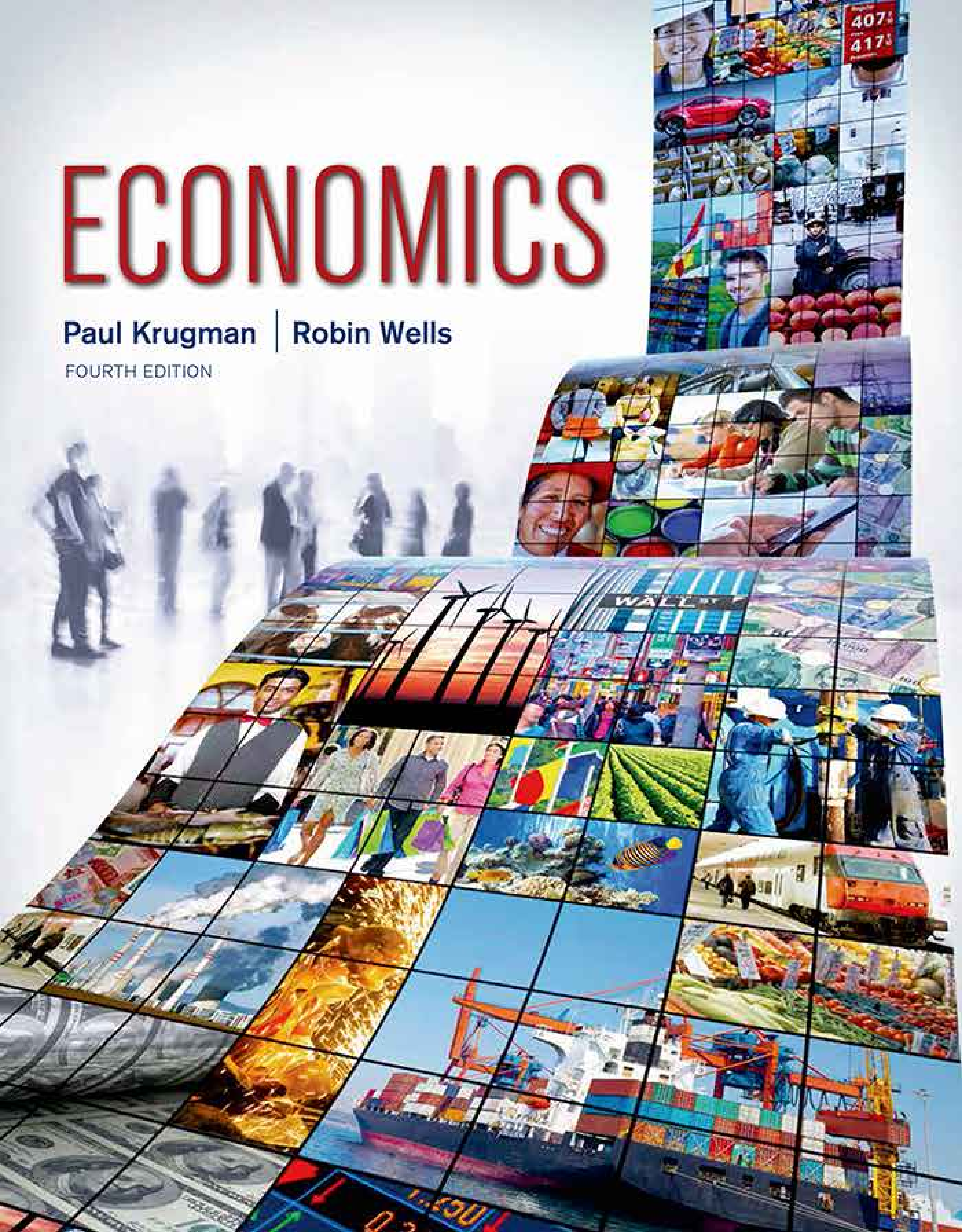
ECONOMICS

Paul Krugman | Robin Wells

FOURTH EDITION



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Applications in Economics

Blue type indicates global example

ECONOMICS IN ACTION

BUSINESS CASES

See inside back cover for Chapters 21–34

ECONOMICS

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FOURTH EDITION

Paul Krugman
Princeton University

Robin Wells

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To beginning students everywhere,
which we all were at one time.

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ABOUT THE AUTHORS

Ligaya Franklin

Paul Krugman, recipient of the 2008 Nobel Memorial Prize in Economic Sciences, taught at Princeton University for 14 years and, as of June 2015, he will have joined the faculty of the Graduate Center of the City University of New York. In his new position, he is associated with the Luxembourg Income Study, which tracks and analyzes income inequality around the world. He received his BA from Yale and his PhD from MIT. Before Princeton, he taught at Yale, Stanford, and MIT. He also spent a year on the staff of the Council of Economic Advisers in 1982–1983. His research has included pathbreaking work on international trade, economic geography, and currency crises. In 1991, Krugman received the American Economic Association's John Bates Clark medal. In addition to his teaching and academic research, Krugman writes extensively for nontechnical audiences. He is a regular op-ed columnist for the *New York Times*. His best-selling trade books include *End This Depression Now!, The Return of Depression Economics and the Crisis of 2008,* a history of recent economic troubles and their implications for economic policy, and *The Conscience of a Liberal,* a study of the political economy of economic inequality and its relationship with political polarization from the Gilded Age to the present. His earlier books, *Peddling Prosperity* and *The Age of Diminished Expectations,* have become modern classics.

Robin Wells was a Lecturer and Researcher in Economics at Princeton University. She received her BA from the University of Chicago and her PhD from the University of California at Berkeley; she then did postdoctoral work at MIT. She has taught at the University of Michigan, the University of Southampton (United Kingdom), Stanford, and MIT.

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BRIEF CONTENTS

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PREFACE

"Stories are good for us, whether we hear them, read them, write them, or simply imagine them. But stories that we read are particularly good for us. In fact I believe they are essential."
Frank Smith, *Reading: FAQ*

The Importance of a Narrative Approach

More than a decade ago, when Robin and I began writing the first edition of this textbook, we had many small ideas: particular aspects of economics that we believed weren't covered the right way in existing textbooks. But we also had one big idea: the belief that an economics textbook could and should be built around narratives, that it should never lose sight of the fact that economics is, in the end, a set of stories about what people do.

Many of the stories economists tell take the form of models—for whatever else they are, economic models are stories about how the world works. But we believed that students' understanding of and appreciation for models would be greatly enhanced if they were presented, as much as possible, in the context of stories about the real world, stories that both illustrate economic concepts and touch on the concerns we all face as individuals living in a world shaped by economic forces.

Those stories have been integrated into every edition, including this one. Once again, you'll find them in the openers, in special features like Economics in Action, For Inquiring Minds, Global Comparison, and in our business cases. We have been gratified by the reception this storytelling approach has received and in this edition of *Economics* we continue to expand the book's appeal by including many new stories on a broad range of topics, and by updating and revising others. Specifically, there are 13 new opening stories, 27 new Economics in Actions, and 8 new business cases. As always, a significant number of the features that aren't completely new have been updated.

We remain extremely fortunate in our reviewers, who have put in an immense amount of work helping us to make this book even better. And we are also deeply thankful to the users who have given us feedback, telling us what works and, even more important, what doesn't.

