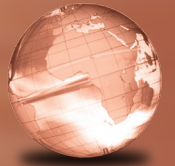


GLOBAL  
EDITION



# Economics

## *Principles, Applications, and Tools*

NINTH EDITION

Arthur O'Sullivan  
Steven M. Sheffrin  
Stephen J. Perez



# Economics

PRINCIPLES, APPLICATIONS, AND TOOLS

NINTH EDITION

GLOBAL EDITION

Arthur O'Sullivan

*Lewis and Clark College*

Steven M. Sheffrin

*Tulane University*

Stephen J. Perez

*California State University, Sacramento*



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

# TO OUR CHILDREN

## CONOR, MAURA, MEERA, KIRAN, DAVIS, AND TATE

*Vice President, Business Publishing:* Donna Battista  
*Executive Acquisitions Editor:* David Alexander  
*Editorial Assistant:* Michelle Zeng  
*Vice President, Product Marketing:* Maggie Moylan  
*Director of Marketing, Digital Services and Products:* Jeanette Koskinas  
*Senior Product Marketing Manager:* Alison Haskins  
*Field Marketing Manager:* Ramona Elmer  
*Product Marketing Assistant:* Jessica Quazza  
*Team Lead, Program Management:* Ashley Santora  
*Program Manager:* Lindsey Sloan  
*Team Lead, Project Management:* Jeff Holcomb  
*Project Manager:* Liz Napolitano  
*Project Manager, Global Edition:* Pooja Aggarwal  
*Associate Acquisitions Editor, Global Edition:* Ananya Srivastava  
*Project Editor, Global Edition:* Punita Mann  
*Assistant Project Editor, Global Edition:* Arka Basu  
*Manager, Media Production, Global Edition:* Vikram Kumar  
*Senior Manufacturing Controller, Production, Global Edition:* Trudy Kimber

*Operations Specialist:* Carol Melville  
*Creative Director:* Blair Brown  
*Art Director:* Jon Boylan  
*Vice President, Director of Digital Strategy and Assessment:* Paul Gentile  
*Manager of Learning Applications:* Paul DeLuca  
*Digital Editor:* Denise Clinton  
*Director, Digital Studio:* Sacha Laustsen  
*Digital Studio Manager:* Diane Lombardo  
*Digital Studio Project Manager:* Melissa Honig  
*Digital Studio Project Manager:* Robin Lazrus  
*Digital Content Team Lead:* Noel Lotz  
*Digital Content Project Lead:* Courtney Kamauf  
*Full-Service Project Management and Composition:* SPi-Global  
*Interior Designer:* SPi-Global  
*Cover Designer:* Lumina Datamatics, Inc.  
*Cover Art:* ksenayou/Shutterstock  
*Printer/Binder:* Vivar, Malaysia  
*Cover Printer:* Vivar, Malaysia

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.pearsonglobaleditions.com](http://www.pearsonglobaleditions.com)

© Pearson Education Limited 2018

The rights of Arthur O'Sullivan, Steven M. Sheffrin, and Stephen J. Perez 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 Economics: Principles, Applications, and Tools, 9th edition, ISBN 978-0-13-407884-7, by Arthur O'Sullivan, Steven M. Sheffrin, and Stephen J. Perez, published by Pearson Education © 2017.*

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: 1-292-16559-6  
ISBN 13: 978-1-292-16559-2

### 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  
14 13 12 11 10

# About the Authors

## ARTHUR O'SULLIVAN

is a professor of economics at Lewis and Clark College in Portland, Oregon. After receiving his B.S. in economics at the University of Oregon, he spent two years in the Peace Corps, working with city planners in the Philippines. He received his Ph.D. in economics from Princeton University in 1981 and has taught at the University of California, Davis, and Oregon State University, winning teaching awards at both schools. He is the author of the best-selling textbook *Urban Economics*, currently in its eighth edition, with translations into Russian, Chinese, Korean, and Greek.

Professor O'Sullivan's research explores economic issues concerning urban land use, environmental protection, and public policy. His articles have appeared in many economics journals, including the *Journal of Urban Economics*, *Journal of Environmental Economics and Management*, *National Tax Journal*, *Journal of Public Economics*, and *Journal of Law and Economics*.

Professor O'Sullivan lives with his family in Portland, Oregon. For recreation, he enjoys hiking, kiteboarding, and squash.



## STEVEN M. SHEFFRIN

is professor of economics and executive director of the Murphy Institute at Tulane University. Prior to joining Tulane in 2010, he was a faculty member at the University of California, Davis, and served as department chairman of economics and dean of social sciences. He has been a visiting professor at Princeton University, Oxford University, London School of Economics, and Nanyang Technological University, and he has served as a financial economist with the Office of Tax Analysis of the United States Department of the Treasury. He received his B.A. from Wesleyan University and his Ph.D. in economics from the Massachusetts Institute of Technology.

Professor Sheffrin is the author of 10 other books and monographs and over 100 articles in the fields of macroeconomics, public finance, and international economics. His most recent books include *Rational Expectations* (second edition) and *Property Taxes and Tax Revolts: The Legacy of Proposition 13* (with Arthur O'Sullivan and Terri Sexton).

Professor Sheffrin has taught macroeconomics and public finance at all levels, from general introduction to principles classes (enrollments of 400) to graduate classes for doctoral students. He is the recipient of the Thomas Mayer Distinguished Teaching Award in economics.

He lives with his wife Anjali (also an economist) in New Orleans, Louisiana, and has two daughters who have studied economics. In addition to a passion for current affairs and travel, he plays a tough game of tennis.



## STEPHEN J. PEREZ

is a professor of economics and NCAA faculty athletics representative at California State University, Sacramento. After receiving his B.A. in economics at the University of California, San Diego, he was awarded his Ph.D. in economics from the University of California, Davis, in 1994. He taught economics at Virginia Commonwealth University and Washington State University before coming to California State University, Sacramento, in 2001. He teaches macroeconomics at all levels as well as econometrics, sports economics, labor economics, and mathematics for economists.

Professor Perez's research explores most macroeconomic topics. In particular, he is interested in evaluating the ability of econometric techniques to discover the truth, issues of causality in macroeconomics, and sports economics. His articles have appeared in many economics journals, including the *Journal of Monetary Economics*; *Econometrics Journal*; *Economics Letters*; *Journal of Economic Methodology*; *Public Finance and Management*; *Journal of Economics and Business*; *Oxford Bulletin of Economics and Statistics*; *Journal of Money, Credit, and Banking*; *Applied Economics*; and *Journal of Macroeconomics*.



# Contents

Preface 20

## PART 1 Introduction and Key Principles

### 1 Introduction: What Is Economics? 32

#### What Is Economics? 33

Positive versus Normative Analysis 34

The Three Key Economic Questions: What, How, and Who? 35

Economic Models 35

#### Economic Analysis and Modern Problems 36

Economic View of Traffic Congestion 36

Economic View of Poverty in Africa 36

Economic View of the Current World Recession 37

#### The Economic Way of Thinking 37

Use Assumptions to Simplify 38

Isolate Variables—*Ceteris Paribus* 38

Think at the Margin 38

Rational People Respond to Incentives 39

#### APPLICATION 1 Incentives to Buy Hybrid Vehicles 39

Example: London Addresses Its Congestion Problem 40

#### APPLICATION 2 Housing Prices in Cuba 40

#### Preview of Coming Attractions: Macroeconomics 41

Using Macroeconomics to Understand Why Economies Grow 41

Using Macroeconomics to Understand Economic Fluctuations 41

Using Macroeconomics to Make Informed Business Decisions 42

#### Preview of Coming Attractions: Microeconomics 42

Using Microeconomics to Understand Markets and Predict Changes 42

Using Microeconomics to Make Personal and Managerial Decisions 42

Using Microeconomics to Evaluate Public Policies 43

\* SUMMARY 43 \* KEY TERMS 43

\* EXERCISES 44

#### APPENDIX: Using Graphs and Percentages 45

USING GRAPHS 45

COMPUTING PERCENTAGE CHANGES AND USING EQUATIONS 53

#### APPLICATION 3 The Perils of Percentages 54

### 2 The Key Principles of Economics 57

#### The Principle of Opportunity Cost 58

The Cost of College 58

The Cost of Military Spending 59

Opportunity Cost and the Production Possibilities Curve 59

#### APPLICATION 1 Don't Forget the Costs of Time and Invested Funds 61

#### The Marginal Principle 62

How Many Movie Sequels? 62

Renting College Facilities 63

Automobile Emissions Standards 64

Driving Speed and Safety 64

APPLICATION 2 How Fast to Sail? 65

The Principle of Voluntary Exchange 65

Exchange and Markets 65

Online Games and Market Exchange 66

APPLICATION 3 Rory McIlroy and Weed-Wacking 66

The Principle of Diminishing Returns 67

APPLICATION 4 Fertilizer and Crop Yields 68

The Real-Nominal Principle 68

The Design of Public Programs 69

The Value of the Minimum Wage 69

APPLICATION 5 Repaying Student Loans 70

\* SUMMARY 70 \* KEY TERMS 71

\* EXERCISES 71

\* ECONOMIC EXPERIMENT 75

### 3 Exchange and Markets 76

Comparative Advantage and Exchange 77

Specialization and the Gains from Trade 77

Comparative Advantage versus Absolute Advantage 79

The Division of Labor and Exchange 79

Comparative Advantage and International Trade 80

Outsourcing 80

APPLICATION 1 Absolute Disadvantage and Comparative Advantage in Latvia 81

Markets 82

Virtues of Markets 82

The Role of Entrepreneurs 83

Example of the Emergence of Markets: POW Camps 84

APPLICATION 2 The Market for Meteorites 84

Market Failure and the Role of Government 85

Government Enforces the Rules of Exchange 85

Government Can Reduce Economic Uncertainty 86

APPLICATION 3 Property Rights and Urban Slums 87

\* SUMMARY 87 \* KEY TERMS 87

\* EXERCISES 88

### 4 Demand, Supply, and Market Equilibrium 91

The Demand Curve 92

The Individual Demand Curve and the Law of Demand 92

From Individual Demand to Market Demand 94

APPLICATION 1 The Law of Demand for Young Smokers 95

The Supply Curve 95

The Individual Supply Curve and the Law of Supply 96

Why Is the Individual Supply Curve Positively Sloped? 97

From Individual Supply to Market Supply 98

Why Is the Market Supply Curve Positively Sloped? 99

APPLICATION 2 Law of Supply and Woolympics 100

Market Equilibrium: Bringing Demand and Supply Together 100

Excess Demand Causes the Price to Rise 100

Excess Supply Causes the Price to Drop 101

APPLICATION 3 Shrinking Wine Lakes 102

Market Effects of Changes in Demand 102

Change in Quantity Demanded versus Change in Demand 102

Increases in Demand Shift the Demand Curve 103

Decreases in Demand Shift the Demand Curve 105

A Decrease in Demand Decreases the Equilibrium Price 106

APPLICATION 4 Chinese Demand and Pecan Prices 106

Market Effects of Changes in Supply 107

Change in Quantity Supplied versus Change in Supply 107

Increases in Supply Shift the Supply Curve 107

An Increase in Supply Decreases the Equilibrium Price 109

Decreases in Supply Shift the Supply Curve 110

A Decrease in Supply Increases the Equilibrium Price 110

Simultaneous Changes in Demand and Supply 111

APPLICATION 5 The Harmattan and the Price of Chocolate 113

Predicting and Explaining Market Changes 113

APPLICATION 6 Why Lower Drug Prices? 114

\* SUMMARY 114 \* KEY TERMS 115

\* EXERCISES 115

\* ECONOMIC EXPERIMENT 119

The Components of GDP 125

Putting It All Together: The GDP Equation 128

APPLICATION 2 Comparing Recoveries From Recessions 129

The Income Approach: Measuring a Nation's Macroeconomic Activity Using National Income 129

