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Economics Classics

中级微  
直觉思维与

观经济学：  
数理方法 上册

Intermediate  
An Intuitive and

Microeconomics:  
Mathematical Approach

托马斯·内契巴 (Thomas J. Nechyba) 著

中国人民大学出版社



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# 中级微观经济学： 直觉思维与数理方法 上册

Intermediate Microeconomics:  
An Intuitive and Mathematical Approach

托马斯·内契巴 (Thomas J. Nechyba) 著



中国人民大学出版社  
· 北京 ·

## 出版说明

入世十年,我国已完全融入到经济全球化的浪潮中。党的十六大确立了“引进来,走出去”的发展战略,使得“国际化”复合型人才的需求不断增加。这就对我国一般本科院校多年来所采取的单一语言(母语)教学提出了严峻挑战,经济类专业双语教学改革迫在眉睫。

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第一,教材体系设计完整。本系列教材全部为国外知名出版公司的优秀教材,涵盖了经济类专业的所有主要课程。

第二,保持英文原版教材特色。本系列教材依据国内实际教学需要以及广泛的适应性,部分对原版教材进行了全文影印,部分在保持原版教材体系结构和内容特色的基础上进行了适当删减。

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第五,提供强大的教学支持。依托国外知名出版公司的资源,本系列教材为教师提供丰富的配套教辅资源,如教师手册、PPT课堂演示文稿、试题库等,并配套有内容丰富的网络资源,使教学更为便利。

本系列教材既适合高等院校经济类专业的本科教学使用,也适合从事经济类工作和研究的广大从业者阅读和学习。我们在选书、改编过程中虽然全面听取了专家、学者和教师的意见,努力做到满足广大读者的需求,但由于各教材的作者所处的政治、经济和文化背景不同,书中内容仍可能有不妥之处,我们真诚希望广大读者提出宝贵意见和建议,以便我们在以后的版本中不断改进和完善。

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# Introduction

Do safer cars necessarily result in fewer traffic deaths? Is it sensible to subsidize domestic U.S. oil drilling in an effort to make the United States less dependent on unstable regions of the world? Would outlawing live Christmas trees help to reduce deforestation? Should we impose laws against “price gouging?” Is boycotting companies that use cheap labor abroad a good way to express our outrage at the dismal working conditions in those countries? Would it be better for workers to require their employers to pay their Social Security taxes rather than taxing the workers directly? Should we tax the sales by monopolies so that these companies don’t earn such outrageous profits?

Many people would instinctively answer “yes” to each of these questions. Many economists would say “no,” or at least “not necessarily.” Why is that?

One possible answer is that economists are social misfits who have different values than “real people.” But I don’t think that’s typically the right answer. By and large, economists are an ideologically diverse group, distributed along the political spectrum much as the rest of the population. Most of us live perfectly normal lives, love our children and empathize with the pain of others. Some of us even go to church. We do, however, look at the world through a somewhat different lens, a lens that presumes *people respond to incentives* and that these responses aggregate in ways that are often surprising, frequently humbling, and sometimes quite stunning. What we think we know isn’t always so, and, as a result, our actions, particularly in the policy realm, often have “unintended” consequences.

I know many of you are taking this course with a hidden agenda of learning more about “business,” and I certainly hope that you will not be disappointed. But the *social science of economics* in general, and microeconomics in particular, is about much more than that. Through the lens of this science, economists see many instances of remarkable social order emerging from millions of seemingly unconnected choices in the “marketplace,” spontaneous cooperation among individuals on different ends of the globe, the kind of cooperation that propels societies out of the material poverty and despair that has characterized most of human history. At the same time, our lens clarifies when individual incentives run counter to the “common good,” when private interests unravel social cooperation in the absence of corrective nonmarket institutions. Markets have given rise to enormous wealth, but we also have to come to terms with issues such as economic inequality and global warming, unscrupulous business practices, and racial discrimination. Economics can certainly help us think more clearly about business and everyday life. It can also, however, teach some very deep insights about the world in which we live, a world in which incentives matter.



