Dedication

For Sabine,
Courage has always been your strong suit.
And I continue to admire it greatly.

R.L.M.
BRIEF CONTENTS

Preface xi

PART 1 Introduction
  1 The Nature of Economics 1
  2 Scarcity and the World of Trade-Offs 26
  3 Demand and Supply 48
  4 Extensions of Demand and Supply Analysis 73
  5 Public Spending and Public Choice 98
  6 Funding the Public Sector 120

PART 5 Dimensions of Microeconomics
  19 Demand and Supply Elasticity 402
  20 Consumer Choice 423
  21 Rents, Profits, and the Financial Environment of Business 450

PART 6 Market Structure, Resource Allocation, and Regulation
  22 The Firm: Cost and Output Determination 471
  23 Perfect Competition 495
  24 Monopoly 519
  25 Monopolistic Competition 542
  26 Oligopoly and Strategic Behavior 561
  27 Regulation and Antitrust Policy in a Globalized Economy 582

PART 7 Labor Resources and the Environment
  28 The Labor Market 605
  29 Income, Poverty, and Health Care 631
  30 Environmental Economics 652

PART 8 Global Economics
  31 Comparative Advantage and the Open Economy 669
  32 Exchange Rates and the Balance of Payments 691
# Contents

Preface xi

## Part 1 Introduction

### AI—Decision Making Through Data
- Microeconomic and Macroeconomic Applications 4
- Example The Altered Incentives Confronting Prospective College Students 7
- Behavioral Example Assessing Whether Charitable Donations Reflect Caring for Others or for Oneself 7

### Behavioral Example
- Why People with the Highest Hourly Opportunity Cost Allocate as Much Time to Leisure as Everyone Else 29
- Example The Economic Explanation for Shrinking Airline Restrooms 31

### Behavioral Example
- Why People with the Highest Hourly Opportunity Cost Allocate as Much Time to Leisure as Everyone Else 29
- Example The Economic Explanation for Shrinking Airline Restrooms 31

### AI—Decision Making Through Data
- City Management 33
- Policy Example City Bicycle Lanes Encounter the Law of Increasing Additional Cost 35

### Example
- The Soaring Relative Price of Restaurant Meals 50
- Assessing the Quality-Adjusted Prices of Old and New Concert Violins 51
- Technological Change Boosts Supply in the Jewelry Market 62

### Behavioral Example
- Why Pay-What-You-Want Pricing Often Pays Off for Charitable Organizations 52

## Part 2 Scarcity and the World of Trade-Offs 26

### Example
- Putting Demand and Supply Together 64

### Behavioral Example
- Why Pay-What-You-Want Pricing Often Pays Off for Charitable Organizations 52

## Part 3 Demand and Supply 48

### Example
- The Economic Explanation for Shrinking Airline Restrooms 31

### Behavioral Example
- Why Pay-What-You-Want Pricing Often Pays Off for Charitable Organizations 52

### Behavioral Example
- Why Pay-What-You-Want Pricing Often Pays Off for Charitable Organizations 52
ECONOMICS IN YOUR LIFE  Space-Constrained Restaurants Discover That Customers Care about Quality-Adjusted Lunch Prices  67

ISSUES & APPLICATIONS  Explaining a Consumption Shift from Soft Drinks to Bottled Water: Tastes versus Relative Prices  67

Summary: What You Should Know  69 • Problems  70 • References  72

4  Extensions of Demand and Supply Analysis  73

The Price System and Markets  74 • Changes in Demand and Supply  75
• The Rationing Function of Prices  78 • Price Ceilings  80

WHAT HAPPENS WHEN  . . .  the New York City government effectively raises the legal minimum price of cigarettes within the city’s boundaries to almost twice the average U.S. price?  81
Price Floors and Quantity Restrictions  83

ECONOMICS IN YOUR LIFE  A Mayor Favors the Minimum Wage until Confronting Its Consequences  87

ISSUES & APPLICATIONS  Why Shortages of Some Pharmaceuticals Generate Higher Prices for Other Drugs  88
Summary: What You Should Know  89 • Problems  90 • References  93