Measuring National Income 129

Measuring National Income through Value Added 130

An Expanded Circular Flow 131

APPLICATION 3 The Links Between Self-Reported Happiness and GDP 132

A Closer Examination of Nominal and Real GDP 132

Measuring Real versus Nominal GDP 133

How to Use the GDP Deflator 134

Fluctuations in GDP 135

GDP as a Measure of Welfare 137

Shortcomings of GDP as a Measure of Welfare 137

\* SUMMARY 138 \* KEY TERMS 139

\* EXERCISES 139

## PART 2

### The Basic Concepts in Macroeconomics

#### 5 Measuring a Nation's Production and Income 120

The "Flip" Sides of Macroeconomic Activity: Production and Income 121

The Circular Flow of Production and Income 122

APPLICATION 1 Using Value Added to Measure the True Size of Walmart 123

The Production Approach: Measuring a Nation's Macroeconomic Activity Using Gross Domestic Product 123

#### 6 Unemployment and Inflation 143

Examining Unemployment 144

How Is Unemployment Defined and Measured? 144

Alternative Measures of Unemployment and Why They Are Important 146

Who Are the Unemployed? 147

APPLICATION 1 Declining Labor Force Participation 148

Categories of Unemployment 149

Types of Unemployment: Cyclical, Frictional, and Structural 149

The Natural Rate of Unemployment 150

APPLICATION 2 Less Unemployment Insurance, More Employment? 151

The Costs of Unemployment 151

APPLICATION 3 Social Norms, Unemployment, And Perceived Happiness 152

The Consumer Price Index and the Cost of Living 153

The CPI versus the Chain Index for GDP 154

APPLICATION 4 The Introduction of Cell Phones and the Bias in the CPI 155

Problems in Measuring Changes in Prices 155

Inflation 155

Historical U.S. Inflation Rates 156

The Perils of Deflation 157

The Costs of Inflation 158

Anticipated Inflation 158

Unanticipated Inflation 158

\* SUMMARY 159 \* KEY TERMS 160

\* EXERCISES 160

## PART 3 The Economy in the Long Run

### 7 The Economy at Full Employment 163

Wage and Price Flexibility and Full Employment 164

The Production Function 164

Wages and the Demand and Supply for Labor 167

Labor Market Equilibrium 168

Changes in Demand and Supply 168

APPLICATION 1 The Black Death and Living Standards in Old England 169

Labor Market Equilibrium and Full Employment 170

Using the Full-Employment Model 171

Taxes and Potential Output 171

Real Business Cycle Theory 172

APPLICATION 2 Do European Soccer Stars Change Clubs to Reduce Their Taxes? 174

APPLICATION 3 Government Policies and Savings Rates 175

Dividing Output among Competing Demands for GDP at Full Employment 175

International Comparisons 176

Crowding Out in a Closed Economy 176

Crowding Out in an Open Economy 178

Crowding In 178

\* SUMMARY 179 \* KEY TERMS 179

\* EXERCISES 179

### 8 Why Do Economies Grow? 183

Economic Growth Rates 184

Measuring Economic Growth 185

Comparing the Growth Rates of Various Countries 186

Are Poor Countries Catching Up? 187

APPLICATION 1 Global Warming, Rich Countries, and Poor Countries 188

APPLICATION 2 Behavioral Incentives in Development 189

Capital Deepening 189

Saving and Investment 190

How Do Population Growth, Government, and Trade Affect Capital Deepening? 191

The Key Role of Technological Progress 193

How Do We Measure Technological Progress? 193

Using Growth Accounting 194



APPLICATION 3 Sources of Growth in China and India 195

APPLICATION 4 The End of Growth? 196

What Causes Technological Progress? 196

Research and Development Funding 196

Monopolies That Spur Innovation 197

The Scale of the Market 197

Induced Innovations 198

Education, Human Capital, and the Accumulation of Knowledge 198

New Growth Theory 199

APPLICATION 5 The Role of Political Factors in Economic Growth 199

APPLICATION 6 Culture, Evolution, and Economic Growth 200

A Key Governmental Role: Providing the Correct Incentives and Property Rights 200

APPLICATION 7 Lack of Property Rights Hinders Growth In Peru 201

\* SUMMARY 202 \* KEY TERMS 202

\* EXERCISES 203

APPENDIX: A Model of Capital Deepening 206

## PART 4

### Economic Fluctuations and Fiscal Policy

#### 9 Aggregate Demand and Aggregate Supply 211

Sticky Prices and Their Macroeconomic Consequences 212

Flexible and Sticky Prices 212

How Demand Determines Output in the Short Run 213

APPLICATION 1 Measuring Price Stickiness in Consumer Markets 214

Understanding Aggregate Demand 214

What Is the Aggregate Demand Curve? 214

The Components of Aggregate Demand 215

Why the Aggregate Demand Curve Slopes Downward 215

Shifts in the Aggregate Demand Curve 216

How the Multiplier Makes the Shift Bigger 217

APPLICATION 2 Two Approaches to Determining the Causes of Recessions 221

Understanding Aggregate Supply 221

The Long-Run Aggregate Supply Curve 221

The Short-Run Aggregate Supply Curve 223

Supply Shocks 224

APPLICATION 3 Oil Price Declines and the U.S. Economy 225

From the Short Run to the Long Run 226

\* SUMMARY 228 \* KEY TERMS 228

\* EXERCISES 228

#### 10 Fiscal Policy 231

The Role of Fiscal Policy 232

Fiscal Policy and Aggregate Demand 232

The Fiscal Multiplier 233

The Limits to Stabilization Policy 234

APPLICATION 1 Increasing Life Expectancy and Aging Populations Spur Costs of Entitlement Programs 236

The Federal Budget 237

Federal Spending 237

Federal Revenues 238

The Federal Deficit and Fiscal Policy 240

Automatic Stabilizers 240

Are Deficits Bad? 241

APPLICATION 2 The Confucius Curve? 242

Fiscal Policy in U.S. History 242

The Depression Era 242

The Kennedy Administration 242

The Vietnam War Era 243

The Reagan Administration 244

The Clinton and George W. Bush Administrations 244

APPLICATION 3 How Effective was the 2009 Stimulus? 245

\* SUMMARY 246 \* KEY TERMS 247

\* EXERCISES 247

## 11 The Income-Expenditure Model 249

A Simple Income-Expenditure Model 250

Equilibrium Output 250

Adjusting to Equilibrium Output 251

The Consumption Function 253

Consumer Spending and Income 253

Changes in the Consumption Function 254

APPLICATION 1 Falling Home Prices, the Wealth Effect, and Decreased Consumer Spending 255

Equilibrium Output and the Consumption Function 256

Saving and Investment 257

Understanding the Multiplier 258

APPLICATION 2 Multipliers in Good Times and Bad 260

Government Spending and Taxation 260

Fiscal Multipliers 260

Using Fiscal Multipliers 262

Understanding Automatic Stabilizers 264

APPLICATION 3 The Broken Window Fallacy and Keynesian Economics 265

Exports and Imports 267

APPLICATION 4 The Locomotive Effect: How Foreign Demand Affects a Country's Output 269

The Income-Expenditure Model and the Aggregate Demand Curve 270

\* SUMMARY 272 \* KEY TERMS 272

\* EXERCISES 272

\* ECONOMIC EXPERIMENT 275

APPENDIX: Formulas for Equilibrium Income and the Multiplier 276

## 12 Investment and Financial Markets 280

An Investment: A Plunge into the Unknown 281

APPLICATION 1 Energy Price Uncertainty Reduces Investment Spending 282

Evaluating the Future 283

Understanding Present Value 283

Real and Nominal Interest Rates 285

APPLICATION 2 The Value of an Annuity 286

Understanding Investment Decisions 287

Investment and the Stock Market 288

APPLICATION 3 Underwater Homeowners and Debt Forgiveness 290

How Financial Intermediaries Facilitate Investment 290

When Financial Intermediaries Malfunction 293

APPLICATION 4 Securitization: The Good, The Bad, and The Ugly 294

\* SUMMARY 295 \* KEY TERMS 295

\* EXERCISES 296

\* ECONOMIC EXPERIMENT 297

## PART 5

### Money, Banking, and Monetary Policy

#### 13 Money and the Banking System 299

What Is Money? 300

Three Properties of Money 300

Measuring Money in the U.S. Economy 302

APPLICATION 1 Cash as a Sign of Trust 303

How Banks Create Money 304

A Bank's Balance Sheet: Where the Money Comes from and Where It Goes 304

How Banks Create Money 305

How the Money Multiplier Works 305

How the Money Multiplier Works in Reverse 307

APPLICATION 2 The Growth In Excess Reserves 308

A Banker's Bank: The Federal Reserve 309

Functions of the Federal Reserve 309

The Structure of the Federal Reserve 309

The Independence of the Federal Reserve 311

What the Federal Reserve Does during a Financial Crisis 311

APPLICATION 3 Stress Tests for the Financial System 312

APPLICATION 4 Coping with the Financial Chaos Caused by the Mortgage Crisis 312

\* SUMMARY 313 \* KEY TERMS 314

\* EXERCISES 314

\* ECONOMIC EXPERIMENT 316

APPENDIX: Formula For Deposit Creation 318

#### 14 The Federal Reserve and Monetary Policy 319

The Money Market 320

The Demand for Money 320

APPLICATION 1 Quantitative Easing and the Fed's Balance Sheet 322

How the Federal Reserve Can Change the Money Supply 323

Open Market Operations 323

Other Tools of the Fed 324

APPLICATION 2 Did Fed Policy Cause the Commodity Boom? 325

How Interest Rates Are Determined: Combining the Demand and Supply of Money 326

Interest Rates and Bond Prices 327

APPLICATION 3 The Effectiveness of Committees 329

Interest Rates and How They Change Investment and Output (GDP) 329

Monetary Policy and International Trade 331

Monetary Policy Challenges for the Fed 333

Lags in Monetary Policy 333

Influencing Market Expectations: From the Federal Funds Rate to Interest Rates on Long-Term Bonds 334