## 1.1

## What Is Microeconomics?

We will define *microeconomics* as the *science* that investigates the *social consequences* of the interaction of *rational* beings that pursue their *perceived self-interest*.<sup>1</sup> At first glance, this description of human beings as “rational” and “self-interested” sounds a bit naive and vaguely callous. After all, most people would not characterize their fellow citizens as always “rational,” and we know first hand that some of our most meaningful experiences derive from stepping outside of our “self.” For those who are used to thinking of “scientists” as wearing white coats and protective goggles in research laboratories, the use of the word “science” to characterize what economists do may also seem odd, as may the definition’s emphasis on “social” consequences. It’s perhaps useful, then, to say a bit more about this definition.

### 1.1.1 Economics as a Science

Let’s begin with a few words about *science*. Obviously, economics is not a science in exactly the same way that physics or chemistry are science: we don’t generally have laboratories in which we smash atoms into each other or mix fuming chemicals. But in another sense it *is* similar. Science progresses through the formulation and testing of models that generate hypotheses, and in this sense, economics is in fact by and large a science. Most economists, as we will discuss more in Section 1.2, formulate models that are rooted in economic theory and then check to see whether the hypotheses that emerge are rejected by real-world observations. Some economists actually do perform experiments, but most look at data from the real world to see whether our predictions hold. You will learn more about how this *testing* of hypotheses is done if you go on to take statistics and econometrics courses, but in this course, you will mainly learn about the underlying theory and models that most economists use to formulate their hypotheses.

### 1.1.2 Rationality, Self-Interest and Indiana Jones

In these models, we assume that people are *rational* and in pursuit of their *perceived self-interest*. While we will use the term “rational” in other ways once we define tastes in Chapter 3, for now we simply take it to mean that individuals seek to do “the best they can given their circumstances.” We don’t mean that people are rational in some deeper philosophical sense; all we really mean is that they are deliberative in trying to achieve their goals. Those goals might include improving the welfare of others they care about, and they may include goals that make sense to them but don’t make sense to others. Someone who sacrifices personal consumption to improve her children’s well-being may be thought of as “unselfish,” but improving her children’s well-being may still be in her perceived “self-interest” if making her children happy also makes her happy. That seems quite noble, but not everything that one individual finds “worthwhile” might be worthwhile in some deeper sense. The businessman may seek to maximize his own profit when he could be saving starving children instead; the politician may seek to win elections when she could be making a “worthwhile” difference in people’s lives by doing something unpopular; the drug addict may seek to get his next fix when he might be “better off” checking himself into a rehab center. Nevertheless, each of these individuals is directing his or her actions toward a goal he or she perceives to be worthwhile and in his or her self-interest.

Some time ago, I watched one of the popular Indiana Jones movies starring Harrison Ford and Sean Connery. Sean Connery plays Harrison Ford’s father, and together they find themselves in an unfortunate position. Sean Connery lies in a cave, mortally wounded, and Harrison Ford faces the following dilemma: On the other side of the cave, there are a number of potions in

<sup>1</sup>This definition actually applies also to macroeconomics, but *microeconomists* are particularly focused on beginning their analysis with *individual* behavior.

different containers. Most of these potions are deadly poisons, but one is a magical elixir that, if consumed by someone mortally wounded, will heal instantly. Harrison Ford runs to the potions and agonizes over which to take. He settles on one and decides to test it himself before giving it to his father.

I guess it seems unselfishly heroic that Harrison Ford would put his own life in jeopardy before subjecting his father to the possible ingestion of a poison, but it also violates what economists think of as rational self-interest. We are not disturbed by the fact that Harrison Ford cares deeply about his father; given that he does, the goal of saving his father falls within the realm of his perceived self-interest. What bothers us is the fact that Harrison Ford appears not to choose rationally given the goal he is attempting to achieve, at least so long as we are willing to assume that preserving his own life, all else being equal, is also in Harrison Ford's perceived self-interest. The rational course of action in this case would have been for Harrison Ford to settle on one of the potions, run with the potion to the other side of the cave where his mortally wounded father lies, and say: "Dad, you are going to die any minute. This potion may kill you, which will happen anyway if you don't take it. But if it's the right potion, it will save your life. So drink the potion and don't think I don't care about you just because I don't first take the risk of killing myself only to watch you also die during my final moments. One of us surviving is better than none, even if both of us surviving is better still."