APPENDIX B  Consumer Surplus, Producer Surplus, and Gains from Trade within a Price System  94
Consumer Surplus  94 • Producer Surplus  95 • Gains from Trade within a Price System  96 • Price Controls and Gains from Trade  97

5  Public Spending and Public Choice  98

Market Failures and Externalities  99

WHAT HAPPENS WHEN  . . .  governments require everyone to purchase health insurance?  102
The Other Economic Functions of Government  103 • The Political Functions of Government  106 • Public Spending and Transfer Programs  107 • Collective Decision Making: The Theory of Public Choice  111

ECONOMICS IN YOUR LIFE  Fake “Service Pets” Create External Costs on Airline Flights  114

ISSUES & APPLICATIONS  Residents of Wisconsin Learn That Services Provided by State Parks Are Not Public Goods  114
Summary: What You Should Know  115 • Problems  116 • References  119

6  Funding the Public Sector  120

Paying for the Public Sector: Systems of Taxation  121 • The Most Important Federal Taxes  123

WHAT HAPPENS WHEN  . . .  the government raises the tax rate on capital gains derived from sales of financial assets?  125
Tax Rates and Tax Revenues  127 • Taxation from the Point of View of Producers and Consumers  130

ECONOMICS IN YOUR LIFE  The Connecticut Government Decides to Avoid Striking Out on Its Income Tax Policy  132
PART 5 Dimensions of Microeconomics

19 Demand and Supply Elasticity 402

Price Elasticity 403

WHAT HAPPENS WHEN . . . a government requires firms to collect a per-unit tax on sales of a product for which demand is highly elastic? 407

Elasticity and Total Revenues 407 • Determinants of the Price Elasticity of Demand 410 • The Cross Price and Income Elasticities of Demand 413 • Price Elasticity of Supply 415

ECONOMICS IN YOUR LIFE Imposing a Philadelphia Soft Drinks Tax Reveals Information about the Price Elasticity of Demand 417

ISSUES & APPLICATIONS Tax-Induced Increases in Airline Ticket Prices, the Price Elasticity of Demand, and Airline Revenues 418

Summary: What You Should Know 419 • Problems 420 • References 421

20 Consumer Choice 423

Utility Theory 424

WHAT HAPPENS WHEN . . . consuming an additional unit of a good or service leaves total utility unchanged? 426

Optimizing Consumption Choices 428 • How a Price Change Affects Consumer Optimum 431 • Behavioral Economics and Consumer Choice Theory 434

ECONOMICS IN YOUR LIFE Boutique Sellers Offer $2,000 Japanese-Made Jeans That Some Consumers Truly Are Happy to Buy 435

ISSUES & APPLICATIONS How Much “Intermittently Functioning” High-Tech Automotive Gadgetry Fits into a Consumer Optimum 436

Summary: What You Should Know 437 • Problems 438 • References 440

APPENDIX F More Advanced Consumer Choice Theory 441

On Being Indifferent 441 • The Budget Constraint and the Consumer Optimum 445 • Deriving the Demand Curve 447

Summary: What You Should Know 448 • Problems 449

21 Rents, Profits, and the Financial Environment of Business 450

Economic Rent 451 • Firms and Profits 452

WHAT HAPPENS WHEN . . . factors of production that a producer already owns could be leased to other firms at a higher price than previously? 455

Interest 458 • Corporate Financing Methods 461

ECONOMICS IN YOUR LIFE What New Microwave Towers Have to Do with Modern Financial Markets 465

ISSUES & APPLICATIONS Explaining the Growth in the Number of Widely Used “Stock Indexes” 468

Summary: What You Should Know 466 • Problems 467 • References 469
PART 6  Market Structure, Resource Allocation, and Regulation

EXAMPLE
A Railroad Company Rediscovers How to Obtain Maximum Feasible Production from Available Inputs 473
Airline Companies Hope to Reduce Their Total Costs at the Expense of Higher Total Fixed Costs 477
Long-Haul Trucking Firms Seek to Attain a Minimum Efficient Scale Encompassing “Last-Mile Deliveries” 489