\* SUMMARY 335 \* KEY TERMS 335

\* EXERCISES 336

## PART 6

### Inflation, Unemployment, and Economic Policy

#### 15 Modern Macroeconomics: From the Short Run to the Long Run 338

Linking the Short Run and the Long Run 339

The Difference between the Short and Long Run 339

Wages and Prices and Their Adjustment over Time 339

APPLICATION 1 Secular Stagnation? 340

How Wage and Price Changes Move the Economy Naturally Back to Full Employment 341

Returning to Full Employment from a Recession 341

Returning to Full Employment from a Boom 342

Economic Policy and the Speed of Adjustment 343

Liquidity Traps or Zero Lower Bound 344

Political Business Cycles 345

APPLICATION 2 Elections, Political Parties, and Voter Expectations 345

The Economics Behind the Adjustment Process 346

The Long-Run Neutrality of Money 347

Crowding Out in the Long Run 349

APPLICATION 3 Increasing Health-Care Expenditures and Crowding Out 350

Classical Economics in Historical Perspective 351

Say's Law 351

Keynesian and Classical Debates 352

\* SUMMARY 352 \* KEY TERMS 353

\* EXERCISES 353

## 16 The Dynamics of Inflation and Unemployment 356

Money Growth, Inflation, and Interest Rates 357

Inflation in a Steady State 357

How Changes in the Growth Rate of Money Affect the Steady State 358

APPLICATION 1 Shifts in the Natural Rate of Unemployment 359

Understanding the Expectations Phillips Curve: The Relationship between Unemployment and Inflation 360

