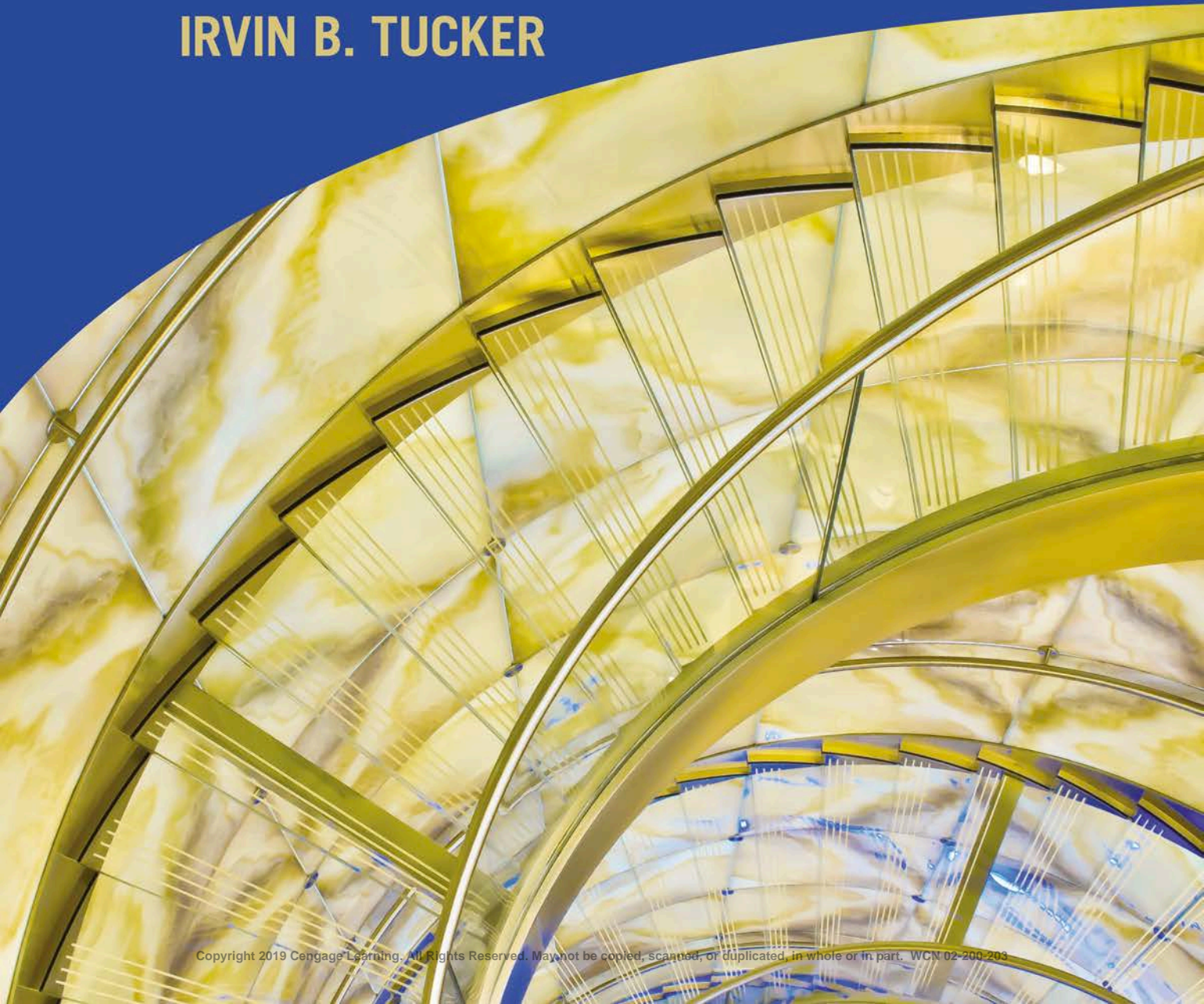


10TH EDITION

# ECONOMICS *for* Today

IRVIN B. TUCKER



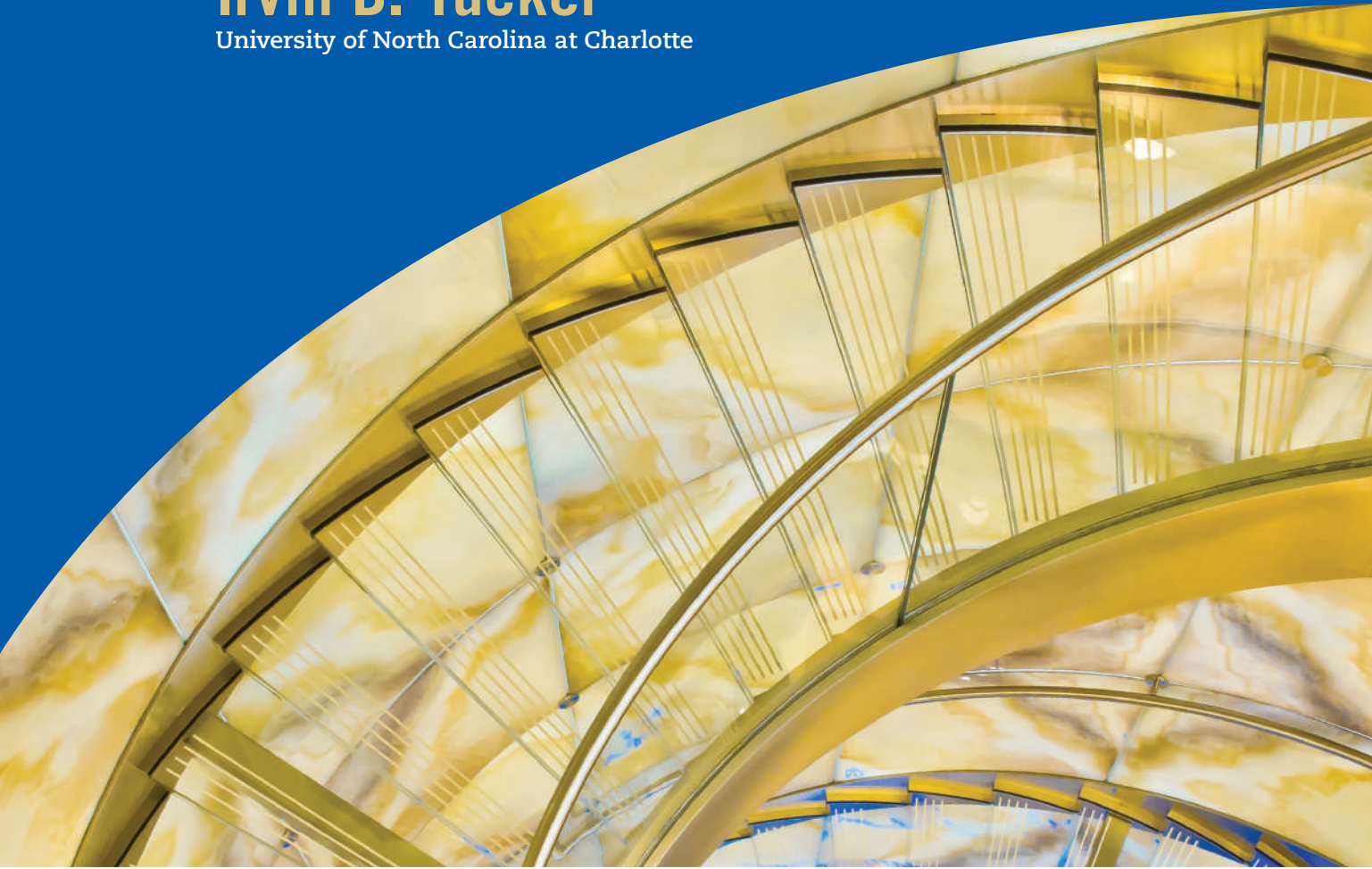


10TH EDITION

# ECONOMICS *for* Today

**Irvin B. Tucker**

University of North Carolina at Charlotte



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**IRVIN B. TUCKER** was a longtime leader in economic education with over 30 years of experience teaching introductory economics at the University of North Carolina at Charlotte. He earned his B.S. in economics at N.C. State University and his M.A. and Ph.D. in economics from the University of South Carolina. Dr. Tucker served as executive director of the S.C. Council of Education and director of the Center for Economic Education at the University of North Carolina at Charlotte. Dr. Tucker is recognized for his ability to relate basic principles to economic issues and public policy. His work has received national recognition by being awarded the Meritorious Levy Award for Excellence in Private Enterprise Education, the Federation of Independent Business Award for Postsecondary Educator of the Year in Entrepreneurship and Economic Education, and the Freedom Foundation's George Washington Medal for Excellence in Economic Education. In addition, his research has been published in numerous professional economics journals on a wide range of topics including industrial organization, entrepreneurship, and economics of education. Dr. Tucker is also the author of the highly successful *Survey of Economics*, tenth edition, a text for the one-semester principles of economics courses, published by Cengage Learning.



