N. GREGORY MANKIW

PRINCIPLES OF MACROECONOMICS

Eighth Edition

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The Real Economy in the Long Run

12 Production and Growth

13 Saving, Investment, and the Financial System

14 The Basic Tools of Finance

15 Unemployment

These chapters describe the forces that in the long run determine key real variables, including GDP growth, saving, investment, real interest rates, and unemployment.

Money and Prices in the Long Run

16 The Monetary System

17 Money Growth and Inflation

The monetary system is crucial in determining the long-run behavior of the price level, the inflation rate, and other nominal variables.

The Macroeconomics of Open Economies

18 Open-Economy Macroeconomics: Basic Concepts

A nation's economic interactions with other nations are described by its trade balance, net foreign investment, and exchange rate.

19 A Macroeconomic Theory of the Open Economy

A long-run model of the open economy explains the determinants of the trade balance, the real exchange rate, and other real variables.

Short-Run Economic Fluctuations

20 Aggregate Demand and Aggregate Supply

21 The Influence of Monetary and Fiscal Policy on Aggregate Demand

22 The Short-Run Trade-off between Inflation and Unemployment

The model of aggregate demand and aggregate supply explains short-run economic fluctuations, the short-run effects of monetary and fiscal policy, and the short-run linkage between real and nominal variables.

Final Thoughts

23 Six Debates over Macroeconomic Policy

A capstone chapter presents both sides of six major debates over economic policy.

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MACROECONOMICS

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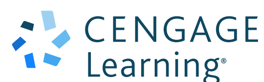
HARVARD UNIVERSITY



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To Catherine, Nicholas, and Peter,
my other contributions to the next generation

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About the Author

Jordi Cabré

N. Gregory Mankiw is the Robert M. Beren Professor of Economics at Harvard University. As a student, he studied economics at Princeton University and MIT. As a teacher, he has taught macroeconomics, microeconomics, statistics, and principles of economics. He even spent one summer long ago as a sailing instructor on Long Beach Island.

Professor Mankiw is a prolific writer and a regular participant in academic and policy debates. His work has been published in scholarly journals, such as the *American Economic Review, Journal of Political Economy,* and *Quarterly Journal of Economics*, and in more popular forums, such as the *New York Times* and *The Wall Street Journal*. He is also author of the best-selling intermediate-level textbook *Macroeconomics* (Worth Publishers). In addition to his teaching, research, and writing, Professor Mankiw has been a research associate of the National Bureau of Economic Research, an adviser to the Congressional Budget Office and the Federal Reserve Banks of Boston and New York, and a member of the ETS test development committee for the Advanced Placement exam in economics. From 2003 to 2005, he served as chairman of the President's Council of Economic Advisers.

Professor Mankiw lives in Wellesley, Massachusetts, with his wife, Deborah, three children, Catherine, Nicholas, and Peter, and their border terrier, Tobin.

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Preface: To the Student

"Economics is a study of mankind in the ordinary business of life." So wrote Alfred Marshall, the great 19th-century economist, in his textbook, *Principles of Economics*. We have learned much about the economy since Marshall's time, but this definition of economics is as true today as it was in 1890, when the first edition of his text was published.

Why should you, as a student in the 21st century, embark on the study of economics? There are three reasons.

The first reason to study economics is that it will help you understand the world in which you live. There are many questions about the economy that might spark your curiosity. Why are apartments so hard to find in New York City? Why do airlines charge less for a round-trip ticket if the traveler stays over a Saturday night? Why is Robert Downey, Jr., paid so much to star in movies? Why are living standards so meager in many African countries? Why do some countries have high rates of inflation while others have stable prices? Why are jobs easy to find in some years and hard to find in others? These are just a few of the questions that a course in economics will help you answer.

The second reason to study economics is that it will make you a more astute participant in the economy. As you go about your life, you make many economic decisions. While you are a student, you decide how many years to stay in school. Once you take a job, you decide how much of your income to spend, how much to save, and how to invest your savings. Someday you may find yourself running a small business or a large corporation, and you will decide what prices to charge for your products. The insights developed in the coming chapters will give you a new perspective on how best to make these decisions. Studying economics will not by itself make you rich, but it will give you some tools that may help in that endeavor.

The third reason to study economics is that it will give you a better understanding of both the potential and the limits of economic policy. Economic questions are always on the minds of policymakers in mayors' offices, governors' mansions, and the White House. What are the burdens associated with alternative forms of taxation? What are the effects of free trade with other countries? What is the best way to protect the environment? How does a government budget deficit affect the economy? As a voter, you help choose the policies that guide the allocation of society's resources. An understanding of economics will help you carry out that responsibility. And who knows: Perhaps someday you will end up as one of those policymakers yourself.

Thus, the principles of economics can be applied in many of life's situations. Whether the future finds you following the news, running a business, or sitting in the Oval Office, you will be glad that you studied economics.

N. Gregory Mankiw
December 2016

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Video Application

Video application features the book's author introducing chapter content. Author Greg Mankiw introduces the important themes in every chapter by delivering a highly relevant deposition on the real-world context to the economic principles that will be appearing in the upcoming chapter. These videos are intended to motivate students to better understand how economics relates to their day-to-day lives and in the world around them.

