Croushore
*Macroeconomics**†

Acemoglu/Laibson/List
*Economics**†

Bade/Parkin
*Foundations of Economics**†

Berck/Helfand
The Economics of the Environment

Bierman/Fernandez
Game Theory with Economic Applications

Blanchard
*Macroeconomics**†

Boyer
Principles of Transportation Economics

Branson
Macroeconomic Theory and Policy

Bruce
Public Finance and the American Economy

Carlton/Perloff
Modern Industrial Organization

Case/Fair/Oster
*Principles of Economics**†

Chapman
Environmental Economics: Theory, Application, and Policy

Daniels/VanHoose
International Monetary & Financial Economics

Downs
An Economic Theory of Democracy

Farnham
Economics for Managers

Fort
Sports Economics

Froyen
Macroeconomics

Fusfeld
The Age of the Economist

Gerber
*International Economics**†

Gordon
*Macroeconomics**

Greene
Econometric Analysis†

Gregory/Stuart
Russian and Soviet Economic Performance and Structure

Hartwick/Olewiler
The Economics of Natural Resource Use

Heilbroner/Milberg
The Making of the Economic Society

Heyne/Boettke/Prychitko
The Economic Way of Thinking

Hubbard/O'Brien
*Economics**†

InEcon
*Money, Banking, and the Financial System**

Hubbard/O'Brien/Rafferty
*Macroeconomics**†

Hughes/Cain
American Economic History

Husted/Melvin
International Economics

Jehle/Reny
Advanced Microeconomic Theory

Keat/Young/Erflle
Managerial Economics

Klein
Mathematical Methods for Economics

Krugman/Obstfeld/Melitz
*International Economics: Theory & Policy**†

Laidler
The Demand for Money

Lynn
Economic Development: Theory and Practice for a Divided World

Miller
*Economics Today**
Understanding Modern Economics

Miller/Benjamin
The Economics of Macro Issues

Miller/Benjamin/North
The Economics of Public Issues

Mishkin
*The Economics of Money, Banking, and Financial Markets**†

*The Economics of Money, Banking, and Financial Markets, Business School Edition**

*Macroeconomics: Policy and Practice**

Murray
Econometrics: A Modern Introduction

O'Sullivan/Sheffrin/Perez
*Economics: Principles, Applications and Tools**†

Parkin
*Economics**†

Perloff
*Microeconomics**†

*Microeconomics: Theory and Applications with Calculus**†

Perloff/Brander
*Managerial Economics and Strategy**†

Pindyck/Rubinfeld
*Microeconomics**†

Riddell/Shackelford/Stamos/Schneider
Economics: A Tool for Critically Understanding Society

Roberts
The Choice: A Fable of Free Trade and Protection

Scherer
Industry Structure, Strategy, and Public Policy

Schiller
The Economics of Poverty and Discrimination

Sherman
Market Regulation

Stock/Watson
Introduction to Econometrics†

Studenmund
A Practical Guide to Using Econometrics†

Todaro/Smith
Economic Development

Walters/Walters/Appel/Callahan/Centanni/Maex/O'Neill
Econversations: Today's Students Discuss Today's Issues

Williamson
Macroeconomics†

*denotes Pearson MyLab Economics titles

Visit www.myeconlab.com to learn more.

†denotes Global Edition titles

Second Edition

MICROECONOMICS

Global Edition

Daron Acemoglu

Massachusetts Institute of Technology

David Laibson

Harvard University

John A. List

University of Chicago



Pearson

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

Vice President, Business Publishing: Donna Battista
Director of Portfolio Management: Adrienne D’Ambrosio
Senior Portfolio Manager: Christina Masturzo
Development Editor: Cydney Westmoreland
Editorial Assistant: Courtney Paganelli
Associate Acquisitions Editor, Global Edition: Ananya Srivastava
Editor, Global Edition: Paromita Banerjee
Vice President, Product Marketing: Roxanne McCarley
Strategic Marketing Manager: Deborah Strickland
Product Marketer: Tricia Murphy
Senior Field Marketing Manager: Carlie Marvel
Manager of Field Marketing, Business Publishing: Adam Goldstein
Field Marketing Assistant: Kristen Compton
Product Marketing Assistant: Jessica Quazza
Vice President, Production and Digital Studio, Arts and Business: Etain O’Dea
Director of Production, Business: Jeff Holcomb
Managing Producer, Business: Alison Kalil

Content Producer: Nancy Freihofer
Content Producer, Global Edition: Purnima Narayanan
Operations Specialist: Carol Melville
Senior Manufacturing Controller, Global Edition: Angela Hawksbee
Creative Director: Blair Brown
Manager, Learning Tools: Brian Surette
Managing Producer, Digital Studio, Arts and Business: Diane Lombardo
Digital Studio Producer: Melissa Honig
Digital Studio Producer: Alana Coles
Digital Content Team Lead: Noel Lotz
Digital Content Project Lead: Courtney Kamauf
Manager, Media Production, Global Edition: Vikram Kumar
Full-Service Project Management and Composition: Cenveo® Publisher Services
Interior Design: Cenveo® Publisher Services
Cover Design: Lumina Datamatics Ltd.
Cover Image: petrmalinak/Shutterstock

Acknowledgments of third-party content appear on the appropriate page within the text and on pages 487–488, which constitutes an extension of this copyright page.

PEARSON, ALWAYS LEARNING, and PEARSON MYLAB ECONOMICS® are exclusive trademarks owned by Pearson Education, Inc. or its affiliates in the U.S. and/or other countries.

Pearson Education Limited

KAO Two
KAO Park
Harlow
CM17 9NA
United Kingdom

and Associated Companies throughout the world

Visit us on the World Wide Web at: www.pearsonglobaleditions.com

© Pearson Education Limited 2019

The rights of Daron Acemoglu, David Laibson, and John A. List to be identified as the authors of this work have been asserted by them in accordance with the Copyright, Designs and Patents Act 1988.

Authorized adaptation from the United States edition, entitled Microeconomics, 2nd Edition, ISBN 978-0-13-449204-9 by Daron Acemoglu, David Laibson, and John A. List, published by Pearson Education © 2018.

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 either the prior written permission of the publisher or a license permitting restricted copying in the United Kingdom issued by the Copyright Licensing Agency Ltd, Saffron House, 6–10 Kirby Street, London EC1N 8TS.

All trademarks used herein are the property of their respective owners. The use of any trademark in this text does not vest in the author or publisher any trademark ownership rights in such trademarks, nor does the use of such trademarks imply any affiliation with or endorsement of this book by such owners.

ISBN 10: 1-292-21435-X
ISBN 13: 978-1-292-21435-1

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

10 9 8 7 6 5 4 3 2 1

Typeset in Times NR MT Pro by Cenveo® Publisher Services
Printed and bound by Vivar in Malaysia

Dedication

***With love for Annika, Aras, Arda, Eli,
Greta, Mason, Max, and Noah,
who inspire us every day.***

About the Authors



Daron Acemoglu is Elizabeth and James Killian Professor of Economics in the Department of Economics at the Massachusetts Institute of Technology. He has received a B.A. in economics from the University of York, 1989; an M.Sc. in mathematical economics and econometrics from the London School of Economics, 1990; and a Ph.D. in economics from the London School of Economics in 1992.

He is an elected fellow of the National Academy of Sciences, the American Academy of Arts and Sciences, the Econometric Society, the European Economic Association, and the Society of Labor Economists. He has received numerous awards and fellowships, including the inaugural T. W. Schultz Prize from the University of Chicago in 2004, the inaugural Sherwin Rosen Award for outstanding contribution to labor economics in 2004, the Distinguished Science Award from the Turkish Sciences Association in 2006, and the John von Neumann Award, Rajk College, Budapest, in 2007.

He was also the recipient of the John Bates Clark Medal in 2005, awarded every two years to the best economist in the United States under the age of 40 by the American Economic Association, and the Erwin Plein Nemmers Prize, awarded every two years for work of lasting significance in economics. He holds honorary doctorates from the University of Utrecht and Bosphorus University.