Despite the many changes in this new edition, we've tried to keep the spirit the same. This is a book about economics as the study of what people do and how they interact, a study very much informed by real-world experience.

The Fourth Edition: What's New

Robin and I have been extremely gratified by the success of the first three editions of *Economics,* which has made it one of the best-selling economics textbooks. Yet we are aware that success can have its dangers. Given the book's wide acceptance, it might be tempting for an author to do less in the next revision. In fact, it might be downright rational. However, we believe we have resisted that temptation in this latest edition. Following is an overview of the changes we've made.

Big Changes in the First Half of the Book (Chapters 1–20 on Microeconomics) . . .

Many new examples and stories focusing on environmental concerns, new technology, and policy debates

After touring college campuses and observing anti-fracking signs everywhere, we were impressed by how much students really do want to participate in the big economic issues of the day. However, we can also note how much today's students are attached to their energy-hungry devices, from smartphones to tablets to computers to personal dorm fridges. Hence one of the aims of this edition is to both acknowledge students' idealism as well as to help inform them about the realities of resource scarcity and the need to make choices.

To that end we have made fracking and its effects on the market for natural gas the subject of the opening story for Chapter 3, on supply and demand. However, we have been careful not to take sides in the debate over fracking—while highlighting how it has dramatically lowered the price of energy, like natural gas, we alert students to the environmental concerns it raises in Chapter 16 on externalities.

These are just two of the many new examples and stories we have introduced in the fourth edition with the aim of thoroughly freshening up the new edition and keeping it current and relevant. We have paid particular attention to how changes in technology are transforming the economic landscape. For example, we discuss the rise of Uber to illustrate market equilibrium, the use of Smart Grid technology to show the importance of measuring cost, and how the advent of "showrooming" and shopping Apps moves the market for consumer goods closer to one of perfect competition. We have also chosen stories and examples on topics close to the lives of today's students, like the Economics in Action, "The Rise and Fall of the Unpaid Intern," in Chapter 5 on price controls and quotas.

We have also chosen topics that illustrate important policy debates, such as the introduction of the Affordable Care Act, the regulatory questions raised by the fight between Amazon and Hachette Books, and the environmental trade-offs of coal-fired versus natural-gas-fired power plants. And as always, we pay great attention to integrating an international perspective, in our Global Comparison feature, but also in the many globally oriented applications and stories. All global examples are highlighted with the following icon:

A listing of opening stories, Economics in Actions, For Inquiring Minds, Global Comparisons, and business cases can be found inside the front and back covers and on the facing pages.

A major revision of Chapter 16, Externalities

We believe environmental concerns are one of the most pressing issues today and are a good means of sparking students' interests in economics.

The focus on the economics and environmental effects of fracking that begins in Chapter 3 on supply and demand continues in Chapter 16 on externalities where we've added a new opening story ("Trouble Underfoot") to illustrate the concept of a negative externality, using the environmental debate over contaminated groundwater from fracking. Following in that same vein, and in order to sharpen students' appreciation of environmental trade-offs, we include a new Economics in Action, "How Much Does Your Electricity Really Cost?" that compares the social cost of different types of power generation.

Pedagogical changes to the chapter include an improved discussion of the costs and benefits of pollution and a much simplified analysis of the Coase theorem. There is also a completely revised and updated section on network externalities, along with a new business case tracing the rise of Facebook and the fall of MySpace to show network externalities in action.

New coverage of the Affordable Care Act and other improvements in Chapter 18, The Economics of the Welfare State

This chapter is a unique feature of our book that has become even more relevant since first introduced in the second edition. For one thing, the major provisions of the Affordable Care Act, aka Obamacare, went into effect at the beginning of 2014; this is the biggest expansion of the U.S. welfare state since the creation of Medicare in the 1960s. We examine the economics behind the act, and discuss the early, relatively favorable returns of its performance.

Meanwhile, the Great Recession and its aftermath have been a major test of the ability of welfare-state programs to cushion Americans from hardship; we discuss new research showing a dramatic effect from food stamps and other programs in limiting the rise in poverty.

In addition, the chapter continues to offer a comprehensive look at the U.S. welfare state and its philosophical origins, along with a close look at how programs in the United States compare to those in other countries.

Despite the many changes and updates, our goal for the chapter is the same: to motivate students to think more deeply about economic trade-offs, social welfare, and the political process.

. . . And Big Changes in the Second Half of the Book (Chapters 21–34 on Macroeconomics)

This revision fully incorporates recent events

The first edition of this textbook was published at a time of calm in the U.S. and world economies. In fact, at the time (in 2005), many economists believed that the so-called Great Moderation, an era of relative stability that began in the mid-1980s, would continue indefinitely. We chose, nonetheless, to put recessions and the policies governments use to fight them front and center, believing that the business cycle is still the core issue in macroeconomics. And subsequent events have both validated that decision and provided plenty of material to incorporate in each new edition. We also believe that hard times in the world economy have, perversely, greatly improved our ability to teach macroeconomics. We can now vividly illustrate that macroeconomics does make sense of the world and that it really matters.

The financial crisis of 2008 is slowly receding in the rearview mirror, but the aftershocks continue to reverberate, and most of the big changes since the third edition reflect those aftershocks. We have, of course, updated virtually every data-based figure and table in these chapters, but beyond that, we have updated or replaced many of the real-world narratives that provide context for the analytical content, and which we believe make this book special.

This doesn't mean that we have torn up the basic analysis of previous editions. On the contrary, one little-appreciated aspect of world economic developments since the crisis is how well basic macroeconomic models have worked in tracking, for example, the effects of fiscal policy and monetary expansion. As a result, we make extensive use of recent events to illustrate macroeconomic principles and concepts in a way that wouldn't have been possible in a more stable world.

This incorporation of recent developments literally begins at the start, in the first chapter: Chapter 21, "Macroeconomics: The Big Picture." Previously, we began by depicting mass unemployment in the 1930s; now we begin with a new chapter-opening story about mass unemployment in today's Spain ("The Pain in Spain").

Depression-type conditions are no longer something that happened long ago; as we show in Chapter 23, "Unemployment and Inflation," they're happening right now to young Europeans who are a lot like our students. And as we also show, even in America, college graduates have faced years of tough times and many students' families and friends will have experienced the pain of protracted unemployment firsthand, so that we believe that the analysis has gained extra relevance.

Later on, we use recent data to demonstrate the validity of a number of key concepts. For example, macroeconomists talk about sticky wages that may not fall even in the face of unemployment; as we show in Chapter 27, "Aggregate Demand and Aggregate Supply," in recent years that stickiness has been dramatically illustrated by a surge in the number of workers whose wages don't change at all from year to year. Similarly, we don't need to appeal to events decades ago to support the concept of a short-run trade-off between unemployment and inflation as we show in Chapter 31, "Inflation, Disinflation, Deflation." You can see that trade-off clearly by looking across advanced countries and seeing that where unemployment has risen, inflation has fallen the most.