AI—DECISION MAKING THROUGH DATA
Using Augmented Reality 479

INTERNATIONAL POLICY EXAMPLE
Government Policies May Ensure Economies of Scale for a Chinese Battery Manufacturer 487

AI—DECISION MAKING THROUGH DATA
Accessing All Relevant Information for “Dynamic Pricing” 497

INTERNATIONAL EXAMPLE
Reallocating Quarters and Deck Space Transforms Ocean Freighters into Partial Cruise Ships 509

EXAMPLE
Assessing the Long-Run Industry Supply Curve in the Growing Third-Party Food Delivery Industry 511

POLICY EXAMPLE
Chicago’s Licensing Barriers to Entry Limit Consumers’ Access to Mobile Food Treats 522

AI—DECISION MAKING THROUGH DATA
Using “Dynamic Clustering Analysis” to Maximize Profits 529
Price Discrimination via “Personalized Pricing” 531

EXAMPLE
A Railroad Company Rediscovers How to Obtain Maximum Feasible Production from Available Inputs 473
Airline Companies Hope to Reduce Their Total Costs at the Expense of Higher Total Fixed Costs 477
Long-Haul Trucking Firms Seek to Attain a Minimum Efficient Scale Encompassing “Last-Mile Deliveries” 489

22  The Firm: Cost and Output Determination 471
Short Run Versus Long Run 472  •  A Firm’s Production 473  •  Short-Run Costs to the Firm 476
WHAT HAPPENS WHEN . . .?  total fixed cost increases at a firm? 481
Long-Run Cost Curves 485
ECONOMICS IN YOUR LIFE Returning to the Days of Sailing Ships with High-Tech Wind Cylinders 489
ISSUES & APPLICATIONS Retailers Employ AI and Robots in Pursuit of Economies of Scale 490
Summary: What You Should Know 491  •  Problems 492  •  References 494

23  Perfect Competition 495
Characteristics of a Perfectly Competitive Market Structure 496  •  Profit-Maximizing Choices of a Perfectly Competitive Firm 497  •  Short-Run Supply under Perfect Competition 501
WHAT HAPPENS WHEN . . .?  a new regulation causes the marginal cost curve and, hence, the average total cost and variable cost curves to shift upward, thereby altering the short-run break-even and shutdown prices? 504
Price Determination under Perfect Competition 507  •  The Long-Run Industry Situation: Exit and Entry 508
ECONOMICS IN YOUR LIFE For Urban Farmers, Industry Entry May Be Relatively Unimpeded but Still Entails a Key Expense 513
ISSUES & APPLICATIONS Higher Minimum Wage Rates and Long-Run Equilibrium in the Restaurant Industry 514
Summary: What You Should Know 515  •  Problems 516  •  References 518

24  Monopoly 519
Defining and Explaining the Existence of Monopoly 520  •  The Demand Curve a Monopolist Faces 523  •  Costs and Monopoly Profit Maximization 525
WHAT HAPPENS WHEN . . .?  the demand curve faced by a monopolist shifts rightward and the monopolist wishes to determine how many units to produce to maximize economic profits? 528
On Making Higher Profits: Price Discrimination 531  •  The Social Cost of Monopolies 532
ECONOMICS IN YOUR LIFE So, You Want to Provide Dietary Advice in Florida? Get a License! 533
ISSUES & APPLICATIONS The Unraveling of Taxicab Monopolies 534
Summary: What You Should Know 535  •  Problems 536  •  References 538

APPENDIX G  Consumer Surplus and the Deadweight Loss Resulting from Monopoly 539
Consumer Surplus in a Perfectly Competitive Market 539  •  How Society Loses from Monopoly 540

CONTENTS
Part 7  Labor Resources and the Environment

25  Monopolistic Competition 542

Monopolistic Competition 543 • Price and Output for the Monopolistic Competitor 546 • Brand Names and Advertising 549 • Information Products and Monopolistic Competition 551