The example illustrates two points: First, self-interest is not necessarily the same as "selfishness." The latter presumes you care only about yourself; the former leaves open the possibility that others may contribute to your perception of your own well-being. Often, selfishness and self-interest coincide, but not always. Second, "rational" simply means that we pick the best available course of action to achieve our self-interested goal. Harrison Ford does not violate our presumption of self-interest when he cares deeply about his father, but his behavior does violate rationality unless he places no value on his own life. In testing the potion first, Harrison Ford is not doing "the best he can given his circumstances."

### 1.1.3 Social Consequences, Pencils and Global Warming

Ultimately, we don't just try to understand rational, self-interested behavior per se, although that is an important aspect of microeconomics. What we are really after is understanding the *social consequences* of the interaction of rational, self-interested individual behavior. It may be interesting to think about how Robinson Crusoe behaves on an island by himself, but it is more interesting to understand how the world changes as he and his friend Friday interact once Friday comes on the scene. More interesting still is what happens when hundreds, thousands, or even millions of rational, self-interested individuals pursue their individual goals *given that everyone else is doing the same*. Economists call the outcome of these interactions an "equilibrium," and it is in this equilibrium that we find the social consequences of individual behavior.

In his famous PBS series *Free to Choose*, Milton Friedman holds up a pencil and makes the initially preposterous claim that no one in the world knows how to make that pencil. It seems silly at first, but at the same time it is absolutely true if we seriously think about whether anyone knows how to make a pencil *from scratch*. One would have to know which trees to harvest for the wood, how to make the tools to harvest the trees, what chemicals to use to treat the wood once it is cut into the right shape, how to drill the hole to make room for the lead and how to make the tools to drill the hole. That does not begin to scratch the surface, because we also have to know everything about where to get the materials to eventually make the lead (and how to make it and all the necessary tools required for that), how to do the same for the metal cap that holds the eraser, how to make the eraser, and how to create the paint and paintbrushes to coat the outside of the pencil. When you really think about it, tens of thousands of people somehow cooperated across all the continents in the world to make the pencil Friedman was holding, and almost none of those tens of thousands of people were aware that they were participating in a process that would result in a pencil.

Economists are fascinated by the fact that pencils are produced despite the fact that no one knows how to produce them and despite the fact that no one is charged with coordinating all these people and materials into the production of pencils. We are fascinated by the fact that cooperation on such massive scale can simply emerge from the bottom up without the individuals knowing that they are cooperating with one another. We are even more fascinated by the fact that the cooperation emerges purely from the rational, self-interested choices that individuals make along the way, each one simply trying to earn a living, to do the best he or she can given the circumstances. This is a *social consequence* of the interaction of rational, self-interested behavior, one that is guided by the impersonal forces of market prices that tell individuals where to work, what to produce, whom to sell to, etc. If you can see how it might be fascinating that pencils get produced and delivered to my local store for pennies, don't get me started on my fascination about really complicated products that seem to pop up all over the place without anyone really coordinating the millions of people involved.

Of course not all social consequences of rational, self-interested behavior are so rosy. We will see that the same economic lens that explains how people cooperate to make pencils also explains how global warming is not tamed by the same forces, how relative (as opposed to absolute) poverty persists, how concentrated power distorts markets, and how some goods might never get produced unless nonmarket institutions intervene. Understanding when we can rely on individual self-interest to give rise to cooperation—and when such self-interest impedes cooperation—is one of the key themes of this book and one of the central goals of microeconomics. With such an understanding, we can then formulate ways of changing the circumstances in which decisions are made to bring those decisions more in line with social goals: to change the *social consequences* of rational, self-interested behavior by *altering the incentives* people face along the way.