Another example of how recent events have allowed us to look at macroeconomic concepts in a new way is the effect of fiscal policy. This used to be a very difficult topic to teach in a way that seemed real, because large discretionary changes in government spending hardly ever happened. That's no longer true. The U.S. stimulus program of 2009–2010 gave substance to the concept of expansionary fiscal policy that we illustrated in the third edition. But now, in the fourth edition, we have even more real-world experience. As we discuss in Chapter 28, "Fiscal Policy," since 2010 many but not all countries have imposed drastic fiscal austerity, and—as we discuss in the new Economics in Action, "Austerity and the Multiplier"—international comparisons between countries with varying degrees of austerity make the discussion of fiscal impacts much more concrete and accessible. Meanwhile, long-run fiscal issues—including concerns about solvency—have also become a lot less abstract. We see this in another new Economics in Action: "Are We Greece?", which nobody would have considered writing a few years ago.

What about the analysis of crises themselves? We already had a crisis chapter in the third edition, but it's now possible to say much more. Chapter 32, "Crises and Consequences," extends the story to cover the many aftershocks of the 2008 crisis, especially the successive waves of turmoil that have swept Europe. It also includes a discussion of Dodd-Frank financial reform, which is now a crucial part of the economic scene.

And there's more. For example, when we discuss open-economy macroeconomics in Chapter 34, we can illustrate the difference between fixed and floating exchange rates by comparing experiences around the European periphery, where Iceland and Latvia have followed dramatically different paths. One new Economics in Action illustrates how Latvia has taken on outsize significance in the debate over fiscal policy, serving as an example of successful austerity ("Lats of Luck"). Another looks at the advantages that Iceland, a country with its own currency, has had over euro-using countries, like Greece, when workers' wages needed to be cut during tough economic times ("The Little Currency That Could").

And the revision extends beyond post-crisis analysis

But we don't want to convey the sense that all the changes in this edition reflect the aftermath of the financial crisis. We have also added a lot of new material in Chapter 24 on long-run growth, ranging from the all-too-visible effects of rapid growth on air quality in Beijing (in the opening story, "Airpocalypse Now"), to the disturbing collapse of productivity growth in Italy (in a new Global Comparison, "What's the Matter with Italy"). Progress in air travel has helped illustrate one of our favorite themes, the often inconspicuous nature of progress. Today's jets look a lot like the jets of the 1960s, but they're vastly more efficient, as we discuss in the new Chapter 9 business case, "How Boeing Got Better."

We continue to address environmental concerns in the second half of the book, with two new applications in the chapter on growth. In a new Economics in Action we examine the financial costs and environmental benefits of limiting carbon ("The Cost of Limiting Carbon"). A new business case illustrates how stimulus spending on concentrated thermal solar power plants has led to job creation and environmental benefits ("Here Comes the Sun").

We also address the challenges facing the Fed Chair Janet Yellen in a new opening story, "The Most Powerful Person in Government" in Chapter 30 on monetary policy; explore why U.S. companies issue a lot more bonds than their European counterparts in a new Global Comparison, "Bonds Versus Banks" in Chapter 25 on the financial system; and look at the impact that adopting the euro has had on Spain's national account balance in a new Economics in Action, "Spain's Costly Surplus," in Chapter 21 on macroeconomic measurement.

A New Online Feature: Work It Out Tutorials

This new feature ties together our textbook and the accompanying online course materials to offer students interactive assistance with solving one key problem in every chapter. Available in LaunchPad, the new Work It Out feature includes an online tutorial that guides students through each step of the problem-solving process. There are also choice-specific feedback and video explanations, providing interactive assistance tailored to each student's needs. Students can use the Work It Outs, along with the other offerings in LaunchPad, to independently test their comprehension of concepts, build their math and graphing skills, and prepare for class and exams.

Scan here for a sample Work It Out problem.

http://qrs.ly/px49xiv

Advantages of This Book

Our basic approach to textbook writing is the same as it was in the first edition:

- **Chapters build intuition through realistic examples.** In every chapter, we use real-world examples, stories, applications, and case studies to teach the core concepts and motivate student learning. The best way to introduce concepts and reinforce them is through real-world examples; students simply relate more easily to them.
- **Pedagogical features reinforce learning.** We've crafted a genuinely helpful set of features that are described in the following Walkthrough, "Tools for Learning."
- **Chapters are accessible and entertaining.** We use a fluid and friendly writing style to make concepts accessible and, whenever possible, we use examples that are familiar to students.
- **Although easy to understand, the book also prepares students for further coursework.** There's no need to choose between two unappealing alternatives: a textbook that is "easy to teach" but leaves major gaps in students' understanding, or a textbook that is "hard to teach" but adequately prepares students for future coursework. We offer the best of both worlds.

TOOLS FOR LEARNING WALKTHROUGH

Every chapter is structured around a common set of features that help students learn while keeping them engaged.

Supply and Demand

CHAPTER 3

What You Will Learn in This Chapter

- **What a competitive market is and how it is described by the supply and demand model**
- **What the demand curve and the supply curve are**
- **The difference between movements along a curve and shifts of a curve**
- **How the supply and demand curves determine a market's equilibrium price and equilibrium quantity**
- **In the case of a shortage or surplus, how price moves the market back to equilibrium**

Chapter Overviews offer students a helpful preview of the key concepts they will learn about in the chapter.

A NATURAL GAS BOOM

WORLD VIEW

AP Photo/Andrew Rush

Spencer Platt/Getty Images

The adoption of new drilling technologies lead to cheaper natural gas and vigorous protests.

VIVID ... speech ... ew York ... nt was greeted by more than 500 chanting and sign-toting supporters and opponents. Why the ruckus? Because upstate New York is a key battleground over the adoption of a relatively new method of producing energy supplies. *Hydraulic fracturing,* or *fracking,* is a method of extracting natural gas (and to a lesser extent, oil) from deposits trapped between layers of shale rock thousands of feet underground using—using powerful jets of chemical-laden water to release the gas. While it has been known for almost a century that the United States contains vast deposits of natural gas within these shale formations, they lay untapped because drilling for them was considered too difficult.

Until recently, that is. A few decades ago, new drilling technologies were developed that made it possible to reach these deeply embedded deposits. But what finally pushed energy companies to invest in and adopt these new extraction technologies was the high price of natural gas over the last decade. What a... unted for these high natural gas price... a quadrupling from 2002 to 2006? There were two principal factors—one reflecting the demand for natural gas, the other the supply of natural gas.

First, the demand side. In 2002, the U.S. economy was mired in recession; with economic activity low and job losses high, people and businesses cut back their energy consumption. For example, to save money, homeowners turned down their thermostats in winter and turned them up in the summer. But by 2006, the U.S. economy came roaring back, and natural gas consumption rose. Second, the supply side. In 2005, Hurricane Katrina devastated the American Gulf Coast, site of most of the country's natural gas production at the time. So by 2006 the demand for natural gas had surged while the supply of natural gas had been severely curtailed. As a result, in 2006 natural gas prices peaked at around $14 per thousand cubic feet, up from around $2 in 2002.

Fast-forward to 2013: natural gas prices once again fell to $2 per thousand cubic feet. But this time it wasn't a slow economy that was the principal explanation, it was the use of the new technologies. "Boom," "supply shock," and "game changer" was how energy experts described the impact of these technologies on oil and natural gas production and prices. To illustrate, the United States produced 8.13 trillion cubic feet of natural gas from shale deposits in 2012, nearly doubling the total from 2010. That total increased again in 2013, to 9.35 trillion cubic feet of natural gas, making the U.S. the world's largest producer of both oil and natural gas—overtaking both Russia and Saudia Arabia.