# BRIEF CONTENTS

	<b>PART 1</b>	<b>INTRODUCTION TO ECONOMICS</b>	<b>1</b>
CHAPTER 1		Introducing the Economic Way of Thinking	2
		Appendix to Chapter 1: Applying Graphs to Economics	21
CHAPTER 2		Production Possibilities, Opportunity Cost, and Economic Growth	33
	<b>PART 2</b>	<b>MICROECONOMICS FUNDAMENTALS</b>	<b>57</b>
CHAPTER 3		Market Demand and Supply	58
		Appendix to Chapter 3: Consumer Surplus, Producer Surplus, and Market Efficiency	89
CHAPTER 4		Markets in Action	99
		Appendix to Chapter 4: Applying Supply and Demand Analysis to Health Care	124
CHAPTER 5		Price Elasticity of Demand and Supply	129
CHAPTER 6		Consumer Choice Theory	153
		Appendix to Chapter 6: Indifference Curve Analysis	167
CHAPTER 7		Production Costs	179
	<b>PART 3</b>	<b>MARKET STRUCTURES</b>	<b>209</b>
CHAPTER 8		Perfect Competition	210
CHAPTER 9		Monopoly	239
CHAPTER 10		Monopolistic Competition and Oligopoly	267
CHAPTER 11		Labor Markets	293
	<b>PART 4</b>	<b>MICROECONOMICS POLICY ISSUES</b>	<b>319</b>
CHAPTER 12		Income Distribution, Poverty, and Discrimination	320
CHAPTER 13		Antitrust and Regulation	347
CHAPTER 14		Environmental Economics	371
	<b>PART 5</b>	<b>MACROECONOMICS FUNDAMENTALS</b>	<b>401</b>
CHAPTER 15		Gross Domestic Product	402
		Appendix to Chapter 15: A Four-Sector Circular Flow Model	428
CHAPTER 16		Business Cycles and Unemployment	431
CHAPTER 17		Inflation	457

<b>PART 6</b>		<b>MACROECONOMICS THEORY AND POLICY</b>	<b>481</b>
CHAPTER 18	The Keynesian Model		482
CHAPTER 19	The Keynesian Model in Action		505
CHAPTER 20	Aggregate Demand and Supply		529
	Appendix to Chapter 20: The Self-Correcting Aggregate Demand and Supply Model		558
CHAPTER 21	Fiscal Policy		573
CHAPTER 22	The Public Sector		597
CHAPTER 23	Federal Deficits, Surpluses, and the National Debt		619
<b>PART 7</b>		<b>MONEY, BANKING, AND MONETARY POLICY</b>	<b>645</b>
CHAPTER 24	Money and the Federal Reserve System		646
CHAPTER 25	Money Creation		669
CHAPTER 26	Monetary Policy		691
	Appendix to Chapter 26: Policy Disputes Using the Self-Correcting Aggregate Demand and Supply Model		718
CHAPTER 27	The Phillips Curve and Expectations Theory		725
<b>PART 8</b>		<b>THE INTERNATIONAL ECONOMY</b>	<b>753</b>
CHAPTER 28	International Trade and Finance		754
CHAPTER 29	Economies in Transition		787
CHAPTER 30	Growth and the Less-Developed Countries		809
	Appendix A Answers to Odd-Numbered Study Questions and Problems		833
	Appendix B Answers to Sample Quizzes		857
	Appendix C Answers to Road Map Questions		859
	Glossary		860
	Index		869



# CONTENTS

ABOUT THE AUTHOR iii

PREFACE xxiii

---

	<b>PART 1</b>	<b>INTRODUCTION TO ECONOMICS</b>	<b>1</b>
<b>CHAPTER 1</b>		Introducing the Economic Way of Thinking	2
	1-1	The Problem of Scarcity	3
	1-2	Scarce Resources and Production	3
	1-3	Economics: The Study of Scarcity and Choice	5
	1-4	The Methodology of Economics	6
		<b>CHECKPOINT:</b> Can You Prove There Is No Trillion-Dollar Person?	8
	1-5	Hazards of the Economic Way of Thinking	8
		<b>CHECKPOINT:</b> Should Nebraska State Join a Big-Time Athletic Conference?	10
	1-6	Why Do Economists Disagree?	10
		<b>YOU'RE THE ECONOMIST:</b> Mops and Brooms, the Boston Snow Index, the Super Bowl, and Other Economic Indicators	11
		<b>YOU'RE THE ECONOMIST:</b> Does the Minimum Wage Really Help the Working Poor?	13
	1-7	Careers in Economics	14
		Appendix to Chapter 1: Applying Graphs to Economics	21
	A-1	A Direct Relationship	21
	A-2	An Inverse Relationship	22
	A-3	The Slope of a Straight Line	24
	A-4	A Three-Variable Relationship in One Graph	24
	A-5	A Helpful Study Hint for Using Graphs	26
<b>CHAPTER 2</b>		Production Possibilities, Opportunity Cost, and Economic Growth	33
	2-1	Three Fundamental Economic Questions	34

2-2	Opportunity Cost	35
2-3	Marginal Analysis	36
2-4	The Production Possibilities Curve	36
2-5	The Law of Increasing Opportunity Costs	39
2-6	Sources of Economic Growth	40
	<b>YOU'RE THE ECONOMIST:</b> FedEx Wasn't an Overnight Success	43
	<b>CHECKPOINT:</b> What Does a War on Terrorism Really Mean?	43
2-7	Present Investment and the Future Production Possibilities Curve	44
	<b>GLOBAL ECONOMICS:</b> How Does Public Capital Affect a Nation's Curve?	45
	<b>Part 1: Road Map: Introduction to Economics</b>	53

---

## **PART 2** MICROECONOMICS FUNDAMENTALS 57

<b>CHAPTER 3</b>	Market Demand and Supply	58
	3-1 The Law of Demand	59
	3-2 The Distinction between Changes in Quantity Demanded and Changes in Demand	60
	3-3 Nonprice Determinants of Demand	63
	<b>CHECKPOINT:</b> Can Gasoline Become an Exception to the Law of Demand?	65
	3-4 The Law of Supply	67
	<b>CHECKPOINT:</b> Can the Law of Supply Be Repealed for the Oil Market?	69
	3-5 The Distinction between Changes in Quantity Supplied and Changes in Supply	69
	3-6 Nonprice Determinants of Supply	72
	3-7 A Market Supply and Demand Analysis	75
	<b>YOU'RE THE ECONOMIST:</b> PC Prices: How Low Can They Go?	76
	<b>GLOBAL ECONOMICS:</b> The Market Approach to Organ Shortages	80
	<b>CHECKPOINT:</b> Can the Price System Eliminate Scarcity?	81
	Appendix to Chapter 3: Consumer Surplus, Producer Surplus, and Market Efficiency	89

	3A-1	Consumer Surplus	89
	3A-2	Producer Surplus	90
	3A-3	Market Efficiency	92
<b>CHAPTER 4</b>		<b>Markets in Action</b>	<b>99</b>
	4-1	Changes in Market Equilibrium	100
		<b>CHECKPOINT:</b> Why the Lower Price for Big-Screen High-Definition Televisions?	103
	4-2	Can the Laws of Supply and Demand Be Repealed?	103
		<b>YOU'RE THE ECONOMIST:</b> Rigging the Market for Milk	108
		<b>CHECKPOINT:</b> Is There Price Fixing at the Ticket Window?	110
	4-3	Market Failure	110
		<b>YOU'RE THE ECONOMIST:</b> Can Vouchers Fix Our Schools?	114
		<b>CHECKPOINT:</b> Should There Be a War on Drugs?	117
		Appendix to Chapter 4: Applying Supply and Demand Analysis to Health Care	124
	4A-1	The Impact of Health Insurance	124
	4A-2	Shifts in the Demand for Health Care	126
	4A-3	Shifts in the Supply of Health Care	127
<b>CHAPTER 5</b>		<b>Price Elasticity of Demand and Supply</b>	<b>129</b>
	5-1	Price Elasticity of Demand	130
	5-2	Price Elasticity of Demand Variations along a Demand Curve	135
		<b>CHECKPOINT:</b> Will Fliers Flock to Low Summer Fares?	137
	5-3	Determinants of Price Elasticity of Demand	138
		<b>CHECKPOINT:</b> Can Trade Sanctions Affect Elasticity of Demand for Cars?	139
		<b>YOU'RE THE ECONOMIST:</b> Cigarette Smoking Price Elasticity of Demand	140
	5-4	Other Elasticity Measures	141
	5-5	Price Elasticity and the Impact of Taxation	145
		<b>CHECKPOINT:</b> Can Honda Compete with Itself?	146

<b>CHAPTER 6</b>	Consumer Choice Theory	153
	6-1 From Utility to the Law of Demand	154
	<b>YOU'RE THE ECONOMIST:</b> Why Is Water Less Expensive than Diamonds?	156
	<b>CHECKPOINT:</b> When Dining Out, Do You Eat Smart?	159
	6-2 Income and Substitution Effects and the Law of Demand	159
	<b>CHECKPOINT:</b> Does the Substitution Effect Apply to Buying a Car?	160
	<b>YOU'RE THE ECONOMIST:</b> Testing the Law of Demand with White Rats	161
	Appendix to Chapter 6: Indifference Curve Analysis	167
	6A-1 Constructing an Indifference Curve	167
	6A-2 The Budget Line	170
	6A-3 A Consumer Equilibrium Graph	172
	6A-4 Derivation of the Demand Curve	172

<b>CHAPTER 7</b>	Production Costs	179
	7-1 Costs and Profit	180
	<b>CHECKPOINT:</b> Should the Professor Go or Stay?	182
	7-2 Short-Run Production Costs	182
	7-3 Short-Run Cost Formulas	185
	7-4 Marginal Cost Relationships	189
	<b>CHECKPOINT:</b> Are LeBron James's Scoring Averages Subject to the Marginal-Average Rule?	190
	7-5 Long-Run Production Costs	192
	<b>YOU'RE THE ECONOMIST:</b> Why Is That Website You're Using Free?	196
	<b>Part 2: Road Map: Microeconomics Fundamentals</b>	205

---

**PART 3 MARKET STRUCTURES** 209

<b>CHAPTER 8</b>	Perfect Competition	210
	8-1 Perfect Competition	211
	8-2 Short-Run Profit Maximization for a Perfectly Competitive Firm	212