## 1.2

## Economics, Incentives, and Economic Models

When boiled down to its essentials, economics is then all about an exploration of the simple premise that *people respond to incentives* because they generally *attempt to do the best they can given their circumstances*. It is a simple premise but one that leads to a rich framework through which to analyze many small and large debates in the world in a logical and rigorous manner. Yet despite all of my idealistic musings about the important issues that economics can help us to understand better, you will notice that much of this book is devoted to the building of rather cold economic “models” that, at least initially, seem to be starkly disconnected from such grand objectives. In fact, many students initially think of these models as involving *simplistic* and *unrealistic* characterizations of what we are as human beings. And in certain ways, they are undeniably right. Nevertheless, I would like to convince you at the outset that such models represent the only real method through which economists can make any sense at all of the underlying issues we are concerned about. In the process, we also get an “unintended consequence” of learning through economic models: We learn to think more conceptually, to move beyond memorization to a method of linking seemingly unconnected events in ways that translate to life well beyond economics.

### 1.2.1 Economic Models, *Simplicity*, and Picasso

Consider the way we model consumers in the first section of this book. As you will see in the coming chapters, we will essentially view them as cold individuals who rationally calculate the costs and benefits of different alternatives using a mechanical characterization of “tastes” as a guide. “Economic man,” as characterized in many of the models that we start with, boils down to a machine that seems to have little moral standing beyond that of a vacuum cleaner. It is not a full characterization of all the complexity that underlies the human condition, and it omits some of the very aspects of our makeup that make us “human.” I have often mentioned in my classes that I would be deeply depressed if I truly thought that my wife was nothing more than “economic

woman.” The most important factors I considered when proposing marriage to her had virtually nothing to do with our simple model of decision making.

But economics does not attempt to paint a full picture of who we are as human beings. You will no doubt find meaning in your studies of philosophy or psychology or art or religion as you try to complete the picture of what it means to you to say that we are human. Economics simply tries to provide a framework for systematically studying aspects of human decision making that relate to our desire to pursue our perceived self-interest in different institutional settings, and how such self-interested decision making affects society as a whole. For this purpose, it would be maddening to try to come to real conclusions using a fully laid out picture of the complex beings we are, because much of what makes us so complex has little bearing on the questions economists ultimately aim to answer. Simplicity in models therefore becomes a virtue so long as the models can predict well what we are trying to predict.

I often try to illustrate this explicitly to my students by telling them of my ignorance of abstract art and of the insights into such art I have gained from the following example: I am told that, somewhere in a museum, there exists a series of 27 paintings by Picasso. The first of these paintings is one that I could understand: It is a realistic depiction of a particular scene, perhaps a girl holding a watering can in a beautiful garden. The second painting in the series is almost identical to the first but contains somewhat less detail. Similarly, each of the next 25 paintings in the series takes away some more detail, leaving the last painting with nothing but some unrecognizable streaks of paint on a canvas. This last painting, I am told, is Picasso’s interpretation of the “essence” of the first painting. I have never seen this series of 27 paintings and am not sure it even exists. But I am told that I would have a much better understanding of what makes the first painting great if I could make the effort to view this series because I would truly see how the last painting captures something profound that gets lost to a simpleton like me as I view the first pretty picture in the series.<sup>2</sup>

Economic models are like the last painting in this series. They are constructed to strip away all the complexity, all the noise that gets in the way of a sound analysis of particular economic problems and leave us with the essence of individual decision making that matters for the questions at hand. They will not tell us whether there is a God or why we like to stare at the stars at night or why we fall in love. But they can be powerful tools that allow us to understand aspects of the world that would remain impenetrable without the use of simplified models. For this reason, I ask you to resist the temptation of dismissing models—in economics or elsewhere—by simply noting that they are simplistic. A measuring tape is simplistic, but it is a useful tool to the carpenter who attempts to build a piece of furniture, much more useful than the more complex microscopic tools a neurosurgeon might use to do his work. In the same way, it is precisely because they are simple that many economic models become useful tools as we try to build an understanding of how individual decision making impacts the world.