Are the Public's Expectations about Inflation Rational? 360

U.S. Inflation and Unemployment in the 1980s 361

Shifts in the Natural Rate of Unemployment in the 1990s 363

APPLICATION 2 Estimating the Natural Real Interest Rate 364

How the Credibility of a Nation's Central Bank Affects Inflation 364

APPLICATION 3 The Ends of Hyperinflations 366

Inflation and the Velocity of Money 367

Hyperinflation 369

How Budget Deficits Lead to Hyperinflation 370

\* SUMMARY 371 \* KEY TERMS 372

\* EXERCISES 372

\* ECONOMIC EXPERIMENT 374

## 17 Macroeconomic Policy Debates 375

Should We Balance the Federal Budget? 376

The Budget in Recent Decades 376

Five Debates about Deficits 378

APPLICATION 1 Creating The U.S. Federal Fiscal System Through Debt Policy 382

Should the Fed Target Both Inflation and Employment? 382

Two Debates about Targeting 383

APPLICATION 2 Would a Policy Rule Have Prevented the Housing Boom? 385

Should We Tax Consumption Rather than Income? 385

Two Debates about Consumption Taxation 386

APPLICATION 3 Is A Vat in Our Future? 388

\* SUMMARY 388 \* KEY TERMS 389

\* EXERCISES 389

## PART 7 The International Economy

### 18 International Trade and Public Policy 391

#### Benefits from Specialization and Trade 392

Production Possibilities Curve 392

Comparative Advantage and the Terms of Trade 394

The Consumption Possibilities Curve 394

How Free Trade Affects Employment 395

#### Protectionist Policies 396

Import Bans 396

Quotas and Voluntary Export Restraints 397

Responses to Protectionist Policies 398

#### APPLICATION 1 The Impact of Tariffs on the Poor 399

#### What Are the Rationales for Protectionist Policies? 399

To Shield Workers from Foreign Competition 400

To Nurture Infant Industries until They Mature 400

To Help Domestic Firms Establish Monopolies in World Markets 400

#### APPLICATION 2 Chinese Imports and Local Economies 401

#### A Brief History of International Tariff and Trade Agreements 401

#### Recent Policy Debates and Trade Agreements 402

Are Foreign Producers Dumping Their Products? 402

#### APPLICATION 3 Does Losing in the WTO Really Matter? 403

Do Trade Laws Inhibit Environmental Protection? 404

#### APPLICATION 4 How American are American Cars? 405

Do Outsourcing and Trade Cause Income Inequality? 406

Why Do People Protest Free Trade? 407

\* SUMMARY 407 \* KEY TERMS 408

\* EXERCISES 408

### 19 The World of International Finance 411

#### How Exchange Rates Are Determined 412

What Are Exchange Rates? 412

How Demand and Supply Determine Exchange Rates 413

Changes in Demand or Supply 414

#### Real Exchange Rates and Purchasing Power Parity 416

#### APPLICATION 1 Big Macs in Switzerland 418

#### The Current Account, the Financial Account, and the Capital Account 419

Rules for Calculating the Current, Financial, and Capital Accounts 419

#### APPLICATION 2 Tax Havens and Global Imbalances 422

#### Fixed and Flexible Exchange Rates 422

Fixing the Exchange Rate 423

Fixed versus Flexible Exchange Rates 424

The U.S. Experience with Fixed and Flexible Exchange Rates 425

Exchange Rate Systems Today 426

#### Managing Financial Crises 426

#### APPLICATION 3 A Troubled Euro 427

#### APPLICATION 4 The Argentine Financial Crisis 429

\* SUMMARY 429 \* KEY TERMS 430

\* EXERCISES 430

\* ECONOMIC EXPERIMENT 432

## PART 8

### A Closer Look at Demand and Supply

#### 20 Elasticity: A Measure of Responsiveness 433

##### The Price Elasticity of Demand 434

Computing Percentage Changes and Elasticities 434

Price Elasticity and the Demand Curve 435

Elasticity and the Availability of Substitutes 437

Other Determinants of the Price Elasticity of Demand 438

APPLICATION 1 A Closer Look at the Elasticity of Demand for Gasoline 439

##### Using Price Elasticity 440

Predicting Changes in Quantity 440

Price Elasticity and Total Revenue 440

Using Elasticity to Predict the Revenue Effects of Price Changes 442

APPLICATION 2 Vanity Plates and the Elasticity of Demand 443

##### Elasticity and Total Revenue for a Linear Demand Curve 443

Price Elasticity along a Linear Demand Curve 443

APPLICATION 3 Drones and the Lower Half of a Linear Demand Curve 445

Elasticity and Total Revenue for a Linear Demand Curve 446

##### Other Elasticities of Demand 446

Income Elasticity of Demand 446

Cross-Price Elasticity of Demand 446

APPLICATION 4 I can Find that Elasticity in Four Clicks! 447

##### The Price Elasticity of Supply 448

What Determines the Price Elasticity of Supply? 449

The Role of Time: Short-Run versus Long-Run Supply Elasticity 449

Extreme Cases: Perfectly Inelastic Supply and Perfectly Elastic Supply 450

APPLICATION 5 The Short-Run and Long-Run Elasticity of Supply of Coffee 451

Predicting Changes in Quantity Supplied 451

##### Using Elasticities to Predict Changes in Prices 451

The Price Effects of a Change in Demand 451

The Price Effects of a Change in Supply 453

APPLICATION 6 A Broken Pipeline and the Price of Gasoline 455

\* SUMMARY 455 \* KEY TERMS 456

\* EXERCISES 456

#### 21 Market Efficiency and Government Intervention 461

##### Consumer Surplus and Producer Surplus 462

The Demand Curve and Consumer Surplus 463

The Supply Curve and Producer Surplus 464

APPLICATION 1 Consumer Surplus of Internet Service 465

##### Market Equilibrium and Efficiency 465

Total Surplus Is Lower with a Price below the Equilibrium Price 465

Total Surplus Is Lower with a Price above the Equilibrium Price 467

Efficiency and the Invisible Hand 467

Government Intervention in Efficient Markets 468

APPLICATION 2 Rent Control and Mismatches 468

##### Controlling Prices—Maximum and Minimum Prices 469

Setting Maximum Prices 469

Rent Control 469

### APPLICATION 3 Price Controls and the Shrinking Candy Bar 471

Setting Minimum Prices 471

### Controlling Quantities—Licensing and Import Restrictions 471

Taxi Medallions 472

Licensing and Market Efficiency 473

Winners and Losers from Licensing 473

Import Restrictions 473

### APPLICATION 4 The Cost of Protecting a Lumber Job 475

### Who Really Pays Taxes? 475

Tax Shifting: Forward and Backward 475

Tax Shifting and the Price Elasticity of Demand 476

Cigarette Taxes and Tobacco Land 477

The Luxury Boat Tax and Boat Workers 477

Tax Burden and Deadweight Loss 478

### APPLICATION 5 Response to a Luxury Tax 479

\* SUMMARY 480 \* KEY TERMS 480

\* EXERCISES 480

\* ECONOMIC EXPERIMENT 484

## 22 Consumer Choice: Utility Theory and Insights from Neuroscience 485

### Traditional Consumer Choice: Utility Theory 486

Consumer Constraints: The Budget Line 486

Total and Marginal Utility 488

The Marginal Principle and the Equimarginal Rule 489

Conditions for Utility Maximization 491

### APPLICATION 1 Measuring Diminishing Marginal Utility 493

### The Law of Demand and the Individual Demand Curve 493

Effect of a Decrease in Price 493

Income and Substitution Effects of a Decrease in Price 494

The Individual Demand Curve 496

### The Neuroscience of Consumer Choice 496

### APPLICATION 2 A Revenue-Neutral Gasoline Tax 497

The Neuroscience of Benefit Valuation 497

The Neuroscience of Cost Valuation 498

The Wisdom of Gut Feelings 499

Cognition and Choice 499

Predicting Consumer Choice 500

Fuel for Cognition 501

### APPLICATION 3 Coke versus Pepsi in the Prefrontal Cortex 502

### Consumer Decisions: Insights from Neuroscience 502

Dietary Choice: Donut versus Apple 502

Present Bias: Spending versus Saving 504

Present Bias and Credit Cards 505

Present Bias and Smoking 506

Gambling as a Consumer Good 506

### APPLICATION 4 Taxing Cigarettes to Offset Present Bias 508

\* SUMMARY 508 \* EXERCISES 509

### APPENDIX: Mental Shortcuts and Consumer Puzzles 513

MENTAL ACCOUNTING AND BUNDLING 513

ANCHORING 514

THE DECOY EFFECT 514

THE APPEAL OF PERCENTAGE CHANGES 515

\* SUMMARY 516

## PART 9 Market Structures and Pricing

### 23 Production Technology and Cost 517

Economic Cost and Economic Profit 518

APPLICATION 1 Opportunity Cost and Entrepreneurship 519

A Firm with a Fixed Production Facility: Short-Run Costs 519

Production and Marginal Product 519

Short-Run Total Cost 521

Short-Run Average Costs 522

Short-Run Marginal Cost 524

The Relationship between Marginal Cost and Average Cost 524

APPLICATION 2 The Rising Marginal Cost of Crude Oil 526

Production and Cost in the Long Run 526

Expansion and Replication 526

Reducing Output with Indivisible Inputs 528

Scaling Down and Labor Specialization 529

Economies of Scale 529

Diseconomies of Scale 529

Actual Long-Run Average-Cost Curves 530

Short-Run versus Long-Run Average Cost 531

APPLICATION 3 Indivisible Inputs and the Cost of Fake Killer Whales 531

Examples of Production Cost 532

Scale Economies in Wind Power 532

The Average Cost of a Music Video 532

Solar versus Nuclear: The Crossover 533

\* SUMMARY 534 \* KEY TERMS 534

\* EXERCISES 535

### 24 Perfect Competition 538

Preview of the Four Market Structures 539

APPLICATION 1 Wireless Women in Pakistan 541

The Firm's Short-Run Output Decision 541

The Total Approach: Computing Total Revenue and Total Cost 542

The Marginal Approach 543

Economic Profit and the Break-Even Price 545

APPLICATION 2 The Break-Even Price for Switchgrass, a Feedstock For Biofuel 545

The Firm's Shut-Down Decision 546

Total Revenue, Variable Cost, and the Shut-Down Decision 546

The Shut-Down Price 547

Fixed Costs and Sunk Costs 548

APPLICATION 3 Straddling the Zinc Cost Curve 548

Short-Run Supply Curves 549

The Firm's Short-Run Supply Curve 549

The Short-Run Market Supply Curve 549

Market Equilibrium 550

APPLICATION 4 Short-Run Supply Curve for Cargo 551

The Long-Run Supply Curve for an Increasing-Cost Industry 551

Production Cost and Industry Size 552

Drawing the Long-Run Market Supply Curve 553

Examples of Increasing-Cost Industries: Sugar and Apartments 553

APPLICATION 5 Chinese Coffee Growers Obey the Law of Supply 554

Short-Run and Long-Run Effects of Changes in Demand 554



The Short-Run Response to an Increase in Demand 554

The Long-Run Response to an Increase in Demand 555

APPLICATION 6 The Upward Jump and Downward Slide of Blueberry Prices 556

Long-Run Supply for a Constant-Cost Industry 557

Long-Run Supply Curve for a Constant-Cost Industry 557

Hurricane Andrew and the Price of Ice 557

APPLICATION 7 Economic Detective and the Case of Margarine Prices 558

\* SUMMARY 559 \* KEY TERMS 559

\* EXERCISES 559

## 25 Monopoly and Price Discrimination 564

The Monopolist's Output Decision 565

Total Revenue and Marginal Revenue 566

A Formula for Marginal Revenue 567

Using the Marginal Principle 568

APPLICATION 1 Marginal Revenue From a Baseball Fan 570

The Social Cost of Monopoly 571

Deadweight Loss from Monopoly 571

Rent Seeking: Using Resources to Get Monopoly Power 573

Monopoly and Public Policy 573

APPLICATION 2 Rent Seeking for Tribal Casinos 574

Patents and Monopoly Power 574

Incentives for Innovation 574

Trade-Offs from Patents 575

APPLICATION 3 Bribing the Makers of Generic Drugs 575

Price Discrimination 576

Senior Discounts in Restaurants 577

Price Discrimination and the Elasticity of Demand 578

Examples: Movie Admission versus Popcorn, and Hardback versus Paperback Books 578

APPLICATION 4 Why does Movie Popcorn Cost so Much? 579

\* SUMMARY 579 \* KEY TERMS 580

\* EXERCISES 580

\* ECONOMIC EXPERIMENT 583

## 26 Market Entry and Monopolistic Competition 584

The Effects of Market Entry 585

Entry Squeezes Profits from Three Sides 586

Examples of Entry: Car Stereos, Trucking, and Tires 587

APPLICATION 1 Satellite versus Cable 587

Monopolistic Competition 588

When Entry Stops: Long-Run Equilibrium 588

Differentiation by Location 589

APPLICATION 2 Opening a Motel 590

Trade-Offs with Entry and Monopolistic Competition 591

Average Cost and Variety 591

Monopolistic Competition versus Perfect Competition 591

APPLICATION 3 Happy Hour Pricing 592

Advertising for Product Differentiation 593

APPLICATION 4 Picture of Man versus Picture of Woman 593

\* SUMMARY 595 \* KEY TERMS 595

\* EXERCISES 595

\* ECONOMIC EXPERIMENT 597

## 27 Oligopoly and Strategic Behavior 599

Cartel Pricing and the Duopolists' Dilemma 601

Price Fixing and the Game Tree 602

Equilibrium of the Price-Fixing Game 604

Nash Equilibrium 605

APPLICATION 1 Failure of the Salt Cartel 606

Overcoming the Duopolists' Dilemma 606

Low-Price Guarantees 606

Repeated Pricing Games with Retaliation for Underpricing 607

Price Fixing and the Law 609

Price Leadership 609

APPLICATION 2 Low-Price Guarantee Increases Tire Prices 610

Simultaneous Decision Making and the Payoff Matrix 610

Simultaneous Price-Fixing Game 610

The Prisoners' Dilemma 611

APPLICATION 3 Cheating on the Final Exam: The Cheaters' Dilemma 612

The Insecure Monopolist and Entry Deterrence 613

Entry Deterrence and Limit Pricing 614

Examples: Aluminum and Campus Bookstores 615

Entry Deterrence and Contestable Markets 616

When Is the Passive Approach Better? 616

APPLICATION 4 Microsoft as an Insecure Monopolist 617

The Advertisers' Dilemma 617

APPLICATION 5 Got Milk? 619

\* SUMMARY 620 \* KEY TERMS 620

\* EXERCISES 620

\* ECONOMIC EXPERIMENT 625

## 28 Controlling Market Power: Antitrust and Regulation 626

Natural Monopoly 627

Picking an Output Level 627

Will a Second Firm Enter? 628

Price Controls for a Natural Monopoly 629

APPLICATION 1 Public versus Private Waterworks 630

APPLICATION 2 Satellite Radio as a Natural Monopoly 631

Antitrust Policy 631

Breaking Up Monopolies 632

Blocking Mergers 632

Merger Remedy for Wonder Bread 634

Regulating Business Practices 635

A Brief History of U.S. Antitrust Policy 635

APPLICATION 3 Merger of Pennzoil and Quaker State 636

APPLICATION 4 Merger of Office Depot and OfficeMax 636

\* SUMMARY 637 \* KEY TERMS 637

\* EXERCISES 637

## PART 10

### Externalities and Information

## 29 Imperfect Information: Adverse Selection and Moral Hazard 640

Adverse Selection for Buyers: The Lemons Problem 641

Uninformed Buyers and Knowledgeable Sellers 641

Equilibrium with All Low-Quality Goods 642

A Thin Market: Equilibrium with Some High-Quality Goods 643

APPLICATION 1 Are Baseball Pitchers Like Used Cars? 645

Evidence of the Lemons Problem 645

## Responding to the Lemons Problem 646

Buyers Invest in Information 646

Consumer Satisfaction Scores from ValueStar and eBay 646

Guarantees and Lemons Laws 647

APPLICATION 2 Regulation of the California Kiwifruit Market 647

## Adverse Selection for Sellers: Insurance 648

Health Insurance 648

Equilibrium with All High-Cost Consumers 649

Responding to Adverse Selection in Insurance:  
Group Insurance 650

The Uninsured 650

Other Types of Insurance 651

APPLICATION 3 Genetic Discrimination 651

## Insurance and Moral Hazard 652

Insurance Companies and Moral Hazard 652

Deposit Insurance for Savings and Loans 652

APPLICATION 4 Car Insurance and Risky Driving 653

## The Economics of Consumer Search 653

Search and the Marginal Principle 654

Reservation Prices and Searching Strategy 655

The Effects of Opportunity Cost and Product  
Prices on Search Effort 657

APPLICATION 5 Income and Consumer Search 657

\* SUMMARY 658 \* KEY TERMS 658

\* EXERCISES 658

\* ECONOMIC EXPERIMENT 662

## 30 Public Goods and Public Choice 664

### External Benefits and Public Goods 666

Public Goods and the Free-Rider Problem 667

Overcoming the Free-Rider Problem 667

APPLICATION 1 Clearing Space Debris 668

APPLICATION 2 Global Weather Observation 668

### Private Goods with External Benefits 669

External Benefits from Education 669

External Benefits and the Marginal Principle 669

Other Private Goods That Generate External  
Benefits 670

APPLICATION 3 External Benefits from Lojack 671

APPLICATION 4 The Private and External Benefit  
of Trees 671

### Public Choice and the Median Voter 671

Voting and the Median-Voter Rule 672

The Median Voter and the Median Location 673

Alternative Models of Government: Self-Interest  
and Special Interests 674

Which Theory Is Correct? 675

APPLICATION 5 The Median Voter in the NBA 675

\* SUMMARY 676 \* KEY TERMS 676

\* EXERCISES 676

\* ECONOMIC EXPERIMENT 678

## 31 External Costs and Environmental Policy 680

### The Optimal Level of Pollution 681

Using the Marginal Principle 681

Example: The Optimal Level of Water  
Pollution 682

Coase Bargaining 683

APPLICATION 1 Reducing Methane Emissions 684

### Taxing Pollution 685

A Firm's Response to a Pollution Tax 685

The Market Effects of a Pollution Tax 686

Example: A Carbon Tax 687

APPLICATION 2 Washing Carbon Out of the Air 688

### Traditional Regulation 689

Uniform Abatement with Permits 689

Command and Control 689  
 Market Effects of Pollution Regulations 690  
 Lesson from Dear Abby: Options for Pollution Abatement 690

APPLICATION 3 Options for Reducing CO<sub>2</sub> Emissions From International Shipping 691

Marketable Pollution Permits 691

Voluntary Exchange and Marketable Permits 691  
 Supply, Demand, and the Price of Marketable Permits 692

APPLICATION 4 Weather and the Price of Pollution Permits 694

External Costs from Automobiles 694

External Costs from Pollution 694  
 External Costs from Congestion 696  
 External Costs from Collisions 696

APPLICATION 5 Young Drivers and Collisions 697

\* SUMMARY 697 \* KEY TERMS 698  
 \* EXERCISES 698

\* ECONOMIC EXPERIMENT 700

## PART 11 The Labor Market and Income Distribution

### 32 The Labor Market and the Distribution of Income 702

The Demand for Labor 703

Labor Demand by an Individual Firm in the Short Run 703  
 Market Demand for Labor in the Short Run 705  
 Labor Demand in the Long Run 706  
 Short-Run versus Long-Run Demand 707