	8-3 Short-Run Loss Minimization for a Perfectly Competitive Firm	218
	<b>CHECKPOINT:</b> Should Motels Offer Rooms at the Beach for Only \$70 a Night?	221
	8-4 Short-Run Supply Curves under Perfect Competition	221
	8-5 Long-Run Supply Curves under Perfect Competition	223
	<b>CHECKPOINT:</b> Are You in Business for the Long Run?	226
	<b>YOU'RE THE ECONOMIST:</b> Recession Takes a Bite Out of Gator Profits	230
<b>CHAPTER 9</b>	<b>Monopoly</b>	<b>239</b>
	9-1 The Monopoly Market Structure	240
	<b>GLOBAL ECONOMICS:</b> Monopolies around the World	243
	9-2 Price and Output Decisions for a Monopolist	244
	<b>YOU'RE THE ECONOMIST:</b> The Standard Oil Monopoly	252
	9-3 Price Discrimination	253
	<b>CHECKPOINT:</b> Why Don't Adults Pay More for Popcorn at the Movies?	255
	9-4 Comparing Monopoly and Perfect Competition	255
	<b>YOU'RE THE ECONOMIST:</b> New York Taxicabs: Where Have All the Fare Flags Gone?	258
<b>CHAPTER 10</b>	<b>Monopolistic Competition and Oligopoly</b>	<b>267</b>
	10-1 The Monopolistic Competition Market Structure	268
	<b>YOU'RE THE ECONOMIST:</b> Social Networking Sites: The New Advertising Game	272
	10-2 Price and Output Decisions for a Monopolistically Competitive Firm	272
	10-3 Comparing Monopolistic Competition and Perfect Competition	274
	10-4 Oligopoly—Competition among the Few	277
	10-5 Price and Output Decisions for an Oligopolist	278
	<b>GLOBAL ECONOMICS:</b> Major Cartels in Global Markets	281
	<b>CHECKPOINT:</b> Which Model Fits the Cereal Aisle?	285

	10-6 Review of the Four Market Structures	285
	<b>YOU'RE THE ECONOMIST:</b> How Oligopolists Compete at the Final Four	286
<b>CHAPTER 11</b>	<b>Labor Markets</b>	<b>293</b>
	11-1 The Labor Market under Perfect Competition	294
	11-2 Labor Unions: Employee Power	299
	<b>CHECKPOINT:</b> Where Should Toyota Build the Factory?	304
	11-3 Employer Power	304
	<b>CHECKPOINT:</b> Can the Minimum Wage Create Jobs?	308
	<b>YOU'RE THE ECONOMIST:</b> Should College Athletes Be Paid?	309
	<b>CHECKPOINT:</b> If You Don't like It, Mickey, Take Your Bat and Go Home	310
	<b>Part 3: Road Map: Market Structures</b>	<b>316</b>
<hr/>		
	<b>PART 4 MICROECONOMICS POLICY ISSUES</b>	<b>319</b>
<b>CHAPTER 12</b>	<b>Income Distribution, Poverty, and Discrimination</b>	<b>320</b>
	12-1 The Distribution of Income	321
	12-2 Poverty	327
	<b>YOU'RE THE ECONOMIST:</b> Pulling Back the Curtain on Income and Wealth Distribution	328
	12-3 Antipoverty Programs	332
	12-4 Reform Proposals	335
	<b>CHECKPOINT:</b> Does a Negative Income Tax Discourage Work?	337
	12-5 Discrimination	337
	<b>YOU'RE THE ECONOMIST:</b> Pulling on the Strings of the Welfare Safety Net	338
	<b>YOU'RE THE ECONOMIST:</b> Is Pay for Females Fair?	340
	<b>CHECKPOINT:</b> Should the Law Protect Women?	340
<b>CHAPTER 13</b>	<b>Antitrust and Regulation</b>	<b>347</b>
	13-1 Antitrust	348
	13-2 Key Antitrust Cases	351

	<b>YOU'RE THE ECONOMIST:</b> Is Utah Pie's Slice of the Pie Too Small?	352
	<b>CHECKPOINT:</b> Apple Does It Again! Now It Brings to Life Applications of Artificial Intelligence!	354
	<b>CHECKPOINT:</b> Does Price Fixing Improve Your Education?	355
	13-3 Mergers and Global Antitrust Policy	357
	13-4 Regulation	358
	13-5 Three Cases for Government Regulation	359
	<b>CHECKPOINT:</b> Why Doesn't the Water Company Compete?	362
	13-6 Imperfect Information	362
	<b>YOU'RE THE ECONOMIST:</b> Who Turned out the Lights in California?	363
	<b>YOU'RE THE ECONOMIST:</b> Does Airline Deregulation Mean Friendlier Skies?	365
<b>CHAPTER 14</b>	<b>Environmental Economics</b>	<b>371</b>
	14-1 Competitive Markets and Environmental Efficiency	372
	14-2 Achieving Environmental Efficiency	377
	<b>GLOBAL ECONOMICS:</b> How Should Carbon Emissions Be Reduced: Cap and Trade or Carbon Taxes?	388
	<b>GLOBAL ECONOMICS:</b> Why Is the Climate Change Problem So Hard to Solve?	390
	<b>CHECKPOINT:</b> Is It Efficient to Buy Odor-Reducing Technology If You Live Next to a Hog Farm?	392
	<b>Part 4: Road Map: Microeconomics Policy Issues</b>	<b>398</b>
<hr/>		
	<b>PART 5 MACROECONOMICS FUNDAMENTALS</b>	<b>401</b>
<b>CHAPTER 15</b>	<b>Gross Domestic Product</b>	<b>402</b>
	15-1 Gross Domestic Product	403
	15-2 Measuring GDP	404
	15-3 The Expenditure Approach	406
	15-4 The Income Approach	409
	<b>CHECKPOINT:</b> How Much Does Mario Add to GDP?	412

	15-5 GDP Shortcomings	412
	15-6 Other National Income Accounts	416
	<b>YOU'RE THE ECONOMIST:</b> Is GDP a False Beacon Steering Us into the Rocks?	417
	15-7 Changing Nominal GDP to Real GDP	419
	<b>CHECKPOINT:</b> Is the Economy Up or Down?	422
	Appendix to Chapter 15: A Four-Sector Circular Flow Model	428
<b>CHAPTER 16</b>	<b>Business Cycles and Unemployment</b>	<b>431</b>
	16-1 The Business–Cycle Roller Coaster	432
	<b>CHECKPOINT:</b> Where Are We on the Business-Cycle Roller Coaster?	436
	16-2 Unemployment	438
	16-3 Types of Unemployment	443
	<b>CHECKPOINT:</b> What Kind of Unemployment Did the Invention of the Wheel Cause?	445
	16-4 The Goal of Full Employment	446
	<b>YOU'RE THE ECONOMIST:</b> What Kind of Unemployment Do Robots and Artificial Intelligence Cause?	447
	16-5 Nonmonetary and Demographic Consequences of Unemployment	449
	<b>YOU'RE THE ECONOMIST:</b> Brother Can You Spare a Dime?	450
<b>CHAPTER 17</b>	<b>Inflation</b>	<b>457</b>
	17-1 Meaning and Measurement of Inflation	458
	<b>CHECKPOINT:</b> The College Education Price Index	461
	17-2 Consequences of Inflation	463
	<b>CHECKPOINT:</b> What Is the Real Price of Gasoline?	465
	<b>GLOBAL ECONOMICS:</b> Who Wants to Be a Trillionaire?	468
	<b>YOU'RE THE ECONOMIST:</b> Why the High Cost of Health Care?	470
	17-3 Demand-Pull and Cost-Push Inflation	470
	<b>Part 5: Road Map: Macroeconomics Fundamentals</b>	<b>477</b>



---

	<b>PART 6</b> MACROECONOMICS THEORY AND POLICY	481
CHAPTER 18	The Keynesian Model	482
	18-1 Introducing Classical Theory and the Keynesian Revolution	483
	<b>CHECKPOINT:</b> What's Your MPC?	490
	18-2 Reasons the Consumption Function Shifts	490
	18-3 Investment Expenditures	492
	18-4 Why Investment Demand Is Unstable	495
	<b>YOU'RE THE ECONOMIST:</b> Does a Stock Market Crash Cause Recession?	496
CHAPTER 19	The Keynesian Model in Action	505
	19-1 Adding Government and Global Trade to the Keynesian Model	506
	19-2 The Aggregate Expenditures Model	507
	19-3 The Spending Multiplier Effect	512
	19-4 Recessionary and Inflationary Gaps	516
	<b>CHECKPOINT:</b> Full-Employment Output, Where Are You?	519
	<b>YOU'RE THE ECONOMIST:</b> Infrastructure Spending	520
	<b>CHECKPOINT:</b> How Much Spending Must Uncle Sam Cut?	521
CHAPTER 20	Aggregate Demand and Supply	529
	20-1 The Aggregate Demand Curve	530
	20-2 Reasons for the Aggregate Demand Curve's Shape	531
	20-3 Nonprice-Level Determinants of Aggregate Demand	532
	20-4 The Aggregate Supply Curve	533
	20-5 Changes in AD–AS Macroeconomic Equilibrium	540
	20-6 Nonprice-Level Determinants of Aggregate Supply	545
	20-7 Cost-Push and Demand-Pull Inflation Revisited	547
	<b>YOU'RE THE ECONOMIST:</b> Was John Maynard Keynes Right?	550