### **1.2.2 Economic Models, *Realism*, and Billiard Players**

Here is another analogy (again used by the late economist Milton Friedman) to illustrate a slightly different aspect of economic models. Suppose we were watching an ESPN tournament of the best billiard players in the world. These players are typically not expert physicists who can calculate the precise paths of billiard balls under different circumstances using the latest knowledge of underlying equations that govern the behavior of billiard balls. But suppose we wanted to arrive at a useful model that could predict the next move of each of the billiard players, and suppose I suggested to you that we should model each billiard player as an expert physicist who can instantly access the latest mathematical complexities in physics to predict the best possible next

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<sup>2</sup>The closest I have actually come to seeing a series of Picasso paintings like the one I described is Picasso’s suite of 11 lithographs entitled “Bull” at the Museum of Modern Art in New York. And admittedly I didn’t actually see it in the museum (since I have never set foot in it), but Joe Keefer, one of my students, pointed me to some Web sites that picture the 11 lithographs. I am not sure I see the “essence” in the last one, so I am still hoping those 27 paintings are out there somewhere.

move. The model is absurd in the sense that it is completely unrealistic; many of these players have not even completed high school. But my guess is that it would do pretty well at predicting the next move of the best billiard players, better than virtually any other model I could come up with.

Or consider the problem of predicting the growth of a particular plant: which branches will grow leaves this season and in which direction? One possible model would assume that the plant consciously calculates, using the latest knowledge of biologists and other scientists, how to distribute the nutrients it gains from the soil to various branches optimally, taking into consideration the path of the sun (and thus the distribution of resulting sun light), the rotation of the earth, etc. The model is once again absurd in the sense that we are pretty sure there is no conscious mind in the plant that is capable of accessing all the relevant facts and making the appropriate calculations. Nevertheless, a model that assumes the presence of such a mind within the plant may well be a useful model to help us predict how the plant will grow.

Models, regardless of what they aim to predict, thus do not have to be realistic. They can be, and it sometimes might help our understanding if they are. But at the same time, not all aspects of economic models need to be fully realistic. Consider again the case of our consumer model that is introduced in the next several chapters. In these chapters, we seem to be assuming that individuals can map their tastes into complicated graphs or, alternatively, that they use multivariable calculus to analyze choice alternatives using mathematical functions of which few people are aware. This is absurd in the same way as it is absurd to assume that billiard players are expert physicists or plants are expert biologists. But, in the same way that these assumptions help us predict the next moves of billiard players and the next steps in the growth of a plant, our assumptions about consumers allow us to predict their economic choices. Thus, just as I hope you will not dismiss models because of their simplicity, I also hope you will not dismiss them if they appear to be unrealistic in certain ways.

### 1.2.3 An “Unintended” Consequence of Learning through Economic Models

Economists love to point out “unintended consequences,” consequences that don’t immediately come to mind when we contemplate doing something. So I can’t resist pointing out an unintended consequence of learning to use economic models to think about real-world problems. The models we’ll be using are specialized in some sense, but they are general in the sense that each model can be applied to many different real-world problems. In fact, once you get really comfortable with the way economists model behavior, it all really boils down to one single model, or at least one single conceptual approach. And as you internalize this conceptual approach to thinking about the world, you will find that your conceptual thinking skills become much sharper, and that has implications that go far beyond economics.

Our high schools, especially in the United States, seem to focus primarily on developing the ability to memorize and regurgitate, and many students in beginning economics classes often blame instructors for expecting more of them. I urge you to resist that temptation. The modern world expects more than good memorization skills from you. Those who succeed in the modern world have developed higher conceptual thinking skills that have virtually nothing to do with memorization. Memorization does not get us very far these days.

I will never forget my conversations with employers of Duke’s economics majors when I first served as Director of Undergraduate Studies. They impressed me with their full understanding of what it is that we can and cannot do in economics classes. We *cannot* prepare you for the details of the tasks you might be asked to perform in the business world. These details vary too much from place to place, and universities are not good places to learn them. Professors are rarely good business people, and most of us spend most of our lives in an academic setting, the proverbial ivory tower. Colleges and universities are therefore typically not good at purely preprofessional training. Employers know this and are more than happy to provide such training on the job.

