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# Preface

This book was inspired by Peter Kennedy's (now Kennedy and Prag) wonderful macroeconomics text *Macroeconomic Essentials: Understanding Economics in the News*. That book took a practical, applied approach to macroeconomics, providing students in many disciplines a text that is approachable and relevant. Microeconomics, in many ways the more newsworthy half of the discipline right now, needed a similar book.

This text offers a nontechnical, intuitive exposition of the microeconomic concepts and principles that are on display in news stories every day. From labor markets and the dicey issue of minimum wages to the health care market; from trade theory to game theory; this book covers the issues that students need to understand in this ever-changing world.

I have kept the style of the book breezy and straightforward in the hope that students who think economics is too abstract and arcane will see its usefulness. I have minimized the use of heavy-duty mathematics, opting instead for intuition. I have tried, in effect, to return microeconomics to the people.

I would like to thank everyone at the MIT Press who supported me in this project and helped get the final product done. I would especially like to thank Emily Taber at MIT for her immeasurable contribution to my publishing career. And most of all, I would like to thank Amanda Ishak Prag, my wonderful wife, my sounding board, and my editor without whom this book would not exist. It is my fondest hope that our darling daughter, Julianna, will learn microeconomics from this text when she grows up.



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# 1 Introduction

Economics is a social science. It uses the approaches of science to study the activities of people. The earliest economists focused on obvious economic activities—consumer behavior and the like—but modern economists use their tools to analyze human activity far outside this early view. In the two hundred-plus years since its formalization, economics has helped us develop some powerful tools and a lot of useful, sometimes unexpected insights.

But it is important to note that economics is not a pure science; it is a *social* science. Human behavior is not really waves and particles that can be modeled and understood the way physicists explain matter or the Universe. People are messy and unpredictable; they are complicated and hard to formalize. Therefore, the nature of the choices and decisions people make means economics is much harder—and much less precise—than the pure sciences. So we have to make some choices in teaching and using economics. Sometimes the most accurate model isn't very useful in the real world. Sometimes formulas aren't helpful in daily decision-making. And so sometimes economics as an exercise in mathematics needs to be balanced with economics as a social process. That is the task we undertake in this book.

## 1.1 Concepts versus Calculus

One microeconomic concept that I use in many different classes (which gets full coverage in chapter 4) is *utility theory*. Built from the observation that people don't usually consume large amounts of just one good all the time, utility theory is a model that employs a mathematical concept in which some things grow at a decreasing rate; that is, every step forward is smaller than the previous step. In math- or calculus-speak, this is represented by an equation that has a positive first derivative (every step is forward) and a negative second derivative (the steps get smaller with each iteration). This is the mathematical approach.

In chapter 4, I relegate this approach to an appendix in favor of a simple table showing levels of consumption and their associated levels of happiness (utility). When I do this in the classroom, occasionally someone who has had a previous class in microeconomics will say, "That's not correct! You can't do it that way! You have to use calculus and derivatives!" I will ask the student if she remembers how calculus works: specifically, how big is the change that we represent with a first derivative? The answer: infinitely small. Then I ask, "Do you buy in infinitely small increments of something in the real world?" The answer is probably not. The point is, neither approach, neither the table nor the calculus, is perfect and right.

The math, the calculus, is more formal and elegant, but it isn't right because people don't behave that way. You don't buy a miniscule piece of a candy bar; you buy a big, lumpy, not-very-derivative-sized candy bar (or sometimes the bulk pack). This is not a knock on calculus and math in economics. It is a reminder that formality is not the same thing as accuracy. What matters in most of our economic models is the concept, not the math. We want to understand why people do what they do by watching how they do it.

The math that we use in economics—graphs and equations—is the proverbial picture that's worth a thousand words. It summarizes the economic activity. But the math isn't what's "right." Sometimes we can communicate the concept without the math, and when we can, we might have a better understanding of the activity in question. This book does not focus on math. Instead, we focus on concepts. That said, there are situations in which math is the very best way to teach and learn a concept (the Bertrand model in chapter 8, for example). What I've tried to do is use the method for teaching a concept that gets the biggest bang for the buck. Sometimes that's a story, sometimes it's graphs, sometimes it's calculus.

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## 1.2 Weeds

When you leave much of the math behind, you invariably run into things you cannot explain. Fortunately, the math is still there to help out. What we want to do is avoid getting too deep into the math—the weeds. That too is problematic. When are we using

just the right amount of math? That will likely be a point of contention for anyone using this book. Of course, your instructor can always put in more math. My hope is that you will understand the concepts and see how the mathematical models can be used to explain economic activities without depending on them to understand economic realities.

To wit, math in economics always reminds me of my dear departed father and his tendency to constantly correct people's grammar. If I ever dared call him pedantic, he would paraphrase H. W. Fowler, the author of *Modern English Usage*, and say, "One man's pedantry is another man's irreducible minimum of education." In the same way, one instructor's weeds are another's irreducible minimum of mathematical modeling. Our goal is to find the happy medium. Just remember: the math, in economics, is never right. The human activity that we are trying to explain is the foundation of our discipline. It's what we're really studying, after all.