	<b>CHECKPOINT:</b> Would Climate Change and the Greenhouse Effect Cause Inflation, Unemployment, or Both?	551
	Appendix to Chapter 20: The Self-Correcting Aggregate Demand and Supply Model	558
	20A-1 The Short-Run and Long-Run Aggregate Supply Curves	558
	20A-2 Changes in Potential Real GDP	565
<b>CHAPTER 21</b>	<b>Fiscal Policy</b>	<b>573</b>
	21-1 Discretionary Fiscal Policy	574
	<b>CHECKPOINT:</b> What Is the MPC for Uncle Sam’s Stimulus Package?	578
	<b>CHECKPOINT:</b> Walking the Balanced Budget Tightrope	583
	21-2 Automatic Stabilizers	583
	21-3 Supply-Side Fiscal Policy	585
	<b>YOU’RE THE ECONOMIST:</b> The Laffer Curve	590
<b>CHAPTER 22</b>	<b>The Public Sector</b>	<b>597</b>
	22-1 Government Size and Growth	598
	22-2 Financing Government Budgets	600
	22-3 The Art of Taxation	602
	22-4 Public Choice Theory	608
	<b>YOU’RE THE ECONOMIST:</b> Is It Time to Trash the 1040s?	609
	<b>CHECKPOINT:</b> What Does Public Choice Say about a Budget Deficit?	613
<b>CHAPTER 23</b>	<b>Federal Deficits, Surpluses, and the National Debt</b>	<b>619</b>
	23-1 The Federal Budget Balancing Act	620
	<b>YOU’RE THE ECONOMIST:</b> The Great Federal Budget Surplus Debate	623
	23-2 Budget Surpluses and Deficits in Other Countries	626
	23-3 Why Worry over the National Debt?	626
	<b>CHECKPOINT:</b> What’s behind the National Debt?	631

	<b>YOU'RE THE ECONOMIST:</b> How Real Is Uncle Sam's Debt?	635
	<b>Part 6: Road Map: Macroeconomics Theory and Policy</b>	641
<hr/>		
	<b>PART 7</b> MONEY, BANKING, AND MONETARY POLICY	645
CHAPTER 24	Money and the Federal Reserve System	646
	24-1 What Makes Money?	647
	<b>CHECKPOINT:</b> Are Debit Cards Money?	649
	<b>GLOBAL ECONOMICS:</b> Why a Loan in Yap Is Hard to Roll Over	650
	<b>CHECKPOINT:</b> Are Bitcoins Money?	651
	24-2 Money Supply Definitions	651
	24-3 The Federal Reserve System	655
	24-4 What a Federal Reserve Bank Does	658
	<b>YOU'RE THE ECONOMIST:</b> Should the Fed Be Independent?	660
	24-5 The U.S. Banking Revolution	662
	<b>YOU'RE THE ECONOMIST:</b> The Wreck of Lincoln Savings and Loan	663
CHAPTER 25	Money Creation	669
	25-1 Money Creation Begins	670
	25-2 Multiplier Expansion of Money by the Banking System	675
	25-3 How Monetary Policy Creates Money	677
	<b>CHECKPOINT:</b> Who Has More Dollar Creation Power?	680
	<b>CHECKPOINT:</b> What Could the Fed Do to Reduce Unemployment?	683
	<b>YOU'RE THE ECONOMIST:</b> How Does the FOMC Really Work?	684
	25-4 Monetary Policy Shortcomings	684
CHAPTER 26	Monetary Policy	691
	26-1 How Are Interest Rates Determined?	692

	<b>CHECKPOINT:</b> What Could the Fed Do If It Wanted to Push Interest Rates Down?	698
	26-2 The Monetarist View of the Role of Money	700
	<b>CHECKPOINT:</b> A Horse of Which Color?	705
	26-3 A Comparison of Macroeconomic Views	705
	<b>YOU'RE THE ECONOMIST:</b> Did the Fed Cause the Great Recession?	706
	<b>YOU'RE THE ECONOMIST:</b> Monetary Policy During the Great Depression	709
	Appendix to Chapter 26: Policy Disputes Using the Self-Correcting Aggregate Demand and Supply Model	718
	26A-1 The Classical versus Keynesian Views of Expansionary Policy	718
	26A-2 Classical versus Keynesian Views of Contractionary Policy	719
<b>CHAPTER 27</b>	<b>The Phillips Curve and Expectations Theory</b>	<b>725</b>
	27-1 The Phillips Curve	726
	27-2 The Long-Run Phillips Curve	727
	27-3 The Theory of Rational Expectations	732
	<b>YOU'RE THE ECONOMIST:</b> The Political Business Cycle	733
	<b>CHECKPOINT:</b> Does Rational Expectations Theory Work in the Classroom?	735
	27-4 Applying the AD-AS Model to the Great Expectations Debate	736
	27-5 Incomes Policy	738
	<b>CHECKPOINT:</b> Can Wage and Price Controls Cure Stagflation?	740
	27-6 How Different Macroeconomic Theories Attack Inflation	740
	<b>YOU'RE THE ECONOMIST:</b> Ford's Whip Inflation Now (WIN) Button	741
	<b>Part 7: Road Map: Money, Banking, and Monetary Policy</b>	<b>748</b>
<hr/>		
	<b>PART 8 THE INTERNATIONAL ECONOMY</b>	<b>753</b>
<b>CHAPTER 28</b>	<b>International Trade and Finance</b>	<b>754</b>
	28-1 Why Nations Need Trade	755
	28-2 Absolute and Comparative Advantage	758
	<b>CHECKPOINT:</b> Do Nations with an Advantage Always Trade?	759
	28-3 Free Trade versus Protectionism	760



	28-4 Arguments for Protection	762
	<b>GLOBAL ECONOMICS:</b> World Trade Slips on Banana Peel	764
	28-5 The Balance of Payments	765
	<b>CHECKPOINT:</b> Should Everyone Keep a Balance of Payments?	771
	28-6 Exchange Rates	771
	<b>GLOBAL ECONOMICS:</b> Return to the Yellow Brick Road?	778
<b>CHAPTER 29</b>	Economies in Transition	787
	29-1 Basic Types of Economic Systems	788
	29-2 The “ISMS”	794
	<b>CHECKPOINT:</b> To Plan or Not to Plan—That Is the Question	798
	29-3 Economies in Transition	799
	<b>YOU'RE THE ECONOMIST:</b> The Unrealistic Path to Communism	800
	<b>GLOBAL ECONOMICS:</b> Shining Light on a Debate	802
<b>CHAPTER 30</b>	Growth and the Less-Developed Countries	809
	30-1 Comparing Developed and Less-Developed Countries	810
	30-2 Economic Growth and Development around the World	814
	<b>CHECKPOINT:</b> Does Rapid Growth Mean a Country Is Catching Up?	816
	<b>GLOBAL ECONOMICS:</b> India and China’s Economic Growth: An Updated Version of Aesop’s Tale	820
	30-3 The Helping Hand of Advanced Countries	821
	<b>CHECKPOINT:</b> Is the Minimum Wage an Antipoverty Solution for Poor Countries?	825
	<b>Part 8: Road Map: The International Economy</b>	830
Appendix A	Answers to Odd-Numbered Study Questions and Problems	833
Appendix B	Answers to Sample Quizzes	857
Appendix C	Answers to Road Map Questions	859
GLOSSARY		860
INDEX		869



# AVAILABLE VERSIONS

The Four Versions of This Book					
Economics for Today	Economics for Today	Microeconomics for Today	Macroeconomics for Today	Survey of Economics	
1	Introducing the Economic Way of Thinking	X	X	X	X
2	Production Possibilities, Opportunity Cost, and Economic Growth	X	X	X	X
3	Market Demand and Supply	X	X	X	X
4	Markets in Action	X	X	X	X
5	Price Elasticity of Demand and Supply	X	X		X
6	Consumer Choice Theory	X	X		
7	Production Costs	X	X		X
8	Perfect Competition	X	X		X
9	Monopoly	X	X		X
10	Monopolistic Competition and Oligopoly	X	X		X
11	Labor Markets	X	X		X
12	Income Distribution, Poverty, and Discrimination	X	X		X
13	Antitrust and Regulation	X	X		
14	Environmental Economics	X	X		
15	Gross Domestic Product	X		X	X
16	Business Cycles and Unemployment	X		X	X
17	Inflation	X		X	X
18	The Keynesian Model	X		X	
19	The Keynesian Model in Action	X		X	
20	Aggregate Demand and Supply	X		X	X
21	Fiscal Policy	X		X	X
22	The Public Sector	X		X	X
23	Federal Deficits, Surpluses, and the National Debt	X		X	X
24	Money and the Federal Reserve System	X		X	X
25	Money Creation	X		X	X
26	Monetary Policy	X		X	X
27	The Phillips Curve and Expectations Theory	X		X	
28	International Trade and Finance	X	X	X	X
29	Economies in Transition	X	X	X	X
30	Growth and the Less-Developed Countries	X	X	X	X

Note: Chapter numbers refer to the complete book, *Economics for Today*.





# PREFACE

## TEXT WITH A MISSION

The purpose of *Economics for Today*, tenth edition, is to teach, in an engaging style, the basic operations of the U.S. economy to students who will take a two-term economics course. Rather than taking an encyclopedic approach to economic concepts, *Economics for Today* focuses on the most important tools in economics and applies these concepts to clearly explain real-world economic issues and events.

Every effort has been made to make *Economics for Today* the most student-friendly text on the market. This text was written because so many others expose students to a confusing array of economic analyses that force students to simply memorize in order to pass the course. Instead, *Economics for Today* presents a straightforward and unbiased approach that effectively teaches the application of basic economic principles. After reading this text, the student should be able to say, “Now that economics stuff in the news makes sense.”

