Microeconomics

Daron Acemoglu • David Laibson • John A. List

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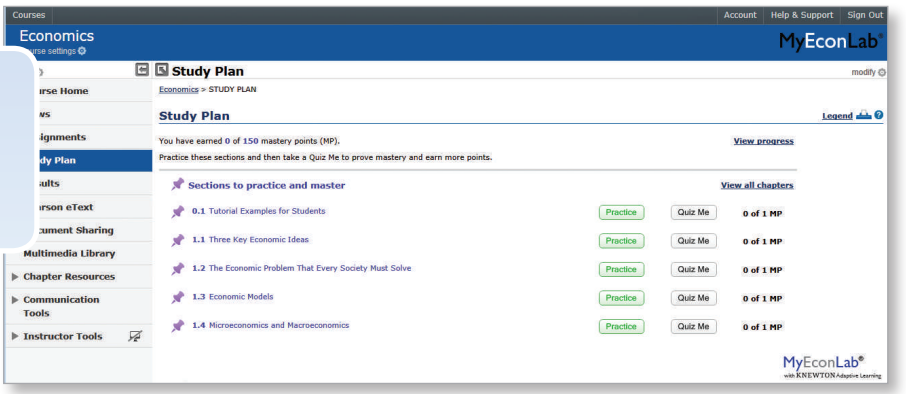

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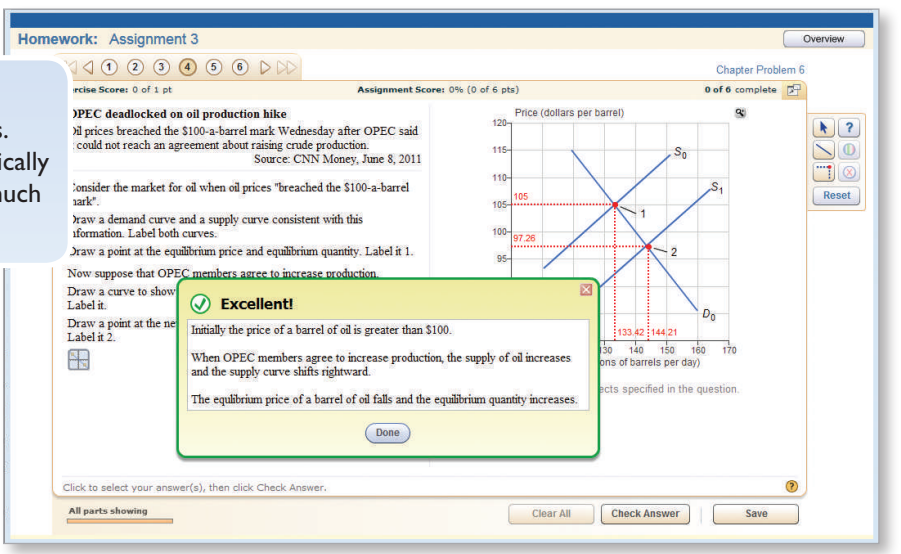

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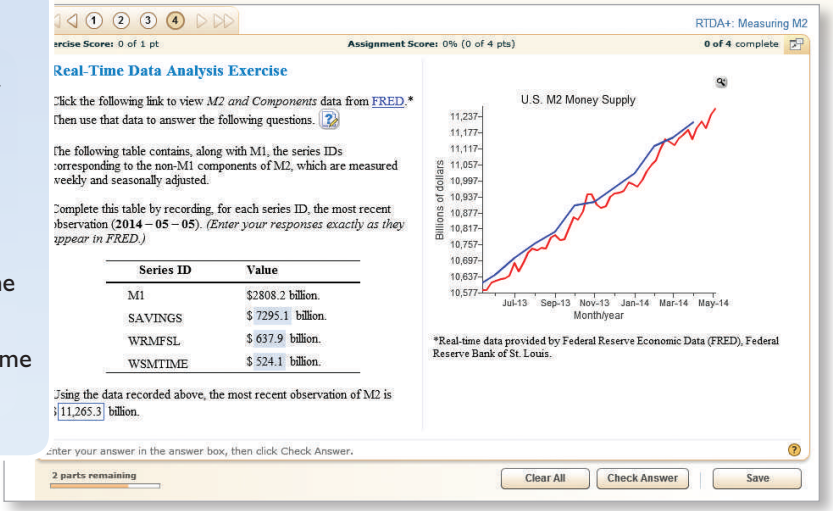

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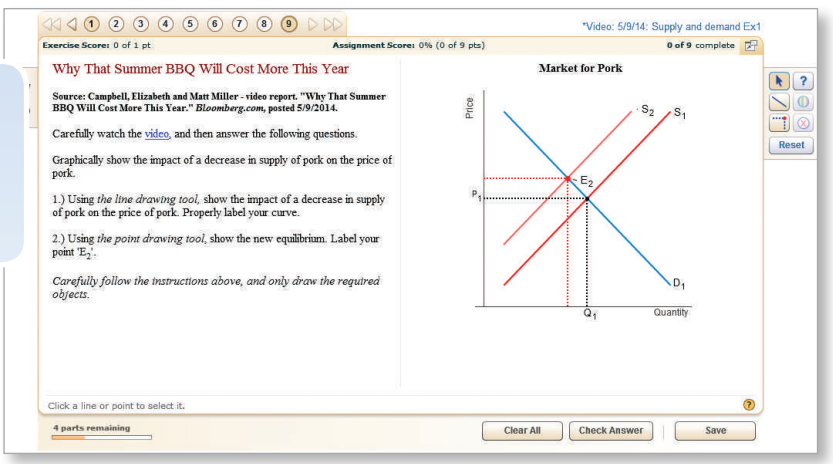