The benefits of much lower natural gas prices have not only led to lower heating costs for American consumers, they have also cascaded through American industries, particularly power generation and transportation. Electricity-generating power plants are switching from coal to natural gas, and mass-transit vehicles are switching from gasoline to natural gas. (You can even buy an inexpensive kit to convert your car from gasoline to natural gas.) The effect has been so significant that many European manufacturers, paying four times more for gas than their U.S. rivals, have been forced to relocate plants to American soil to survive. In addition, the revived U.S. natural gas industry has directly created tens of thousands of new jobs.

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Opening Stories Each chapter begins with a compelling story that is often integrated throughout the rest of the chapter. Many of the stories in this edition are new, including the one shown here.

Economics in Action cases conclude every major text section. This much-lauded feature lets students immediately apply concepts they've read about to real phenomena.

Global Warming Images/Alamy

Cities can reduce traffic congestion by raising the price of driving.

ECONOMICS in Action

WORLD VIEW

Beating the Traffic

All big cities have traffic problems, and many local authorities to discourage driving in the crowded city center. If we think of a the city center as a good that people consume, we can use t of demand to analyze anti-traffic policies.

One common strategy is to reduce the demand for auto trips by prices of substitutes. Many metropolitan areas subsidize bus and hoping to lure commuters out of their cars. An alternative is to rais complements: several major U.S. cities impose high taxes on comm garages and impose short time limits on parking meters, both to and to discourage people from driving into the city.

A few major cities—including Singapore, London, Oslo, Stockholm, and Milan—have been willing to adopt a direct and politically controversial approach: reducing congestion by raising the price of driving. Under "congestion pricing" (or "congestion charging" in the United Kingdom), a charge is imposed on cars entering the city center during business hours. Drivers buy passes, which are then debited electronically as they drive by monitoring stations. Compliance is monitored with automatic cameras that photograph license plates.

In 2012, Moscow adopted a modest charge for parking in certain areas in an attempt to reduce its traffic jams, considered the worst of all major cities. After the approximately $1.60 charge was applied, city officials estimated that Moscow traffic decreased by 4%.

The current daily cost of driving in London ranges from £9 to £12 (about $14 to $19). And drivers who don't pay and are caught pay a fine of £120 (about $192) for each transgression.

Not surprisingly, studies have shown that after the implementation of congestion pricing, traffic does indeed decrease. In the 1990s, London had some of the worst traffic in Europe. The introduction of its congestion charge in 2003 immediately reduced traffic in the city center by about 15%, with overall traffic falling by 21% between 2002 and 2006. And there has been increased use of substitutes, such as public transportation, bicycles, motorbikes, and ride-sharing. From 2001 to 2011, bike trips in London increased by 79%, and bus usage was up by 30%.

In the United States, the U.S. Department of Transportation has implemented pilot programs to study congestion pricing. For example, in 2012 Los Angeles County imposed a congestion charge on an 11-mile stretch of highway in central Los Angeles. Drivers pay up to $1.40 per mile, the amount depending upon traffic congestion, with a money-back guarantee that their average speed wi below 45 miles per hour. While some drivers were understandably ar charge, others were more philosophical. One driver felt that the toll wa to escape what often turned into a crawling 45-minute drive, saying, " you're in a hurry to get home. You got to pay the price. If not, get stuc

Global Stamps identify which boxes, cases, and applications are global in focus.

Quick Review

- The **supply and demand model** is a model of a **competitive market—**one in which there are many buyers and sellers of the same good or service.
- The **demand schedule** shows how the **quantity demanded** changes as the price changes. A **demand curve** illustrates this relationship.
- The **law of demand** asserts that a higher price reduces the quantity demanded. Thus, demand curves normally slope downward.
- An increase in demand leads to a rightward **shift of the demand curve:** the quantity demanded rises for any given price. A decrease in demand leads to a leftward shift: the quantity demanded falls for any given price. A change in price results in a change in the quantity demanded and a **movement along the demand curve.**
- The five main factors that can shift the demand curve are changes in (1) the price of a related good, such as a **substitute** or a **complement,** (2) income, (3) tastes, (4) expectations, and (5) the number of consumers.
- The market demand curve is the hor ontal sum of the **individual d nd curves** of all consumers in market.

Check Your Understanding 3-1

1. Explain whether each of the following events represents (i) a *shift o* curve or (ii) a *movement along* the demand curve.
   a. A store owner finds that customers are willing to pay more for rainy days.
   b. When Circus Cruise Lines offered reduced prices for summer Caribbean, their number of bookings increased sharply.
   c. People buy more long-stem roses the week of Valentine's Day, eve prices are higher than at other times during the year.
   d. A sharp rise in the price of gasoline leads many commuters to join carpools in order to reduce their gasoline purchases.

Solutions appear at back of book.

Check Your Understanding questions allow students to immediately test their understanding of a section. Solutions appear at the back of the book.

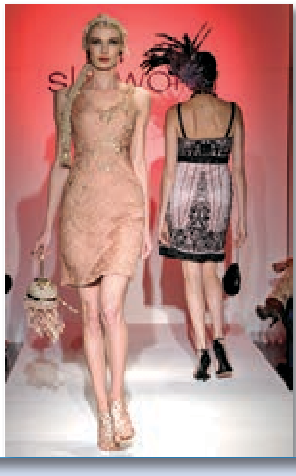
Quick Reviews offer students a short, bulleted summary of key concepts in the section to aid understanding.

FOR INQUIRING MINDS | Tribulations on the Runway

You probably don't spend much time worrying about the trials and tribulations of fashion models. Most of them don't lead glamorous lives; in fact, except for a lucky few, life as a fashion model today can be very trying and not very lucrative. And it's all because of supply and demand.

Consider the case of Bianca Gomez, a willowy 18-year-old from Los Angeles, with green eyes, honey-colored hair, and flawless skin, whose experience was detailed in a *Wall Street Journal* article. Bianca began modeling while still in high school, earning about $30,000 in modeling fees during her senior year. Having attracted the interest of some top designers in New York, she moved there after graduation, hoping to land jobs in leading fashion houses and photoshoots for leading fashion magazines.

But once in New York, Bianca entered the global market for fashion models. And it wasn't very pretty. Due



John Sciulli/Stringer/Getty Images

by a rightward shift of the supply curve in the market for fashion models, which would by itself tend to lower the price paid to models.

And that wasn't the only change in the market. Unfortunately for Bianca and others like her, the tastes of many of those who hire models have changed as well. Fashion magazines have come to prefer using celebrities such as Beyoncé on their pages rather than anonymous models, believing that their readers connect better with a familiar face. This amounts to a leftward shift of the demand curve for models—again reducing the equilibrium price paid to them.

This was borne out in Bianca's experiences. After paying her rent, her transportation, all her modeling expenses, and 20% of her earnings to her modeling agency (which markets her to prospective clients and books her

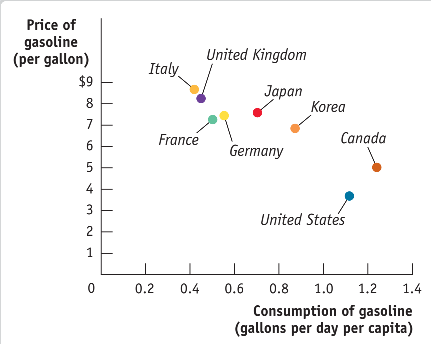
For Inquiring Minds boxes apply economic concepts to real-world events in unexpected and sometimes surprising ways, generating a sense of the power and breadth of economics. The feature furthers the book's goal of helping students build intuition with real-world examples.