ConceptClip Videos

ConceptClip videos help students master economics terms. These high-energy videos, embedded throughout the interactive book, address the known student challenge of understanding economics terminology when initially introduced to the subject matter. Developed by Professor Mike Brandl of The Ohio State University, these concept-based animations provide students with memorable context to the key terminology required for your introductory economics course.

"I have always wanted supplemental material such as this to help me understand certain concepts in economics."

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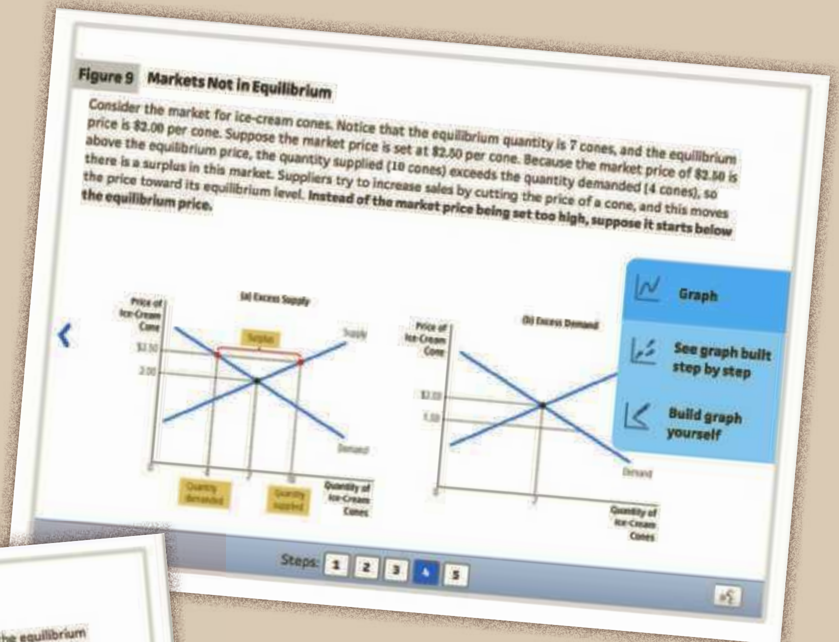
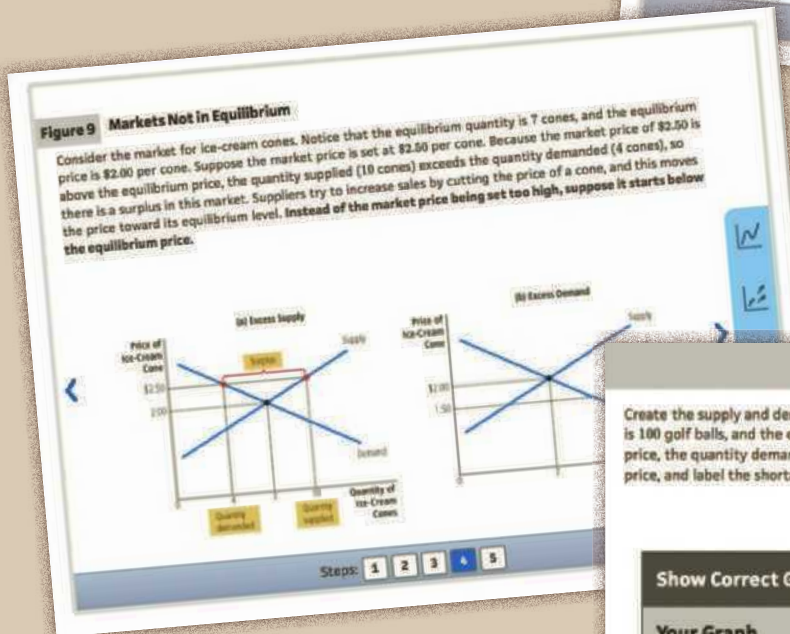
Graph Builder

Graph Builder allows students to move step-by-step through complex graphical figures. Designed specifically for introductory economics students, Graph Builder interactive exercises help students first understand complex graphs by deconstructing a graph into finite steps that build upon one another, then practice graphing by drawing out a similar scenario from scratch. This drawing method supports the kinesthetic learning approach valued by instructors, like you— all within the context of the interactive book!





Now YOU build it!

Create the supply and demand curves that describe the following market for golf balls. The equilibrium quantity is 100 golf balls, and the equilibrium price is $1.00 per ball. Suppose that the market price is set at $1.50. At that price, the quantity demanded is 60 balls and the quantity supplied is 140 balls. Draw the effect of this market price, and label the shortage or surplus.

Show Correct Graph

Your Graph | Correct Graph | Hide Explanation

Prices set above the equilibrium price cause a surplus because quantity supplied is larger than quantity demanded. In this case, the surplus is 140 − 60 = 80 golf balls.

Try Again | I'm Done, Submit!

"I have not used anything like this before."

"The Graph Builder is amazing! This would help me a lot and the concept is great. I think all students should have access to this feature because it would better their knowledge of how to make graphs."

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Study and Test Prep

The Mankiw Study Guide is now a part of MindTap!

The study guide by David Hakes for Mankiw's *Principles of Economics* has long been the standard of what a print study guide could be. Students like how it reinforces the text and improves understanding of the chapter content. Now for the eighth edition, the study guide is integrated right into the MindTap course at no additional charge!