His research interests include political economy, economic development and growth, human capital theory, growth theory, innovation, search theory, network economics, and learning.

His books include *Economic Origins of Dictatorship and Democracy* (jointly with James A. Robinson), which was awarded the Woodrow Wilson and the William Riker prizes, *Introduction to Modern Economic Growth*, and *Why Nations Fail: The Origins of Power, Prosperity, and Poverty* (jointly with James A. Robinson), which has become a *New York Times* bestseller.



David Laibson is the Chair of the Harvard Economics Department and the Robert I. Goldman Professor of Economics at Harvard University. He is also a member of the National Bureau of Economic Research, where he is Research Associate in the Asset Pricing, Economic Fluctuations, and Aging Working Groups. His research focuses on the topics of behavioral economics, intertemporal choice, macroeconomics, and household finance, and he leads Harvard University's Foundations of Human Behavior Initiative. He serves on several editorial boards, as well as the Pension Research Council (Wharton), Harvard's Pension Investment Committee, and the Board of the Russell Sage Foundation. He has previously served on the boards of the Health and Retirement Study (National Institutes of Health) and the Academic Research Council of the Consumer Financial Protection Bureau. He is a recipient of a Marshall Scholarship and a Fellow of the Econometric Society and the American Academy of Arts and Sciences. He is also a recipient of the T. W. Schultz Prize from the University of Chicago and the TIAA-CREF Paul A. Samuelson Award for Outstanding Scholarly Writing on Lifelong Financial Security. Laibson holds degrees from Harvard University (A.B. in economics), the London School of Economics (M.Sc. in econometrics and mathematical economics), and the Massachusetts Institute of Technology (Ph.D. in economics). He received his Ph.D. in 1994 and has taught at Harvard since then. In recognition of his teaching excellence, he has been awarded Harvard's Phi Beta Kappa Prize and a Harvard College Professorship.



John A. List is the Kenneth C. Griffin Distinguished Service Professor in Economics at the University of Chicago, and Chairman of the Department of Economics. He received his B.S. in economics from the University of Wisconsin–Stevens Point and his Ph.D. in economics from the University of Wyoming. Before joining the University of Chicago in 2005, he was a professor at the University of Central Florida, University of Arizona, and University of Maryland. He also served in the White House on the Council of Economic Advisers from 2002–2003, and is a Research Associate at the NBER.

List was elected a Member of the American Academy of Arts and Sciences in 2011, and a Fellow of the Econometric Society in 2015. He also received the Arrow Prize for Senior Economists in 2008, the Kenneth Galbraith Award in 2010, the Yrjo Jahnsson Lecture Prize in 2012, and the Klein Lecture Prize in 2016. He received an honorary doctorate from Tilburg University in 2014, and was named a Top 50 Innovator in the Non-Profit Times for 2015 and 2016 for his work on charitable giving.

His research focuses on questions in microeconomics, with a particular emphasis on using field experiments to address both positive and normative issues. For decades his field experimental research has focused on issues related to the inner workings of markets, the effects of various incentive schemes on market equilibria and allocations, and how behavioral economics can augment the standard economic model. This includes research into why inner city schools fail, why people discriminate, why people give to charity, why firms fail, why women make less money than men in labor markets, and why people generally do what they do.

His research includes over 200 peer-reviewed journal articles and several published books, including the 2013 international best-seller, *The Why Axis: Hidden Motives and the Undiscovered Economics of Everyday Life* (with Uri Gneezy).

This page intentionally left blank

Brief Contents

PART I	Introduction to Economics	36
Chapter 1	The Principles and Practice of Economics	36
Chapter 2	Economic Methods and Economic Questions	54
Chapter 3	Optimization: Doing the Best You Can	76
Chapter 4	Demand, Supply, and Equilibrium	92
PART II	Foundations of Microeconomics	120
Chapter 5	Consumers and Incentives	120
Chapter 6	Sellers and Incentives	148
Chapter 7	Perfect Competition and the Invisible Hand	178
Chapter 8	Trade	206
Chapter 9	Externalities and Public Goods	234
Chapter 10	The Government in the Economy: Taxation and Regulation	264
Chapter 11	Markets for Factors of Production	294
PART III	Market Structure	318
Chapter 12	Monopoly	318
Chapter 13	Game Theory and Strategic Play	344
Chapter 14	Oligopoly and Monopolistic Competition	368
PART IV	Extending the Microeconomic Toolbox	394
Chapter 15	Trade-offs Involving Time and Risk	394
Chapter 16	The Economics of Information	412
Chapter 17	Auctions and Bargaining	430
Chapter 18	Social Economics	450

This page intentionally left blank

Contents

PART I INTRODUCTION TO ECONOMICS 36

Chapter 1: The Principles and Practice of Economics 36

1.1 The Scope of Economics	37
Economic Agents and Economic Resources	37
Definition of Economics	38
Positive Economics and Normative Economics	39
Microeconomics and Macroeconomics	40
1.2 Three Principles of Economics	40
1.3 The First Principle of Economics: Optimization	41
Trade-offs and Budget Constraints	42
Opportunity Cost	43
Cost-Benefit Analysis	44
Evidence-Based Economics: Is Facebook free?	45
1.4 The Second Principle of Economics: Equilibrium	47
The Free-Rider Problem	48
1.5 The Third Principle of Economics: Empiricism	49
1.6 Is Economics Good for You?	50
Summary	51
Key Terms	51
Questions	51
Problems	52

Chapter 2: Economic Methods and Economic Questions 54

2.1 The Scientific Method	55
Models and Data	55
An Economic Model	57
Evidence-Based Economics: How much more do workers with a college education earn?	58
Means and Medians	59
Argument by Anecdote	59
2.2 Causation and Correlation	60
The Red Ad Blues	60
Causation versus Correlation	60
Choice & Consequence: Spend Now and Pay Later?	63
Experimental Economics and Natural Experiments	63

Evidence-Based Economics: How much do wages increase when mandatory schooling laws force people to get an extra year of schooling?	64
2.3 Economic Questions and Answers	65
Summary	66
Key Terms	67
Questions	67
Problems	67
Appendix: Constructing and Interpreting Charts and Graphs	69
A Study about Incentives	69
Experimental Design	69
Describing Variables	70
Cause and Effect	72
Appendix Key Terms	75
Appendix Problems	75

Chapter 3: Optimization: Doing the Best You Can 76

3.1 Optimization: Choosing the Best Feasible Option	77
Choice & Consequence: Do People Really Optimize?	78
3.2 Optimization Application: Renting the Optimal Apartment	78
Before and After Comparisons	81
3.3 Optimization Using Marginal Analysis	82
Marginal Cost	83
Evidence-Based Economics: How does location affect the rental cost of housing?	86
Summary	89
Key Terms	90
Questions	90
Problems	90