Global Comparison boxes use real data from several countries and colorful graphs to illustrate how and why countries reach different economic outcomes. The boxes give students an international perspective that will expand their understanding of economics.

GLOBAL COMPARISION | Pay More, Pump Less

For a real-world illustration of the law of demand, consider how gasoline consumption varies according to the prices consumers pay at the pump. Because of high taxes, gasoline and diesel fuel are more than twice as expensive in most European countries and in many East Asian countries than in the United States. According to the law of demand, this should lead Europeans to buy less gasoline than Americans—and they do. As you can see from the figure, per person, Europeans consume less than half as much fuel as Americans, mainly because they drive smaller cars with better mileage.

Prices aren't the only factor affecting fuel consumption, but they're probably the main cause of the difference between European and American fuel consumption per person.



Source: World Development Indicators and U.S. Energy Information Administration, 2013.

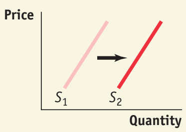
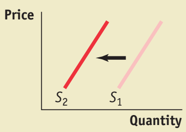
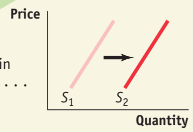
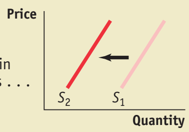
PITFALLS

WHICH CURVE IS IT, ANYWAY?

When the price of some good or service changes, in general, we can say that this reflects a change in either supply or demand. But it is easy to get confused about which one. A helpful clue is the direction of change in the quantity. If the quantity sold changes in the *same* direction as the price—for example, if both the price and the quantity rise—this suggests that the demand curve has shifted. If the price and the quantity move in *opposite* directions, the likely cause is a shift of the supply curve.

Pitfalls boxes clarify concepts that are easily misunderstood by students new to economics.

TABLE 3-2 Factors That Shift Supply

When this happens . . .		. . . supply increases	But when this happens . . .		. . . supply decreases
When the price of an input falls . . .		. . . supply of the good increases.	When the price of an input rises . . .		. . . supply of the good decreases.
...ice ...te in ...alls . . .		. . . supply of the original good increases.	When the price of a substitute in production rises . . .		. . . supply of the original good decreases.

Summary Tables serve as a helpful study aid for readers. Many incorporate visuals to help students grasp important economic concepts.

Business Cases close each chapter, applying key economic principles to real-life business situations in both American and international companies. Each case concludes with critical thinking questions.

BUSINESS CASE
An Uber Way to Get a Ride

Mark Avery/Zuma Wire/Alamy

In a densely populated city like New York City, finding a taxi is a relatively easy task on most days—stand on a corner, put out your arm and, usually, before long an available cab stops to pick you up. And even before you step into the car you will know approximately how much it will cost to get to your destination, because taxi meter rates are set by city regulators and posted for riders.

But at times it is not so easy to find a taxi—on rainy days, during rush hour, and at crowded locations where many people are looking for a taxi at the same time. At such times, you could wait a very long while before finding an available cab. As you wait, you will probably notice empty taxis passing you by—drivers who have quit working for the day and are headed home or back to the garage. There will be drivers who might stop, but then won't pick you up because they find your destination inconvenient. Moreover, there are times when it is simply impossible to hail a taxi—for example, during a snowstorm or on New Year's Eve when the demand for taxis far exceeds the supply.

In 2009 two young entrepreneurs, Garrett Camp and Travis Kalanick, founded Uber, a company that they believe offers a better way to get a ride. Using a smartphone app, Uber serves as a clearinghouse connecting people who want a ride to drivers with cars who are registered with Uber. Confirm your location using the Uber app and you'll be shown the available cars in your vicinity. Tap "book" and you receive a text saying your car—typically a spotless Lincoln Town Car—is on its way. At the end of your trip, fare plus tip are automatically deducted from your credit card. As of 2014 Uber operates in 70 cities around the world and booked more than $1 billion in rides in 2013.

Given that Uber provides personalized service and better quality cars, their fares are somewhat higher than regular taxi fares *during normal driving days*—a situation that customers seem happy with. However, the qualification *during normal driving hours* is an important one because at other times Uber's rates fluctuate. When a lot of people are looking for a car—such as during a snowstorm or on New Year's Eve—Uber uses what it calls *surge pricing*, setting the rate higher until everyone who wants a car at the going price can get one. So during a recent New York snowstorm, rides cost up to 8.25 times the standard price. Enraged, some of Uber's customers have accused them of price gouging.

But according to Kalanick, the algorithm that Uber uses to determine the surge price is set to leave as few people as possible without a ride, and he's just doing what is necessary to keep customers happy. As he explains, "We do not own cars nor do we employ drivers. Higher prices are required in order to get cars on the road and keep them on the road during the busiest times." This explanation was confirmed by one Uber driver who said, "If I don't have anything to do and see a surge price, I get out there."

QUESTIONS FOR THOUGHT

1. Before Uber, how were prices set in the market for rides in New York City? Was it a competitive market?
2. What accounts for the fact that during good weather there are typically

WORK IT OUT

Macmillan Education LaunchPad

For interactive, step-by-step help in solving the following problem, visit LaunchPad by using the URL on the back cover of this book.

19. The accompanying table gives the annual U.S. demand and supply schedules for pickup trucks.

Price of truck	Quantity of trucks demanded (millions)	Quantity of trucks supplied (millions)
$20,000	20	14
25,000	18	15
30,000	16	16
35,000	14	17
40,000	12	18

a. Plot the demand and supply curves using these schedules. Indicate the equilibrium price and quantity on your diagram.

b. Suppose the tires used on pickup trucks are found to be defective. What would you expect to happen in the market for pickup trucks? Show this on your diagram.

c Suppose that the U.S. Department of Transportation imposes costly regulations on manufacturers that cause them to reduce supply by one-third at any given price. Calculate and plot the new supply schedule and indicate the new equilibrium price and quantity on your diagram.

NEW! Work It Out appears in all end-of-chapter problem sets, offering students online tutorials that guide them step by step through solving key problems. Available in LaunchPad.

PROBLEMS

1. A survey indicated that chocolate is the most popular flavor of ice cream in America. For each of the following, indicate the possible effects on demand, supply, or both as well as equilibrium price and quantity of chocolate ice cream.

b. The market for St. Louis Rams cotton T-shirts
Case 1: The Rams win the Super Bowl.
Case 2: The price of cotton increases.

c. The market for bagels

End-of-Chapter Reviews include a brief but complete summary of key concepts, a list of key terms, and a comprehensive, high-quality set of end-of-chapter Problems.

SUMMARY

1. The **supply and demand model** illustrates how a **competitive market,** one with many buyers and sellers, none of whom can influence the market price, w

2. The der

ing supply, they mean **shifts of the supply curve**—a change in the quantity supplied at any given price. An increase in supply causes a rightward shift of the sup-

KEY TERMS

Competitive market, p. 68
Supply and demand model, p. 68
Demand schedule, p. 69
Quantity demanded, p. 69
Demand curve, p. 69
Substitutes, p. 74
Complements, p. 74
Normal good, p. 74
Inferior good, p. 74
Individual demand curve, p. 76
Movement along the supply curve, p. 80
Input, p. 82
Individual supply curve, p. 83
Equilibrium price, p. 86

Organization of This Book: What's Core, What's Optional

To help with planning your course, following is a list of what we view as core chapters and those that could be considered optional, along with a brief description of the coverage in each chapter.