For each chapter, students get the same great resources that users of the print Study Guide have always received:

- The Chapter Overview
- Problems and Short Answers
- Self-Test
- Advanced Critical Thinking
- Solutions for All Study Guide Questions

David Hakes and Greg Mankiw

MindTap®

"Additional practice with problems is extremely helpful, especially when combined with the immediate feedback that I received via the online server."

"The adaptive feedback system was incredibly useful, because by the time the test rolled around I didn't always remember what I had struggled with in previous weeks."

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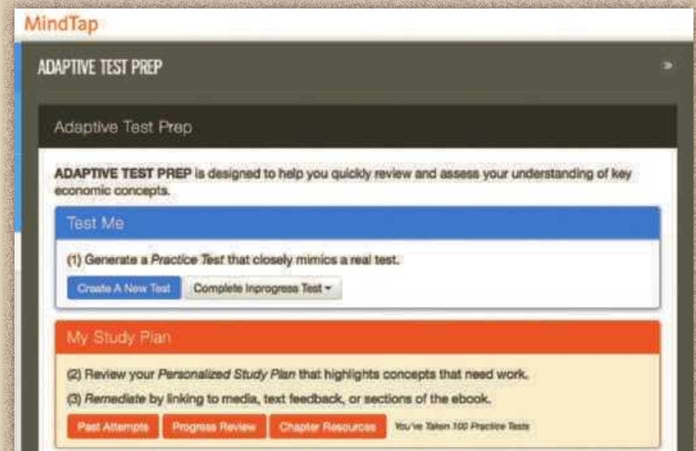
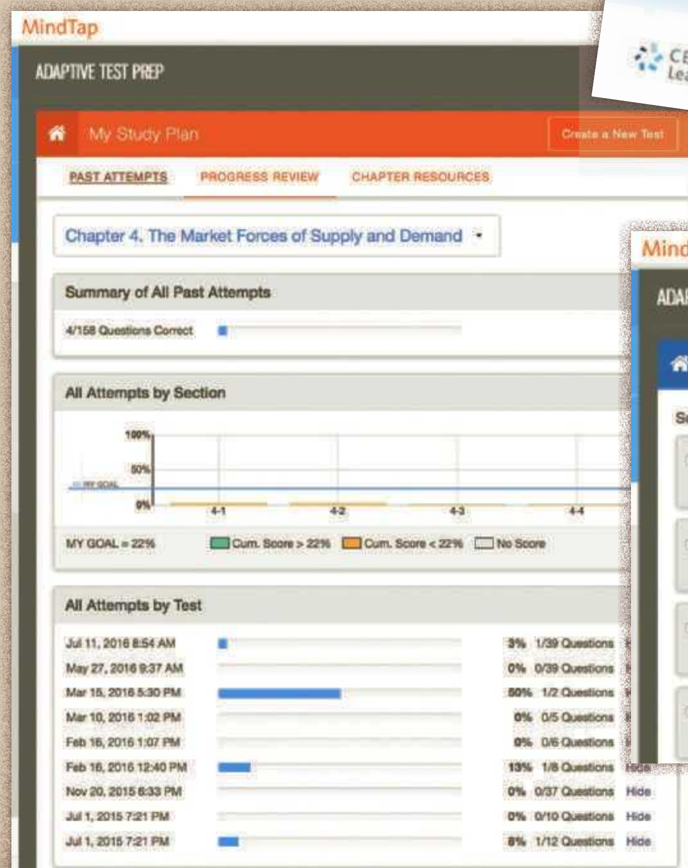
Adaptive Test Prep Prepares Your Students for High-Stakes Testing

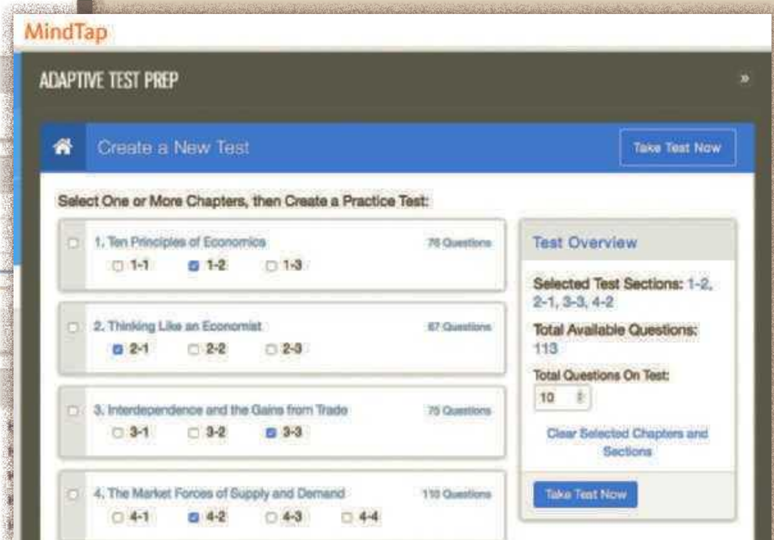
Are your students constantly asking you for more practice questions as exam time comes closer? Do your students complain because the test bank-type questions in the exam do not have the same look and feel as their homework assignments?