## HOW IT FITS TOGETHER

This text presents the core principles of microeconomics, macroeconomics, and international economics. The first 14 chapters introduce the logic of economic analysis and develop the core of microeconomic analysis. Here, students learn the role of demand and supply in determining prices in competitive markets versus monopolistic markets. Within these chapters, the book explores such issues as minimum wage laws, rent control, and pollution. The next 13 chapters develop the macroeconomics part of the text. Using the modern yet simple aggregate demand and aggregate supply model, the text explains measurement of and changes in the price level, national output, and employment in the economy. The study of macroeconomics also includes how the supply of and the demand for money influences the economy. Finally, this text concludes with three chapters devoted entirely to global issues. For example, students will learn how the supply of and demand for currencies determine exchange rates and what the implications are for a strong or a weak dollar on our nation’s economy.

## TEXT FLEXIBILITY

The full version of *Economics for Today* is easily adapted to an instructor’s preference for the sequencing of microeconomics and macroeconomics topics. This text can be used in a macroeconomic–microeconomic sequence by teaching the first four chapters and then Parts 5 through 7. Next, microeconomics is covered in Parts 2 through 4. Finally, the course can be completed with Part 8, consisting of three chapters devoted to international economics.

An important design of this text is that it accommodates the two major approaches for teaching principles of macroeconomics: those who cover both the Keynesian Cross and AD/AS models, and those who skip the Keynesian model and cover only the AD/AS model. For instructors who prefer the former, *Economics for Today* moves smoothly in Chapters 18–19 (*Macroeconomics for Today* Chapters 8–9) from the Keynesian model (based on the Great Depression) to the AD/AS model in Chapter 20 (*Macroeconomics for Today* Chapter 10). For instructors using the latter approach, this text is written so

that instructors can skip the Keynesian model in Chapters 18–19 (*Macroeconomics for Today* Chapters 8–9) and proceed from Chapter 17 (*Macroeconomics for Today* Chapter 7) to Chapter 20 (*Macroeconomics for Today* Chapter 10) without losing anything. For example, the spending multiplier is completely covered both in the Keynesian and AD/AS model chapters.

For instructors who want to teach the self-correcting AD/AS model, emphasis can be placed on the appendixes to Chapters 20 (*Macroeconomics for Today* Chapter 10) and 26 (*Macroeconomics for Today* Chapter 16). Instructors who choose not to cover this model can simply skip these appendixes. In short, *Economics for Today* provides more comprehensive and flexible coverage of macroeconomics models than is available in other texts. Also, a customized text might meet your needs. If so, contact your Cengage learning consultant for information.

## HOW NOT TO STUDY ECONOMICS

To some students, studying economics is a little frightening because many chapters are full of graphs. Students often make the mistake of preparing for tests by trying to memorize the lines of graphs. When their graded tests are returned, the students using this strategy will probably exclaim, “What happened?” The answer to this question is that the students should have learned the economic concepts *first*; then they would understand the graphs as *illustrations* of these underlying concepts. Stated simply, superficial cramming for economics quizzes does not work.

For students who are anxious about using graphs, the Appendix to Chapter 1 provides a brief review of graphical analysis. In addition, Graph Builder in the Tucker MindTap product contains step-by-step features on how to construct and interpret graphs. Moreover, and new to this edition, Videos entitled “GuideMe Videos” (A Graphing Tutorial for Students) are found in the Tucker MindTap product that explain numerous key graphs throughout the textbook.

## CHANGES TO THE TENTH EDITION

The basic layout of the tenth edition remains the same. The following are changes:

- Chapter 1, Introducing the Economic Way of Thinking, recognizes that students taking introductory, college-level economics courses are considering their major. One reason to select economics is that the average starting salary for an undergraduate economics major is higher compared to many other majors. To aid their decision, current average starting salary figures for selected majors have been updated. In addition, the *You're the Economist* feature on the Minimum Wage has been updated with the positive and normative arguments both for and against the minimum wage.
- Chapter 2, Production Possibilities, Opportunity Cost, and Economic Growth has an updated discussion on how public investment in infrastructure can promote economic growth and enhance the average absolute standard of living for a nation.
- Chapter 4, Markets in Action, has updated the *You're the Economist* feature entitled “Rigging the Market for Milk” to reflect the latest changes in government’s attempts at supporting farm incomes.
- Chapter 9, Monopoly, has an example of the “sharing economy” that has been updated in the *You're the Economist* on New York Taxicabs. This feature now

concludes with a discussion of the unregulated rideshares market with companies like Uber and Lyft.

- Chapter 11, Labor Markets, has a new *Checkpoint* that asks students to consider a business' location decision based on union membership.
- Chapter 12, Income Distribution, Poverty, and Discrimination, has been updated with the latest figures on family income distribution and poverty rates. In addition, Chapter 12 also has a new *You're the Economist* feature that focuses on the growing income and wealth inequality in the United States. The other *You're the Economist* that addresses fair pay for females has been updated. These features generate great interest for students.
- Chapter 14, Environmental Economics, has an updated *You're the Economist* on climate change that incorporates the Paris Climate Agreement.
- Chapter 15 (*Macroeconomics for Today* Chapter 5), Gross Domestic Product, has updated data on all components of GDP.
- Chapter 16 (*Macroeconomics for Today* Chapter 6), Business Cycles and Unemployment, includes updated business cycles and unemployment data. This chapter also includes updated unemployment data by demographic groups with a section on the impacts of globalization on unemployment. This chapter also features a new *You're the Economist* examining the potential impact of artificial intelligence and other technological advancements on unemployment in the future.
- Chapter 17 (*Macroeconomics for Today* Chapter 7), Inflation, updates data on inflation including a global comparison of annual inflation rates. A new *You're the Economist* feature reports on the high inflation rates for health care in the United States and examines the impact on households, businesses, and government. In addition, a couple of *Checkpoints* provide an application for adjusting the price of going to college and the price of gasoline for inflation over time. Here students can also enjoy learning how Babe Ruth's 1932 salary is converted into today's dollars.
- Chapter 18 (*Macroeconomics for Today* Chapter 8), The Keynesian Model, has updated data on all personal consumption, disposable income and investment.
- Chapter 19 (*Macroeconomics for Today* Chapter 10), The Keynesian Model in Action, has a new *You're the Economist* feature on infrastructure spending that allows students to test their understanding of spending and tax multipliers.
- Chapter 22 (*Macroeconomics for Today* Chapter 12), The Public Sector, highlights the important current issue of the changing economic character of the United States with global comparisons to other countries. Here, for example, updated data and exhibits trace the growth of U.S. government expenditures and taxes since the Great Depression. And global comparison of spending and taxation exhibits have been revised.
- Chapter 23 (*Macroeconomics for Today* Chapter 13), Federal Deficits, Surpluses, and the National Debt, focuses on the current "hot button" issue of federal deficits and the national debt using updated data and exhibits. This chapter includes global comparisons of the deficit and national debt as a percentage of GDP.
- Chapter 24 (*Macroeconomics for Today* Chapter 14), Money and the Federal Reserve System, has updated money supply figures and an updated listing of the top 10 U.S. banks by asset size. This chapter also features a new *Checkpoint* that examines the role of bitcoins as money, and a new *You're the Economist* entitled "Should the Fed be Independent?"
- Chapter 25 (*Macroeconomics for Today* Chapter 15), Money Creation, has a new *Checkpoint* that asks students to determine how the Fed could utilize its tools to combat unemployment.



- Chapter 26 (*Macroeconomics for Today* Chapter 16), Monetary Policy, features a new *Checkpoint* that tests students' understanding of how the Fed could push interest rates down.
- Chapter 28 (*Macroeconomics for Today* Chapter 18), International Trade and Finance, has updated data for international balance of payments and trade.
- Chapter 29 (*Macroeconomics for Today* Chapter 19), Economies in Transition, has greater clarification on the differences between capitalism and socialism and why all real-world economies are mixed economies. This chapter also features a new *You're the Economist* entitled "The unrealistic path to communism." In addition, there is a new *Global Economics* section that points to a satellite photo of North Korea as perhaps a compelling testimony to the long-run failure of undemocratic command economies. Students should find this interesting.
- Chapter 30 (*Macroeconomics for Today* Chapter 20), Growth and the Less-Developed Countries, presents updated data ranking countries by their GDP per capita. It also presents updated data comparing regions of the world by their average GDP per capita. Here, updated data is used to explain the link between economic freedom and quality-of-life indicators. There is a new *You're the Economist* section entitled "India and China's Economic Growth: An Updated Version of Aesop's Tale" that probes the ingredients for sustained economic growth.

## ALTERNATIVE VERSIONS OF THE BOOK

For instructors who want to spend various amounts of time for their courses and offer different topics of this text:

- *Economics for Today*. This complete version of the book contains all 30 chapters. It is designed for two-semester introductory courses that cover both microeconomics and macroeconomics.
- *Microeconomics for Today*. This version contains 17 chapters and is designed for one-semester courses in introductory microeconomics.
- *Macroeconomics for Today*. This version contains 20 chapters and is designed for one-semester courses in introductory macroeconomics.
- *Survey of Economics*. This version of the book contains 23 chapters. It is designed for one-semester courses that cover the basics of both microeconomics and macroeconomics.

The Available Versions accompanying table on page xxi shows precisely which chapters are included in each book. Instructors who want more information about these alternative versions should contact their local Cengage learning consultant.

## MOTIVATIONAL PEDAGOGICAL FEATURES

*Economics for Today* strives to motivate and advance the boundaries of pedagogy with the following features:

### Part Openers

Each part begins with a statement of the overall mission of the chapters in the part. In addition, there is a nutshell introduction of each chapter in relation to the part's learning objective.