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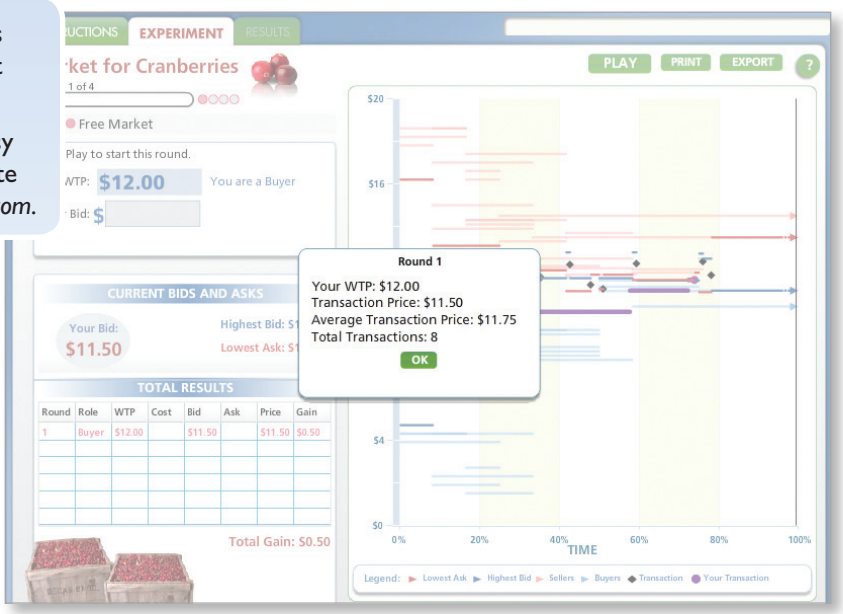

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Dedication

With love for Asu, Nina, and Jennifer,
who inspire us every day.

About the Authors

Daron Acemoglu is Elizabeth and James Killian Professor of Economics in the Department of Economics at the Massachusetts Institute of Technology. He has received a B.A. in economics at the University of York, 1989, M.Sc. in mathematical economics and econometrics at the London School of Economics, 1990, and Ph.D. in economics at the London School of Economics in 1992.

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He was also the recipient of the John Bates Clark Medal in 2005, awarded every two years to the best economist in the United States under the age of 40 by the American Economic Association, and the Erwin Plein Nemmers prize awarded every two years for work of lasting significance in economics. He holds Honorary Doctorates from the University of Utrecht and Bosporus University.

His research interests include political economy, economic development and growth, human capital theory, growth theory, innovation, search theory, network economics, and learning.

His books include *Economic Origins of Dictatorship and Democracy* (jointly with James A. Robinson), which was awarded the Woodrow Wilson and the William Riker prizes, *Introduction to Modern Economic Growth*, and *Why Nations Fail: The Origins of Power, Prosperity, and Poverty* (jointly with James A. Robinson), which has become a *New York Times* bestseller.

David Laibson is the Robert I. Goldman Professor of Economics at Harvard University. He is also a member of the National Bureau of Economic Research, where he is Research Associate in the Asset Pricing, Economic Fluctuations, and Aging Working Groups. His research focuses on the topic of behavioral economics, and he leads Harvard University's Foundations of Human Behavior Initiative. He serves on several editorial boards, as well as the boards of the Health and Retirement Study (National Institutes of Health) and the Pension Research Council (Wharton). He serves on Harvard's Pension Investment Committee and on the Academic Research Council of the Consumer Financial Protection Bureau. He is a recipient of a Marshall Scholarship and a Fellow of the Econometric Society and the American Academy of Arts and Sciences. He is also a recipient of the TIAA-CREF Paul A. Samuelson Award for Outstanding Scholarly Writing on Lifelong Financial Security. Laibson holds degrees from Harvard University (A.B. in Economics, Summa), the London School of Economics (M.Sc. in Econometrics and Mathematical Economics), and the Massachusetts Institute of Technology (Ph.D. in Economics). He received his Ph.D. in 1994 and has taught at Harvard since then. In recognition of his teaching, he has been awarded Harvard's Phi Beta Kappa Prize and a Harvard College Professorship.

John A. List is the Homer J. Livingston Professor in Economics at the University of Chicago, and Chairman of the Department of Economics. List received the Kenneth Galbraith Award, Agricultural and Applied Economics Association, 2010. He is a Member of the American Academy of Arts and Sciences, 2011; Editor, *Journal of Economic Perspectives*; Associate Editor, *American Economic Review*; and Associate Editor, *Journal of Economic Literature*. His research focuses on questions in microeconomics, with a particular emphasis on the use of experimental methods to address both positive and normative issues. Much of his time has been spent developing experimental methods in the field to explore economic aspects of environmental regulations, incentives, preferences, values, and institutions. Recently, he has focused on issues related to the economics of charity, exploring why people give, plus optimal incentive schemes for first-time as well as warm-list donors.