Chapter 4: Demand, Supply, and Equilibrium 92

4.1 Markets	93
Competitive Markets	94
4.2 How Do Buyers Behave?	95
Demand Curves	96
Willingness to Pay	96

From Individual Demand Curves to Aggregated Demand Curves	97	The Income Elasticity of Demand	140
Building the Market Demand Curve	98	Letting the Data Speak: Should McDonald's Be Interested in Elasticities?	141
Shifting the Demand Curve	99	<i>Summary</i>	141
Evidence-Based Economics: How much more gasoline would people buy if its price were lower?	101	<i>Key Terms</i>	142
4.3 How Do Sellers Behave?	103	<i>Questions</i>	142
Supply Curves	103	<i>Problems</i>	143
Willingness to Accept	103	Appendix: Representing Preferences with Indifference Curves: Another Use of the Budget Constraint	145
From the Individual Supply Curve to the Market Supply Curve	104	<i>Appendix Questions</i>	147
Shifting the Supply Curve	105	<i>Appendix Key Terms</i>	147
4.4 Supply and Demand in Equilibrium	107	Chapter 6: Sellers and Incentives	148
Curve Shifting in Competitive Equilibrium	109	6.1 Sellers in a Perfectly Competitive Market	149
Letting the Data Speak: Technological Breakthroughs Drive Down the Equilibrium Price of Oil	110	6.2 The Seller's Problem	149
4.5 What Would Happen If the Government Tried to Dictate the Price of Gasoline?	112	Making the Goods: How Inputs Are Turned into Outputs	150
Choice & Consequence: The Unintended Consequences of Fixing Market Prices	114	The Cost of Doing Business: Introducing Cost Curves	152
<i>Summary</i>	115	The Rewards of Doing Business: Introducing Revenue Curves	154
<i>Key Terms</i>	116	Putting It All Together: Using the Three Components to Do the Best You Can	155
<i>Questions</i>	116	Choice & Consequence: Maximizing Total Profit, Not Per-Unit Profit	157
<i>Problems</i>	117	6.3 From the Seller's Problem to the Supply Curve	158
PART II FOUNDATIONS OF MICROECONOMICS	120	Price Elasticity of Supply	158
Chapter 5: Consumers and Incentives	120	Shutdown	159
5.1 The Buyer's Problem	121	Choice & Consequence: Marginal Decision Makers Ignore Sunk Costs	161
What You Like	121	6.4 Producer Surplus	161
Prices of Goods and Services	122	6.5 From the Short Run to the Long Run	163
Choice & Consequence: Absolutes Versus Percentages	122	Long-Run Supply Curve	164
How Much Money You Have to Spend	123	Choice & Consequence: Visiting a Car Manufacturing Plant	164
5.2 Putting It All Together	124	6.6 From the Firm to the Market: Long-Run Competitive Equilibrium	165
Price Changes	126	Firm Entry	165
Income Changes	127	Firm Exit	167
5.3 From the Buyer's Problem to the Demand Curve	128	Zero Profits in the Long Run	167
5.4 Consumer Surplus	129	Economic Profit Versus Accounting Profit	168
An Empty Feeling: Loss in Consumer Surplus When Price Increases	130	Evidence-Based Economics: How would an ethanol subsidy affect ethanol producers?	169
Evidence-Based Economics: Would a smoker quit the habit for \$100 per month?	131	<i>Summary</i>	172
5.5 Demand Elasticities	134	<i>Key Terms</i>	173
The Price Elasticity of Demand	134	<i>Questions</i>	173
The Cross-Price Elasticity of Demand	139	<i>Problems</i>	174
		Appendix: When Firms Have Different Cost Structures	176

Chapter 7: Perfect Competition and the Invisible Hand 178

7.1 Perfect Competition and Efficiency	179
Social Surplus	180
Pareto Efficiency	181
7.2 Extending the Reach of the Invisible Hand: From the Individual to the Firm	182
7.3 Extending the Reach of the Invisible Hand: Allocation of Resources Across Industries	186
7.4 Prices Guide the Invisible Hand	188
Deadweight Loss	190
Evidence-Based Economics: Do companies like Uber make use of the invisible hand?	191
The Command Economy	195
Choice & Consequence: FEMA and Walmart After Katrina	195
The Central Planner	197
Choice & Consequence: Command and Control at Kmart	198
7.5 Equity and Efficiency	198
Evidence-Based Economics: Can markets composed of only self-interested people maximize the overall well-being of society?	199
Summary	203
Key Terms	203
Questions	203
Problems	204

Chapter 8: Trade 206

8.1 The Production Possibilities Curve	207
Calculating Opportunity Cost	209
8.2 The Basis for Trade: Comparative Advantage	210
Specialization	211
Absolute Advantage	211
Choice & Consequence: An Experiment on Comparative Advantage	212
The Price of the Trade	213
8.3 Trade Between States	214
Choice & Consequence: Should LeBron James Paint His Own House?	215
Economy-Wide PPC	216
Comparative Advantage and Specialization Among States	217
8.4 Trade Between Countries	218
Determinants of Trade Between Countries	220
Letting the Data Speak: Fair Trade Products	221
Exporting Nations: Winners and Losers	221
Importing Nations: Winners and Losers	222
Where Do World Prices Come From?	223

Determinants of a Country's Comparative Advantage	224
8.5 Arguments Against Free Trade	224
National Security Concerns	224
Fear of Globalization	225
Environmental and Resource Concerns	225
Infant Industry Arguments	225
The Effects of Tariffs	225
Choice & Consequence: Tariffs Affect Trade Between Firms	227
Evidence-Based Economics: Will free trade cause you to lose your job?	228
Summary	230
Key Terms	230
Questions	230
Problems	231

Chapter 9: Externalities and Public Goods 234

9.1 Externalities	235
A "Broken" Invisible Hand: Negative Externalities	236
A "Broken" Invisible Hand: Positive Externalities	238
Pecuniary Externalities	240
Choice & Consequence: Positive Externalities in Spots You Never Imagined	240
9.2 Private Solutions to Externalities	241
Private Solution: Bargaining	242
The Coase Theorem	242
Private Solution: Doing the Right Thing	243
9.3 Government Solutions to Externalities	244
Government Regulation:	
Command-and-Control Policies	244
Evidence-Based Economics: What can the government do to lower the number of earthquakes in Oklahoma?	245
Government Regulation: Market-Based Approaches	247
Corrective Taxes	247
Corrective Subsidies	248
Letting the Data Speak: How to Value Externalities	249
Letting the Data Speak: Pay as You Throw: Consumers Create Negative Externalities Too!	250
9.4 Public Goods	250
Government Provision of Public Goods	252
Choice & Consequence: The Free-Rider's Dilemma	252
Private Provision of Public Goods	254
9.5 Common Pool Resource Goods	256
Choice & Consequence: Tragedy of the Commons	257
Choice & Consequence: The Race to Fish	258

Evidence-Based Economics: How can the Queen of England lower her commute time to Wembley Stadium?	259	Choice & Consequence: Producing Web Sites and Computer Programs	300
<i>Summary</i>	260	Labor Market Equilibrium: Supply Meets Demand	300
<i>Key Terms</i>	261	Letting the Data Speak: “Get Your Hot Dogs Here!”	300
<i>Questions</i>	261	Labor Demand Shifters	301
<i>Problems</i>	261	Factors That Shift Labor Supply	302
		Letting the Data Speak: Do Wages Really Go Down If Labor Supply Increases?	303
Chapter 10: The Government in the Economy: Taxation and Regulation	264	11.3 Wage Inequality	303
10.1 Taxation and Government Spending in the United States	265	Differences in Human Capital	304
Where Does the Money Come From?	266	Choice & Consequence: Paying for Worker Training	305
Why Does the Government Tax and Spend?	268	Differences in Compensating Wage Differentials	305
Choice & Consequence: The Government Budget Constraint	269	Discrimination in the Job Market	305
Letting the Data Speak: Understanding Federal Income Tax Brackets	270	Choice & Consequence: Compensating Wage Differentials	307
Letting the Data Speak: Reducing Inequality the Scandinavian Way	273	Changes in Wage Inequality over Time	308
Taxation: Tax Incidence and Deadweight Losses	274	Letting the Data Speak: Broadband and Inequality	309
Choice & Consequence: The Deadweight Loss Depends on the Tax	277	11.4 The Market for Other Factors of Production: Physical Capital and Land	309
10.2 Regulation	279	Letting the Data Speak: The Top 1 Percent Share and Capital Income	311
Direct Regulation	279	Evidence-Based Economics: Is there discrimination in the labor market?	312
10.3 Government Failures	282	<i>Summary</i>	314
The Direct Costs of Bureaucracies	283	<i>Key Terms</i>	314
Corruption	283	<i>Questions</i>	315
Underground Economy	284	<i>Problems</i>	315
10.4 Equity Versus Efficiency	284	PART III MARKET STRUCTURE	318
10.5 Consumer Sovereignty and Paternalism	286	Chapter 12: Monopoly	318
The Debate	286	12.1 Introducing a New Market Structure	319
Evidence-Based Economics: What is the optimal size of government?	287	12.2 Sources of Market Power	319
Letting the Data Speak: The Efficiency of Government Versus Privately Run Expeditions	289	Legal Market Power	320
Choice & Consequence: Taxation and Innovation	289	Natural Market Power	321
<i>Summary</i>	290	Control of Key Resources	321
<i>Key Terms</i>	290	Choice & Consequence: Barriers to Entry Lurk Everywhere	321
<i>Questions</i>	290	Economies of Scale	322
<i>Problems</i>	291	12.3 The Monopolist’s Problem	323
Chapter 11: Markets for Factors of Production	294	Revenue Curves	324
11.1 The Competitive Labor Market	295	Price, Marginal Revenue, and Total Revenue	326
The Demand for Labor	295	12.4 Choosing the Optimal Quantity and Price	328
11.2 The Supply of Labor: Your Labor-Leisure Trade-off	298	Producing the Optimal Quantity	328
		Setting the Optimal Price	328