## Chapter Previews

Each chapter begins with a preview designed to pique the student's interest and reinforce how the chapter fits into the overall scheme of the book. Each preview appeals to students' "Sherlock Holmes" impulses by posing several economics puzzles that can be solved by understanding the material presented in the chapter.

## Margin Definitions and Flashcards

Key concepts introduced in the chapter are highlighted in bold type and then defined with the definitions again in the margins. This feature therefore serves as a quick reference. Key terms are also defined on the Tucker MindTap product with a flashcard feature that is great for learning terms.

## You're the Economist

Each chapter includes boxed inserts that provide the acid test of "relevance to everyday life." This feature gives the student an opportunity to encounter timely, real-world extensions of economic theory. For example, students read about Fred Smith as he writes an economics term paper explaining his plan to create FedEx. To ensure that the student wastes no time figuring out which concepts apply to the article, applicable concepts are listed after each title. Several of these boxed features include quotes from newspaper articles over a period of years demonstrating that economic concepts remain relevant over time. Many of these boxed features have been updated or changed in the tenth edition to reflect the latest issues, developments, and relevant applications of economics for students today.

## Conclusion Statements

Throughout the chapters, highlighted conclusion statements of key concepts appear at the ends of sections and tie together the material just presented. Students will be able to see quickly if they have understood the main points of the section. A summary of these conclusion statements is provided at the end of each chapter.

## Global Economics

Today's economic environment is global. *Economics for Today* carefully integrates international topics throughout the text and presents the material using a highly readable and accessible approach designed for students with no training in international economics. All sections of the text that present global economics are identified by a special global icon in the text margin and in the *Global Economics* boxes. In addition, the final three chapters of the book are devoted entirely to international economics.

## Analyze the Issue

This feature follows each *You're the Economist* and *Global Economics* feature and asks specific questions that require students to test their knowledge of how the material in the boxed insert is relevant to the applicable concept. To allow these questions to be used in classroom discussions or homework assignments, answers are provided in the Instructor's Manual rather than in the text.

## Checkpoint

Watch for these! Who said learning economics can't be fun? This feature is a unique approach to generating interest and critical thinking. These questions spark students to check their progress by asking challenging economics puzzles in game-like style. Students enjoy thinking through and answering the questions, and then checking the answers at the end of the chapter. Students who answer correctly earn the satisfaction of knowing they have mastered the concepts. Many of these have been updated for the tenth edition to pique interest and to apply to the experiences of students today.

## Exhibits

Attractive large graphical presentations with grid lines and real-world numbers are essential for any successful economics textbook. Each exhibit has been carefully analyzed to ensure that the key concepts being represented stand out clearly. Brief descriptions are included with graphs to provide guidance for students as they study the graph. The MindTap course brings these exhibits to life:

- Students can interact with selected exhibits via Graph Builder.
- Students can watch detailed explanations of selected exhibits via GuideMe Videos (A graphing tutorial for students.)

## Causation Chain Game

This will be one of your favorites. The highly successful causation chains are included under many graphs throughout the text. This pedagogical device helps students visualize complex economic relationships in terms of simple box diagrams that illustrate how one change causes another change. Each exhibit has a causation chain in the text, and a correlating in the animated causation chain game exercise in the Tucker MindTap product. Arrange the blocks correctly to win the game.

## Key Concepts

Key concepts introduced in the chapter are listed at the end of each chapter and defined in the margins. Visit the Tucker MindTap to access for interactive flashcards.

## Visual Summaries

Each chapter ends with a brief point-by-point summary of the key concepts. Many of these summarized points include miniaturized versions of the important graphs and causation chains that illustrate many of the key concepts. These are intended to serve as visual reminders for students as they finish the chapters and are also useful in reviewing and studying for quizzes and exams.

## Study Questions and Problems

These end-of-chapter questions and problems offer a variety of levels ranging from straightforward recall to deeply thought-provoking applications. The answers to odd-numbered questions and problems are found in Appendix A in the back of the text. This feature gives students immediate feedback without requiring the instructor to check their work. The even-numbered answers are found in the Instructor's Manual.

## End-of-Chapter Sample Quizzes

These particular assessments are a great help before quizzes. Many instructors test students using multiple-choice questions. For this reason, the final section of each chapter provides the type of multiple-choice questions given in the test bank. The answers are readily available to students to help them learn the material and are found in Appendix B at the end of the textbook. In addition to the end-of-chapter sample quizzes, each section quiz appears in the Tucker MindTap product. Each quiz contains multiple questions like those found on a typical exam. Feedback is included for each answer so that you may know instantly why you have answered correctly or incorrectly. Between this feature and the end-of-chapter sample quizzes, students are well prepared for tests. Finally, the Instructor's Manual also contains four to five multiple choice questions per chapter that can also be used to engage students with the material.

## Road Maps

This feature concludes each sectioned part with review questions listed by chapter from the particular part. To reinforce the concepts, each set of questions relates to the interactive causation chain game that is available in the Tucker MindTap product. This makes learning fun. Answers to the questions are also found in Appendix C in the back of the text.

## A SUPPLEMENTS PACKAGE DESIGNED FOR SUCCESS

Tucker is known for its unequalled resources for instructors and students. To access additional course material for *Economics for Today*, visit [www.cengagebrain.com](http://www.cengagebrain.com). At the CengageBrain.com home page, search for “Tucker” using the search box on the page. This will take you to the product page where these resources can be found. For additional information, contact your Cengage learning consultant.

## INSTRUCTORS RESOURCES

### Tucker Companion Site

The Tucker website at [www.cengagebrain.com](http://www.cengagebrain.com) provides open access to PowerPoint chapter review slides; an instructor's manual prepared by Douglas Copeland of Johnson County Community College, available in various formats; updates to the text, describing key concepts relevant to the current states of economics and the world today; PowerPoint lecture tools elaborating on key concepts and exhibits, which can be used as supplies or can be customized for instructor intentions; and test banks in various downloadable formats.

## STUDENT RESOURCES

### MindTap for Tucker

MindTap engages students and aids them in consistently producing their best work. By seamlessly integrating course material with interactive media, step-by-step graphing,

activities, apps, and much more, MindTap creates a unique learning path for courses that foster increased comprehension and efficiency of material.

- MindTap delivers real-world relevance with activities, assignments, homework, media, and study tools that help students build critical thinking and analytic skills that will carry over to their professional lives.
- MindTap helps students stay organized and efficient with a single destination that reflects what's important to the instructor and the tools to master that content. MindTap empowers students to get their “game face on” by motivating them with competitive benchmarks in performance.
- Relevant readings, multimedia, and activities are designed to take students up the levels of learning from basic knowledge to analysis and application.
- Graph Builder exercises enable students to practice building their own graphs and honing the skills to do so for application both in the course and real-life situations.
- Students can watch detailed explanations of selected exhibits via GuideMe Videos (A Graphing Tutorial for Students) that explain numerous key graphs throughout the textbook.
- Analytics and reports provide a snapshot of class progress, time in course, engagement and completion rates.
- Homework and the Math & Graphing Tutorial, both powered by Aplia, as well as videos that explain key graphs round out the student learning experience within MindTap that enable students to master course content.

## Acknowledgments

A deep debt of gratitude is owed to the reviewers of all ten editions for their expert assistance. All comments and suggestions were carefully evaluated and served to improve the final product.

## Special Thanks

Much appreciation goes to Michael Parthenakis, Senior Product Manager. Thanks also to Clara Goosman, Content Development Manager, Julia Chase, Content Developer, Colleen Farmer, Senior Content Project Manager; Michelle Kunkler, Senior Art Director; Derek Drifmeyer, Senior Digital Project Manager; Drew Gaither, Media Producer; and Denisse Zavala-Rosalez, Product Assistant. I am also grateful to John Carey for his skillful marketing. Finally, I give my sincere thanks for a job well done to the entire team at Cengage.

## A Tribute to Irvin B. Tucker

The contributing authors and the entire Cengage team want to express our heartfelt gratitude for the opportunity and the privilege to have been able to work with Irvin Tucker and this textbook over all these years. Some of us have had the honor of working with Irvin from the beginning, when this book was just a manuscript. We know of few, if any, other authors who have consistently demonstrated such a firm commitment and tireless dedication to teaching and learning. Irvin has always believed that knowledge of economics can enhance people's lives and should therefore be made accessible to everyone.

And Irvin has displayed the rare ability to translate complex concepts into easily understood principles that have enriched the lives of countless numbers of students across the globe. He has made economics not only accessible but fun to learn. For this, he has distinguished himself among the very best economists of our time! He is a true complement to the profession of economics and to the noble cause of education. Beyond having earned our respect as a superb economist and author, Irvin has also been such a joy to work with. He has always been kind to everyone, willing to listen to any new ideas or suggestions, and has consistently made everyone feel needed and appreciated.

We would be remiss if we did not also make a tribute to Irvin's wife, Nonie. Nonie also possesses the traits of those you feel blessed to work with. She has also made countless meaningful contributions to this title from the very beginning. Irvin and Nonie have always been known to be "quite the team!" Thank you Irvin, and thank you Nonie! You have made the world a better place!

This edition is dedicated to Irvin B. Tucker.





# PART 1

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## Introduction to Economics

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**T**he first two chapters introduce you to a foundation of economic knowledge vital to understanding the other chapters in the text. In these introductory chapters, you will begin to learn a valuable reasoning approach to solving economics puzzles that economists call “the economic way of thinking.” Part 1 develops the cornerstone of this type of logical analysis by presenting basic economic models that explain such important topics as scarcity, opportunity cost, production possibilities, and economic growth.