Brief Contents

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CHAPTERS ON THE WEB

Web chapters are available on MyEconLab.

Preface

We love economics. We marvel at the way economic systems work. When we buy a smartphone, we think about the complex supply chain and the hundreds of thousands of people who played a role in producing an awe-inspiring piece of technology that was assembled from components manufactured across the globe.

The market's ability to do the world's work without anyone being in charge strikes us as a phenomenon no less profound than the existence of consciousness or life itself. We believe that the creation of the market system is one of the greatest achievements of humankind.

We wrote this book to highlight the simplicity of economic ideas and their extraordinary power to explain, predict, and improve what happens in the world. We want students to master the *essential* principles of economic analysis. With that goal in mind, we identify the three key ideas that lie at the heart of the economic approach to understanding human behavior: optimization, equilibrium, and empiricism. These abstract words represent three ideas that are actually highly intuitive.

Our Vision: Three Unifying Themes

The first key principle is that people try to choose the best available option: *optimization*. We don't assume that people always successfully optimize, but we do believe that people try to optimize and often do a relatively good job of it. Because most decision makers try to choose the alternative that offers the greatest net benefit, optimization is a useful tool for predicting human behavior. Optimization is also a useful prescriptive tool. By teaching people how to optimize, we improve their decisions and the quality of their lives. By the end of this course, every student should be a skilled optimizer—without using complicated mathematics, simply by using economic intuition.

The second key principle extends the first: economic systems operate in *equilibrium*, a state in which everybody is simultaneously trying to optimize. We want students to see that they're not the only ones maximizing their well-being. An economic system is in equilibrium when each person feels that he or she cannot do any better by picking another course of action. The principle of equilibrium highlights the connections among economic actors. For example, Apple stores stock millions of iPhones because millions of consumers are going to turn up to buy them. In turn, millions of consumers go to Apple stores because those stores are ready to sell those iPhones. In equilibrium, consumers and producers are simultaneously optimizing and their behaviors are intertwined.

Our first two principles—optimization and equilibrium—are conceptual. The third is methodological: *empiricism*. Economists use *data* to test economic theories, learn about the world, and speak to policymakers. Accordingly, data play a starring role in our book, though we keep the empirical analysis extremely simple. It is this emphasis on matching theories with real data that we think most distinguishes our book from others. We show students how economists use data to answer specific questions, which makes our chapters concrete, interesting, and fun. Modern students demand the evidence behind the theory, and our book supplies it.

For example, we begin every chapter with an empirical question and then answer that question using data. One chapter begins by asking:

Would a smoker quit the habit for $100 per month?

Later in that chapter, we describe how smoking fell when researchers paid smokers to quit.

In our experience, students taking their first economics class often have the impression that economics is a series of theoretical assertions with little empirical basis. By using data, we explain how economists evaluate and improve our scientific insights. Data also make concepts more memorable. Using evidence helps students build intuition, because data move the conversation from abstract principles to concrete facts. Every chapter sheds light on how economists use data to answer questions that directly interest students. Every chapter demonstrates the key role that evidence plays in advancing the science of economics.

Features

All of our features showcase intuitive empirical questions.

- In **Evidence-Based Economics (EBE)**, we show how economists use data to answer the question we pose in the opening paragraph of the chapter. The EBE uses actual data from field experiments, lab experiments, or naturally occurring data, while highlighting some of the major concepts discussed within the chapter. This tie-in with the data gives students a substantive look at economics as it plays out in the world around them.

  The questions explored aren't just dry intellectual ideas; they spring to life the minute the student sets foot outside the classroom—*Is Facebook free? Is college worth it? Will free trade cause you to lose your job? Is there value in putting yourself into someone else's shoes? What is the optimal size for government?*

Evidence-Based Economics

Q: Would a smoker quit the habit for $100 per month?

At the beginning of this chapter, we posed a question concerning whether *a smoker would quit the habit for $100 a month*. Within the economics literature, an approach that is gaining popularity is to *pay* people to quit smoking. The tools of this chapter can help us begin to think about whether such an incentive can work, and why it might work.

In thinking about such a reward, we have learned that the impact of an increase in income leads to changes in the consumer budget constraint and subsequently the demand for goods and services. To see these tools in action, we return to the shopping-spree example. Exhibit 5.5 shows the mechanics behind the effects of an increase in what we have available to spend.

With that foundation laid, we can return to the question of quitting smoking for a month. Given our economic framework, the very same principle that was at work in the shopping-spree problem applies when considering the smoker's problem. By providing $100 for not smoking, we create a trade-off between the current benefits of smoking and the benefits obtained by $100 of increased income. There is also another saving: by not smoking, you save the money otherwise spent on cigarettes or cigars (shifting your budget constraint outward even more). For simplicity, let's assume that is another $100 per month. Thus the comparison that we need to make is whether, at the margin, $200 of additional monthly income provides more benefits than the current benefits you gain from smoking. If they do, then you quit smoking. If they do not, then you continue smoking and miss out on the $200 incentive.