How a Monopolist Calculates Profits	330
Does a Monopoly Have a Supply Curve?	330
12.5 The “Broken” Invisible Hand: The Cost of Monopoly	331
12.6 Restoring Efficiency	332
Three Degrees of Price Discrimination	333
Letting the Data Speak: Third-Degree Price Discrimination in Action	335
12.7 Government Policy Toward Monopoly	336
The Microsoft Case	336
Price Regulation	337
Evidence-Based Economics: Can a monopoly ever be good for society?	338
<i>Summary</i>	340
<i>Key Terms</i>	340
<i>Questions</i>	341
<i>Problems</i>	341

Chapter 13: Game Theory and Strategic Play **344**

13.1 Simultaneous-Move Games	345
Best Responses and the Prisoners’ Dilemma	346
Dominant Strategies and Dominant Strategy Equilibrium	347
Games without Dominant Strategies	347
13.2 Nash Equilibrium	349
Finding a Nash Equilibrium	350
Choice & Consequence: Work or Surf?	351
13.3 Applications of Nash Equilibria	351
Tragedy of the Commons Revisited	352
Zero-Sum Games	352
13.4 How Do People Actually Play Such Games?	354
Game Theory in Penalty Kicks	354
Evidence-Based Economics: Is there value in putting yourself in someone else’s shoes?	355
13.5 Extensive-Form Games	357
Backward Induction	358
First-Mover Advantage, Commitment, and Vengeance	359
Evidence-Based Economics: Is there value in putting yourself in someone else’s shoes in extensive-form games?	360
Choice & Consequence: There Is More to Life Than Money	363
<i>Summary</i>	364
<i>Key Terms</i>	364
<i>Questions</i>	364
<i>Problems</i>	365

Chapter 14: Oligopoly and Monopolistic Competition **368**

14.1 Two More Market Structures	369
14.2 Oligopoly	370
The Oligopolist’s Problem	371
Oligopoly Model with Homogeneous Products	371
Doing the Best You Can: How Should You Price to Maximize Profits?	372
Oligopoly Model with Differentiated Products	373
Letting the Data Speak: Airline Price Wars	375
Collusion: Another Way to Keep Prices High	375
Letting the Data Speak: Apple versus Samsung	376
Letting the Data Speak: To Cheat or Not to Cheat: That Is the Question	378
Choice & Consequence: Collusion in Practice	380
14.3 Monopolistic Competition	380
The Monopolistic Competitor’s Problem	380
Doing the Best You Can: How a Monopolistic Competitor Maximizes Profits	381
Letting the Data Speak: Why Do Some Firms Advertise and Some Don’t?	382
How a Monopolistic Competitor Calculates Profits	382
Long-Run Equilibrium in a Monopolistically Competitive Industry	383
14.4 The “Broken” Invisible Hand	385
Regulating Market Power	386
14.5 Summing Up: Four Market Structures	387
Evidence-Based Economics: How many firms are necessary to make a market competitive?	388
<i>Summary</i>	390
<i>Key Terms</i>	391
<i>Questions</i>	391
<i>Problems</i>	391

PART IV EXTENDING THE MICROECONOMIC TOOLBOX **394**

Chapter 15: Trade-offs Involving Time and Risk **394**

15.1 Modeling Time and Risk	395
15.2 The Time Value of Money	396
Future Value and the Compounding of Interest	396
Borrowing Versus Lending	398
Present Value and Discounting	399

15.3 Time Preferences	401	Letting the Data Speak: Moral Hazard	
Time Discounting	401	Among Job Seekers	426
Preference Reversals	402	Crime and Punishment as a Principal–Agent Problem	426
Choice & Consequence: Failing to Anticipate Preference Reversals	403	<i>Summary</i>	427
Evidence-Based Economics: Do people exhibit a preference for immediate gratification?	403	<i>Key Terms</i>	427
15.4 Probability and Risk	404	<i>Questions</i>	427
Roulette Wheels and Probabilities	404	<i>Problems</i>	427
Independence and the Gambler’s Fallacy	405	Chapter 17: Auctions and Bargaining	430
Letting the Data Speak: Roulette Wheels and Elections	405	17.1 Auctions	432
Expected Value	406	Types of Auctions	433
Extended Warranties	407	Open Outcry: English Auctions	434
Choice & Consequence: Is Gambling Worthwhile?	407	Letting the Data Speak: To Snipe or Not to Snipe?	435
15.5 Risk Preferences	408	Open Outcry: Dutch Auctions	435
<i>Summary</i>	409	Sealed Bid: First-Price Auctions	437
<i>Key Terms</i>	410	Sealed Bid: Second-Price Auctions	437
<i>Questions</i>	410	The Revenue Equivalence Theorem	439
<i>Problems</i>	410	Evidence-Based Economics: How should you bid in an eBay auction?	440
Chapter 16: The Economics of Information	412	17.2 Bargaining	441
16.1 Asymmetric Information	413	What Determines Bargaining Outcomes?	441
Hidden Characteristics: Adverse Selection in the Used Car Market	414	Bargaining in Action: The Ultimatum Game	442
Hidden Characteristics: Adverse Selection in the Health Insurance Market	415	Bargaining and the Coase Theorem	444
Market Solutions to Adverse Selection: Signaling	416	Evidence-Based Economics: Who determines how the household spends its money?	445
Choice & Consequence: Are You Sending a Signal Right Now?	417	Letting the Data Speak: Sex Ratios Change Bargaining Power Too	447
Evidence-Based Economics: Why do new cars lose considerable value the minute they are driven off the lot?	417	<i>Summary</i>	447
Choice & Consequence: A Tale of a Tail	419	<i>Key Terms</i>	447
16.2 Hidden Actions: Markets with Moral Hazard	419	<i>Questions</i>	447
Letting the Data Speak: Moral Hazard on Your Bike	420	<i>Problems</i>	448
Market Solutions to Moral Hazard in the Labor Market: Efficiency Wages	420	Chapter 18: Social Economics	450
Market Solutions to Moral Hazard in the Insurance Market: “Putting Your Skin in the Game”	421	18.1 The Economics of Charity and Fairness	451
Letting the Data Speak: Designing Incentives for Teachers	422	The Economics of Charity	451
Evidence-Based Economics: Why is private health insurance so expensive?	423	Letting the Data Speak: Do People Donate Less When It’s Costlier to Give?	453
16.3 Government Policy in a World of Asymmetric Information	424	Letting the Data Speak: Why Do People Give to Charity?	454
Government Intervention and Moral Hazard	425	The Economics of Fairness	455
The Equity-Efficiency Trade-off	425	Letting the Data Speak: Dictators in the Lab	458
		Evidence-Based Economics: Do people care about fairness?	458
		18.2 The Economics of Trust and Revenge	460
		The Economics of Trust	460
		The Economics of Revenge	462
		Choice & Consequence: Does Revenge Have an Evolutionary Logic?	463

18.3 How Others Influence Our Decisions

Where Do Our Preferences Come From?	464
The Economics of Peer Effects	464
Letting the Data Speak: Is Economics Bad for You?	465
Following the Crowd: Herding	466
Letting the Data Speak: Your Peers Affect Your Waistline	467
Choice & Consequence: Are You an Internet Explorer?	468
<i>Summary</i>	468
<i>Key Terms</i>	468
<i>Questions</i>	469
<i>Problems</i>	469

Endnotes	473
Glossary	479
Credits	487
Index	489

CHAPTERS ON THE WEB

Web chapters are available on MyLab Economics.