What Happens When... an author who independently sells an information product—a self-help e-book—and initially earns zero economic profits experiences a large increase in the demand for downloads of the item? 554

Economics in Your Life  Cruise Ships Turn to “Star Fleet” and Other Themes to Differentiate Their Services 555

Issues & Applications  U.S. Industries That Differentiate Their Products via Digital Advertising 555

Summary: What You Should Know  557 • Problems  557 • References  560

26  Oligopoly and Strategic Behavior 561

Oligopoly 562 • Measuring Industry Concentration 563 • Strategic Behavior and Game Theory 566 • The Cooperative Game: A Collusive Cartel 569

What Happens When... the market demand curve shifts leftward in an industry with a cartel whose member firms have restrained production in order to charge the profit-maximizing monopoly price? 573

Network Effects and Two-Sided Markets 573

Economics in Your Life  Searching for Cosmetics Products with Network Effects 576

Issues & Applications  Why Platform Firms Must Balance Getting More Customers vis-à-vis Getting the Right Customers 577

Summary: What You Should Know  578 • Problems  579 • References  580

27  Regulation and Antitrust Policy in a Globalized Economy 582

Forms of Industry Regulation 583 • Regulating Natural Monopolies 585

What Happens When... a natural monopoly subject to a regulatory requirement to utilize average cost pricing experiences a decline in the demand for its product? 587

Regulating Nonmonopolistic Industries 588 • Incentives and Costs of Regulation 591 • Antitrust Policy 594

Economics in Your Life  When a Regulation Requiring the Label “Added Sugars” Actually Means Nothing of the Sort 599

Issues & Applications  How Have FDA Regulatory Rules Dramatically Pushed Up Prices of Old Drugs That Now Are “New”? 600

Summary: What You Should Know  601 • Problems  601 • References  604

28  The Labor Market 605

The Demand for Labor in a Perfectly Competitive Labor Market 606 • Wage Determination in a Perfectly Competitive Labor Market 611 • Labor Demand of a Monopolist and Overall Input Utilization 613 • Monopsony: A Buyer’s Monopoly 618 • Labor Unions 622
Exchange Rates and the Balance of Payments  691

The Balance of Payments and International Financial Flows  692

WHAT HAPPENS WHEN . . . U.S. spending on merchandise imports increases during the same year that foreign expenditures on U.S. merchandise exports decrease, other things being equal?  697

Deriving the Demand for and Supply of Foreign Exchange  697 • Determining Foreign Exchange Rates  701 • Fixed Versus Floating Exchange Rates  704

ECONOMICS IN YOUR LIFE The Hong Kong Monetary Authority Acts to Keep Its Currency’s Exchange Rate Fixed  708

ISSUES & APPLICATIONS How Changing a Fixed Exchange Rate to Try to Absorb Shocks Eventually Can Cause Shocks  709

Summary: What You Should Know  687 • Problems  688 • References  689

Glossary  715
Index  727
Solving Learning and Teaching Challenges

Improving Student Success Through Videos and Animation
Depending on which version you choose for your students, there are available:

- Concept videos with voiceovers
- Concept videos with on-screen live instructor presence
- Improved animated graphs, often with live instructor presence

In addition, for those of you who require that your students access an online version of the text, all of the Self Check exercises have easily viewable click-on answers available. These Self Checks are numbered for easy reference by you.

Learning Economic Skills That Are Practical
An increasing number of beginning economics students want concrete examples about economics that can help them today and tomorrow in their real life. To this end, I have done the following in this new edition:

- I have added short paragraphs throughout the text, which relate previously discussed theory with practical applications.
- I have also added Real Application questions throughout. These questions relate to careers, managerial decision making, future household behavior, and voting choices, to list just a few.
- Each chapter ends with a feature called Economics in Your Life, plus an additional Real Application question.
- Each chapter-ending Issue and Application ends with a Real Application question.