# CHAPTER 1

## Introducing the Economic Way of Thinking

### CHAPTER PREVIEW



You and I know that navigating the complex social environment in which we live as we strive to be successful and happy is not easy. However, understanding the important economic, social (cultural), and political (legal) elements at play and how they interact can certainly help. In fact, all headline-grabbing issues of our times can be viewed from these three perspectives. Perhaps all too often the economic perspective is the least understood. So, what is this *economic perspective*? What is the economic way of thinking?

In this text, you will learn what it means to think economically. You will discover that the world is full of economics problems requiring more powerful tools than just common sense. Just to give a sneak preview, in later chapters, you will discover the shortcomings of government price fixing for gasoline and health care. You will also find out why colleges and universities charge students different tuitions for the same education. You

will investigate whether you should worry if the federal government fails to balance its budget. You will learn that the island of Yap uses large stones with holes in the center as money. In the final chapter, you will study why some countries grow rich while others remain poor and less developed. And the list of fascinating and relevant topics continues throughout each chapter. As you read these pages, your efforts will be rewarded by an understanding of just how much economic theories and policies affect our daily lives past, present, and future.

Chapter 1 acquaints you with the foundation of the economic way of thinking. The first building blocks joined are the concepts of scarcity and choice. The next building blocks are the steps in the model-building process that economists use to study the choices people make. Then we look at some pitfalls of economic reasoning and explain why economists might disagree with one another. The chapter concludes with a discussion of why you may want to be an economics major.



### IN THIS CHAPTER, YOU WILL LEARN TO SOLVE THESE ECONOMICS PUZZLES:

- Can you prove there is no person worth a trillion dollars?
- Why would you purchase more Coca-Cola when its price increases?
- How can the relationship between the Super Bowl winner and changes in the stock market be explained?



## 1-1 THE PROBLEM OF SCARCITY

At the heart of the economic way of thinking is the fact that we live in a world of scarcity. **Scarcity** is the condition in which human wants are forever greater than the available supply of time, goods, and resources. Because of scarcity, we are unable to have as much as we would like. It is impossible to satisfy every desire. Pause for a moment to list some of your unsatisfied wants. Perhaps you would like a big home, gourmet meals, designer clothes, clean air, better health care, shelter for the homeless, more leisure time, and so on. Unfortunately, nature does not offer the Garden of Eden, where every desire is fulfilled. Instead, there are always limits on the economy's ability to satisfy unlimited wants. Alas, scarcity is pervasive, so "you can't have it all."

You may think your scarcity problem would disappear if you were rich, but wealth does not solve the problem. No matter how affluent an individual is, the wish list continues to grow. We are familiar with the "rich and famous" who never seem to have enough. Although they live well, they still desire finer homes, faster planes, and larger yachts. In short, the condition of scarcity means all individuals, whether rich or poor, are dissatisfied with their material well-being and would like more. What is true for individuals also applies to society. Even Uncle Sam can't escape the problem of scarcity because the federal government never has enough money to spend for education, highways, police, national defense, Social Security, and all the other programs it wants to fund.

Scarcity is a fact of life throughout the world. In much of South America, Africa, and Asia, the problem of scarcity is often life-threatening. On the other hand, North America, Western Europe, and some parts of Asia have achieved substantial economic growth and development. Although life is much less "gruelling" in the more developed countries, the problem of scarcity still exists because individuals and countries never have as much of all the goods and services as they would like to have. As a result of scarcity, every nation must decide what combination of products to produce, how much to produce, and who is going to get those goods and services. These economic choices have profound social and political implications.

The problems of scarcity and choice are basic economic problems faced by every society.

### CONCLUSION

## 1-2 SCARCE RESOURCES AND PRODUCTION

Because of the economic problem of scarcity, no society has enough resources to produce all the goods and services necessary to satisfy all human wants. **Resources** are the basic categories of inputs used to produce goods and services. Resources are also called *factors of production*. Economists divide resources into three categories: *land*, *labor*, and *capital* (see Exhibit 1).

### 1-2a Land

**Land** is a shorthand expression for any natural resource provided by nature that is used to produce a good or service. *Land* includes those resources or raw materials that are gifts of

### Scarcity

The condition in which human wants are forever greater than the available supply of time, goods, and resources.

### Resources

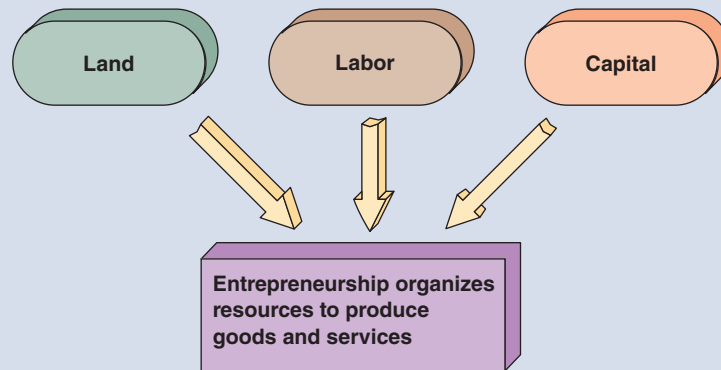
The basic categories of inputs used to produce goods and services. Resources are also called *factors of production*. Economists divide resources into three categories: *land*, *labor*, and *capital*.

### Land

Any natural resource provided by nature that is used to produce a good or service.

## EXHIBIT 1 Three Categories of Resources

Resources are the basic categories of inputs organized by entrepreneurship (a special type of labor) to produce goods and services. Economists divide resources into the three categories of land, labor, and capital.



nature available for use in the production process. Farming, building factories, and constructing oil refineries would be impossible without land. Land includes anything natural above or below the ground, such as forests, gold, diamonds, oil, coal, wind, and the ocean. Two broad categories of natural resources are *renewable resources* and *nonrenewable resources*. Renewable resources are basic inputs that nature can automatically replace. Examples include crops, clean air, and the water and fish in lakes. Nonrenewable resources are basic inputs that nature cannot automatically replace. There is only so much coal, oil, and natural gas in the world. If these fossil fuels disappear, we must use substitutes.

### 1-2b Labor

#### Labor

The mental and physical capacity of workers to produce goods and services.

**Labor** is the mental and physical capacity of workers to produce goods and services. The services of farmers, assembly-line workers, lawyers, professional football players, and economists are all *labor*. The labor resource is measured both by the number of people available for work and by the skills or quality of workers. One reason nations differ in their ability to produce is that human characteristics, such as the education, experience, health, and motivation of workers, differ among nations.

#### Entrepreneurship

The creative ability of individuals to seek profits by taking risks and combining resources to produce innovative products.

Entrepreneurship is a special type of labor. **Entrepreneurship** is the creative ability of individuals to seek profits by taking risks and combining resources to produce innovative products. An *entrepreneur* is a motivated person who seeks profits by undertaking risky activities such as starting new businesses, creating new products, or inventing new ways of accomplishing tasks. Entrepreneurs are often successful when they embrace new or existing technologies (using their “know-how”) in creative ways. For example, consider all of the amazing apps created for use with Androids and the iPhone. Entrepreneurship is a scarce human resource because relatively few people are willing or able to innovate and make decisions involving a high likelihood of failure. An important benefit of entrepreneurship is that it creates a growing economy.

Entrepreneurs are the agents of change who bring material progress to society. The birth of the Levi Strauss Company is a classic entrepreneurial success story. In 1853, at the age of 24, Levi Strauss, who was born in Bavaria, sailed from New York to join the California Gold Rush. His intent was not to dig for gold but to sell cloth. By the time he arrived in San Francisco, he had sold most of his cloth to other people on the ship. The only cloth he had left was a roll of canvas for tents and covered wagons. On the dock, he met a miner who wanted sturdy pants that would last while digging for gold, so Levi made a pair from the canvas. Later, a customer gave Levi the idea of using little copper rivets to strengthen the seams. Presto! Strauss knew a good thing when he saw it, so he hired workers, built factories, and became one of the largest pants makers in the world. As a reward for taking business risks, organizing production, and introducing a product, the Levi Strauss Company earned profits, and Strauss became rich and famous.

### 1-2c Capital

**Capital** can be defined as a human-made good used to produce other goods and services; for example, capital includes the physical plants, machinery, and equipment used to produce other goods. Capital can be privately or publicly owned. Private capital is owned by private companies and consists of factories, office buildings, warehouses, robots, trucks, and distribution facilities. Public (or social) capital, also known as *infrastructure*, is provided by government through taxes and is collectively owned. It consists of roads, bridges, dams, airports, harbors, and public universities and other government buildings. The term *capital*, as it is used in the study of economics, can be confusing. Economists know that capital in everyday conversations means money or the money value of paper assets, such as stocks, bonds, or a deed to a house. This is actually *financial* capital. In the study of economics, capital does not refer to money assets. Capital in economics means a factor of production, such as a factory or machinery. Stated simply, you must pay special attention to this point: Money is not capital and is, therefore, not a resource. Instead, money is used to purchase land, labor, or capital, as well as many consumer goods and services.

#### Capital

A human-made good used to produce other goods and services.

Money by itself does not produce goods and services; instead, it is only a means to facilitate the purchase and sale of resources and consumer products.

### CONCLUSION

## 1-3 ECONOMICS: THE STUDY OF SCARCITY AND CHOICE

The perpetual problem of scarcity forcing people to make choices is the basis for the definition of economics. **Economics** is the study of how society chooses to allocate its scarce resources to satisfy unlimited wants. You may be surprised by this definition. People often think economics means studying supply and demand, the stock market, money, and banking. Well, those are certainly parts, but economics is more all-encompassing. It is the study of the choices we make because we are faced with scarcity—because we are unable to have as much as we would like.