WEB Chapter 1 Financial Decision Making

WEB Chapter 2 Economics of Life, Health, and the Environment

WEB Chapter 3 Political Economy

This page intentionally left blank

Preface

We love economics. We marvel at the way economic systems work. When we buy a smartphone, we think about the complex supply chain and the hundreds of thousands of people who played a role in producing an awe-inspiring piece of technology that was assembled from components manufactured across the globe.

The market's ability to do the world's work without anyone being in charge strikes us as a phenomenon no less profound than the existence of consciousness or life itself. We believe that the creation of the market system is one of the greatest achievements of humankind.

We wrote this book to highlight the simplicity of economic ideas and their extraordinary power to explain, predict, and improve what happens in the world. We want students to master the *essential* principles of economic analysis. With that goal in mind, we identify the three key ideas that lie at the heart of the economic approach to understanding human behavior: optimization, equilibrium, and empiricism. These abstract words represent three ideas that are actually highly intuitive.

The breakneck speed of modern technological change has, more than ever, injected economics into the lives—and hands—of our students. The technologies that they use daily illustrate powerful economic forces in action: Uber users observe real-time congestion in the transportation market when they confront surge pricing, and Airbnb travelers explore the relationships among location, convenience, and price by comparing listings near different subway stops in the same city.

As educators, it's our job to transform economic concepts into language, visual representations, and empirical examples that our students understand. Today, markets are much more interactive than they were only a decade ago, and they exemplify that it is not just competitive markets with perfect information that are relevant to our economic lives. Our students routinely take part in auctions, purchase goods and services via organized platforms such as Uber, have to struggle with pervasive informational asymmetries as they participate in online exchanges, and have to guard themselves against a bewildering array of mistakes and traps that are inherent to these new transactions.

In this ever-changing world, students must understand not just well-known economic concepts such as opportunity cost, supply, and demand, but also modern ones such as game theory, auctions, and behavioral mistakes. It is these modern concepts, which are bit parts in most Principles textbooks, that occupy center stage in ours. Today economic analysis has expanded its conceptual and empirical boundaries and, in doing so, has become even more relevant and useful.

This new world provides incredible opportunities for the teaching of economics as well, provided that we adjust our Principles canon to include modern and empirically-based notions of economics. This has been our aim from day one and continues to be our in this second edition.

New to the Second Edition

In our new edition of *Microeconomics*, evidence-based economics becomes an even more important mainstay of our approach. We have imbued it with new relevance by applying it to many more topics with which our students have first-hand experience. So in addition to updating the existing data and empirical features, we have now added many new empirical examples.

- In Chapter 2 we've added a feature that forces students to wrestle with the question of causality. We discuss a recent research paper that reports a positive correlation between expensive weddings and high rates of divorce. We ask our students to use this finding as a springboard from which to wrestle with the difference between correlation and causality, and to understand the role of omitted variables.
- We've rewritten Chapter 4 to tell the story of the fracking revolution and its remarkable impact on oil and gasoline prices. Supply and demand come alive when students

can see how the recent rightward shift in the oil supply curve, due to the development of fracking technologies, has played a role in halving the equilibrium price of oil.

- The new edition focuses more on the sharing economy—a phenomenon that both permeates our students’ lives and provides researchers novel data with which to solve age-old questions. In Chapter 7, we include a new Evidence-Based Economics section on Uber and the invisible hand; drawing from recent papers, we discuss the role of surge pricing in equilibrating driver supply and rider demand. The resulting insights enable our students to more deeply understand the markets that they personally use.
- The revised text also emphasizes the role of microeconomics in examining prominent social issues, from natural disaster management to global inequality. For example, we have added an Evidence-Based Economics box in Chapter 9 titled “What can the government do to lower earthquakes in Oklahoma?”, which investigates how to reduce fracking-generated earthquakes by applying the concept of externalities. Elsewhere, we examine inequality through a feature on Scandinavia, a feature on broadband access, and more.
- The revised text also uses the recent election to teach topics like probability. For example, in Chapter 15 we have a new Letting the Data Speak feature that discusses forecasts on the eve of the U. S. Presidential election: a 72% chance of a Clinton victory and a 28% chance of a Trump victory. We give students the analytic tools they need to understand how to interpret such forecasts.

Introductory economics classes draw students with diverse interests and future career paths: with this textbook, we show them how to apply economic thinking creatively to improve their work, their choices, and their daily lives.

One of our main objectives in writing this textbook was to show that the fundamentals of economics are not just exciting, but also alive with myriad personal applications. In the first edition, the themes of optimization, equilibrium, and empiricism were our primary tools for communicating both the surprising power and broad applicability of economics. We believe that the intervening years have confirmed these conceptual priorities; these concepts have become even more relevant for our students.

At a time when competing empirical claims abound and news sources across the political spectrum are denounced as “fake,” our students need the skills to systematically question and evaluate what they read. That is why, in our Evidence-Based Economics segments, we examine both the implications *and the limitations* of academic studies. We hope that our textbook will help form a new generation of careful thinkers, smart decision-makers, engaged citizens, and even a few future economists!

Our Vision: Three Unifying Themes

The first key principle is that people try to choose the best available option: *optimization*. We don’t assume that people always successfully optimize, but we do believe that people try to optimize and often do a relatively good job of it. Because most decision makers try to choose the alternative that offers the greatest net benefit, optimization is a useful tool for predicting human behavior. Optimization is also a useful prescriptive tool. By teaching people how to optimize, we improve their decisions and the quality of their lives. By the end of this course, every student should be a skilled optimizer—without using complicated mathematics, simply by using economic intuition.

The second key principle extends the first: economic systems operate in *equilibrium*, a state in which everybody is simultaneously trying to optimize. We want students to see that they’re not the only ones maximizing their well-being. An economic system is in equilibrium when each person feels that he or she cannot do any better by picking another course of action. The principle of equilibrium highlights the connections among economic actors. For example, Apple stores stock millions of iPhones because millions of consumers are going to turn up to buy them. In turn, millions of consumers go to Apple stores because those stores are ready to sell those iPhones. In equilibrium, consumers and producers are simultaneously optimizing, and their behaviors are intertwined.

Our first two principles—optimization and equilibrium—are conceptual. The third is methodological: *empiricism*. Economists use *data* to test economic theories, learn about the world, and speak to policymakers. Accordingly, data play a starring role in our book,

though we keep the empirical analysis extremely simple. It is this emphasis on matching theories with real data that we think most distinguishes our book from others. We show students how economists use data to answer specific questions, which makes our chapters concrete, interesting, and fun. Modern students demand the evidence behind the theory, and our book supplies it.

For example, we begin every chapter with an empirical question and then answer that question using data. One chapter begins by asking:

Would a smoker quit the habit for \$100 per month?

Later in that chapter, we describe how smoking rates fell when researchers paid smokers to quit.

In our experience, students taking their first economics class often have the impression that economics is a series of theoretical assertions with little empirical basis. By using data, we explain how economists evaluate and improve our scientific insights. Data also make concepts more memorable. Using evidence helps students build intuition, because data move the conversation from abstract principles to concrete facts. Every chapter sheds light on how economists use data to answer questions that directly interest students. Every chapter demonstrates the key role that evidence plays in advancing the science of economics.

Features

All of our features showcase intuitive empirical questions.

- In **Evidence-Based Economics (EBE)**, we show how economists use data to answer the question we pose in the opening paragraph of the chapter. The EBE uses actual data from field experiments, lab experiments, or naturally occurring data, while highlighting some of the major concepts discussed within the chapter. This tie-in with the data gives students a substantive look at economics as it plays out in the world around them.

The questions explored aren't just dry intellectual ideas; they spring to life the minute the student sets foot outside the classroom—*Is Facebook free? Is college worth it? Will free trade cause you to lose your job? Is there value in putting yourself into someone else's shoes? What is the optimal size of government?*

EVIDENCE-BASED

ECONOMICS

Would a smoker quit the habit for \$100 per month?