Adaptive Test Prep is a powerful tool that uses 4,000 new test bank-like questions to give students almost unlimited practice for each chapter and section. They can take as many tests as they like that are immediately graded for them. Students see how they did and the program gives them immediate remediation in the form of very robust feedback, a link right back into the text where the question topic resides, and for about 2,000 questions, they get a brief Quick Coach video with an instructor walking them through the exact question they missed!

Students can generate reports that show them which chapters and sections they need the most help on so they can tailor future practice tests just on the areas they are struggling with.







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In writing this book, I benefited from the input of many talented people. Indeed, the list of people who have contributed to this project is so long, and their contributions so valuable, that it seems an injustice that only a single name appears on the cover.

Let me begin with my colleagues in the economics profession. The many editions of this text and its supplemental materials have benefited enormously from their input. In reviews and surveys, they have offered suggestions, identified challenges, and shared ideas from their own classroom experience. I am indebted to them for the perspectives they have brought to the text. Unfortunately, the list has become too long to thank those who contributed to previous editions, even though students reading the current edition are still benefiting from their insights.

Most important in this process has been David Hakes (University of Northern Iowa). David, a dedicated teacher, has served as a reliable sounding board for ideas and is a hardworking partner with me in putting together the superb package of supplements. In addition, a special thanks to Ron Cronovich, an insightful instructor and trusted advisor, for his many years of consultation.

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N. Gregory Mankiw
December 2016

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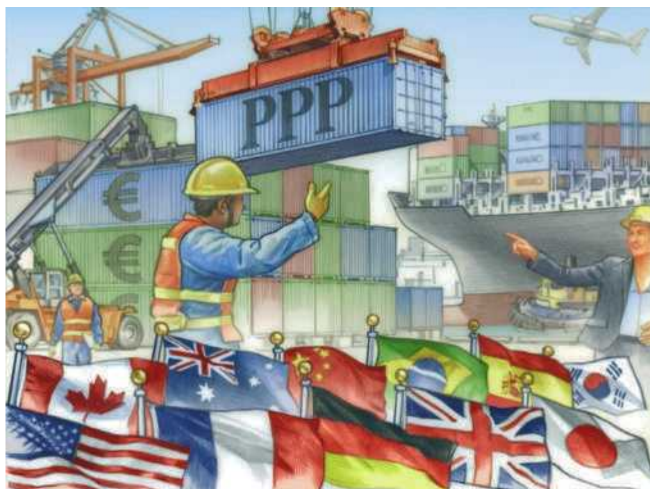

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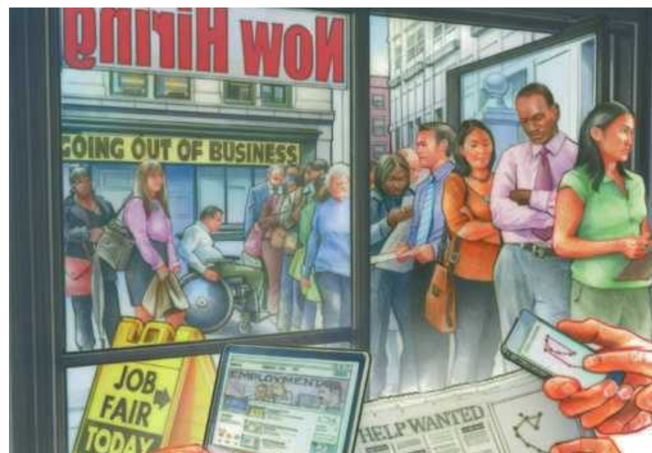

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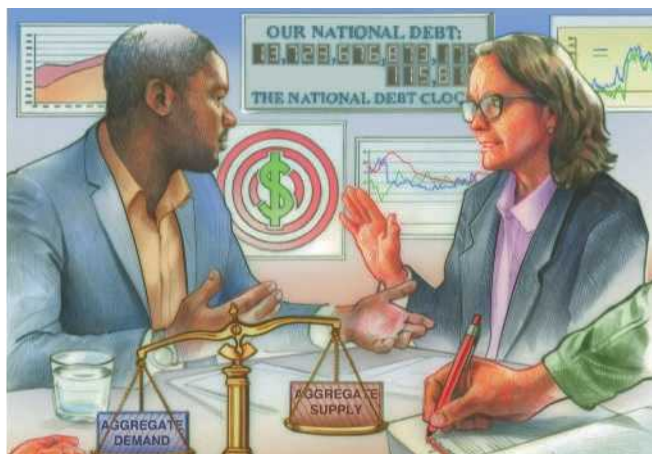