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### 1.3 Microeconomics, Macroeconomics, and Pragmatic Economics

The prefixes in economics tell much of the story: *micro* means small and *macro* means big. Microeconomics applies the tools of economics to the study of individual markets and choices. It considers a consumer's decision to buy an apple (versus all other goods) and a producer's decision to grow that apple. Macroeconomics looks more at the forest (in the forest-versus-trees analogy) and analyzes the entire economy's level of production.

Many of the concepts and tools that we use and discuss in this book are applied to the study of both micro- and macroeconomics. I wish I could say that there is broad agreement and consistency across the two sides of economics, but that is not the case. Not wishing to exacerbate a discussion that has been raging since John Maynard Keynes formally divorced classroom microeconomics from macroeconomics, I will—true to my name—try to be pragmatic. When a microeconomic concept is at odds with macroeconomics, I will briefly outline the issue and leave it to students and instructors to arbitrate whether it is necessary to determine "which side of economics is right." But, as was the case with our discussion of math versus concepts, it's probably best for economics students to give up the notion that someone is right or wrong. Economists are all simply trying to explain human activity—and we all know that's messy.

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### 1.4 Microeconomics in the Media

Macroeconomics would seem to have an advantage when it comes to media examples. Most of the problems that are discussed in macroeconomics are in every news source, at least in the business section, every day: unemployment, inflation, exchange rates, interest rates, government spending, deficits, and the list goes on.

Arguably, microeconomics is just as prevalent in the media, but it's not as obvious. Market outcomes are discussed all the time, but you have to know what you're looking for. Gas prices, wage increases, illegal drugs, the rising cost of health care, international trade, and, really, all advertisements are microeconomic topics. They simply need their economic context to be explained. By definition, everywhere and every day, microeconomics is part of our life. This microeconomics class will show you that. That said, many of the examples and exercises, especially in the early chapters, are generic, not literally drawn from media sources. This is done on purpose. We want the examples to feel "timeless."

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## 1.5 An Overview of the Book

Let's take a brief look at each chapter and get a sense of what we will be covering in this book.

### **Chapter 2: The Market Model**

Economics starts from observations of human behavior. We are social scientists. The most mathematical models ever derived by an economist try to prove something humanistic, real world, and describable. We will build the basic market model from that perspective. Simple examples of basic supply and demand are powerful teachers of the forces that bring forth most goods. This chapter derives, intuitively, both sides of the market and shows how our little powerhouse model can explain most of the price changes we see in the marketplace. Traditional graphs are introduced in this chapter, along with differences between shifts in lines versus moving along lines and short runs versus long runs (steeper lines for the former, flatter lines for the latter).

Frankly, the market model's graph is too familiar to ignore. It can be described verbally and shown traditionally in such a way that students can grasp the concepts behind it one way or another. So we will have a heavy dose of the supply and demand diagram in chapters 2 and 3.

### **Chapter 3: Applications of (and Interference with) the Market**

While it might seem out of place (too early) to talk about government intervention in the market, I find it useful to challenge students to think about why it isn't as simple as saying "Let's legally set the price of a sixteen-inch pizza at \$1 so that students can all get cheap pizza." I discuss price ceilings and price floors early on and try to get students to think about the difference between interfering in a market (legally setting a price) and using the market (trying to change supply or demand) to get a desired outcome. While much of the government-oriented material is covered in chapter 11, we begin to discuss the limits and problems of government intervention in the market in chapter 3. We discuss topical

issues such as minimum wages and rent control while students have the market model, short and long run, fresh in their heads. Similarly, we discuss tax incidence in this chapter.

#### **Chapter 4: Behind the Demand Line: Consumer Theory**

To differentiate or not to differentiate: that is the question. Consumer theory and utility maximization is where math often loses more students than it convinces. The first step, the idea that we are buying things to fulfill needs and increase happiness, is never the biggest problem; it's those first derivatives that seem out of place (or perhaps too hard). Students are wrong about this. Calculus-based utility maximization is correct in the classroom only. No one ever buys an infinitely small additional amount of any good. But we can teach the ideas without the calculus. Nothing big is lost in consumer theory if we show it in a way that reminds people of how they really shop. In this chapter I use a more hands-on approach to consumer theory, and, while likely eliciting criticisms about cardinality, it should resonate with most students.

Having communicated the concepts of utility maximization, we can discuss real-world issues such as information problems and marketing, the units problems and how Costco makes utility maximization harder (this is a real-world problem that the calculus approach completely ignores), and even snob appeal (high price as a positive factor in utility).