At the beginning of this chapter, we posed a question concerning whether a smoker would quit the habit for \$100 a month. The tools of this chapter can help us begin to think about whether such an incentive can work, and why it might work.

In thinking about such a reward, we have learned that the impact of an increase in income leads to changes in the consumer budget constraint and subsequently the demand for goods and services. To see these tools in action, we return to the shopping-spree example. Exhibit 5.5 shows the mechanics behind the effects of an increase in what we have available to spend.

With that foundation laid, we can return to the question of quitting smoking for a month. Given our economic framework, the very same principle that was at work in the shopping-spree problem applies when considering the smoker's problem. By providing \$100 for not smoking, we create a trade-off between the current benefits of smoking and the benefits obtained by \$100 of increased income. There is also another saving: by not smoking, you save the money otherwise spent on cigarettes or cigars. For simplicity, let's assume that is another \$100 per month. Thus the comparison that we need to make is whether, at the margin, \$200 of additional monthly income

- **Letting the Data Speak** is another feature that analyzes an economic question by using real data as the foundation of the discussion. Among the many issues we explore are such questions as *Should McDonald's be interested in elasticities? Do wages really go down if labor supply increases? Why do some firms advertise while others don't?*

LETTING THE DATA SPEAK

Fair Trade Products

What's Behind the Boom?

In response to the feeling that the growth of free trade has led to the exploitation of developing countries, a new market has opened up for the consumer concerned with a broad variety of production-related issues, including the environment, fair labor practices, and child labor in the developing world. Goods imported from the developing world that meet certain criteria are certified by third-party organizations as “fair trade” products.

To receive a fair trade label, the production of a good has to meet certain standards. For example, if the producer doesn't allow unionization, uses child or slave labor, or doesn't adhere to the U.N. Charter on Human Rights, then the product can't be classified as fair trade.

Consumers can't seem to get enough fair trade products. Sales growth for fair trade goods has reached double-digit proportions over the past decade. Surprisingly, sales continued to expand even after the 2008 recession, growing 15 percent in 2009.¹

In spite of the recent surge in demand for fair trade products, not everyone is a fan. Overseeing billions of dollars of production isn't easy, and the capacity for certifying organiz-



ations to enforce labor standards sometimes can't keep up with the increasing demand for fair trade products.²

- In keeping with the optimization theme, in a feature entitled **Choice & Consequence** we ask students to make a real economic decision or evaluate the consequences of past real decisions. We then explain how an economist might analyze the same decision. Among the questions investigated are *Do people really optimize? Should LeBron James paint his own house? Does revenge have an evolutionary logic?*

CHOICE & CONSEQUENCE

Positive Externalities in Spots You Never Imagined

Externalities are the result of agents trying to do the best they can and ignoring how their actions affect others. In this sense, it would be wrong to think of externalities as “mistakes.” Externalities may result from just *not knowing* the harm we cause others. In this case, we might make choices that we later regret.

Consider the case of flu vaccinations. When you make the decision of whether or not to be vaccinated against the flu, you likely consider only the private benefits and costs from the vaccination—namely, the benefits or costs to yourself. But you are not the only person to incur benefits or costs.

If you decide to take the flu shot, others gain: once you are vaccinated, they are now protected against catching the flu from you. But people can also lose if you choose not to get the shot, because you could catch the flu and spread it. Many of us would not take such externalities—whether positive or negative—into account when making a decision about whether to get a flu shot. But they nevertheless exist.

Researchers who have studied the externalities of vaccinations report quite large effects.² For instance, in certain situations, the external effect of you getting a flu shot can be as high as 1.5 infections. Given that approximately



10 percent to 20 percent of the U.S. population contracts the flu each year, this estimate reveals the potential value in flu vaccination programs.

If you find it important to take account of your own externalities, the next time you are weighing your private benefits and costs of getting a flu vaccination, remember that not getting a shot could result in as many as 1.5 more infections for everyone else. In this sense, by avoiding the needle you have imposed a great externality on the rest of the population.

Organization

Part I: Introduction to Economics lays the groundwork for understanding the economic way of thinking about the world. In *Chapter 1*, we show that the principle of *optimization* explains most of our choices. In other words, we make choices based on a consideration of benefits and costs, and to do this we need to consider trade-offs, budget constraints, and opportunity cost. We then explain that *equilibrium* is the situation in which everyone is simultaneously trying to individually optimize. In equilibrium, there isn't any perceived

benefit to changing one's own behavior. We introduce the free-rider problem to show that individual optimization and social optimization do not necessarily coincide.

Because data play such a central role in economics, we devote an entire chapter—**Chapter 2**—to economic models, the scientific method, empirical testing, and the critical distinction between correlation and causation. We show how economists use models and data to answer interesting questions about human behavior. For the students who want to explore further, there is an appendix on constructing and interpreting graphs, which is presented in the context of an actual experiment on incentive schemes designed by one of us.

Chapter 3 digs much more deeply into the concept of optimization, including an intuitive discussion of marginal analysis. We use a single running example of choosing an apartment, which confronts students with a trade-off between the cost of rent and the time spent commuting. We demonstrate two alternative approaches—optimization using total value and optimization using marginal analysis—and show why economists often use the latter technique.

Chapter 4 introduces the demand and supply framework via a running example of the market for gasoline. We show how the price of gasoline affects the decisions of buyers, like commuters, and sellers, like ExxonMobil. As we develop the model, we explore how individual buyers are added together to produce a market demand curve and how individual sellers are added together to generate a market supply curve. We then show how buyers and sellers jointly determine the equilibrium market price and the equilibrium quantity of goods transacted in a perfectly competitive market. Finally, we show how markets break down when prices aren't allowed to adjust to equate the quantity demanded and the quantity supplied.

Part II: Foundations of Microeconomics anchors *Microeconomics* with a deeper exploration of the sources of demand and supply. One important thing that we have learned as teachers is that even after a year of economics, most students really have no idea about the underpinnings of the demand and supply curves—specifically, where the curves actually come from. Most textbooks do not illuminate these issues.

When crafting Chapters 5 and 6, our goal was to provide two stand-alone chapters that would show students that consumption and production are really two sides of the same coin, “glued” together by the idea of incentives. We gather consumer and producer concepts under their own respective umbrellas, and merge material that is spread out over several chapters in other texts. The goal is to show the commonalities and linkages between consumers' and producers' optimization decisions. With this setup, the student is able to view the whole picture in one place and understand how concepts tie together without flipping back and forth between several chapters.

In **Chapter 5**, we look “under the hood” to show where the demand curve actually comes from. We frame the question of how consumers decide what to buy as “the buyer's problem” and discuss the three key ingredients of demand: tastes and preferences, prices, and the budget set. The discussion is intuitive: once these three pieces are in place, the demand curve naturally falls out. This approach leads fluidly to a discussion of consumer surplus, demand elasticities, and how consumers predictably respond to incentives. In this way, the student can readily see holistically why policymakers and business people should concern themselves with the demand side of economics. For the students who want to delve deeper, there is an appendix on income and substitution effects, which is presented as an extension of the text.

In **Chapter 6**, we use the same holistic approach, but here we follow a single company (The Wisconsin Cheeseman, which a coauthor worked at for two high school summers) to showcase “the seller's problem.” The seller's problem also has three parts: production, costs, and revenues. In thinking through the seller's problem, it is natural to treat these three components together rather than strew them over separate chapters as in other books. They need to be simultaneously considered by the firm when making optimal choices, so why not present them jointly? The running theme of The Wisconsin Cheeseman makes the chapter quite cohesive, and what was once a difficult puzzle to sort through becomes clear when presented under a single continuous example. For the more inquisitive students there is an appendix showing that for firms with different cost structures, economic profits can exist in long-run equilibrium.