- **Letting the Data Speak** is another feature that analyzes an economic question by using real data as the foundation of the discussion. Among the many issues we explore are such questions as *Should McDonald's be interested in elasticities? Do wages really go down if labor supply increases? Why do some firms advertise and some don't?*

LETTING THE DATA SPEAK

Airline Price Wars

Airlines have always been known for their rather cutthroat brand of competition. In this business, competition is fierce. When a new, low-price competitor called Southwest Airlines entered the industry and shook it up, economists sat back and watched the price wars begin.

In fact, economists Austan Goolsbee and Chad Syverson have found in their research that price wars began well before Southwest entered the market.[1] These economists studied the three quarters after Southwest announced that it would create flights but before it actually started selling tickets (so, for example, after Southwest announced it would serve Dallas-to-Chicago flights but before it began to sell Dallas-to-Chicago tickets). They found that prices were 24 percent lower in this three-quarter time period—before actual entry could be suspected as a contributing factor.

Why would airlines respond to a competitor before the competitor is actually competing? One reason may be that airlines attempt to "capture" as many consumers as possible. For example, by selling special frequent-flyer deals and luring new customers into a long-term relationship, airlines may be able to compete with new entrants like Southwest. Before Southwest entered the market, it

was not worthwhile for airlines to offer such deals, but faced with new competition, the airlines might have decided that enticing new customer loyalty was worth it.

Another reason why prices might have fallen before Southwest entered the market is because the long-term value of the market had decreased, making collusion less profitable. We discuss economic elements of collusion next.

- In keeping with the optimization theme, from time to time we ask students to make a real economic decision or evaluate the consequences of past real decisions in a feature entitled **Choice & Consequence**. We then explain how an economist might analyze the same decision. Among the choices investigated are such questions as *Do people really optimize? Should LeBron James paint his own house? Does revenge have an evolutionary logic?*

CHOICE & CONSEQUENCE

The Race to Fish

Imagine that you are a fisherman who owns a private pond fully stocked with 100 bluegill fish. Because you own the property rights to the pond, you are the only one who can fish at the pond. Therefore, you can catch as many bluegill as you want. But you know that in the late spring in 70°F water, the female deposits around 40,000 eggs in a shallow nest near the sandy shore. Two to six days later, the eggs hatch and the male guards the young fry during their first days.

Knowing this, how many fish will you catch?

You will likely not decide to catch all of the bluegill, instead leaving many in the pond to restock your supply for the next season.

Now imagine that this pond is a common pool resource—anyone and everyone can fish from it, and one more fish on another angler's line means one less fish on yours. Would you still be careful to leave a lot of fish in the pond for next season?

Both real-world situations and lab experiments conducted by Nobel Laureate Elinor Ostrom have shown us that you probably wouldn't.[4,5] After all, if you decide to leave, say, 50 fish in the pond, who is to stop another fisherman from catching those fish?

This line of thinking may lead everyone to keep fishing until there is absolutely nothing left. As you just learned, this type of situation is referred to as the *tragedy of the commons*; a dilemma in which multiple individuals acting in their own self-interest deplete a shared limited resource when in the long run it isn't in anyone's best interest to do so.

How might the fishermen in our example prevent this from happening?

Organization

Part I: Introduction to Economics lays the groundwork for understanding the economic way of thinking about the world. In ***Chapter 1***, we show that the principle of *optimization* explains most of our choices. In other words, we make choices based on a consideration of benefits and costs, and to do this we need to consider trade-offs, budget constraints, and opportunity cost. We then explain that *equilibrium* is the situation in which everyone is simultaneously trying to individually optimize. In equilibrium, there isn't any perceived benefit to changing one's own behavior. We introduce the free-rider problem to show that individual optimization and social optimization do not necessarily coincide.

Because data plays such a central role in economics, we devote an entire chapter—***Chapter 2***—to economic models, the scientific method, empirical testing, and the critical distinction between correlation and causation. We show how economists use models and data to answer interesting questions about human behavior. For the students who want it, there is an appendix on constructing and interpreting graphs, which is presented in the context of an actual experiment on incentive schemes designed by one of us.

Chapter 3 digs much more deeply into the concept of optimization, including an intuitive discussion of marginal analysis. We use a single running example of choosing an apartment, which confronts students with a trade-off between the cost of rent and the time spent commuting. We demonstrate two alternative approaches—optimization in levels and optimization in differences—and show why economists often use the latter technique.

Chapter 4 introduces the demand and supply framework via a running example of the market for gasoline. We show how the price of gasoline affects the decisions of buyers, like commuters, and sellers, like ExxonMobil. As we develop the model, we explore how individual buyers are added together to produce a market demand curve and how individual sellers are added together to generate a market supply curve. We then show how buyers and sellers jointly determine the equilibrium market price and the equilibrium quantity of goods transacted in a perfectly competitive market. Finally, we show how markets break down when prices aren't allowed to adjust to equate the quantity demanded and the quantity supplied.