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PART I
Introduction

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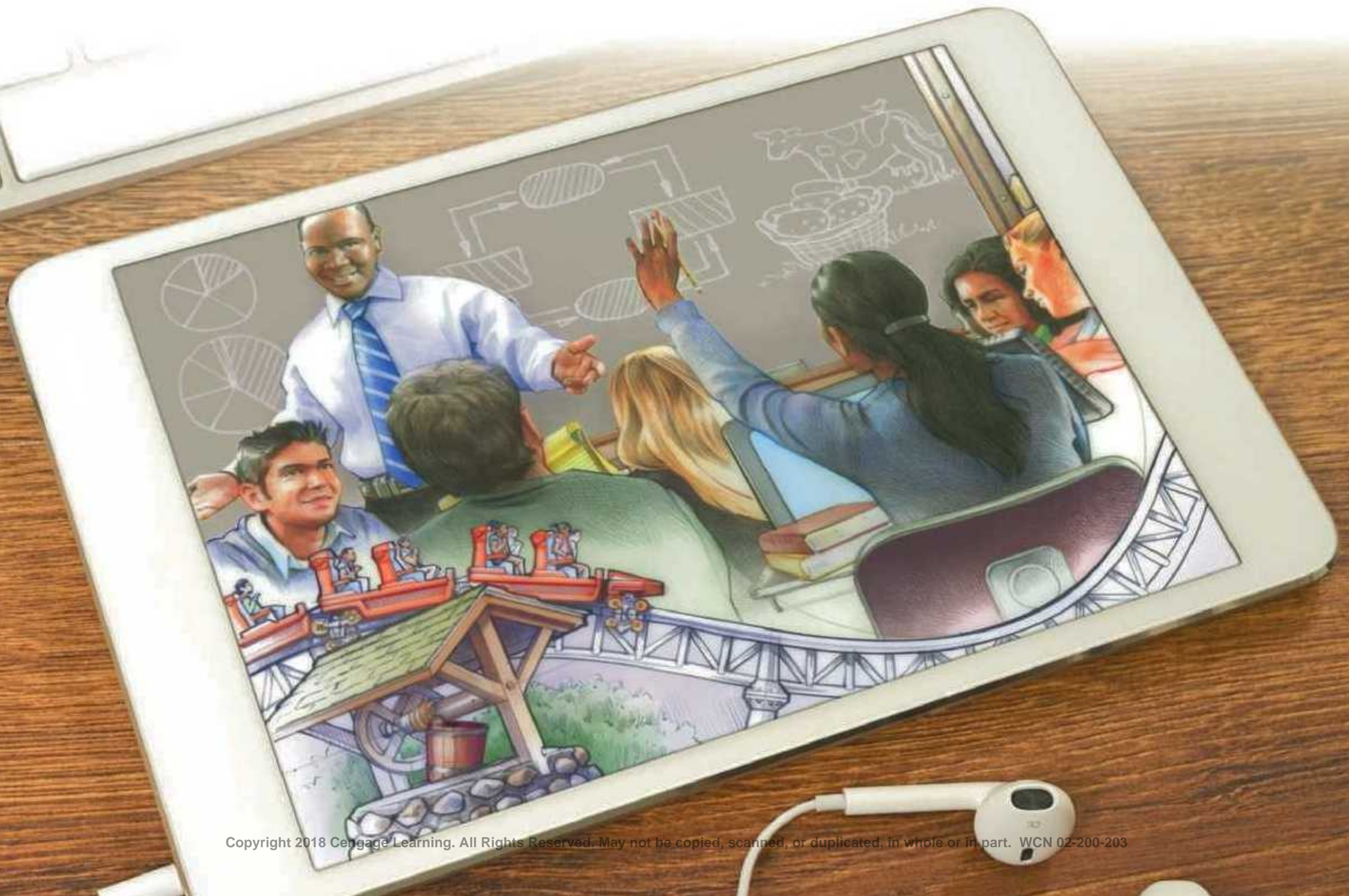
Ten Principles of Economics

CHAPTER 1

The word *economy* comes from the Greek word *oikonomos*, which means "one who manages a household." At first, this origin might seem peculiar. But in fact, households and economies have much in common.

A household faces many decisions. It must decide which household members do which tasks and what each member receives in return: Who cooks dinner? Who does the laundry? Who gets the extra dessert at dinner? Who gets to drive the car? In short, a household must allocate its scarce resources (time, dessert, car mileage) among its various members, taking into account each member's abilities, efforts, and desires.



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Like a household, a society faces many decisions. It must find some way to decide what jobs will be done and who will do them. It needs some people to grow food, other people to make clothing, and still others to design computer software. Once society has allocated people (as well as land, buildings, and machines) to various jobs, it must also allocate the goods and services they produce. It must decide who will eat caviar and who will eat potatoes. It must decide who will drive a Tesla and who will take the bus.

scarcity
the limited nature of society's resources

The management of society's resources is important because resources are scarce. **Scarcity** means that society has limited resources and therefore cannot produce all the goods and services people wish to have. Just as each member of a household cannot get everything she wants, each individual in a society cannot attain the highest standard of living to which she might aspire.

economics
the study of how society manages its scarce resources

Economics is the study of how society manages its scarce resources. In most societies, resources are allocated not by an all-powerful dictator but through the combined choices of millions of households and firms. Economists, therefore, study how people make decisions: how much they work, what they buy, how much they save, and how they invest their savings. Economists also study how people interact with one another. For instance, they examine how the multitude of buyers and sellers of a good together determine the price at which the good is sold and the quantity that is sold. Finally, economists analyze the forces and trends that affect the economy as a whole, including the growth in average income, the fraction of the population that cannot find work, and the rate at which prices are rising.

The study of economics has many facets, but it is unified by several central ideas. In this chapter, we look at *Ten Principles of Economics*. Don't worry if you don't understand them all at first or if you aren't completely convinced. We explore these ideas more fully in later chapters. The ten principles are introduced here to give you an overview of what economics is all about. Consider this chapter a "preview of coming attractions."