APPLICATION 1 Marginal Revenue Product in Major League Baseball 707

The Supply of Labor 708

The Individual Labor-Supply Decision: How Many Hours? 708

An Example of Income and Substitution Effects 708

The Market Supply Curve for Labor 709

APPLICATION 2 Cabbies Respond to an Increase in the Wage 710

Labor Market Equilibrium 710

Changes in Demand and Supply 710

The Market Effects of the Minimum Wage 711

Why Do Wages Differ across Occupations? 712

The Gender Pay Gap 713

Racial Discrimination 714

Why Do College Graduates Earn Higher Wages? 714

Labor Unions and Wages 715

APPLICATION 3 The Beauty Premium 716

The Distribution of Income 716

Income Distribution in 2007 716

Recent Changes in the Distribution of Income 717

APPLICATION 4 Trade-Offs From Immigration 718

Public Policy and the Distribution of Income 719

Effects of Tax and Transfer Policies on the Distribution of Income 719

Poverty and Public Policy 720

The Earned Income Tax Credit 721

APPLICATION 5 Expanding the EITC 722

\* SUMMARY 722 \* KEY TERMS 723  
 \* EXERCISES 723

Glossary 727

Photo Credits 737

Index 739

# Preface

In preparing this ninth edition, we had three primary goals. First, we wanted to incorporate the sweeping changes in the United States and world economies we have all witnessed in the last several years, and the difficulties that the world economies have continued to experience in recovering from the severe economic downturn. Second, we strived to update this edition to reflect the latest exciting developments in economic thinking and make these accessible to new students of economics. Finally, we wanted to stay true to the philosophy of the textbook—using basic concepts of economics to explain a wide variety of timely and interesting economic applications.

## ► WHAT'S NEW TO THIS EDITION

In addition to updating all the figures and data, we made a number of other key changes in this edition. They include the following:

- At the beginning of each chapter, we carefully refined our Learning Objectives to match the contents of the chapter closely. These give the students a preview of what they will learn in each section of the chapter, facilitating their learning.
- We discuss in Chapter 6 whether the recent major recession permanently affected labor force participation.
- We discuss in Chapter 8 the position of the pessimists who think that technological progress has slowed down.
- We also introduce in Chapter 8 the idea of controlled experiments in economic policy, as these experiments have been very influential in recent policy developments.
- We discuss in Chapter 13 the rationale and application of “stress tests” as a new tool for financial regulation.
- We introduce Janet Yellen, the new Chair of the Federal Reserve, in Chapter 14, and discuss her prior experience before she assumed her current role
- We revised and expanded our discussion of the euro in Chapter 19, reflecting the serious challenges now facing the European Monetary Union, particularly with the experience of Greece.
- We also incorporated a total of 44 exciting new Applications into this edition, including five in the common chapters (Chapters 1–4), 22 in macroeconomics, and 17 in microeconomics. In addition, we incorporated a total of 14 new chapter-opening stories, including one in the common chapters, seven in macroeconomics, and six in microeconomics. These fresh applications and chapter openers show the widespread relevance of economic analysis.
- In the chapters common to macroeconomics and microeconomics, the new applications include housing prices in Cuba (Chapter 1), property rights in urban slums (Chapter 3), and the effects of winds from the Sahara Desert on the price of chocolate (Chapter 4).
- In the macroeconomics chapters, the new applications include understanding the links between unemployment and unemployment insurance (Chapter 6), how the government promotes high levels of savings in Singapore (Chapter 7), how Greek citizens hoarded euros as the talk of crisis grew (Chapter 13), new research on “underwater” homeowners (Chapter 12), the debate on secular stagnation (Chapter 15), and how accounting for “missing” international financial flows changes our thinking of global investment patterns (Chapter 19).
- In the microeconomics chapters, the new applications include the market effects of a luxury tax (Chapter 21), the neuroscience of the “cola wars” between Coke and Pepsi (Chapter 22), the time path of blueberry prices triggered by publicity about the health benefits of eating blueberries (Chapter 24), the new advertising program for dairy products, “Milk Life” (Chapter 27), genetic discrimination in insurance (Chapter 29), clearing space debris (Chapter 30), responding to climate change by washing carbon out of the air (Chapter 31), and proposals to expand the earned income tax credit (Chapter 32).

## ▶ APPLYING THE CONCEPTS

This is an Applications-driven textbook. We carefully selected over 130 real-world Applications that help students develop and master essential economic concepts. Here is an example of our approach from Chapter 4, “Demand, Supply, and Market Equilibrium.”

**Application 1**

THE LAW OF DEMAND FOR YOUNG SMOKERS

**APPLYING THE CONCEPTS #1: What is the law of demand?**



As price decreases and we move downward along the market demand for cigarettes, the quantity of cigarettes demanded increases for two reasons. First, people who smoked cigarettes at the original price respond to the lower price by smoking more. Second, some people start smoking.

In the United States, cigarette taxes vary across states, and studies of cigarette consumption patterns show that higher taxes mean less cigarette consumption by youths. Using data from the Youth Risk Behavior Surveys (YRBS), one study shows

that increases in state cigarette taxes between 1990 and 2005 resulted in less participation (fewer smokers) and lower frequency (fewer cigarettes per smoker).

A change in cigarette taxes in Canada illustrates the second effect, the new-smoker effect. In 1994, several provinces in eastern Canada cut their cigarette taxes in response to the smuggling of cigarettes from the United States (where taxes are lower), and the price of cigarettes in the provinces decreased by roughly 50 percent. Researchers tracked the choices of 591 youths from the Waterloo Smoking Prevention Program and concluded that the lower price increased the smoking rate by roughly 17 percent. **Related to Exercises 1.6 and 1.8.**

SOURCES: (1) Anindya Sen and Tony Wijanto, “Estimating the Impacts of Cigarette Taxes on Youth Smoking Participation, Initiation, and Persistence: Empirical Evidence from Canada,” *Health Economics* 19 (2010), pp. 1284–1292. (2) Christopher Carpenters and Philip J. Cook, “Cigarette Taxes and Youth Smoking: New Evidence from National, State, and Local Youth Risk Behavior Surveys,” *Journal of Health Economics* 27 (2008), pp. 261–299.

Each chapter includes three to five thought-provoking Applying the Concepts questions that convey important economic concepts, paired with and illustrated by an Application that discusses the concept and conveys its real-world use.

For each Application and Applying the Concepts question, we provide end-of-chapter exercises that test students’ understanding of the concepts.

**4.10 Crop Insurance.** Consider a state in which farmers are divided equally into two types: high risk and low risk. The average annual crop loss (and possible insurance claim) is \$200 for a low-risk farmer and \$1,200 for a high-risk farmer.

- If all farmers were to buy insurance, what is the break-even price for the insurance company?
- Suppose a farmer will purchase insurance only if the price (the annual premium) is no more than 50 percent higher than his or her average crop loss. What is the equilibrium price?

**4.11 Safety Rebate from the Insurance Company.** In 2010 a leading insurance company started a policy that pays a policyholder a 5 percent rebate on his or her insurance premium in any year in which the driver does not file an insurance claim. For example, a household with an annual premium of \$1,200 will get a \$60 rebate check each year it does not file a claim. Explain the rationale for the rebate policy. What problem is the policy trying to solve? (Related to Application 4 on page 653.)

The Economics of Consumer Search  
Use the marginal principle to describe optimal search by consumers.

- The reservation price is the price at which the consumer is \_\_\_\_\_ about additional search, meaning that the \_\_\_\_\_ of search equals the \_\_\_\_\_.
- If a consumer knows that TVs are available at BestBuy at a price as low as \$200, it is sensible not to continue shopping until the consumer finds the lowest-price store. \_\_\_\_\_ (True/False)
- Suppose the range of prices for a cooking book is \$30 to \$70 and your discovered price (lowest price so far) is \$48. If you visit one more store and discover a lower price, the best guess for a lower price is \_\_\_\_\_ the savings if you discover this lower price is \_\_\_\_\_.

- A doubling of prices \_\_\_\_\_ (increases, decreases), the marginal benefit of search at a given price, and the percentage gap between the reservation price and the lowest price \_\_\_\_\_ (increases, decreases).
- A study of consumer search for liquid detergent found that a doubling of income decreased the amount of search by roughly \_\_\_\_\_ (1, 14, 50, 7). (Related to Application 5 on page 657.)
- Compute the Reservation Price.** Suppose the reservation price for a consumer good is \$20 to \$80. Prices in this range are equally likely.
  - Fill in the blanks in the table.
 

Discovered price (lowest so far)	\$40
Probability of discovering lower price in next visit	_____
Best guess of lower price	_____
Savings if lower price is discovered	_____
Marginal benefit: Expected savings from additional visit	_____
  - If the marginal cost of search is \$1.25, the reservation price is \_\_\_\_\_.
- Internet and Reservation Prices.** Consider a consumer who initially has no Internet service or a slow connection, so consumers must travel to stores to get it. Use a graph to show the effect of discovering Internet service on the reservation price for a consumer good.

**ECONOMIC EXPERIMENT**

ROLLING FOR LEMONS

In this experiment, students play the role of consumers purchasing used cars. Over half the used cars on the road (57%) are plums, and the remaining cars (43%) are lemons. Each consumer offers a price for a used car and then rolls a pair of dice to find out whether he or she gets a lemon or a plum. In general, rolling a big number is good news: To get a plum, you need to roll a big number. The higher the price you offer, the smaller the number you must roll to get a plum. Here is how the experiment works:

- Each consumer tells the instructor how much he or she is offering for a used car and then rolls the dice.
- The instructor tells the consumer whether the number rolled is large enough to get a plum. If the number is not large enough, the consumer gets a lemon.
- The consumers’ scores equal the difference between the maximum amount they are willing to pay for a car they got (\$1,200 for a plum and \$400 for a lemon) and the price they actually paid. For example, if Otto offers \$500 and gets a plum, his score is \$700. If Carla offers \$600 and gets a lemon, her score is –\$200.
- The instructor announces the result of each transaction to the class.
- There are three to five buying periods. At the end of the last trading period, each consumer adds up his or her score.

MyLab Economics  
For additional economic experiments, please visit [www.myeconlab.com](http://www.myeconlab.com).

KEY TERMS

All problems are assignable in MyLab Economics.

**KEY TERMS**

featherbedding, p. 715

income effect for leisure demand, p. 708

input-substitution effect, p. 706

labor union, p. 715

learning effect, p. 714

long-run demand curve for labor, p. 706

marginal product of labor, p. 704

marginal-revenue product of labor (MRP), p. 704

market supply curve for labor, p. 709

means-tested programs, p. 720

output effect, p. 706

short-run demand curve for labor, p. 704

signaling effect, p. 714

substitution effect for leisure demand, p. 708

EXERCISES

The Demand for Labor

Explain why competition generates wages equal to marginal revenue product.