Core	Optional
	Introduction: The Ordinary Business of Life Initiates students into the study of economics with basic terms and explains the difference between microeconomics and macroeconomics.
1. **First Principles** Outlines 12 principles underlying the study of economics: principles of individual choice, interaction between individuals, and economy-wide interaction.	
2. **Economic Models: Trade-offs and Trade** Employs two economic models—the production possibilities frontier and comparative advantage—as an introduction to gains from trade and international comparisons.	**Chapter 2 Appendix: Graphs in Economics** Offers a comprehensive review of graphing and math skills for students who would find a refresher helpful and to prepare them for better economic literacy.
3. **Supply and Demand** Covers the essentials of supply, demand, market equilibrium, surplus, and shortage.	
4. **Consumer and Producer Surplus** Introduces students to market efficiency, the ways markets fail, the role of prices as signals, and property rights.	
5. **Price Controls and Quotas: Meddling with Markets** Covers market interventions and their consequences: price and quantity controls, inefficiency, and deadweight loss.	
6. **Elasticity** Introduces the various elasticity measures and explains how to calculate and interpret them, including price, cross-price and income elasticity of demand, and price elasticity of supply.	
7. **Taxes** Covers basic tax analysis along with a review of the burden of taxation and considerations of equity versus efficiency. The structure of taxation, tax policy, and public spending are also introduced.	
	8. **International Trade** Here we trace the sources of comparative advantage, consider tariffs and quotas, and explore the politics of trade protection. The chapter includes coverage on the controversy over imports from low-wage countries.
9. **Decision Making by Individuals and Firms** Microeconomics is a science of how to make decisions. The chapter focuses on marginal analysis ("either–or" and "how much" decisions) and the concept of sunk cost; it also includes a section on behavioral economics, showing the limitations of rational thought.	**Chapter 9 Appendix: Toward a Fuller Understanding of Present Value** Expands on the coverage of present value in the chapter.
10. **The Rational Consumer** Provides a complete treatment of consumer behavior for instructors who don't cover indifference curves, including the budget line, optimal consumption choice, diminishing marginal utility, and substitution effects.	**Chapter 10 Appendix: Consumer Preferences and Consumer Choice** Offers more detailed treatment for those who wish to cover indifference curves.
11. **Behind the Supply Curve: Inputs and Costs** Develops the production function and the various cost measures of the firm, including discussion of the difference between average cost and marginal cost.	

Core	Optional
12. **Perfect Competition and the Supply Curve** Explains the output decision of the perfectly competitive firm, its entry/exit decision, the industry supply curve, and the equilibrium of a perfectly competitive market.	
13. **Monopoly** A complete treatment of monopoly, including topics such as price discrimination and the welfare effects of monopoly.	
14. **Oligopoly** This chapter focuses on defining the concept of oligopoly along with basic game theory in both a one-shot and repeated game context. Coverage of the kinked demand curve now appears online.	
15. **Monopolistic Competition and Product Differentiation** The chapter emphasizes instances in which students encounter monopolistic competition, covering the entry/exit decision, efficiency considerations, and advertising.	
16. **Externalities** Significantly revised and updated in the new edition, the chapter covers negative externalities and solutions to them, such as Coasian private trades, emissions taxes, and a system of tradable permits. Also examined are positive externalities, technological spillovers, and network externalities.	
17. **Public Goods and Common Resources** Explains how to classify goods into four categories (private goods, common resources, public goods, and artificially scarce goods) based on excludability and rivalry in consumption, in the process clarifying why some goods but not others can be efficiently managed by markets.	
	18. **The Economics of the Welfare State** Significantly revised and updated, this chapter provides a comprehensive overview of the welfare state as well as its philosophical foundations. Examined in the chapter are health care economics (including new coverage of the Affordable Care Act), the problem of poverty, and the issue of income inequality.
	19. **Factor Markets and the Distribution of Income and Appendix: Indifference Curve Analysis of Labor Supply** Covers the efficiency-wage model of the labor market as well as the influence of education, discrimination, and market power. The appendix examines the labor-leisure trade-off and the backward bending labor supply curve.
	20. **Uncertainty, Risk, and Private Information** This unique, applied chapter explains attitudes toward risk, examines the benefits and limits of diversification, and considers private information, adverse selection, and moral hazard.
21. **Macroeconomics: The Big Picture** Introduces the big ideas of macroeconomics with an overview of recessions and expansions, employment and unemployment, long-run growth, inflation versus deflation, and the open economy.	
22. **GDP and the CPI: Tracking the Macroeconomy** Explains how the numbers macroeconomists use are calculated and why, including the basics of national income accounting and price indexes.	

Core	Optional
23. Unemployment and Inflation Covers the measurement of unemployment, the reasons why positive employment exists even in booms, and the problems posed by inflation.	
24. Long-Run Economic Growth Emphasizes an international perspective—economic growth is about the world as a whole—and explains why some countries have been more successful than others.	
25. Savings, Investment Spending, and the Financial System Introduces students to financial markets and institutions, loanable funds and the determination of interest rates. Includes coverage of present value.	
26. Income and Expenditure Addresses the determinants of consumer and investment spending, introduces the famous 45-degree diagram, and explains the logic of the multiplier.	**Chapter 26 Appendix: Deriving the Multiplier Algebraically** A rigorous and mathematical approach to deriving the multiplier.
27. Aggregate Demand and Aggregate Supply Provides the traditional focus on aggregate price level using the traditional approach to AD-AS. It also covers the ability of the economy to recover in the long run.	
28. Fiscal Policy Provides an analysis of the role of discretionary fiscal policy, automatic stabilizers, and long-run issues of debt and solvency.	**Chapter 28 Appendix: Taxes and the Multiplier** A rigorous derivation of the roles of taxes in reducing the size of the multiplier and acting as an automatic stabilizer.
29. Money, Banking, and the Federal Reserve System Covers the roles of money, the ways in which banks create money, and the structure and the role of the Federal Reserve and other central banks.	
30. Monetary Policy Covers the role of Federal Reserve policy in driving interest rates and aggregate demand. It includes a section bridging the short and long run by showing how interest rates set in the short run reflect the supply and demand of savings in the long run.	**Chapter 30 Appendix: Reconciling the Two Models of the Interest Rate** This appendix explains why the loanable funds model (long-run discussions) and the liquidity preference approach (short-run discussions) are both valuable approaches.
31. Inflation, Disinflation, and Deflation Covers the causes and consequences of inflation, the large cost deflation imposes on the economy, and the danger that disinflation leads the economy into a liquidity trap.	
	32. Crises and Consequences Provides an up-to-date look at the recent financial crisis, starting with the Lehman Brothers collapse, integrating coverage about the dangers posed by banking, shadow banking, asset bubbles, and financial contagion.
	33. Macroeconomics: Events and Ideas Provides a unique overview of the history of macroeconomic thought, set in the context of changing policy concerns, and the current state of macroeconomic debates.
	34. Open-Economy Macroeconomics Analyzes special issues raised for macroeconomics in an open economy: a weak dollar, foreign accumulation of dollar reserves, and debates surrounding the euro.