1-1 How People Make Decisions

There is no mystery to what an economy is. Whether we are talking about the economy of Los Angeles, the United States, or the whole world, an economy is just a group of people dealing with one another as they go about their lives. Because the behavior of an economy reflects the behavior of the individuals who make up the economy, we begin our study of economics with four principles about individual decision making.

1-1a Principle 1: People Face Trade-offs

You may have heard the old saying, "There ain't no such thing as a free lunch." Grammar aside, there is much truth to this adage. To get something that we like, we usually have to give up something else that we also like. Making decisions requires trading off one goal against another.

Consider a student who must decide how to allocate her most valuable resource—her time. She can spend all of her time studying economics, spend all of it studying psychology, or divide it between the two fields. For every hour she studies one subject, she gives up an hour she could have used studying the other. And for every hour she spends studying, she gives up an hour she could have spent napping, bike riding, watching TV, or working at her part-time job for some extra spending money.

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Consider parents deciding how to spend their family income. They can buy food, clothing, or a family vacation. Or they can save some of the family income for retirement or the children's college education. When they choose to spend an extra dollar on one of these goods, they have one less dollar to spend on some other good.

When people are grouped into societies, they face different kinds of trade-offs. One classic trade-off is between "guns and butter." The more a society spends on national defense (guns) to protect its shores from foreign aggressors, the less it can spend on consumer goods (butter) to raise the standard of living at home. Also important in modern society is the trade-off between a clean environment and a high level of income. Laws that require firms to reduce pollution raise the cost of producing goods and services. Because of these higher costs, the firms end up earning smaller profits, paying lower wages, charging higher prices, or some combination of these three. Thus, while pollution regulations yield the benefit of a cleaner environment and the improved health that comes with it, they come at the cost of reducing the incomes of the regulated firms' owners, workers, and customers.

Another trade-off society faces is between efficiency and equality. **Efficiency** means that society is getting the maximum benefits from its scarce resources. **Equality** means that those benefits are distributed uniformly among society's members. In other words, efficiency refers to the size of the economic pie, and equality refers to how the pie is divided into individual slices.

efficiency
the property of society getting the most it can from its scarce resources

equality
the property of distributing economic prosperity uniformly among the members of society

When government policies are designed, these two goals often conflict. Consider, for instance, policies aimed at equalizing the distribution of economic well-being. Some of these policies, such as the welfare system or unemployment insurance, try to help the members of society who are most in need. Others, such as the individual income tax, ask the financially successful to contribute more than others to support the government. Though they achieve greater equality, these policies reduce efficiency. When the government redistributes income from the rich to the poor, it reduces the reward for working hard; as a result, people work less and produce fewer goods and services. In other words, when the government tries to cut the economic pie into more equal slices, the pie gets smaller.

Recognizing that people face trade-offs does not by itself tell us what decisions they will or should make. A student should not abandon the study of psychology just because doing so would increase the time available for the study of economics. Society should not stop protecting the environment just because environmental regulations reduce our material standard of living. The poor should not be ignored just because helping them distorts work incentives. Nonetheless, people are likely to make good decisions only if they understand the options that are available to them. Our study of economics, therefore, starts by acknowledging life's trade-offs.

1-1b Principle 2: The Cost of Something Is What You Give Up to Get It

Because people face trade-offs, making decisions requires comparing the costs and benefits of alternative courses of action. In many cases, however, the cost of an action is not as obvious as it might first appear.

Consider the decision to go to college. The main benefits are intellectual enrichment and a lifetime of better job opportunities. But what are the costs? To answer this question, you might be tempted to add up the money you spend on tuition, books, room, and board. Yet this total does not truly represent what you give up to spend a year in college.

There are two problems with this calculation. First, it includes some things that are not really costs of going to college. Even if you quit school, you need a place

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to sleep and food to eat. Room and board are costs of going to college only to the extent that they are more expensive at college than elsewhere. Second, this calculation ignores the largest cost of going to college—your time. When you spend a year listening to lectures, reading textbooks, and writing papers, you cannot spend that time working at a job. For most students, the earnings they give up to attend school are the single largest cost of their education.

opportunity cost
whatever must be given up to obtain some item

The **opportunity cost** of an item is what you give up to get that item. When making any decision, decision makers should be aware of the opportunity costs that accompany each possible action. In fact, they usually are. College athletes who can earn millions if they drop out of school and play professional sports are well aware that their opportunity cost of attending college is very high. It is not surprising that they often decide that the benefit of a college education is not worth the cost.

1-1c Principle 3: Rational People Think at the Margin

rational people
people who systematically and purposefully do the best they can to achieve their objectives

Economists normally assume that people are rational. **Rational people** systematically and purposefully do the best they can to achieve their objectives, given the available opportunities. As you study economics, you will encounter firms that decide how many workers to hire and how much of their product to manufacture and sell to maximize profits. You will also encounter individuals who decide how much time to spend working and what goods and services to buy with the resulting income to achieve the highest possible level of satisfaction.