Society makes two broad levels of choices: economy-wide, or macro choices, and individual, or micro choices. The prefixes *macro* and *micro* come from the Greek words

#### Economics

The study of how society chooses to allocate its scarce resources to the production of goods and services to satisfy unlimited wants.

meaning “large” and “small,” respectively. Reflecting the macro and micro perspectives, economics consists of two main branches: *macroeconomics* and *microeconomics*.

### 1-3a Macroeconomics

#### Macroeconomics

The branch of economics that studies decision making for the economy as a whole.

The old saying “Looking at the forest rather than the trees” describes **macroeconomics**, which is the branch of economics that studies decision making for the economy as a whole. Macroeconomics applies an overview perspective to an economy by examining economy-wide variables, such as inflation, unemployment, economic growth, the money supply, and the national incomes of different countries. Macroeconomic decision making considers such “big picture” policies as the effect that federal tax cuts will have on unemployment and the effect that a change in the money supply will have on inflation.

### 1-3b Microeconomics

#### Microeconomics

The branch of economics that studies decision making by a single individual, household, firm, industry, or level of government.

Examining individual trees, leaves, and pieces of bark, rather than surveying the forest, illustrates microeconomics. **Microeconomics** is the branch of economics that studies decision making by a single individual, household, firm, industry, or level of government. It applies a microscope to study specific parts of an economy, as one would examine cells in the body. The focus is on small economic units, such as economic decisions of particular groups of consumers and businesses. An example of microeconomic analysis would be to study economic units involved in the market for ostrich eggs. Will suppliers decide to supply more, less, or the same quantity of ostrich eggs to the market in response to price changes? Will individual consumers of these eggs decide to buy more, less, or the same quantity at a new price?

We have described macroeconomics and microeconomics as two separate branches, but they are related. Because the overall economy is the sum, or aggregation, of its parts, micro changes affect the macro economy, and macro changes produce micro changes.

## 1-4 THE METHODOLOGY OF ECONOMICS

As used by other disciplines, such as criminology, biology, chemistry, and physics, economists employ a step-by-step procedure for solving problems by identifying the problem, developing a model, gathering data, and testing whether the data are consistent with the theory. Based on this analysis, economists formulate a conclusion. Exhibit 2 summarizes the model-building process.

### 1-4a Problem Identification

The first step in applying the economic method is to define the issue. Suppose an economist wishes to investigate the microeconomic problem of why U.S. motorists cut back on gasoline consumption in a given year from, for example, 400 million gallons per day in May to 300 million gallons per day in December.

### 1-4b Model Development

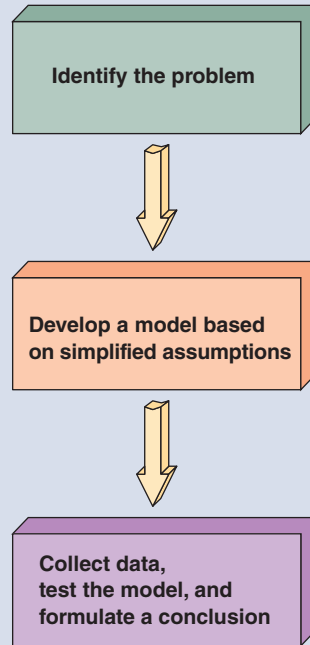
The second step in our hypothetical example toward finding an explanation is for the economist to build a model. A **model** is a simplified description of reality used to

#### Model

A simplified description of reality used to understand and predict the relationship between variables.

## EXHIBIT 2 The Steps in the Model-Building Process

The first step in developing a model is to identify the problem. The second step is to select the critical variables necessary to formulate a model that explains the problem under study. Eliminating other variables that complicate the analysis requires simplifying assumptions. In the third step, the researcher collects data and tests the model. If the evidence supports the model, the conclusion is to accept the model. If the evidence doesn't support the model, the model is rejected.



understand and predict the relationship between variables. The terms *model* and *theory* are interchangeable. A model emphasizes only those variables that are most important to explaining an event. As Albert Einstein said, “Theories should be as simple as possible, but not more so.” The purpose of a model is to construct an abstraction from real-world complexities and make events understandable. Consider a model airplane that is placed in a wind tunnel to test the aerodynamics of a new design. For this purpose, the model must represent only the shapes of the wings and fuselage, but it does not need to include tiny seats, electrical wiring, or other interior design details. A highway map is another example. To find the best route to drive between two distant cities, you do not want extraneous information on the location of all roads, streets, potholes, telephone lines, trees, stoplights, schools, hospitals, and firehouses. This would be too much detail, and the complexity would make it difficult to choose the best route.





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A map is a model because it is an abstraction from reality.

To be useful, a model requires simplified assumptions. Someone must decide, for example, whether a map will include only symbols for the major highways or the details of hiking trails through mountains. In our gasoline consumption example, several variables might be related to the quantity of gasoline consumed, including the price of gasoline, consumer incomes, the fuel economy of cars, and weather conditions. Because a theory focuses only on the main or critical variables, the economist must be a “Sherlock Holmes” and use a keen sense of observation to form a model. Using his or her expertise, the economist must select the variables that are related to gasoline consumption and reject variables that have only a slight or no relationship to gasoline consumption. In this simple case, the economist removes the cloud of complexity by formulating a theory, which states that increases in the price of gasoline *cause* the quantity of gasoline consumed to decrease during the time period.

### 1-4c Testing a Theory

An economic model can be stated as a verbal argument, numerical table, graph, or mathematical equation. You will soon discover that a major part of this book is devoted to building and using economic models. The purpose of an economic model is to *forecast* or *predict* the results of various changes in variables. Note that the appendix to this chapter provides a review of graphical analysis. An economic theory can be expressed in the form “If  $X$ , then  $Y$ , all other things held constant.” An economic model is useful only if it yields accurate predictions. When the evidence is consistent with the theory that  $X$  causes outcome  $Y$ , there is confidence in the theory’s validity. When the evidence is inconsistent with the theory that  $X$  causes outcome  $Y$ , the researcher rejects this theory.

In this third step, the economist gathers data to test the theory that if the price of gasoline *rises*, then gasoline purchases *fall*—all other relevant factors held constant. Suppose the investigation reveals that the price of gasoline rose sharply between May and December of the given year. The data, therefore, appear to support the theory that the quantity of gasoline consumed per month falls when its price rises, assuming no other relevant factors change. Thus, the conclusion is that the theory is valid if, for example, consumer incomes or the fuel economy of cars does not change at the same time that gasoline prices rise.



#### CHECKPOINT

#### Can You Prove There Is No Trillion-Dollar Person?

Suppose a theory says that no U.S. citizen is worth \$1 trillion. You decide to test this theory and send researchers to all corners of the nation to check financial records to see whether someone qualifies by owning assets valued at \$1 trillion or more. After years of checking, the researchers return and report that not a single person is worth at least \$1 trillion. Do you conclude that the evidence proves the theory? Explain.

## 1-5 HAZARDS OF THE ECONOMIC WAY OF THINKING

Models help us understand and predict the impact of changes in economic variables. A model is an important tool in the economist’s toolkit, but it must be handled with

care. The economic way of thinking seeks to avoid reasoning mistakes. Two of the most common pitfalls to clear thinking are

1. failing to understand the *ceteris paribus* assumption.
2. confusing *association* and *causation*.

### 1-5a The Ceteris Paribus Assumption

As you work through a model, try to think of a host of relevant variables assumed to be “standing still,” or “held constant.” **Ceteris paribus** is a Latin phrase that means while certain variables change, “all other things remain unchanged.” In short, the ceteris paribus assumption allows us to isolate or focus attention on selected variables. In the gasoline example discussed earlier, a key simplifying assumption of the model is that changes in consumer incomes and certain other variables do not occur and complicate the analysis. The ceteris paribus assumption holds everything else constant and therefore allows us to concentrate on the relationship between two key variables: changes in the price of gasoline and the quantity of gasoline purchased per month.

Now suppose an economist examines a model explaining the relationship between the price and quantity purchased of Coca-Cola. The theory is “If the price increases, then the quantity of Coca-Cola purchased decreases, *ceteris paribus*.” Now assume you observe that the price of Coca-Cola increased one summer and some people actually bought more, not less. Based on this real-world observation, you might declare that the theory is incorrect. Think again! Perhaps the reason the model appeared flawed is because another factor—for example a sharp rise in the temperature—*caused* people to buy more Coca-Cola in spite of its higher price. However, if the temperature and all other factors were held constant, and the ceteris paribus assumption is satisfied, we would find that as the price of Coca-Cola rises, people will indeed buy less Coca-Cola, as the model predicts.

#### Ceteris paribus

A Latin phrase that means while certain variables change, “all other things remain unchanged.”

A theory cannot be tested legitimately unless its ceteris paribus assumption is satisfied.

#### CONCLUSION

### 1-5b Association versus Causation

Another common error in reasoning is confusing *association* (or correlation) and *causation* between variables. Stated differently, you err when you read more into a relationship between variables than is actually there. A model is valid only when a cause-and-effect relationship is stable or dependable over time, rather than being an association that occurs by chance and eventually disappears. Suppose a witch doctor performs a voodoo dance during three different months and stock market prices skyrocket during each of these months. The voodoo dance is *associated* with the increase in stock prices, but this does not mean the dance *caused* the event. Even though there is a statistical relationship between these two variables in a number of observations, eventually the voodoo dance will be performed, and stock prices will fall or remain unchanged. The reason is that there is no true systematic economic relationship between voodoo dances and stock prices.