Chapter 7 takes an aerial view by considering what happens when we put together the buyers of Chapter 5 and the sellers of Chapter 6 in a perfectly competitive market. The chapter begins by asking: can markets composed of only self-interested people maximize the overall well-being of society? The beauty of economics is on full display in this chapter, as it shows that in a perfectly competitive market, the invisible hand creates harmony between the interests of the individual and those of society. Prices guide the invisible

hand and incentivize buyers and sellers, who in turn maximize social surplus by allocating resources efficiently within and across sectors of the economy. The chapter uses Vernon Smith's seminal laboratory experiments to provide the evidence that prices and quantities converge to the intersection of supply and demand.

In **Chapter 8** we first walk through a discussion of the production possibilities curve, comparative advantage, and the gains from trade. We move the discussion from individuals trading with each other to trade between states (an innovation in a Principles text) and finally to trade between countries. Students can thus see that the principles motivating them to trade are the same as those motivating states and nations to trade. They develop an understanding that there are sometimes winners and losers in trade, but that overall, the gains from trade are larger than the losses. The key policy issue becomes: can we shift surplus to make trade a win-win for everyone?

If students stopped reading the book at this point, they would be rabid free-market proponents. This is because the beauty of the free market is unparalleled. **Chapter 9** begins a discussion of important cases that frustrate the workings of the invisible hand. When some firms produce, they pollute the air and water. There are some goods that everyone can consume once they are provided, such as national defense. Chapter 9 probes three cases of market failure—externalities, public goods, and common pool resources—and highlights an important link: in all three cases, there is a difference between social and private benefits or social and private costs. The student learns that the invisible hand of Chapter 7 can become “broken” and that government can enact policies in regard to externalities to improve social well-being, provide public goods, and protect common pool resources.

But government intervention can be a two-edged sword, and in **Chapter 10** we ask the question, “How much government intervention is necessary and how much is desirable?” We provide an aerial view of taxation and spending, and study how regulation—the main tool that governments use to deal with the externalities and other market failures of Chapter 10—has its costs and limitations. We see that the trade-off between equity and efficiency represents the nub of the conflict between those who support big government and those who argue for smaller government. The Evidence-Based Economics feature at the end of the chapter tackles the thorny question of the optimal size of government by exploring the deadweight loss of income taxation.

Chapter 11 motivates the importance of factor markets—the inputs that firms use to make their goods and services—by asking if there is discrimination in the labor market. This question is couched within a general discussion about why people earn different wages in the labor market. This approach allows the student to seamlessly transition from being a demander (as in Chapter 5 as a buyer) to being a supplier (of labor). The economics behind the other major factors of production—physical capital and land—naturally follow from the labor discussion. The chapter concludes by showing several interesting data sets that measure whether discrimination exists in labor markets.

Part III: Market Structure introduces the alternatives to the perfectly competitive market: monopolies, oligopolies, and monopolistic competition. This section also provides the tools necessary to understand these market structures.

Chapter 12 on monopoly connects the student's thinking to Chapter 6, where the seller's problem was introduced, and shows that all of the production and cost concepts learned earlier apply here: production should be expanded until marginal cost equals marginal revenue. To illustrate the “monopolist's problem,” we use a running example of the allergy drug Claritin and its 20-year patent to show how a monopoly optimizes. Once again, we use the metaphor of the broken invisible hand to illustrate how a monopoly reallocates resources toward itself and thereby sacrifices social surplus. At this point, the student might wonder why legal market power is ever granted by the government. The opening question, *Can a monopoly ever be good for society?*, discusses the other side of the coin by presenting evidence that a monopoly *can* sometimes be good for society.

At this point in the book, we have covered many of the topics that are treated in existing texts. **Chapter 13** is a point of major departure, as we devote an entire chapter to game theory, which is a source of some of the most powerful economic insights. We emphasize that it helps us better understand the world when we place ourselves in the shoes of someone else. In so doing, the student develops a deeper understanding of how to choose a strategy that is a best response to the strategies of others. We apply game theory to many situations, including pollution, soccer, and advertising, to name a few.

In *Chapter 14*, we present the two market structures that fall between the extremes of perfect competition and monopoly: oligopoly and monopolistic competition. We develop the chapter around the motivating question of how many firms are necessary to make a market competitive. Throughout, we emphasize how oligopolist firms and monopolistically competitive firms set their prices and quantities by considering the choices of their competitors. We connect with previous chapters by framing the discussion in terms of the optimization problem of these firms: the “oligopolist’s problem” and the “monopolistic competitor’s problem.” We show how in the short run it is identical to the monopolist’s problem and in the long run to the perfectly competitive model.

Part IV: Extending the Microeconomic Toolbox provides a selection of special-topic, optional chapters, depending on the individual instructor’s course emphasis. We have included these chapters because we feel that too often the student doesn’t get to see the myriad of interesting applications that follow from all those months of learning basic economic principles!

Chapter 15 studies trade-offs involving time and risk. The chapter begins by asking how the timing of a reward affects its economic value. We show how compound interest causes an investment’s value to grow over time. We also show how to discount future financial flows and how to make financial decisions using the net present value framework. The second half of the chapter discusses probability and risk and explains how to calculate expected value. We apply these ideas to the study of gambling, extended warranties, and insurance.

Why does a new car lose considerable value the minute it is driven off the lot? *Chapter 16* examines markets we are all familiar with—ones in which one side of the market has more information than the other. The chapter examines the informational disparities between buyers and sellers in terms of hidden characteristics (for example, a sick person is more likely to apply for health insurance) and hidden actions (for example, an insured person is more likely to drive recklessly). Along the way, we look at many timely topics such as lemons in the used-car market, adverse selection in the health insurance market, and moral hazard in risk and insurance markets.

In *Chapter 17* we explore situations that students sometimes face: auctions and bargaining. Our optimization theme continues as we discuss best strategies and bargaining principles in a variety of settings. We explore the four common types of auctions and provide insights into how economics can help the student bid in auctions—from eBay to estate auctions to charity auctions. We then shift gears and examine bargaining situations that affect our lives daily. To show the power of the bargaining model, we present empirical evidence of who in the household determines how money is spent.

Perhaps the most unusual chapter for a Principles textbook is *Chapter 18*, which is on social economics. Here we introduce new variants of *homo economicus*. We explore two different areas of human behavior: the economics of charity and fairness and the economics of revenge. We then revisit the concept and origin of preferences—do we take satisfaction from contributing to a charity or from exacting revenge on a perceived enemy? This last chapter drives home the fact that economic principles can be extended to every corner of our world. And it teaches us that we can considerably extend our understanding of the world around us by adding insights from our sister sciences—psychology, history, anthropology, sociology, and political science, to name a few.

MyLab Economics®

Pearson MyLab Economics’ powerful assessment and tutorial system works hand-in-hand with the Second Edition of *Microeconomics*. It includes comprehensive homework, quiz, test, interactive, engagement and tutorial options which allow students to test their knowledge and instructors to manage all of their assessment and engagement needs in one program. Students and instructors can register, create and access all of their MyLab courses at www.pearsonmylab.com.

Key Features in the Pearson MyLab Economics for *Microeconomics*, Second Edition include the following resources for instructors and students:

Personalized Learning

Not every student learns the same way or at the same rate. With the growing need for acceleration through many courses, it’s more important than ever to meet students where they learn. Personalized learning in the Pearson MyLab Economics gives you the flexibility to incorporate the approach that best suits your course and your students.

Interactive Graphs

The Interactive Graphs in Pearson MyLab Economics enhance the student learning experience. Students can manipulate the coordinates and parameters of these graphs and watch the graphs change in real time, thereby deepening their conceptual understanding of the material.

Study Plan

The Study Plan acts as a tutor, providing personalized recommendations for each of your students based on his or her ability to master the learning objectives in your course. This allows students to focus their study time by pinpointing the precise areas they need to review, and allowing them to use customized practice and learning aids—such as videos, eText, tutorials, and more—to get them back on track. Using the report available in the gradebook, you can then tailor course lectures to prioritize the content for which students need the most support—offering you better insight into classroom and individual performance.

With comprehensive homework, quiz, test, activity, practice, and tutorial options, instructors can manage all their assessment and online activity needs in one program. Pearson MyLab Economics saves time by automatically grading questions and activities and tracking results in an online gradebook.