What we *can* do is train your conceptual muscle, the muscle that allows you to progress beyond viewing each new situation you encounter as a new problem to be solved from scratch and permits you to learn from situations that share some features in common. Put differently, we can use the framework of economics to develop skills that allow you to translate knowledge across time and space. The nightmare employee in the modern world is the person who cannot do this, the person who can memorize a technical handbook but cannot make the leap from one customer to the next and from one computer application to the next. Independent and increasingly complex thinking is rewarded above all else. Employers therefore rely on colleges and universities to prepare you for this, or at the very least to signal to them which of our students have mastered these skills.

Economics is one of the disciplines that can signal mastery of conceptual thinking to employers, and I believe it furthermore provides an interesting platform on which to develop such mastery. Many other college majors, if taught well, can accomplish the same, but economics has a particular appeal to many of you because it concerns itself with issues and problems that young people often care about deeply. Nevertheless, a good economics major can also be complemented by other course work that builds those same skills. Statistics, computer science, and mathematics offer obvious complementary training. You will make a mistake if you pick your course work to avoid classes, both in economics and outside, simply because they are conceptually challenging and difficult. Many of you would tell me, as many of my students have in the past, that you are not a “math person” or a “computer person.” Forget about that; someone somewhere along the way made you think that there are “math people” or “computer people,” but in the end such people are rare,<sup>3</sup> and few college students are unable to work hard and build their conceptual thinking skills sufficiently to do basic college mathematics, computer science, or statistics.<sup>4</sup> My main message to you in this digression on the unintended consequence of mastering economics is not to neglect the development of your conceptual muscle, to resist the temptation to dismiss the use of models to think about the world just because it seems hard at first. A conceptual approach to life will ultimately make all of your studies, all of your leisure, and all of your work more deeply meaningful.

**1.3**

## ***Predicting versus Judging Behavior and Social Outcomes***

Aside from learning to “think better” or “think more conceptually,” what is the real point of these models, these simplified versions of reality whose virtue might lie in their simplicity and whose lack of realism should not necessarily disturb us? The point for most economists, as we have already suggested, is to *predict* behavior, and to predict the social consequences of that behavior. For this vast majority of economists, a model is then “good” if it predicts well. The self-interested goals individuals pursue matter in the analysis because they help us predict how behavior will change as circumstances change; but, to the economist interested in prediction, the deeper philosophical question of whether some goals are inherently more “worthwhile” than others is irrelevant. What matters for predicting what you will do if I raise the price of gasoline is how much you desire gasoline, not whether it is morally good or bad to desire gasoline. Whether it might be

<sup>3</sup>They do exist. My brother is one of them. We once took a college math course together, and I worked ten times as hard as he did and ended up getting a worse grade. And he thinks math is “fun” just for its own sake. I don’t understand it. But I have come to terms with the fact that I will have to struggle some with math while my brother lives happily in his little “math world.” I wonder if the colors are the same in that world—or if there even are colors.

<sup>4</sup>This is not to say that you should not also study Shakespeare or Milton or Morrison, Picasso or Mozart, King or Gandhi, Freud or Chesterton or Plato or any number of other works that evoke your passions and interests. Ultimately, much of what makes life worth living involves building a well-rounded foundation that allows you to explore intellectual interests in all areas as you journey through life.



“good” or “bad” to raise the price of gasoline is a very different question, one that presumes some deeper philosophical views about how to *judge* what is “good” and “bad.”

The fact that most economists are not in the philosophy business—and therefore not in the business of, as a first priority, telling us what’s “good” and what’s “bad”—is not to say that each economist has concluded that there are no objective standards for what is ultimately in our best interest, for what is ultimately “good for the soul.” As human beings, almost all of us, explicitly or implicitly, hold to such standards and wish that we and the rest of the world would abide by them more frequently. Most of us believe the drug addict would indeed be better off if he or she checked into a treatment center, that the politician ought to care about more than the next election, and that the business person should care about starving children. But most economists, *in their role as economists*, are in the business of predicting how changing incentives will change actual behavior of people who may have quite different ideas about what is worthwhile than the economist who is modeling them. What matters for their behavior is what *they* think is worthwhile, not what I think *should be* worthwhile if only they would have the sense to see it.