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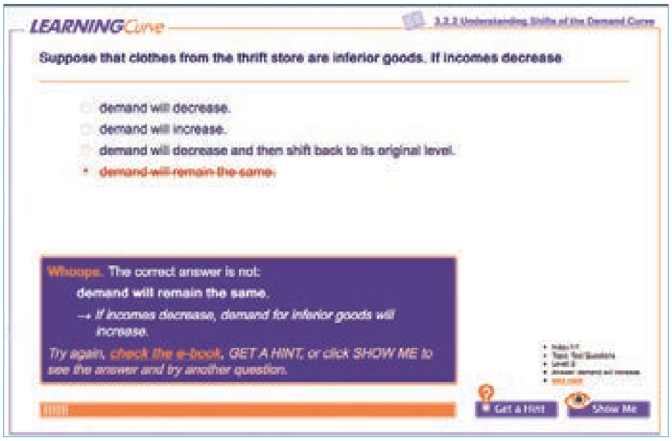
LaunchPad Resources for Students and Instructors

www.macmillanhighered.com/launchpad/krugmanwellsecon4

Our new course space, LaunchPad combines an interactive e-Book with high-quality multimedia content and ready-made assessment options, including LearningCurve adaptive quizzing. Pre-built, curated units are easy to assign or adapt with your own material, such as readings, videos, quizzes, discussion groups, and more. LaunchPad also provides access to a gradebook that provides a clear window on performance for your whole class, for individual students, and for individual assignments.

For Students

LearningCurve is an adaptive quizzing engine that automatically adjusts questions to the student's mastery level. With LearningCurve activities, each student follows a unique path to understanding the material. The more questions a student answers correctly, the more difficult the questions become. Each question is written specifically for the text and is linked to the relevant e-Book section. LearningCurve also provides a personal study plan for students as well as complete metrics for instructors. Proven to raise student performance, LearningCurve serves as an ideal formative assessment and learning tool. For detailed information, visit http://learningcurveworks.com.



NEW Work It Out Tutorials New to this edition, these tutorials guide students through the process of applying economic analysis and math skills to solve the final problem in each chapter. Choice-specific feedback and video explanations provide students with interactive assistance for each step of the problem.

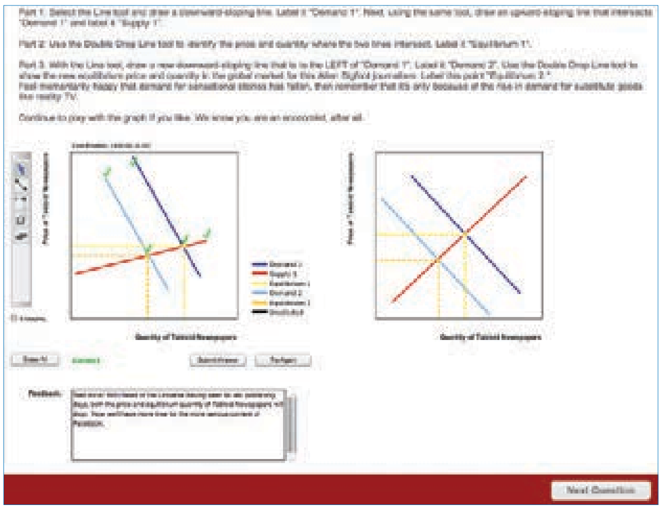
Economics in Action Based on the feature from the text, these real-life applications are accompanied by assessment and links to additional data.

Living Graphs Based on figures from the text, Living Graphs are animated and interactive graphs that first demonstrate a concept to students and then ask them to manipulate the graph or answer questions to check understanding.

Interactive Tutorials These interactive modules are designed to teach students key principles and concepts through example problems, animated graphs, and interactive activities.

For Instructors

Graphing Questions As a further question bank for instructors building assignments and tests, the electronically gradable graphing problems utilize our own robust graphing engine. In these problems, students will be asked to draw their response to a question, and the software will automatically grade that response. Graphing questions are tagged to appropriate textbook sections and range in difficulty level and skill.



Test Bank The Test Bank, coordinated by Doris Bennett, Jacksonville State University, provides a wide range of questions appropriate for assessing your students' comprehension, interpretation, analysis, and synthesis skills. The Test Bank offers multiple-choice, true/false, and short-answer questions designed for comprehensive coverage of the text concepts. Questions are categorized according to difficulty level (easy, moderate, and difficult) and skill descriptor (definitional, concept-based, critical thinking, and analytical thinking) and are tagged to their appropriate textbook section.

End-of-Chapter Problems The end-of-chapter problems from the text have been converted to a multiple-choice format with answer-specific feedback. These problems can be assigned in homework assignments or quizzes.

Practice and Graded Homework Assignments Each LaunchPad unit contains prebuilt assignments, providing instructors with a curated set of multiple-choice and graphing questions that can be easily assigned for practice or graded assessment.

Instructor's Resource Manual The Instructor's Resource Manual, revised by Nora Underwood, University of Central Florida, is a resource meant to provide materials and tips to enhance the classroom experience as it provides chapter objectives, chapter outlines, and teaching tips and ideas.

Solutions Manual Prepared by the authors of the text, the Solutions Manual contains detailed solutions to all of the end-of-chapter problems from the textbook. Solutions to business case study Questions for Thought are also provided.

Interactive Presentation Slides This set of Interactive Presentation slides, designed by Solina Lindahl, CalPoly San Luis Obispo, is available as an alternative to traditional lecture outline slides. The slides are brief, interactive, and visually interesting to keep students' attention in class. They offer instructors the following:

- Additional graphics and animations to demonstrate key concepts
- Many additional (and interesting) real-world examples
- Hyperlinks to other relevant outside sources, including links to videos, that provide even more helpful real-world examples to illustrate key concepts
- Opportunities to incorporate active learning in your classroom

Additional Online Offerings

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Cesar Corredor,
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Chad Cotti,
University of Wisconsin, Oshkosh

Jim F. Couch,
University of Northern Alabama

Maria DaCosta,
University of Wisconsin, Eau Claire

Daniel Daly,
Regis University

H. Evren Damar,
Pacific Lutheran University

James P. D'Angelo,
University of Cincinnati

Antony Davies,
Duquesne University

Greg Delemeester,
Marietta College

Patrick Dolenc,
Keene State College

Christine Doyle-Burke,
Framingham State College

Ding Du,
South Dakota State University

Jerry Dunn,
Southwestern Oklahoma State University

Robert R. Dunn,
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Ann Eike,
University of Kentucky

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Colby College

Mary Flannery,
University of California, Santa Cruz

Sherman Folland,
Oakland University

Robert Francis,
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Amanda Freeman,
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Robert Godby,
University of Wyoming