Part II: Foundations of Microeconomics anchors Micro with a deeper exploration of the sources of demand and supply. One important thing that we have learned as teachers, is that even after a year of economics, most students really have no idea about the underpinnings of the demand and supply curves—specifically, where the curves actually come from. Most textbooks do not illuminate these issues.

When crafting Chapters 5 and 6, our goal was to provide two stand-alone chapters that show students that consumption and production are really two sides of the same coin, "glued" together by the idea of incentives. We gather consumer and producer concepts under their own respective umbrellas, and merge material that is spread out over several chapters in other texts. The goal is to show the commonalities and linkages between consumers' and producers' optimization decisions. With this setup, the student is able to view the whole picture in one place and understand how concepts tie together without flipping back and forth between several chapters.

In ***Chapter 5***, we look "under the hood" to show where the demand curve actually comes from. We frame the question of how consumers decide what to buy as "the buyer's problem" and discuss the three key ingredients of tastes and preferences, prices, and the budget set. The discussion is intuitive: once these three pieces are in place, the demand curve naturally falls out. This approach leads fluidly to a discussion of consumer surplus, demand elasticities, and how consumers predictably respond to incentives. In this way, the student can readily see holistically why policymakers and business people should concern themselves with the demand side of economics. For the students who want it, there is an appendix on income and substitution effects, which is presented as an extension of the text.

In ***Chapter 6***, we use the same holistic approach, but here we follow a single company (The Wisconsin Cheeseman, which a coauthor worked at for two high school summers) to showcase "the seller's problem." The seller's problem also has three parts: production, costs, and revenues. In thinking through the seller's problem, it is natural to treat these

three components together rather than strew them over separate chapters as in other books. They need to be simultaneously considered by the firm when making optimal choices, so why not present them jointly? The running theme of The Wisconsin Cheeseman makes the chapter quite cohesive, and what was once a difficult puzzle to sort through becomes clear when presented under a single continuous example. For the more inquisitive students there is an appendix showing that for firms with different cost structures, economic profits can exist in long-run equilibrium.

Chapter 7 takes an aerial view by considering what happens when we put together the buyers of Chapter 5 and the sellers of Chapter 6 in a perfectly competitive market. The chapter begins by asking: can markets composed of only self-interested people maximize the overall well-being of society? The beauty of economics is on full display in this chapter, as it shows that in a perfectly competitive market, the invisible hand creates harmony between the interests of the individual and those of society. Prices guide the invisible hand and incentivize buyers and sellers, who in turn maximize social surplus by allocating resources efficiently within and across sectors of the economy. The chapter uses Vernon Smith's seminal laboratory experiments to provide the evidence that prices and quantities converge to the intersection of supply and demand.

In ***Chapter 8*** we first walk through a discussion of the production possibilities curve, comparative advantage, and the gains from trade. We move the discussion from individuals trading with each other to trade between states (an innovation in a principles text) and finally to trade between countries. Students can thus see that the principles motivating them to trade are the same as those motivating states and nations to trade. They develop an understanding that there are sometimes winners and losers in trade, but that overall, the gains from trade are larger than the losses. The key policy issue becomes: can we shift surplus to make trade a win–win for everyone?

If students stopped reading the book at this point, they would be rabid free-market proponents. This is because the beauty of the free market is unparalleled. ***Chapter 9*** begins a discussion of important cases that frustrate the workings of the invisible hand. When some firms produce, they pollute the air and water. There are some goods that everyone can consume once they are provided, such as national defense. Chapter 9 probes three cases of market failure—externalities, public goods, and common pool resources—and highlights an important link: in all three cases, there is a difference between social and private benefits or social and private costs. The student learns that the invisible hand of Chapter 7 can become "broken" and that government can enact policies in regard to externalities to improve social well-being, provide public goods, and protect common pool resources.

But government intervention can be a two-edged sword, and in ***Chapter 10*** we ask the question, "How much government intervention is necessary and how much is desirable?" We provide an aerial view of taxation and spending, and study how regulation—the main tool that governments use to deal with the externalities and other market failures of Chapter 10—has its costs and limitations. We see that the trade-off between equity and efficiency represents the nub of the conflict between those who support big government and those who argue for smaller government. The Evidence-Based Economics feature at the end of the chapter tackles the thorny question of the optimal size of government by exploring the deadweight loss of income taxation.

Chapter 11 motivates the importance of factor markets—the inputs that firms use to make their goods and services—by asking if there is discrimination in the labor market. This question is couched within a general discussion about why people earn different wages in the labor market. This approach allows the student to seamlessly transition from being a demander (as in Chapter 5 as a buyer) to being a supplier (of labor). The economics behind the other major factors of production—physical capital and land—naturally follow from the labor discussion. The chapter concludes by showing several interesting data sets measuring whether discrimination exists in labor markets.

Part III: Market Structure introduces the alternatives to the perfectly competitive market: monopolies, oligopolies, and monopolistic competition. This section also provides the tools necessary to understand these market structures.