### 1.3.1 Positive Economics: How to *Predict* Real Outcomes

The branch of economics that concerns itself primarily with such predictions is known as *positive economics*, and it is the branch of economics that is in a real sense “value free.” In its pursuit to predict what will actually happen as incentives change, the economist does not have the luxury of making value judgments about what people ought to be like; he or she is simply taking people’s goals as given and attempting to analyze real behavior that follows from these goals and the incentive structures within which people attempt to translate those goals to real outcomes. If you are a policy maker who is attempting to determine the best way to lower infant mortality or improve low income housing or provide a more equitable distribution of educational opportunities, it is important to get the best *positive* economic analysis of each of the policy alternatives you are considering. After all, it is important to know what the real impact of each policy will be before we attempt to choose the “best” policies. The same is true if you are a business person who tries to price your goods; you need to know how people will actually respond to different prices, not just how you would like them to respond. It’s even true for the father of young children who tries to alter incentives to stop the little tykes from screaming so much; if promises of candy will do the trick, it is candy that will be given out even if junior *should* know that broccoli would be so much healthier.

### 1.3.2 Normative Economics: How to *Judge* Outcomes

There is, however, a second branch of economics known as *normative economics* that goes beyond a value-free analysis of what will happen as incentives change. Once the positive economist tells us his or her best prediction of what will happen as a result of various possible policy alternatives, a normative economist will try to use tools that capture explicit value judgments about what outcomes are “good” and what outcomes are “bad” to determine which of the policies is the best for society. Normative economists thus draw on disciplines such as political philosophy to formalize mechanisms through which to translate particular values into policy recommendations based on a positive analysis of the likely impact of different incentives.

Much of this book concerns itself with positive (rather than normative) economics by attempting to build a framework through which we can predict the impact of different institutions on individual decision making. We will have to be careful along the way, however, because the positive models we develop are often used for policy analysis in ways that allow particular normative value judgments to “slip in.”

### 1.3.3 Efficiency: Positive or Normative?

You will notice the term *efficient* (or *Pareto efficient*) appears throughout the text, often with a normative connotation that efficiency is somehow a good thing. We will define a situation as efficient if there is no way (given the resources available) to change the situation so as to make some people better off without making anyone worse off. And within this definition, we find our “value free” notion of “better off” and “worse off”; i.e., we will consider someone to be better off if *she* thinks she is better off, and we will consider someone as worse off if *he* thinks himself worse off. In that sense, the statement “situation  $x$  is efficient” is simply a positive statement that could be restated to say “there is no way to make anyone think she is better off without making someone else think he is worse off.”

Given this definition of efficiency, you can see how one might tend to be concerned about *inefficiencies*. An *inefficient* situation is one where we can see how to make some people better off without making anyone else worse off. But we should also be careful not to assume immediately that moving toward greater efficiency is always “good” in some bigger philosophical sense. A policy that increases the wealth of the rich by a lot while leaving the wealth of the poor unchanged is probably a policy that moves us to greater efficiency, as is a policy that makes the poor a lot wealthier while leaving the wealth of the rich unchanged. I suspect that most of us think one of these policies is “better” than the other. And some might think that the first policy, because it increases inequality, is actually “bad” even if it really doesn’t make anyone worse off. Similarly, as we will see in Chapter 16, allowing a healthy poor person to sell his or her kidney to someone who needs it and can pay a lot for it may indeed make both of them better off, and yet there are many who would have moral concerns over such transactions. We will see other examples of this throughout the text.