- The marginal revenue product of labor equals \_\_\_\_\_ times \_\_\_\_\_.
- A profit-maximizing firm will hire the number of workers where \_\_\_\_\_ equals \_\_\_\_\_.
- Your favorite professional team is considering hiring a new player for \$3 million per year. It will be sensible (profitable) to hire the player if his \_\_\_\_\_ is greater than the \$3 million cost.
- Arrows up or down: The logic of the output effect is that a decrease in the wage will \_\_\_\_\_ production costs, so the price of output will \_\_\_\_\_ and the quantity of output demanded will \_\_\_\_\_. As a result, the quantity of labor demanded will \_\_\_\_\_.
  - The input-substitution effect is that a decrease in the wage \_\_\_\_\_ (increases/decreases) the quantity of labor per unit of \_\_\_\_\_, so the quantity of labor demanded \_\_\_\_\_ (increases/decreases).
  - The short-run market demand curve for labor is \_\_\_\_\_ (steeper/flatter) than the long-run demand because \_\_\_\_\_ occur(s) in the short run.
  - Fill the blanks with 75, 100, 117, 200, or 360. In major league baseball, the marginal revenue product of the typical free agent is roughly \_\_\_\_\_ percent of his salary, compared to \_\_\_\_\_ percent for a journeyman and \_\_\_\_\_ percent for an apprentice. (Related to Application 1 on page 707.)
  - Demand for News Kids.** Consider the market for newspaper delivery kids in Kidsville. Each news kid receives a piece rate of \$2 per subscriber per month and has a fixed territory that initially has 100 subscribers. The price elasticity of demand for subscriptions is 2.0. Suppose the new city council of Kidsville passes a law that establishes a minimum piece rate of \$3

per subscriber per month. As a result, the publisher increases the monthly price of a subscription by 20 percent. How will the new law affect the monthly income of the typical news kid?

**1.9 Demand for Airline Pilots.** Comment on the following: “There is no substitute for an airline pilot: Someone has to fly the plane. Therefore, an increase in the wage of airline pilots will not change the number of pilots used by the airlines.”

The Supply of Labor

Explain why an increase in the wage could increase, decrease, or not change hours worked.

- Arrows up or down: An increase in the wage \_\_\_\_\_ the opportunity cost of leisure time, which tends to \_\_\_\_\_ leisure time and \_\_\_\_\_ labor time.
- Arrows up or down: An increase in the wage \_\_\_\_\_ real income, and if leisure is a normal good this tends to \_\_\_\_\_ leisure time and \_\_\_\_\_ labor time.
- We \_\_\_\_\_ (can/cannot) predict a worker’s response to an increase in the wage because the \_\_\_\_\_ effect and the \_\_\_\_\_ effect work in \_\_\_\_\_ (the same/opposite) direction(s).
- Your objective is to earn exactly \$120 per week. If your wage decreases from \$6 to \$4 per hour, you respond by working \_\_\_\_\_ hours instead of \_\_\_\_\_ hours. In other words, your labor-supply curve is \_\_\_\_\_ sloped.
- In the short run, labor supply is influenced by the wage rate, while in the long run, it is influenced by net advantages of the job. \_\_\_\_\_ (True/False)

In addition, some chapters contain an Economic Experiment section that gives students the opportunity to do their own economic analysis.

## ► WHY FIVE KEY PRINCIPLES?

In Chapter 2, “The Key Principles of Economics,” we introduce the following five key principles and then apply them throughout the book:

1. **The Principle of Opportunity Cost.** The opportunity cost of something is what you sacrifice to get it.
2. **The Marginal Principle.** Increase the level of an activity as long as its marginal benefit exceeds its marginal cost. Choose the level at which the marginal benefit equals the marginal cost.
3. **The Principle of Voluntary Exchange.** A voluntary exchange between two people makes both people better off.
4. **The Principle of Diminishing Returns.** If we increase one input while holding the other inputs fixed, output will increase, but at a decreasing rate.
5. **The Real-Nominal Principle.** What matters to people is the real value of money or income—its purchasing power—not the face value of money or income.

This approach of repeating five key principles gives students the big picture—the framework of economic reasoning. We make the key concepts unforgettable by using them repeatedly, illustrating them with intriguing examples, and giving students many opportunities to practice what they’ve learned. Throughout the text, economic concepts are connected to the five key principles when the following callout is provided for each principle:

### PRINCIPLE OF OPPORTUNITY COST

The opportunity cost of something is what you sacrifice to get it.



## ► HOW IS THE BOOK ORGANIZED?

Chapter 1, “Introduction: What Is Economics?” uses three current policy issues—traffic congestion, poverty in Africa, and Japan’s prolonged recession—to explain the economic way of thinking. Chapter 2, “The Key Principles of Economics,” introduces the five principles we return to

throughout the book. Chapter 3, “Exchange and Markets,” is devoted entirely to exchange and trade. We discuss the fundamental rationale for exchange and introduce some of the institutions modern societies developed to facilitate trade.

Students need to have a solid understanding of demand and supply to be successful in the course. Many students have difficulty understanding movement along a curve versus shifts of a curve. To address this difficulty, we developed an innovative way to organize topics in Chapter 4, “Demand, Supply, and Market Equilibrium.” We examine the law of demand and changes in quantity demanded, the law of supply and changes in quantity supplied, and then the notion of market equilibrium. After students have a firm grasp of equilibrium concepts, we explore the effects of changes in demand and supply on equilibrium prices and quantities. You can present either macroeconomics or microeconomics chapters first, depending on your preference.

### Summary of the Macroeconomics Chapters

Part 2, “The Basic Concepts of Macroeconomics” (Chapters 5 and 6), introduces students to the key concepts—GDP, inflation, unemployment—that are used throughout the text and in everyday economic discussion. The two chapters in this section provide the building blocks for the rest of the book. Part 3, “The Economy in the Long Run” (Chapters 7 and 8), analyzes how the economy operates at full employment and explores the causes and consequences of economic growth.

Next we turn to the short run. We begin the discussion of business cycles, economic fluctuations, and the role of government in Part 4, “Economic Fluctuations and Fiscal Policy” (Chapters 9 through 12). We devote an entire chapter to the structure of government spending and revenues and the role of fiscal policy. In Part 5, “Money, Banking, and Monetary Policy” (Chapters 13 and 14), we introduce the key elements of both monetary theory and policy into our economic models. Part 6, “Inflation, Unemployment, and Economic Policy” (Chapters 15 through 17), brings the important questions of the dynamics of inflation and unemployment into our analysis. Finally, the last two chapters in Part 7, “The International Economy” (Chapter 18 and 19), provide an in-depth analysis of both international trade and finance.

## A Few Features of Our Macroeconomics Chapters

The following are a few features of our macroeconomics chapters:

- **Flexibility.** A key dilemma confronting economics professors has always been how much time to devote to long-run topics, such as growth and production, versus short-run topics, such as economic fluctuations and business cycles. Our book is designed to let professors choose. It works like this: To pursue a long-run approach, professors should initially concentrate on Chapters 1 through 4, followed by Chapters 5 through 8.
- To focus on economic fluctuations, start with Chapters 1 through 4, present Chapter 5, “Measuring a Nation’s Production and Income,” and Chapter 6, “Unemployment and Inflation,” and then turn to Chapter 9, “Aggregate Demand and Aggregate Supply.”
- Chapter 11, “The Income-Expenditure Model,” is self-contained, so instructors can either skip it completely or cover it as a foundation for aggregate demand.
- **Long Run.** Throughout most of the 1990s, the U.S. economy performed very well—low inflation, low unemployment, and rapid economic growth. This robust performance led to economists’ increasing interest in trying to understand the processes of economic growth. Our discussion of economic growth in Chapter 8, “Why Do Economies Grow?” addresses the fundamental question of how long-term living standards are determined and why some countries prosper while others do not. This is the essence of economic growth. As Nobel Laureate Robert E. Lucas, Jr., once wrote, “Once you start thinking about growth, it is hard to think of anything else.”
- **Short Run.** The great economic expansion of the 1990s came to an end in 2001, as the economy started to contract. The recession beginning in 2007 was the worst downturn since World War II. Difficult economic times remind us that macroeconomics is also concerned with understanding the causes and

consequences of economic fluctuations. Why do economies experience recessions and depressions, and what steps can policymakers take to stabilize the economy and ease the devastation people suffer from them? This has been a constant theme of macroeconomics throughout its entire history and is covered extensively in the text.

- **Policy.** Macroeconomics is a policy-oriented subject, and we treat economic policy in virtually every chapter. We discuss both important historical and more recent macroeconomic events in conjunction with the theory. In addition, we devote Chapter 17, “Macroeconomic Policy Debates,” to three important policy topics that recur frequently in macroeconomic debates: the role of government deficits, whether the Federal Reserve should target inflation or other objectives, and whether income or consumption should be taxed.

## Summary of the Microeconomics Chapters

A course in microeconomics starts with the first four chapters of the book, which provide a foundation for more detailed study of individual decision making and markets.

Part 8, “A Closer Look at Demand and Supply,” (Chapters 20 through 22), provides a closer look at demand and supply, including elasticity, market efficiency, and consumer choice. Part 9, “Market Structures and Pricing” (Chapters 23 through 28), starts with a discussion of production and costs, setting the stage for an examination of alternative market structures, including the extremes of perfect competition and monopoly, as well as the middle ground of monopolistic competition and oligopoly. The last chapter in Part 9 discusses antitrust policy and deregulation. Part 10, “Externalities and Information” (Chapters 29 through 31), discusses the circumstances under which markets break down, including imperfect information, public goods, and environmental degradation.

Part 11, “The Labor Market and Income Distribution” (Chapter 32), explores the economic forces that determine wages, and also examines recent changes in the distribution of income and the effects of government programs on the income distribution.



## ► MyLab Economics


### Digital Features Located in MyLab Economics

MyLab Economics is a unique online course management, testing, and tutorial resource. It is included with the eText version of the book or as a supplement to the print book. Students and instructors will find the following online resources to accompany the ninth edition:

- **Concept Checks:** Each section of each learning objective concludes with an online Concept Check that contains one or two multiple choice, true/false, or fill-in questions. These checks act as “speed bumps” that encourage students to stop and check their understanding of fundamental terms and concepts before moving on to the next section. The goal of this digital resource is to help students assess their progress on a section-by-section basis, so they can be better prepared for homework, quizzes, and exams.
- **Animations:** Graphs are the backbone of introductory economics, but many students struggle to understand and work with them. Many of the numbered figures in the text a supporting animated version online. The goal of this digital resource is to help students understand shifts in curves, movements along curves, and changes in equilibrium values. Having an animated version of a graph helps students who have difficulty interpreting the static version in the printed text. Graded practice exercises are included with the animations. Our experience is that many students benefit from this type of online learning.
- **Graphs Updated with Real-Time Data from FRED:** Approximately 16 graphs are continuously updated online with the latest available data from FRED (Federal Reserve Economic Data), which is a comprehensive, up-to-date data set maintained by the Federal Reserve Bank of St. Louis.