Chapter 12 on monopoly connects the student's thinking to Chapter 6 where the seller's problem was introduced and shows that all of the production and cost concepts learned earlier apply here: production should be expanded until marginal cost equals marginal

revenue. To illustrate the "monopolist's problem," we use a running example of the allergy drug Claritin and its 20-year patent to show how a monopoly optimizes. Once again, we use the metaphor of the broken invisible hand to illustrate how a monopoly reallocates resources toward itself and thereby sacrifices social surplus. At this point, the student might wonder why legal market power is ever granted by the government. The opening question, *Can a monopoly ever be good for society?* discusses the other side of the coin by presenting evidence that a monopoly *can* sometimes be good for society.

At this point in the book, we have covered many of the topics that are treated in existing texts. ***Chapter 13*** is a point of major departure, as we devote an entire chapter to game theory, which is a source of some of the most powerful economic insights. We emphasize that it helps us better understand the world when we place ourselves in the shoes of someone else. In so doing, the student develops a deeper understanding of how to choose a strategy that is a best response to the strategies of others. We apply game theory to many situations, including pollution, soccer, and advertising, to name a few.

In ***Chapter 14***, we present the two market structures that fall between the extremes of perfect competition and monopoly: oligopoly and monopolistic competition. We develop the chapter around the motivating question of how many firms are necessary to make a market competitive. Throughout, we emphasize how oligopolist firms and monopolistically competitive firms set their prices and quantities by considering the choices of their competitors. We connect with previous chapters by framing the discussion in terms of the optimization problem of these firms: the "oligopolist's problem" and the "monopolistic competitor's problem." We show how in the short run it is identical to the monopolist's problem and in the long run to the perfectly competitive model.

Part IV: Extending the Microeconomic Toolbox provides a selection of special-topic, optional chapters, depending on the individual instructor's course emphasis. We have included these chapters because we feel that too often the student doesn't get to see the myriad of interesting applications that follow from all those months of learning basic economic principles!

Chapter 15 studies trade-offs involving time and risk. The chapter begins by asking how the timing of a reward affects its economic value. We show how compound interest causes an investment's value to grow over time. We also show how to discount future financial flows and how to make financial decisions using the net present value framework. The second half of the chapter discusses probability and risk and explains how to calculate expected value. We apply these ideas to the study of gambling, extended warranties, and insurance.

Why does a new car lose considerable value the minute it is driven off the lot? ***Chapter 16*** examines markets we are all familiar with—ones in which one side of the market has more information than the other. The chapter examines the informational disparities between buyers and sellers in terms of hidden characteristics (for example, a sick person is more likely to apply for health insurance) and hidden actions (for example, an insured person is more likely to drive recklessly). Along the way, we look at many timely topics such as lemons in the used-car market, adverse selection in the health insurance market, and moral hazard in risk and insurance markets.

In ***Chapter 17*** we explore situations that students sometimes face: auctions and bargaining. Our optimization theme continues, as we discuss best strategies and bargaining principles in a variety of settings. We explore the four common types of auctions and provide insights into how economics can help the student bid in auctions—from eBay to estate auctions to charity auctions. We then shift gears and examine bargaining situations that affect our lives daily. To show the power of the bargaining model, we present empirical evidence of who in the household determines how money is spent.

Perhaps the most unusual chapter for a principles textbook is ***Chapter 18***, which is on social economics. Here we introduce new variants of *homo economicus*. We explore two different areas of human behavior: the economics of charity and fairness and the economics of revenge. We then revisit the concept and origin of preferences—do we take satisfaction from contributing to a charity or from exacting revenge on a perceived enemy? This last chapter drives home the fact that economic principles can be extended to every corner of our world. And it teaches us that we can considerably extend our understanding of the world around us by adding insights from our sister sciences—psychology, history, anthropology, sociology, and political science—to name a few.

MyEconLab®

MyEconLab is an extraordinary online course management, homework, quizzing, testing, activity, and tutorial resource.

For Instructors

With comprehensive homework, quiz, test, activity, practice, and tutorial options, instructors can manage all their assessment and online activity needs in one program. MyEconLab saves time by automatically grading questions and activities and tracking results in an online gradebook.

Each chapter contains two preloaded homework exercise sets that can be used to build an individualized study plan for each student. These study plan exercises contain tutorial resources, including instant feedback, links to the appropriate chapter section in the eText, pop-up definitions from the text, and step-by-step guided solutions, where appropriate. Within its rich assignment library, instructors will find a vast array of assessments that ask the students to draw graph lines and shifts, plot equilibrium points, and highlight important graph areas, all with the benefit of instant, personalized feedback. This feedback culminates, when needed, with the correct graph output alongside the student's personal answer, creating a powerful learning moment.

After the initial setup of the MyEconLab course for Acemoglu/Laibson/List, there are two primary ways to begin using this rich online environment. The first path requires no further action by the instructor. Students, on their own, can use MyEconLab's adaptive Study Plan problems and tutorial resources to enhance their understanding of concepts. The online gradebook records each student's performance and time spent on the assessments, activities, and the study plan and generates reports by student or chapter.