Fidel Gonzalez,
Sam Houston State University

Michael G. Goode,
Central Piedmont Community College

Douglas E. Goodman,
University of Puget Sound

Marvin Gordon,
University of Illinois at Chicago

Kathryn Graddy,
Brandeis University

Alan Gummerson,
Florida International University

Eran Guse,
West Virginia University

Alan Day Haight,
State University of New York, Cortland

Mehdi Haririan,
Bloomsburg University

Clyde A. Haulman,
College of William and Mary

Richard R. Hawkins,
University of West Florida

Mickey A. Hepner,
University of Central Oklahoma

Michael Hilmer,
San Diego State University

Tia Hilmer,
San Diego State University

Jane Himarios,
University of Texas, Arlington

Jim Holcomb,
University of Texas, El Paso

Don Holley,
Boise State University

Alexander Holmes,
University of Oklahoma

Julie Holzner,
Los Angeles City College

Robert N. Horn,
James Madison University

Scott Houser,
Colorado School of Mines

Steven Husted,
University of Pittsburgh

Hiro Ito,
Portland State University

Mike Javanmard,
Rio Hondo Community College

Jonatan Jelen,
The City College of New York

Robert T. Jerome,
James Madison University

Shirley Johnson-Lans,
Vassar College

David Kalist,
Shippensburg University

Lillian Kamal,
Northwestern University

Roger T. Kaufman,
Smith College

Elizabeth Sawyer Kelly,
University of Wisconsin, Madison

Herb Kessel,
St. Michael's College

Rehim Kilic,
Georgia Institute of Technology

Grace Kim,
University of Michigan, Dearborn

Miles Kimball,
University of Michigan

Michael Kimmitt,
University of Hawaii, Manoa

Robert Kling,
Colorado State University

Colin Knapp,
University of Florida

Sherrie Kossoudji,
University of Michigan

Stephan Kroll,
Colorado State University

Charles Kroncke,
College of Mount Saint Joseph

Reuben Kyle,
Middle Tennessee State University (retired)

Katherine Lande-Schmeiser,
University of Minnesota, Twin Cities

Vicky Langston,
Columbus State University

Richard B. Le,
Cosumnes River College

Yu-Feng Lee,
New Mexico State University

David Lehr,
Longwood College

Mary Jane Lenon,
Providence College

Mary H. Lesser,
Iona College

Solina Lindahl,
California Polytechnic Institute, San Luis Obispo

Haiyong Liu,
East Carolina University

Jane S. Lopus,
California State University, East Bay

María José Luengo-Prado,
Northeastern University

Volodymyr Lugovskyy,
Indiana University

Rotua Lumbantobing,
North Carolina State University

Ed Lyell,
Adams State College

John Marangos,
Colorado State University

Ralph D. May,
Southwestern Oklahoma State University

Mark E. McBride,
Miami University (Ohio)

Wayne McCaffery,
University of Wisconsin, Madison

Larry McRae,
Appalachian State University

Mary Ruth J. McRae,
Appalachian State University

Ellen E. Meade,
American University

Meghan Millea,
Mississippi State University

Norman C. Miller,
Miami University (Ohio)

Michael Mogavero,
University of Notre Dame

Khan A. Mohabbat,
Northern Illinois University

Myra L. Moore,
University of Georgia

Jay Morris,
Champlain College in Burlington

Akira Motomura,
Stonehill College

Gary Murphy,
Case Western Reserve University

Kevin J. Murphy,
Oakland University

Robert Murphy,
Boston College

Ranganath Murthy,
Bucknell University

Anna Musatti,
Columbia University

Christopher Mushrush,
Illinois State University

Anthony Myatt,
University of New Brunswick, Canada

ABM Nasir,
North Carolina Central University

Gerardo Nebbia,
El Camino College

Pattabiraman Neelakantan,
East Stroudsburg University

Randy A. Nelson,
Colby College

Charles Newton,
Houston Community College

Daniel X. Nguyen,
Purdue University

Pamela Nickless,
University of North Carolina, Asheville

Dmitri Nizovtsev,
Washburn University

Nick Noble,
Miami University (Ohio)

Thomas A. Odegaard,
Baylor University

Constantin Oglobin,
Georgia Southern University

Charles C. Okeke,
College of Southern Nevada

Terry Olson,
Truman State University

Una Okonkwo Osili,
Indiana University and Purdue University, Indianapolis

Maxwell Oteng,
University of California, Davis

P. Marcelo Oviedo,
Iowa State University

Jeff Owen,
Gustavus Adolphus College

Orgul Demet Ozturk,
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James Palmieri,
Simpson College

Walter G. Park,
American University

Elliott Parker,
University of Nevada, Reno

Michael Perelman,
California State University, Chico

Nathan Perry,
Utah State University

Brian Peterson,
Central College

Dean Peterson,
Seattle University

Ken Peterson,
Furman University

Paul Pieper,
University of Illinois at Chicago

Dennis L. Placone,
Clemson University

Michael Polcen,
Northern Virginia Community College

Linnea Polgreen,
University of Iowa

Raymond A. Polchow,
Zane State College

Eileen Rabach,
Santa Monica College

Matthew Rafferty,
Quinnipiac University

Jaishankar Raman,
Valparaiso University

Margaret Ray,
Mary Washington College

Helen Roberts,
University of Illinois at Chicago

Jeffrey Rubin,
Rutgers University, New Brunswick

Rose M. Rubin,
University of Memphis

Lynda Rush,
California State Polytechnic University, Pomona

Michael Ryan,
Western Michigan University

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Houston Community College

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Virginia Tech

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Kennesaw State University

Chad Settle,
University of Tulsa

Steve Shapiro,
University of North Florida

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University of Texas, Austin

Gavin Wright,
Stanford University

Bill Yang,
Georgia Southern University

Jason Zimmerman,
South Dakota State University

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Kutztown University

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Fernando Lozano,
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Cypress College

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University of Nevada-Reno

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American University

Daniel Talley,
Dakota State University

Kerry Tan,
Loyola University, Maryland

Julianne Treme,
University of North Carolina at Wilmington

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University of Central Florida

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University of Wisconsin, Oshkosh

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Please send your comments to

wortheconomics@macmillan.com

Paul Krugman

Robin Wells

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ECONOMICS

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Introduction: The Ordinary Business of Life

ANY GIVEN SUNDAY

Flickr Editorial/Getty Images

Delivering the goods: the market economy in action.

IT'S SUNDAY AFTERNOON IN THE spring of 2014, and Route 1 in central New Jersey is a busy place. Thousands of people crowd the shopping malls that line the road for 20 miles, all the way from Trenton to New Brunswick. Most of the shoppers are cheerful—and why not? The stores in those malls offer an extraordinary range of choice; you can buy everything from the latest tablet and fashions to caramel macchiattos.

There are probably 100,000 distinct items available along that stretch of road. And most of these items are not luxury goods that only the rich can afford; they are products that millions of Americans can and do purchase every day.

The scene along Route 1 on this spring day is, of course, perfectly ordinary—very much like the scene along hundreds of other stretches of road, all across America, that same afternoon. And the discipline of economics is mainly concerned with ordinary things. As the great nineteenth-century economist Alfred Marshall put it, economics is "a study of mankind in the ordinary business of life."

What can economics say about this "ordinary business"? Quite a lot, it turns out. What we'll see in this book is that even familiar scenes of economic life pose some very important questions—questions that economics can help answer. Among these questions are:

- How does our economic system work? That is, how does it manage to deliver the goods?
- When and why does our economic system go astray, leading people into counterproductive behavior?
- Why are there ups and downs in the economy? That is, why does the economy sometimes have a "bad year"?
- Finally, why is the long run mainly a story of ups rather than downs? That is, why has America, along with other advanced nations, become so much richer over time?

Let's take a look at these questions and offer a brief preview of what you will learn in this book.