Rational people know that decisions in life are rarely black and white but usually involve shades of gray. At dinnertime, the question you face is not "Should I fast or eat like a pig?" More likely, you will be asking yourself "Should I take that extra spoonful of mashed potatoes?" When exams roll around, your decision is not between blowing them off and studying 24 hours a day but whether to spend an extra hour reviewing your notes instead of watching TV. Economists use the term **marginal change** to describe a small incremental adjustment to an existing plan of action. Keep in mind that *margin* means "edge," so marginal changes are adjustments around the edges of what you are doing. Rational people often make decisions by comparing *marginal benefits* and *marginal costs*.

marginal change
a small incremental adjustment to a plan of action

For example, suppose you are considering calling a friend on your cell phone. You decide that talking with her for 10 minutes would give you a benefit that you value at about $7. Your cell phone service costs you $40 per month plus $0.50 per minute for whatever calls you make. You usually talk for 100 minutes a month, so your total monthly bill is $90 ($0.50 per minute times 100 minutes, plus the $40 fixed fee). Under these circumstances, should you make the call? You might be tempted to reason as follows: "Because I pay $90 for 100 minutes of calling each month, the average minute on the phone costs me $0.90. So a 10-minute call costs $9. Because that $9 cost is greater than the $7 benefit, I am going to skip the call." That conclusion is wrong, however. Although the *average* cost of a 10-minute call is $9, the *marginal* cost—the amount your bill increases if you make the extra call—is only $5. You will make the right decision only by comparing the marginal benefit and the marginal cost. Because the marginal benefit of $7 is greater than the marginal cost of $5, you should make the call. This is a principle that people innately understand: Cell phone users with unlimited minutes (that is, minutes that are free at the margin) are often prone to making long and frivolous calls.

Thinking at the margin works for business decisions as well. Consider an airline deciding how much to charge passengers who fly standby. Suppose that flying a 200-seat plane across the United States costs the airline $100,000. In this case, the

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average cost of each seat is $100,000/200, which is $500. One might be tempted to conclude that the airline should never sell a ticket for less than $500. But a rational airline can increase its profits by thinking at the margin. Imagine that a plane is about to take off with 10 empty seats and a standby passenger waiting at the gate is willing to pay $300 for a seat. Should the airline sell the ticket? Of course it should. If the plane has empty seats, the cost of adding one more passenger is tiny. The *average* cost of flying a passenger is $500, but the *marginal* cost is merely the cost of the can of soda that the extra passenger will consume. As long as the standby passenger pays more than the marginal cost, selling the ticket is profitable.

Marginal decision making can help explain some otherwise puzzling economic phenomena. Here is a classic question: Why is water so cheap, while diamonds are so expensive? Humans need water to survive, while diamonds are unnecessary. Yet people are willing to pay much more for a diamond than for a cup of water. The reason is that a person's willingness to pay for a good is based on the marginal benefit that an extra unit of the good would yield. The marginal benefit, in turn, depends on how many units a person already has. Water is essential, but the marginal benefit of an extra cup is small because water is plentiful. By contrast, no one needs diamonds to survive, but because diamonds are so rare, people consider the marginal benefit of an extra diamond to be large.

A rational decision maker takes an action if and only if the marginal benefit of the action exceeds the marginal cost. This principle explains why people use their cell phones as much as they do, why airlines are willing to sell tickets below average cost, and why people are willing to pay more for diamonds than for water. It can take some time to get used to the logic of marginal thinking, but the study of economics will give you ample opportunity to practice.

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"Is the marginal benefit of this call greater than the marginal cost?"

1-1d Principle 4: People Respond to Incentives

An **incentive** is something (such as the prospect of a punishment or reward) that induces a person to act. Because rational people make decisions by comparing costs and benefits, they respond to incentives. You will see that incentives play a central role in the study of economics. One economist went so far as to suggest that the entire field could be summarized as simply "People respond to incentives. The rest is commentary."

incentive
something that induces a person to act

Incentives are key to analyzing how markets work. For example, when the price of an apple rises, people decide to eat fewer apples. At the same time, apple orchards decide to hire more workers and harvest more apples. In other words, a higher price in a market provides an incentive for buyers to consume less and an incentive for sellers to produce more. As we will see, the influence of prices on the behavior of consumers and producers is crucial to how a market economy allocates scarce resources.

Public policymakers should never forget about incentives: Many policies change the costs or benefits that people face and, as a result, alter their behavior. A tax on gasoline, for instance, encourages people to drive smaller, more fuel-efficient cars. That is one reason people drive smaller cars in Europe, where gasoline taxes are high, than in the United States, where gasoline taxes are low. A higher gasoline tax also encourages people to carpool, take public transportation, and live closer to where they work. If the tax were larger, more people would be driving hybrid cars, and if it were large enough, they would switch to electric cars.

When policymakers fail to consider how their policies affect incentives, they often end up facing unintended consequences. For example, consider public policy regarding auto safety. Today, all cars have seat belts, but this was not true

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60 years ago. In 1965, Ralph Nader's book *Unsafe at Any Speed* generated much public concern over auto safety. Congress responded with laws requiring seat belts as standard equipment on new cars.

How does a seat belt law affect auto safety? The direct effect is obvious: When a person wears a seat belt, the probability of surviving an auto accident rises. But that's not the end of the story because the law also affects behavior by altering incentives. The relevant behavior here is the speed and care with which drivers operate their cars. Driving slowly and carefully is costly because it uses the driver's time and energy. When deciding how safely to drive, rational people compare, perhaps unconsciously, the marginal benefit from safer driving to the marginal cost. As a result, they drive more slowly and carefully when the benefit of increased safety is high. For example, when road conditions are icy, people drive more attentively and at lower speeds than they do when road conditions are clear.