Students can display a pop-up graph that shows new data plotted in the graph. The goal of this digital feature is to help students understand how to work with data and understand how including new data affects graphs.

- **Interactive Problems and Exercises Updated with Real-Time Data from FRED:** The end-of-chapter problems in select chapters include real-time data exercises  that use the latest data from FRED. The book contains several of these specially-selected exercises. The goal of this digital feature is to help students become familiar with this key data source, learn how to locate data, and develop skills in interpreting data.

## ► INTEGRATED SUPPLEMENTS


The authors and Pearson Education have worked together to integrate the text and media resources to make teaching and learning easier.

## For the Instructor

Instructors can choose how much or how little time to spend setting up and using MyLab Economics.

Each chapter contains two preloaded 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 learning objective in the eText, pop-up definitions from the text, and step-by-step guided solutions, where appropriate. After the initial setup of the course by the instructor, student use of these materials requires no further instructor setup. The online grade book records each student’s performance and time spent on the tests and study plan and generates reports by student or chapter.

Instructors can fully customize MyLab Economics to match their course exactly, including reading assignments, homework assignments, video assignments, current news assignments, and quizzes and tests. Assignable resources include:

- Preloaded exercise assignments sets for each chapter that include the student tutorial resources mentioned earlier
- Preloaded quizzes for each chapter that are unique to the text and not repeated in the study plan or homework exercise sets
- Study plan problems that are similar to the end-of-chapter problems and numbered exactly like the book to make assigning homework easier
- Real-Time-Data Analysis Exercises, marked with , allow students and instructors to use the very latest data from FRED. By completing the exercises, students become familiar with a key data source, learn how to locate data, and develop skills in interpreting data.
- In the eText available in MyLab Economics, select figures labeled **MyLab Economics Real-time data** allow students to display a pop-up graph updated with real-time data from FRED.
- Current News Exercises provide a turnkey way to assign gradable news-based exercises in MyLab Economics. Each week, Pearson scours the news, finds a current microeconomics and macroeconomics article, creates exercises around these news articles, and then automatically adds them to MyLab Economics. Assigning and grading current news-based exercises that deal with the latest micro and macro events and policy issues has never been more convenient.
- Experiments in MyLab Economics are a fun and engaging way to promote active learning and mastery of important economic concepts. Pearson’s Experiments program is flexible, easy-to-assign, auto-graded, and available in Single and Multiplayer versions.
- Single-player experiments allow your students to play against virtual players from anywhere at any time so long as they have an Internet connection.

RTDA+: Measuring M2

Exercise Score: 0 of 1 pt      Assignment Score: 0% (0 of 4 pts)      0 of 4 complete

### Real-Time Data Analysis Exercise

Click the following link to view *M2 and Components* data from [FRED](#).  
Then use that data to answer the following questions.

The following table contains, along with M1, the series IDs corresponding to the non-M1 components of M2, which are measured weekly and seasonally adjusted.

Complete this table by recording, for each series ID, the most recent observation (2014-05-05). (Enter your responses exactly as they appear in FRED.)

Series ID	Value
M1	\$2808.2 billion.
SAVINGS	\$ 7295.1 billion.
WRMFSL	\$ 637.9 billion.
WSMTIME	\$ 524.1 billion.

Using the data recorded above, the most recent observation of M2 is \$  billion.

Enter your answer in the answer box, then click Check Answer.

2 parts remaining

Clear All    Check Answer    Save

\*Real-time data provided by Federal Reserve Economic Data (FRED), Federal Reserve Bank of St. Louis.

- 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 MyLab Economics.

For a complete list of available experiments, visit <http://www.myeconlab.com>.

- Test Item File questions that allow you to assign quizzes or homework that will look just like your exams
- Econ Exercise Builder, which 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.

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.

### Customization and Communication

MyLab Economics in Pearson MyLab/Mastering provides additional optional customization and communication tools. Instructors who teach distance-learning courses or very large lecture sections find the Pearson MyLab/Mastering format useful because they can upload course documents and assignments, customize the order of chapters, and use

Video: 5/9/14: Supply and demand Ex1

Exercise Score: 0 of 1 pt      Assignment Score: 0% (0 of 9 pts)      0 of 9 complete

### Why That Summer BBQ Will Cost More This Year

Source: Campbell, Elizabeth and Matt Miller - video report. "Why That Summer BBQ Will Cost More This Year." [Bloomberg.com](#), posted 5/9/2014.

Carefully watch the video, and then answer the following questions.

Graphically show the impact of a decrease in supply of pork on the price of pork.

- 1.) Using the line drawing tool, show the impact of a decrease in supply of pork on the price of pork. Properly label your curve.
- 2.) Using the point drawing tool, show the new equilibrium. Label your point 'E<sub>2</sub>'.

Carefully follow the instructions above, and only draw the required objects.

Click a line or point to select it.

4 parts remaining

Clear All    Check Answer    Save

communication features such as Document Sharing, Chat, ClassLive, and Discussion Board.

### For the Student

MyLab Economics puts students in control of their learning through a collection of testing, practice, and study tools tied to the online, interactive version of the textbook and other media resources.

Students can study on their own or can complete assignments created by their instructor. In MyLab Economics's structured environment, students practice what they learn, test their understanding, and pursue a personalized study plan generated from their performance on sample tests and from quizzes created by their instructors. In Homework or Study Plan mode, students have access to a wealth of tutorial features, including:

- Instant feedback on exercises that helps students understand and apply the concepts
- Links to the eText to promote reading of the text just when the student needs to revisit a concept or an explanation
- Step-by-step guided solutions that force students to break down a problem in much the same way an instructor would do during office hours
- Pop-up key term definitions from the eText to help students master the vocabulary of economics
- A graphing tool that is integrated into the various exercises to enable students to build and manipulate graphs to better understand how concepts, numbers, and graphs connect.

### Additional MyLab Economics Tools

MyLab Economics includes the following additional features:

- **eText**—Students actively read and learn, and with more engagement than ever before, through embedded and auto-graded practice, real-time data-graph updates, animations, author videos, and more.
- **Glossary flashcards**—Every key term is available as a flashcard, allowing students to quiz themselves on vocabulary from one or more chapters at a time.

MyLab Economics content has been created through the efforts of Chris Annala, State University of New York–Geneseo; Charles Baum, Middle Tennessee State University; Peggy Dalton, Frostburg State University; Carol Dole, Jacksonville University; David Foti, Lone Star College; Sarah Ghosh, University of Scranton; Satyajit Ghosh, University of Scranton; Melissa Honig, Pearson Education; Woo Jung, University of Colorado; Courtney Kamauf, Pearson Education; Chris Kauffman, University of Tennessee–Knoxville; Russell Kellogg, University of Colorado–Denver; Noel Lotz, Pearson Education; Katherine McCann, University of Delaware; Daniel Mizak, Frostburg State

University; Christine Polek, University of Massachusetts–Boston; Mark Scanlan, Stephen F. Austin State University; Leonie L. Stone, State University of New York–Geneseo; and Bert G. Wheeler, Cedarville University.

## ▶ OTHER RESOURCES FOR THE INSTRUCTOR

### Instructor's Manual

Jeff Phillips of Colby-Sawyer College revised the *Instructor's Manual* for the ninth edition. The *Instructor's Manual* is designed to help the instructor incorporate applicable elements of the supplement package. It contains the following resources for each chapter:

- Chapter Summary: a bulleted list of key topics in the chapter
- Learning Objectives
- Approaching the Material; student-friendly examples to introduce the chapter
- Chapter Outline: summary of definitions and concepts
- Teaching Tips on how to encourage class participation
- Summary and discussion points for the Applications in the main text
- New Applications and discussion questions
- Solutions to all end-of-chapter exercises.

The *Instructor's Manual* is available for download from the Instructor's Resource Center (accessible from <http://www.pearsonglobaleditions.com/osullivan>). The solutions to the end-of-chapter review questions and problems were prepared by the authors and Jeff Phillips.

### Test Item Files

Jeff Phillips of Colby-Sawyer College prepared the *Test Item Files* for the ninth edition. The *Test Item File* includes approximately 6,000 multiple-choice, true/false, short-answer, and graphing questions. There are questions to support each key feature in the book. The *Test Item Files* are available for download from the Instructor's Resource Center (accessible from <http://www.pearsonglobal editions.com/osullivan>). Test questions are annotated with the following information:

- **Difficulty:** 1 for straight recall, 2 for some analysis, 3 for complex analysis
- **Type:** multiple-choice, true/false, short-answer, essay
- **Topic:** the term or concept the question supports
- **Learning outcome**
- **AACSB** (see description that follows)
- **Page number** in the text.

**The Association to Advance Collegiate Schools of Business (AACSB)** The Test Item File author has connected select questions to the general knowledge and skill

guidelines found in the AACSB Assurance of Learning Standards.

**What Is the AACSB?** AACSB is a not-for-profit corporation of educational institutions, corporations, and other organizations devoted to the promotion and improvement of higher education in business administration and accounting. A collegiate institution offering degrees in business administration or accounting may volunteer for AACSB accreditation review. The AACSB makes initial accreditation decisions and conducts periodic reviews to promote continuous quality improvement in management education. Pearson Education is a proud member of the AACSB and is pleased to provide advice to help you apply AACSB Assurance of Learning Standards.

**What Are AACSB Assurance of Learning Standards?** One of the criteria for AACSB accreditation is the quality of curricula. Although no specific courses are required, the AACSB expects a curriculum to include learning experiences in the following categories of Assurance of Learning Standards:

- Written and Oral Communication
- Ethical Understanding and Reasoning
- Analytical Thinking Skills
- Information Technology
- Diverse and Multicultural Work
- Reflective Thinking
- Application of Knowledge.

Questions that test skills relevant to these standards are tagged with the appropriate standard. For example, a question testing the moral questions associated with externalities would receive the Ethical Understanding and Reasoning tag.

**How Can Instructors Use the AACSB Tags?** Tagged questions help you measure whether students are grasping the course content that aligns with the AACSB guidelines noted earlier. This in turn may suggest enrichment activities or other educational experiences to help students achieve these skills.

### TestGen

The computerized TestGen package allows instructors to customize, save, and generate classroom tests. The test program permits instructors to edit, add, or delete questions from the Test Item Files; analyze test results; and organize a database of tests and student results. This software allows for extensive flexibility and ease of use. It provides many options for organizing and displaying tests, along with search and sort features. The software and the Test Item Files can be downloaded from the Instructor's Resource Center (accessible from <http://www.pearsonglobal.com/osullivan>).