#### **Chapter 5: Behind Supply: Theory of the Firm**

As in the previous chapter, in this chapter we de-mathematize marginal revenue, marginal cost, and all the familiar determinants of output and explain them instead with numbers and examples. Having introduced marginal analysis in chapter 4, we show how powerful and useful it can be for the decision-makers in a firm. We discuss marginal and average cost with simple examples, economies of scale and short-run versus long-run average cost, and other, subtler cost issues (e.g., average variable cost) that ultimately determine production. Theory of the firm and its cost curves are notoriously confusing, so we relegate the cluttered graphs to an appendix and get the important concepts across using charts and examples.

This chapter's appendixes also include an expanded, real-world discussion of economies of scale and economies of scope. These are important extensions of traditional microeconomic topics, especially for students in business schools.

#### **Chapter 6: Perfect Competition**

Perfectly competitive businesses, or what economists now call "price takers," are more of a metaphor than a reality. Still, in this chapter we show how the description that we apply to such firms gives us the zero-profit result and how the closer a firm is to this setup, the more likely it is to be a break-even business. Some useful, real-world discussion evolves

as this chapter discusses the definitions of profit, short- versus long-run profits, entry, and resource cost.

### **Chapter 7: Monopoly**

As in chapter 6, monopolies, or “price setters,” as discussed in a microeconomics class are more of a metaphor than a reality, but a firm having the ability to control output and thus price is something we can see in in the real world. There are also important, often overlooked aspects of this “ability.” We tend to teach the profit potential of monopolies by emphasizing their control over the market. So, when asked why a monopoly like Microsoft can’t use its market power to sell five million units of Windows at \$1,000,000 each, students often don’t know. The monopoly’s market power still depends on a market-determined demand line.

In working through the monopoly model, we will emphasize the concept of marginal revenue. This concept is interesting and intriguing when we look at it in the real world. It is also something that might well be changing as retail moves away from the traditional brick-and-mortar store.

### **Chapter 8: Imperfect Competition and Oligopoly Models**

All the usual suspects show up in this chapter, but the emphasis is on observations and intuition. Monopolistic competition can be seen with restaurants on Main Street, cartels, and collusion (and cheating) with OPEC. The Cournot model (competition on quantity, by strategically managing production) can be used to explain why companies sometimes produce their own competitors. The Bertrand model (competition on price) can be applied to pricing differentiated goods (Coke and Pepsi or Dairy Queen and Baskin-Robbins). And price cooperation can be found in any store that offers to accept any competitor’s advertised price. These models also allow us to discuss strategic-economic topics, such as market entry.

### **Chapter 9: Game Theory**

Discussion of the skillset engaged in game theory fits neatly after oligopoly, but it becomes a more powerful tool when we show how strategic decision-making is all around us. While this chapter offers the models and concepts that instructors are familiar with (Nash equilibrium, dominant strategy, coordination games, prisoner’s dilemma, and strategic moves), we want to show students that game theory is actually a state of mind more than anything else.

Our setups, payoff matrices, and strategies are never realistic. They are intended to model choices and activities that we encounter every day that are less precise, but no less solvable. We show how we need to think differently when our choice alone does not

determine our outcome. We also discuss the deeper implications of these models, such as the self-interest that results in the inferior outcome of prisoner's dilemma models.

### **Chapter 10: Input Markets**

Few things in economics change as quickly as input markets. Robotics, health insurance costs, high minimum wages, and so on are featured in this chapter. As in other microeconomics texts, labor and other input markets will be explicated and relationships (input cost = value of marginal product) will be described. As in the chapter describing the theory of the firm, this chapter attempts to stay out of the weeds. Important input-related concepts such as monopsony are included and the connection with minimum wages is made. Though we maintain our pragmatic approach in this chapter, eliminating the heavy math while leaving the important concepts, we also change the point of view a bit compared to that in most microeconomics texts. We usually think about capital, labor, and other input markets from the perspective of the firm. That perspective remains, but I add the perspective of an outside contractor trying to get work from the firm as well.

### **Chapter 11: Welfare and Public Economics**

In this chapter I had to make some choices. There are, after all, entire courses on welfare and public economics, and this book covers only the essentials. Starting where chapter 2 (the market model) leaves off, the discussion focuses on markets and the government. Tax incidence is always fun and lets us use the basic market model again. Similarly, market failures part one—externalities—describes the limitations of the market and how the government can fix them. Market failures part two—public goods—describes this set of goods with copious examples and talks about some of the approaches that have been tried for providing these goods.

Welfare economics issues such as social welfare functions, deadweight loss, and cost-benefit analysis are also discussed. In this chapter we can apply the tools that we've discussed throughout the book thus far.

### **Chapter 12: International Economics**

Few areas of applied microeconomics are more interesting and more contentious than trade theory. Having taught trade theory for many years, I have a good sense of how to show the powerful results of the simple models (models with and without production) and the limits of these models. Trade is now, and likely will be for many years, a hot topic. We have always known that (free) trade is good for countries and the world, but not necessarily for all citizens. As was the case with the previous chapter's topics, trade theory allows us to review and apply many important observations from earlier chapters.