Consider how a seat belt law alters a driver's cost–benefit calculation. Seat belts make accidents less costly because they reduce the likelihood of injury or death. In other words, seat belts reduce the benefits of slow and careful driving. People respond to seat belts as they would to an improvement in road conditions—by driving faster and less carefully. The result of a seat belt law, therefore, is a larger number of accidents. The decline in safe driving has a clear, adverse impact on pedestrians, who are more likely to find themselves in an accident but (unlike the drivers) don't have the benefit of added protection.

At first, this discussion of incentives and seat belts might seem like idle speculation. Yet in a classic 1975 study, economist Sam Peltzman argued that auto-safety laws have had many of these effects. According to Peltzman's evidence, these laws give rise to fewer deaths per accident but also to more accidents. He concluded that the net result is little change in the number of driver deaths and an increase in the number of pedestrian deaths.

Peltzman's analysis of auto safety is an offbeat and controversial example of the general principle that people respond to incentives. When analyzing any policy, we must consider not only the direct effects but also the less obvious indirect effects that work through incentives. If the policy changes incentives, it will cause people to alter their behavior.

QuickQuiz *Describe an important trade-off you recently faced. • Give an example of some action that has both a monetary and nonmonetary opportunity cost. • Describe an incentive your parents offered to you in an effort to influence your behavior.*

1-2 How People Interact

The first four principles discussed how individuals make decisions. As we go about our lives, many of our decisions affect not only ourselves but other people as well. The next three principles concern how people interact with one another.

1-2a Principle 5: Trade Can Make Everyone Better Off

You may have heard on the news that the Chinese are our competitors in the world economy. In some ways, this is true because American and Chinese firms produce many of the same goods. Companies in the United States and China compete for the same customers in the markets for clothing, toys, solar panels, automobile tires, and many other items.

Yet it is easy to be misled when thinking about competition among countries. Trade between the United States and China is not like a sports contest in which

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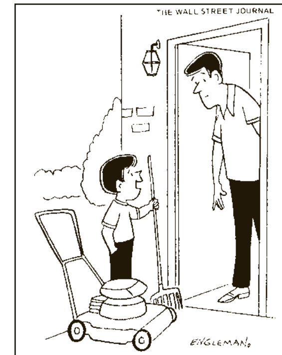
one side wins and the other side loses. In fact, the opposite is true: Trade between two countries can make each country better off.

To see why, consider how trade affects your family. When a member of your family looks for a job, she competes against members of other families who are looking for jobs. Families also compete against one another when they go shopping because each family wants to buy the best goods at the lowest prices. In a sense, each family in an economy competes with all other families.

Despite this competition, your family would not be better off isolating itself from all other families. If it did, your family would need to grow its own food, make its own clothes, and build its own home. Clearly, your family gains much from its ability to trade with others. Trade allows each person to specialize in the activities she does best, whether it is farming, sewing, or home building. By trading with others, people can buy a greater variety of goods and services at lower cost.

Like families, countries also benefit from the ability to trade with one another. Trade allows countries to specialize in what they do best and to enjoy a greater variety of goods and services. The Chinese, as well as the French, Egyptians, and Brazilians, are as much our partners in the world economy as they are our competitors.



FROM THE WALL STREET JOURNAL - PERMISSION, CARTOON FEATURES SYNDICATE

"For $5 a week you can watch baseball without being nagged to cut the grass!"

1-2b Principle 6: Markets Are Usually a Good Way to Organize Economic Activity

The collapse of communism in the Soviet Union and Eastern Europe in the late 1980s and early 1990s was one of the last century's most transformative events. Communist countries operated on the premise that government officials were in the best position to allocate the economy's scarce resources. These central planners decided what goods and services were produced, how much was produced, and who produced and consumed these goods and services. The theory behind central planning was that only the government could organize economic activity in a way that promoted economic well-being for the country as a whole.

Most countries that once had centrally planned economies have abandoned the system and are instead developing market economies. In a **market economy**, the decisions of a central planner are replaced by the decisions of millions of firms and households. Firms decide whom to hire and what to make. Households decide which firms to work for and what to buy with their incomes. These firms and households interact in the marketplace, where prices and self-interest guide their decisions.

market economy
an economy that allocates resources through the decentralized decisions of many firms and households as they interact in markets for goods and services

At first glance, the success of market economies is puzzling. In a market economy, no one is looking out for the economic well-being of society as a whole. Free markets contain many buyers and sellers of numerous goods and services, and all of them are interested primarily in their own well-being. Yet despite decentralized decision making and self-interested decision makers, market economies have proven remarkably successful in organizing economic activity to promote overall economic well-being.

In his 1776 book *An Inquiry into the Nature and Causes of the Wealth of Nations*, economist Adam Smith made the most famous observation in all of economics: Households and firms interacting in markets act as if they are guided by an "invisible hand" that leads them to desirable market outcomes. One of our goals in this book is to understand how this invisible hand works its magic.

As you study economics, you will learn that prices are the instrument with which the invisible hand directs economic activity. In any market, buyers look at

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