Alternatively, instructors can fully customize MyEconLab to match their course exactly: reading assignments, homework assignments, video assignments, current news assignments, digital activities, experiments and quizzes and tests. Assignable resources include:

- Preloaded exercise assignment sets for each chapter that include the student tutorial resources mentioned earlier
- Preloaded quizzes for each chapter
- Interactive Reading Assignments for core chapters allow instructors the flexibility of assigning select text reading, organized by main headings, and Evidence-Based Economics features, with integrated assessment and practice.
- Assignable and gradable exercises that are similar to the end-of-chapter questions and problems and numbered exactly as in the book to make assigning homework easier
- *Real-Time Data Analysis Exercises* allow students and instructors to use the very latest data from the Federal Reserve Bank of St. Louis's FRED site. By completing the exercises, students become familiar with a key data source, learn how to locate data, and develop skills in interpreting data.
- In the eText available in MyEconLab, select figures labeled MyEconLab Real-Time Data allow students to display a pop-up graph updated with real-time data from FRED.
- *Current News Exercises* provide a turnkey way to assign gradable news-based exercises in MyEconLab. Each week, Pearson scours the news, finds current economics articles, creates exercises around the news articles, and then automatically adds them to MyEconLab. Assigning and grading current news-based exercises that deal with the latest economics events and policy issues has never been more convenient.
- *Econ Exercise Builder* allows you to build customized exercises. Exercises include multiple-choice, graph drawing, and free-response items, many of which are generated algorithmically so that each time a student works them, a different variation is presented.
- Test Item File questions that allow you to assign quizzes or homework that will look just like your exams

MyEconLab grades every problem type (except essays), even problems with graphs. When working homework exercises, students receive immediate feedback, with links to additional learning tools.

- *Experiments in MyEconLab* are a fun and engaging way to promote active learning and mastery of important economic concepts. Pearson's Experiments program is flexible and easy for instructors and students to use.

- Single-player experiments allow your students to play against virtual players from anywhere at any time so long as they have an Internet connection.
- Multiplayer experiments allow you to assign and manage a real-time experiment with your class.

  Pre- and post-questions for each experiment are available for assignment in MyEconLab.

  For a complete list of available experiments, visit **www.myeconlab.com**.

- *The Digital Interactive Library* facilitates experiential learning through a set of interactive activities focused on core economic concepts. Fueled by data, decision making, and personal relevance, each interactive progresses through a series of levels that build on foundational concepts, enabling a new immersive learning experience. The flexible and modular setup of each interactive makes digital interactives suitable for classroom presentation, auto-graded homework, or both. To learn more, and for a complete list of digital interactives, visit **www.myeconlab.com**.

Learning Catalytics™ is a technology that has grown out of twenty years of cutting-edge research, innovation, and implementation of interactive teaching and peer instruction. Learning Catalytics, now seamlessly accessible from MyEconLab, is a "bring your own device" student engagement and classroom intelligence system. With Learning Catalytics you can:

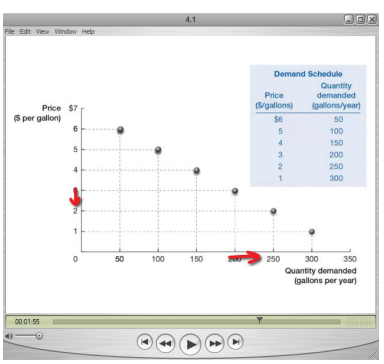
- Engage students in real time, using open-ended tasks to probe student understanding.
- Promote student participation using any modern Web-enabled device they already have—laptop, smartphone, or tablet.
- Eighteen different question types include:
  - Word clouds
  - Graphing
  - Short answer
  - Matching
  - Multiple choice
  - Highlighting
  - Image upload
- Address misconceptions before students leave the classroom.
- Understand immediately where students are and adjust your lecture accordingly.
- Improve your students' critical-thinking skills.
- Engage with and record the participation of every student in your classroom.
- Learning Catalytics gives you the flexibility to create your own questions to fit your course exactly or choose from a searchable question library Pearson has created.

For more information, visit **learningcatalytics.com**.

Customization and Communication MyEconLab in MyLab/Mastering provides additional optional customization and communication tools. Instructors who teach distance-learning courses or very large lecture sections find the MyLab/Mastering format useful because they can upload course documents and assignments, customize the order of chapters, and use communication features such as Document Sharing, Chat, ClassLive, and Discussion Board.

For Students

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



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

- Instant feedback on exercises that helps students understand and apply the concepts
- Links to the eText to promote reading of the text just when the student needs to revisit a concept or an explanation
- Animations of most of the textbook's figures provide step by step animation and audio to help students develop intuition in reading and interpreting graphs. The animations are accessible directly from the eText or from the Multimedia Library.

- Step-by-step guided solutions that force students to break down a problem in much the same way an instructor would do during office hours
- Pop-up key term definitions from the eText to help students master the vocabulary of economics
- A graphing tool that is integrated into the various exercises to enable students to build and manipulate graphs to better understand how concepts, numbers, and graphs connect

Additional MyEconLab Resources

- *Enhanced eText*—In addition to the portions of eText available as pop-ups or links, a fully searchable enhanced eText is available for students who wish to read and study in a fully electronic environment. The enhanced eText includes all of the animations and embedded links to all of the end-of-chapter questions and problems, enabling students to read, review, and immediately practice their understanding. The embedded exercises are auto-graded exercises and feed directly into MyEconLab's adaptive Study Plan.
- *Print upgrade*—For students who wish to complete assignments in MyEconLab but read in print, Pearson offers registered MyEconLab users a loose-leaf version of the print text at a significant discount.