What’s New to This Edition

Explaining Artificial Intelligence (AI) Applications in the Real World
New to this edition, I have added a feature entitled AI—Decision-Making Through Data. There are almost three dozen of these, including:

- The Global Tourism Industry (Chapter 3)
- Contemplating Big Data as a Public Good (Chapter 5)
- Preserving National Tax Bases (Chapter 6)
Other New Features

Already mentioned are the chapter-ending features called Economics in Your Life. Another new feature is What Happens When . . . . This new feature will help students apply previously discussed theory. Some examples are:

- What Happens When . . . people’s actual reactions to incentives differ from how they claim they would respond in answers to survey questions? (Chapter 1)
- What Happens When . . . both buyers and sellers anticipate that the price of an item will increase in the future? (Chapter 3)
- What Happens When . . . the New York City government effectively raises the legal minimum price of cigarettes within the city’s boundaries to almost twice the average U.S. price? (Chapter 4)

All Other Features That Are New to This Edition

Economics Today has always been known to provide the latest high-interest features. To this end, I have replaced every feature in the text, including:

- All chapter-opening Did You Know That . . . features
- All Examples, Policy Examples, and International Examples
- All Behavioral Economics Examples
- All Issues and Applications

ABOUT THE AUTHOR

Roger LeRoy Miller studied at the University of California at Berkeley where he earned a B.S. in economics while garnering the Departmental Prize. He graduated Phi Beta Kappa and Summa Cum Laude and was the recipient of numerous fellowships, including a National Science Foundation Fellowship. He chose to become a Lilly Honor Fellow at the University of Chicago and received his Ph.D. in a record 2½ years.

He has taught at the University of Washington and the University of Miami, where he also co-founded The Law and Economics Center. He is currently Research Professor of Economics at the University of Texas, Arlington. In addition to writing Economics Today, he has authored or co-authored dozens of textbooks, including Applied Econometrics, Intermediate Microeconomics, Intermediate Macroeconomics, Money and Banking, and The Economics of Public Issues.

He continues to be a passionate athlete, regularly entering sanctioned triathlons, cross-country ski races, and road-bike time trials.
ACKNOWLEDGMENTS

As always, I receive a continuing set of suggestions from those professors who use my text. And as always, I try to satisfy every criticism and comment. In addition, a number of professors have been asked by the publisher to review the 19th edition. To all of you listed below, please accept my sincere appreciation for the great work that you have done.

Thomas Elliot, Columbia College
Maria Giuili, Diablo Valley College
Sanja Grubacic, Southern Connecticut State University
Ronald Halcrow, Antelope Valley College
Timothy Hamilton, Columbia College
Samuel Imarhiagbe, Collin College
Ninos Malek, San Jose State University and De Anza College
Margaret McDaniel, Community College of Allegheny County
Kevin McWoodson, Moraine Valley Community College
Alex Obiya, San Diego City College
Jeff Salavitabar, Delaware County Community College
James Sondgeroth, Austin Community College
Alan Traverse, Columbia College
Ricardo Vicente, BYU-Hawaii

I also thank the reviewers of previous editions:
For this 20th edition of *Economics Today*, I was fortunate to again have production management masterfully managed by Kathy Smith, working for SPi Global. She remains at the top of her field by making sure that every correction is made, every graph is perfect, and every table remains error free. I’m also thankful for the impact of the following: Shweta Jain, content producer; Chris DeJohn, content strategy manager; Thomas Hayward, content strategy analyst; Samantha Lewis, product manager; and Adrienne D’Ambrosio, director of product management. I’d also like to thank Ashley DePace and Nayke Heine on their work on the marketing plans.

To my faithful, long-standing, and amazingly accurate “super reviewer,” Professor Dan Benjamin, a heartfelt thank you from me. I am sure that those of you reading this text will recognize how error-free it is, and Professor Benjamin is largely responsible for that level of detail. To my assistant, Sue Jasins, who was responsible for the many drafts of all of the updated revisions, thank you for “burning the midnight oil.”

I welcome ideas and criticisms from both professors and students alike.

R.L.M.