### PowerPoint Lecture Presentation

Two sets of PowerPoint slides, prepared by Brock Williams of Metropolitan Community College, are available:

1. A comprehensive set of PowerPoint slides can be used by instructors for class presentations or by students for lecture preview or review. These slides include all the graphs, tables, and equations in the textbook. Two versions are available—step-by-step mode, in which you can build graphs as you would on a blackboard, and automated mode, in which you use a single click per slide. Instructors can download these PowerPoint presentations from the Instructor's Resource Center (accessible from <http://www.pearsonglobaleditions.com/osullivan>).
2. A student version of the PowerPoint slides is available as .pdf files. This version allows students to print the slides and bring them to class for note taking. Instructors can download these PowerPoint presentations from the Instructor's Resource Center (accessible from <http://www.pearsonglobaleditions.com/osullivan>).

### Learning Catalytics™

Learning Catalytics is a “bring your own device” Web-based student engagement, assessment, and classroom intelligence system. This system generates classroom discussion, guides lectures, and promotes peer-to-peer learning with real-time analytics. Students can use any device to interact in the classroom, engage with content, and even draw and share graphs.

To learn more, ask your local Pearson representative or visit <https://www.learningcatalytics.com>.

### Digital Interactives

Focused on a single core topic and organized in progressive levels, each interactive immerses students in an assignable and auto-graded activity. Digital Interactives are also engaging lecture tools for traditional, online, and hybrid courses, many incorporating real-time data, data displays, and analysis tools for rich classroom discussions.

## ▶ OTHER RESOURCES FOR THE STUDENT

In addition to MyLab Economics, Pearson provides the following resources.

### 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.

## PowerPoint Slides

For student use as a study aid or note-taking guide, PowerPoint slides, prepared by Brock Williams of Metropolitan Community College, can be downloaded from MyLab Economics or the Instructor's Resource Center (accessible from <http://www.pearsonglobaleditions.com/osullivan>) and made available to students. The slides include:

- All graphs, tables, and equations in the text
- Figures in step-by-step mode and automated modes, using a single click per graph curve
- End-of-chapter key terms with hyperlinks to relevant slides

## ► REVIEWERS OF PREVIOUS EDITIONS

A long road exists between the initial vision of an innovative principles text and the final product. Along our journey we participated in a structured process to reach our goal. We wish to acknowledge the assistance of the many people who participated in this process.

### Alabama

*Jim Payne, Calhoun Community College*  
*James Swofford, University of South Alabama*

### Alaska

*Paul Johnson, University of Alaska, Anchorage*

### Arizona

*Basil Al-Hashbimi, Mesa Community College, Red Mountain*  
*Pete Mavrokordatos, Tarrant County College/University of Phoenix*  
*Evan Tanner, Thunderbird, The American Graduate School of International Management*  
*Donald Wells, University of Arizona*

### California

*Antonio Avalos, California State University, Fresno*  
*Collette Barr, Santa Barbara Community College*  
*T. J. Bettner, Orange Coast College*  
*Peter Boelman-Lopez, Riverside Community College*  
*Matthew Brown, Santa Clara University*  
*Jim Cobb, Orange Coast College*  
*John Constantine, Sacramento City College*  
*Peggy Crane, San Diego State University*  
*Albert B. Culver, California State University, Chico*  
*Jose L. Esteban, Palomar College*  
*Gilbert Fernandez, Santa Rosa Junior College*  
*E. B. Gendel, Woodbury University*  
*Charles W. Haase, San Francisco State University*  
*John Henry, California State University, Sacramento*  
*George Jensen, California State University, Los Angeles*  
*Janis Kea, West Valley College*  
*Rose Kilburn, Modesto Junior College*  
*Philip King, San Francisco State University*  
*Anthony Lima, California State University, Hayward*  
*Bret McMurrin, Chaffey College*  
*Jon J. Nadenichek, California State University, Northridge*

*Alex Obiya, San Diego City College*  
*Jack W. Osman, San Francisco State University*  
*Jay Patyk, Foothill College*  
*Stephen Perez, California State University, Sacramento*  
*Ratha Ramoo, Diablo Valley College*  
*Greg Rose, Sacramento City College*  
*Kurt Schwabe, University of California, Riverside*  
*Terri Sexton, California State University, Sacramento*  
*David Simon, Santa Rosa Junior College*  
*Xiaochuan Song, San Diego Mesa College*  
*Ed Sorensen, San Francisco State University*  
*Susan Spencer, Santa Rosa Junior College*  
*Linda Stob, Sacramento City College*  
*Rodney Swanson, University of California, Los Angeles*  
*Daniel Villegas, California Polytechnic State University*

### Colombia

*Michael Jetter, Universidad EAFIT*

### Colorado

*Steve Call, Metropolitan State College of Denver*

### Connecticut

*John A. Jascot, Capital Community Technical College*  
*Stephen Rubb, Sacred Heart University*

### Delaware

*Lawrence Stelmach, Delaware Valley College*

### Florida

*Irma de Alonso, Florida International University*  
*Jay Bhattacharya, Okaloosa-Walton Community College*  
*Edward Bierhanzl, Florida A&M University*  
*Eric P. Chiang, Florida Atlantic University*  
*Martine Duchatelet, Barry University*  
*George Greenlee, St. Petersburg College, Clearwater*  
*Martin Markovich, Florida A&M University*  
*Thomas McCaleb, Florida State University*  
*Barbara Moore, University of Central Florida*  
*Stephen Morrell, Barry University*  
*Carl Schmertmann, Florida State University*  
*Garvin Smith, Daytona Beach Community College*  
*Noel Smith, Palm Beach Community College*  
*Michael Vierk, Florida International University*  
*Joseph Ward, Broward Community College, Central*  
*Virginia York, Gulf Coast Community College*  
*Andrea Zanter, Hillsborough Community College*

### Georgia

*Scott Beaulier, Mercer College*  
*Ashley Harmon, Southeastern Technical College*  
*Steven F. Koch, Georgia Southern University*  
*L. Wayne Plumly, Jr., Valdosta State University*  
*Greg Trandel, University of Georgia*

### Hawaii

*Barbara Ross-Pfeiffer, Kapiolani Community College*

### Idaho

*Charles Scott Benson, Jr., Idaho State University*  
*Tesa Stegner, Idaho State University*

## Illinois

*Diane Anstine, North Central College*  
*Rosa Lea Danielson, College of DuPage*  
*Sel Dibooglu, Southern Illinois University*  
*Linda Ghent, Eastern Illinois University*  
*Gary Langer, Roosevelt University*  
*Nampeang Pingkarawat, Chicago State University*  
*Dennis Shannon, Belleville Area College*  
*Chuck Sicotte, Rock Valley College*

## Indiana

*John L. Conant, Indiana State University*  
*Mousumi Duttaray, Indiana State University*  
*Robert B. Harris, Indiana Univ. Purdue Univ. Indianapolis*  
*James T. Kyle, Indiana State University*  
*Virginia Shingleton, Valparaiso University*

## Iowa

*Dale Borman, Kirkwood Community College*  
*Jonathan O. Ikoba, Scott Community College*  
*Saul Mekies, Kirkwood Community College, Iowa City*

## Kansas

*Carl Parker, Fort Hays State University*  
*James Ragan, Kansas State University*  
*Tracy M. Turner, Kansas State University*

## Kentucky

*David Eaton, Murray State University*  
*John Robertson, University of Kentucky*

## Louisiana

*John Payne Bigelow, Louisiana State University*  
*Sang Lee, Southeastern Louisiana University*  
*Richard Stahl, Louisiana State University*

## Maine

*George Schatz, Maine Maritime Academy*

## Maryland

*Carey Borkoski, Anne Arundel Community College*  
*Gretchen Mester, Anne Arundel Community College*  
*Irvin Weintraub, Towson State University*

## Massachusetts

*Hans Despain, Nichols College*  
*Brian Deuriarte, Middlesex Community College*  
*Dan Georgianna, University of Massachusetts, Dartmouth*  
*James E. Hartley, Mount Holyoke College*  
*Marlene Kim, University of Massachusetts, Boston*  
*Mark Siegler, Williams College*  
*Gilbert Wolfe, Middlesex Community College*

## Michigan

*Christine Amsler, Michigan State University*  
*Bharati Basu, Central Michigan University*  
*Norman Cure, Macomb Community College*  
*Susan Linz, Michigan State University*  
*Scanlon Romer, Delta College*  
*Robert Tansky, St. Clair County Community College*  
*Wendy Wysocki, Monroe Community College*

## Minnesota

*Ihsuan Li, Minnesota State University, Mankato*  
*Mike McIlhon, Augsburg College*  
*Richard Milani, Hibbing Community College*

## Mississippi

*Billy L. Carson II, Itawamba Community College*  
*Arlena Sullivan, Jones County Junior College*

## Missouri

*Duane Eberhardt, Missouri Southern State College*  
*David Gillette, Truman State University*  
*Brad Hoppes, Southwest Missouri State University*  
*Denise Kummer, St. Louis Community College*  
*Steven M. Schamber, St. Louis Community College, Meramec*  
*Elias Shukralla, St. Louis Community College, Meramec*  
*Keith Ulrich, Valencia Community College*  
*George Wasson, St. Louis Community College, Meramec*

## Nebraska

*Debbie Gaspard, Southeast Community College*  
*Theodore Larsen, University of Nebraska, Kearney*  
*Timothy R. Mittan, Southeast Community College*  
*Stanley J. Peters, Southeast Community College*  
*Brock Williams, Metropolitan Community College*

## Nevada

*Stephen Miller, University of Nevada, Las Vegas*  
*Charles Okeke, College of Southern Nevada*

## New Jersey

*Len Anyanwu, Union County College*  
*Richard Comerford, Bergen Community College*  
*John Graham, Rutgers University*  
*Paul C. Harris, Jr., Camden County College*  
*Calvin Hoy, County College of Morris*  
*Taghi Ramin, William Paterson University*  
*Brian de Uriarte, Middlesex County College*

## New Hampshire

*Jeff Phillips, Colby-Sawyer College*

## New Mexico

*Carl Enomoto, New Mexico State University*

## New York

*Farhad Ameen, State University of New York, Westchester County Community College*  
*Karijit K. Arora, Le Moyne College*  
*Alex Azarchs, Pace University*  
*Kathleen K. Bromley, Monroe Community College*  
*Barbara Connelly, Westchester Community College*  
*George Frost, Suffolk County Community College*  
*Susan Glanz, St. John's University*  
*Serge S. Grushchin, ASA College of Advanced Technology*  
*Robert Herman, Nassau Community College*  
*Christopher Inya, Monroe Community College*  
*Marie Kratochvil, Nassau Community College*  
*Marianne Lowery, Erie Community College*  
*Jeannette Mitchell, Rochester Institute of Technology*  
*Ted Muzio, St. John's University*