Each chapter contains two preloaded homework exercise sets that can be used to build an individualized study plan for each student. These study plan exercises contain tutorial resources, including instant feedback, links to the appropriate chapter section in the eText, pop-up definitions from the text, and step-by-step guided solutions, where appropriate. Within its rich assignment library, instructors will find a vast array of assessments that ask the students to draw graph lines and shifts, plot equilibrium points, and highlight important graph areas, all with the benefit of instant, personalized feedback. This feedback culminates, when needed, with the correct graph output alongside the student's personal answer, creating a powerful learning moment.

After the initial setup of the Pearson MyLab Economics course for Acemoglu/Laibson/List, there are two primary ways to begin using this rich online environment. The first path requires no further action by the instructor. Students, on their own, can use Pearson MyLab Economics' Study Plan problems and tutorial resources to enhance their understanding of concepts. The online gradebook records each student's performance and time spent on the assessments, activities, and the study plan and generates reports by student or chapter.

Alternatively, instructors can fully customize Pearson MyLab Economics to match their course exactly: reading assignments, homework assignments, video assignments, current news assignments, digital activities, experiments, quizzes, and tests. Assignable resources include:

- Preloaded exercise assignment sets for each chapter that include the student tutorial resources mentioned earlier
- Preloaded quizzes for each chapter
- Assignable and gradable exercises that are similar to the end-of-chapter questions and problems and numbered exactly as in the book to make assigning homework easier
- *Real-Time Data Analysis Exercises* allow students and instructors to use the very latest data from the Federal Reserve Bank of St. Louis's FRED site. By completing the exercises, students become familiar with a key data source, learn how to locate data, and develop skills in interpreting data.
- In Pearson MyLab Economics, select exhibits labeled Pearson MyLab Economics Real-Time Data display updated graphs with real-time data from FRED.
- *Current News Exercises* provide a turnkey way to assign gradable news-based exercises in Pearson MyLab Economics. Each week, Pearson scours the news, finds current economics articles, creates exercises around the news articles, and then automatically adds them to Pearson MyLab Economics. Assigning and grading current news-based exercises that deal with the latest economics events and policy issues have never been more convenient.
- *Econ Exercise Builder* allows you to build customized exercises. Exercises include multiple-choice, graph drawing, and free-response items, many of which are generated algorithmically so that each time a student works them, a different variation is presented.
- Test Item File questions that allow you to assign quizzes or homework that will look just like your exams

Pearson MyLab Economics grades every problem type (except essays), even problems with graphs. When working homework exercises, students receive immediate feedback, with links to additional learning tools.

- *Experiments in Pearson MyLab Economics* are a fun and engaging way to promote active learning and mastery of important economic concepts. Pearson's Experiments program is flexible and easy for instructors and students to use.
- Single-player experiments allow your students to play against virtual players from anywhere at any time so long as they have an Internet connection.
- Multiplayer experiments allow you to assign and manage a real-time experiment with your class.

Pre- and post-questions for each experiment are available for assignment in Pearson MyLab Economics.

Dynamic Study Modules

Dynamic Study Modules help students study effectively on their own by continuously assessing their activity and performance in real time. Here's how it works: students complete a set of questions with a unique answer format that also asks them to indicate their confidence level. Questions repeat until the student can answer them all correctly and confidently. Once completed, Dynamic Study Modules explain the concept using materials from the text. These are available as graded assignments prior to class, and accessible on smartphones, tablets, and computers. NEW! Instructors can now remove questions from Dynamic Study Modules to better fit their course.

Pearson eText

The eText keeps students engaged in learning on their own time, while helping them achieve greater conceptual understanding of course material. The concept checks, animations, and interactive graphs bring learning to life, and allow students to apply the very concepts they are reading about. Combining resources that illuminate content with accessible self-assessment, Pearson MyLab Economics with eText provides students with a complete digital learning experience—all in one place.

And with the **Pearson eText mobile app** students can now access the eText and all of its functionality from their computer, tablet, or mobile phone. Because students' progress is synced across all of their devices, they can stop what they're doing on one device and pick up again later on another one—without breaking their stride.

Digital Interactives

Economic principles are not static ideas, and learning them shouldn't be a static process. Digital Interactives are dynamic and engaging assessment activities that promote critical thinking and application of key economic principles.

Each Digital Interactive has 3 to 5 progressive levels and requires approximately 20 minutes to explore, apply, compare, and analyze each topic. Many Digital Interactives include real-time data from FRED™ allowing professors and students to display, in graph and table form, up-to-the-minute data on key macro variables.

Digital Interactives can be assigned and graded within Pearson MyLab Economics or used as a lecture tool to encourage engagement, classroom conversation, and group work.

Learning Catalytics

Learning Catalytics helps you generate class discussion, customize your lecture, and promote peer-to-peer learning with real-time analytics. As a student response tool, Learning Catalytics uses students' smartphones, tablets, or laptops to engage them in more interactive tasks and thinking.

- Help your students develop critical thinking skills.
- Monitor responses to find out where your students are struggling.
- Rely on real-time data to adjust your teaching strategy.
- Automatically group students for discussion, teamwork, and peer-to-peer learning.

LMS Integration

You can now link from Blackboard Learn, Brightspace by D2L, Canvas, or Moodle to Pearson MyLab Economics. Access assignments, rosters, and resources, and synchronize grades with your LMS gradebook.

For students, single sign-on provides access to all the personalized learning resources that make studying more efficient and effective.

Instructor Resources

The **Instructor's Manual** for *Microeconomics* was updated by James Hornsten of Northwestern University and includes:

- A chapter-by-chapter outline of the text
- Lecture notes highlighting the big ideas and concepts from each chapter
- Teaching Tips on how to motivate the lecture
- Common Mistakes or Misunderstandings students often make and how to correct them
- Short, real-world Alternative Teaching Examples, different from those in the text

Active Learning Exercises, included online and at the end of each Instructor's Manual chapter, were updated by James Hornsten and include:

- 5 to 10 Active Learning Exercises per chapter that are ideal for in-class discussions and group work

The **Solutions Manual**, updated by Scott Ogawa of Northwestern University, includes solutions to all end-of-chapter Questions and Problems in the text. It is available as downloadable Word documents and PDFs.

Three flexible **PowerPoint Presentation** packages make it easy for instructors to design presentation slides that best suit their style and needs:

- Lecture notes with some animated text figures and tables, as well as alternative examples with original static figures
- Figures from the text with step-by-step animation
- Static versions of all text figures and tables

Each presentation maps to the chapter's structure and organization and uses terminology used in the text. Nathan Kemper of University of Arkansas updated the Lecture PowerPoint presentation. Paul Graf of Indiana University, Bloomington, scripted and recorded the animations in Pearson MyLab Economics.

The **Test Bank** for *Microeconomics* was updated by Daijiro Okada of Rutgers University, Jean-François Mercier of Loyola Marymount University, John Smith of West Point, and Leila Farivar of Ohio State University, and edited and reviewed by Ross van Wassenhove of University of Houston. The Test Bank contains approximately 2,400 multiple-choice, numerical, short-answer, and essay questions. These have been edited and reviewed to ensure accuracy and clarity, and include terminology used in the book. Each question can be sorted by difficulty, book topic, concept covered, and AACSB learning standard to enhance ease of use. The Test Bank is available in Word, PDF, and TestGen formats.

TestGen is a computerized test generation program, available exclusively from Pearson, that allows instructors to easily create and administer tests on paper, electronically, or online. Instructors can select test items from the publisher-supplied test bank, which is organized by chapter and based on the associated textbook material, or create their own questions from scratch. With both quick-and-simple test creation and flexible and robust editing tools, TestGen is a complete test generator system for today's educators.

Instructor's Resource Center

Instructor resources are available online via our centralized supplements Web site, the Instructor Resource Center (www.pearsonglobaleditions.com/Acemoglu). For access or more information, contact your local Pearson representative or request access online at the Instructor Resource Center.