MyEconLab and Adaptive Learning MyEconLab's Study Plan is now powered by a sophisticated adaptive learning engine that tailors learning material to meet the unique needs of each student. MyEconLab's new Adaptive Learning Study Plan monitors students' performance on homework, quizzes, and tests and continuously makes recommendations based on that performance.

If a student is struggling with a concept such as supply and demand or having trouble calculating a price elasticity of demand, the Study Plan provides customized remediation activities—a pathway based on personal proficiencies, number of attempts, or difficulty of questions—to get the student back on track. Students will also receive recommendations for additional practice in the form of rich multimedia learning aids such as an interactive eText, Help Me Solve This tutorials, and graphing tools.

The Study Plan can identify a student's potential trouble spots and provide learning material and practice to avoid pitfalls. In addition, students who are showing a high degree of success with the assessment material are offered a chance to work on future topics based on the professor's course coverage preferences. This personalized and adaptive feedback and support ensures that students are optimizing their current and future course work and mastering the concepts, rather than just memorizing and guessing answers.

Dynamic Study Modules, which focus on key topic areas and are available from within MyEconLab, are an additional way for students to obtain tailored help. These modules work by continuously assessing student performance and activity on discrete topics and provide personalized content in real time to reinforce concepts that target each student's particular strengths and weaknesses.

Each Dynamic Study Module, accessed by computer, smartphone, or tablet, promotes fast learning and long-term retention. Because MyEconLab and Dynamic Study Modules help students stay on track and achieve a higher level of subject-matter mastery, more class time is available for interaction, discussion, collaboration, and exploring applications to current news and events. Instructors can register, create, and access all of their MyEconLab courses at **www.pearsonmylab.com**.

Instructor Resources

The **Instructor's Manual** for *Microeconomics* was prepared by James Hornsten of Northwestern University and includes:

- An overview from the author team that introduces the vision and organization of the book and provides suggestions on how to organize a syllabus for both semester and quarter programs.
- A chapter-by-chapter outline of the text

- Lecture notes highlighting the big ideas and concepts from each chapter
- Teaching Tips on how to motivate the lecture
- Common Mistakes or Misunderstandings students often make and how to correct them
- Short, real-world Alternative Teaching Examples, different from those in the text

Active Learning Exercises, included online and at the end of each Instructor's Manual chapter, were prepared by Timothy Diette of Washington and Lee University and include:

- 5–10 Active Learning Exercises per chapter that are ideal for in-class discussions and group work

The **Solutions Manual**, prepared by Robert Schwab of the University of Maryland, includes solutions to all end-of-chapter Questions and Problems in the text. It is available in print and downloadable PDFs.

Three flexible **PowerPoint Presentation** packages make it easy for instructors to design presentation slides that best suit their style and needs:

- Lecture notes with some animated text figures and tables, as well as alternative examples with original static figures
- Figures from the text with step-by-step animation
- Static versions of all text figures and tables

Each presentation maps to the chapter's structure and organization and uses terminology used in the text. Julia Heath of the University of Cincinnati created the Lecture PowerPoint presentation. Paul Graf of Indiana University, Bloomington, and Eric Nielsen of St. Louis Community College prepared the step-by-step instructions for the animated figures.

The **Test Bank** for *Microeconomics* was written by Anuradha Gupta and Julia Paul, and edited and reviewed by Robert Harris of Indiana University–Purdue University Indianapolis, John W. Dawson of Appalachian State University, Phillip K. Letting of Harrisburg Area Community College, and Heather Luea of Kansas State University. The Test Bank contains approximately 2,400 multiple-choice, numerical, short-answer, and essay questions. These have been edited and reviewed to ensure accuracy and clarity, and include terminology used in the book. Each question can be sorted by difficulty, book topic, concept covered, and AACSB learning standard to enhance ease of use. The Test Bank is available in Word, PDF, and TestGen formats.

The Test Bank is available in test generator software (TestGen with QuizMaster). TestGen's graphical interface enables instructors to view, edit, and add questions; transfer questions to tests; and print different forms of tests. Instructors also have the option to reformat tests with varying fonts and styles, margins, and headers and footers, as in any word-processing document. Search and sort features let the instructor quickly locate questions and arrange them in a preferred order. QuizMaster, working with your school's computer network, automatically grades the exams, stores the results on disk, and allows the instructor to view and print a variety of reports.

Instructor's Resource Disk

This disk contains the Instructor's Manual, Solutions Manual, and Test Bank in Word and PDF formats. It also contains the Computerized Test Bank (with a TestGen program installer) and PowerPoint resources. It is compatible with both Windows and Macintosh operating systems.

For your convenience, all instructor resources are also available online via our centralized supplements Web site, the Instructor Resource Center (**www.pearsonglobaleditions.com**). For access or more information, contact your local Pearson representative or request access online at the Instructor Resource Center.

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