## 1.4

### The “Non-Dismal” Science: Some Basic Lessons

Once we get over the initial skepticism of models and the underlying assumptions we make about human behavior, studying microeconomics has a way of changing how we think about ourselves and those we interact with, and the implications for the larger world we occupy. Often economics stands accused of being a “dismal science,” a term that goes back to the 19th century.<sup>5</sup> Perhaps this is because people think that, because we study how people respond to incentives, we are trying to “make people selfish.” Or perhaps it is because economists engaged in policy discussions often point out that there are trade-offs in life and that politicians too often promise something for nothing. But I actually think that economics provides a rather uplifting, or non-dismal, view of the world. This is something that can be seen in three very basic insights that run counter to predispositions that many of us share before we study economics. If, at the end of this course, these insights have not become part of you, then you have missed the forest for the trees.

#### 1.4.1 Must there Be a Loser for every Winner?

First, psychologists tell me that we appear to be “built” in a way that makes us think that whenever there is a winner, there must be a loser. To the extent that this is true, this colors our view of the world in a way that is neither healthy nor correct. Economists have developed a fundamentally

<sup>5</sup>Originally, the term was introduced by the historian Thomas Carlyle in the mid-1800s. Contrasting economics to Nietzsche’s conception of a “gay science” that produces life-enhancing knowledge, Carlyle described economics as “not a ‘gay science’ . . . no, a dreary, desolate and, indeed, quite abject and distressing one; what we might call . . . the dismal science.” His work was in response to Thomas Malthus’s admittedly depressing (and erroneous) theories, which actually led Carlyle to advocate a reintroduction of slavery as preferable to the misunderstood forces of supply and demand.

different mind-set because our study began (and begins in this book) with the study of voluntary trade where one party chooses to give up something in exchange for something the other party has to offer. In such trades, there is typically no loser; the fact that I am willing to give up \$2 every day to buy a warm, frothy cup of cappuccino at my local coffee shop clearly makes me better off (since I could just stop doing it if I did not think it was worth it). Similarly, the coffee shop owner is better off because she values the cup of cappuccino at less than \$2. We trade, and by trading the world has just become a better place because no one was hurt and two of us are better off. Internalizing the lesson that *there are many situations when everyone can win* is part of becoming an economist. In fact, much of the unprecedented wealth that now exists in the world has arisen precisely because individuals continuously identify situations in which voluntary interactions make everyone better off, and in the absence of understanding this, we might often be tempted to restrict such interactions without understanding the negative impact this might have. Of course we will also see many situations that involve winners and losers, and situations when nonmarket institutions are needed to discipline voluntary interactions, but the mere presence of a winner does not imply the offsetting presence of a loser.

### 1.4.2 Can “Good” People Behave “Badly”?

Second, psychologists also tell me that we are “built” to attribute the nature of actions we observe to the inherent character of the person who is acting. When we see someone do something that is “bad,” we tend to think that we are dealing with a “bad” person, and when we see someone do something “good,” we tend to think that this implies we are dealing with a “good” person. No doubt there are “bad” people who do “bad things” because of their predispositions, and there are many “good” people who do “good things” for the same reason. But the economist has another view to add to this: *often people do what they do because of the incentives they face, not because of any inherent moral predisposition*. In one of our early end-of-chapter exercises, for instance, I will ask you to think about the incentives faced by someone on welfare under the old welfare system in the United States. You will notice that under this system, those on welfare were taxed at 100% when they worked; that is to say, their welfare benefits were cut by \$1 for every \$1 that they earned in the labor market. When we notice that individuals under this system do not work (or work primarily in black market activities), is it because they are “lazy” or “bad,” or is it because they are facing truly perverse incentives that would make anyone look like they are in fact “lazy” or “bad”? Internalizing this basic skepticism of attributing actions too quickly to moral predispositions sets us up to think about behavior very differently: *Changing behavior for the better suddenly does not necessarily require a remaking of the soul; sometimes all it takes is identifying some really bad incentives and changing those*.

### 1.4.3 Order: Spontaneous or Created?

Finally, there is a third way in which we seem to be “built” that stands contrary to how economists think: Whenever we see something that is working, something that is creating order in an otherwise disorderly setting, we tend to think that there must be *someone* that deliberately created the order. And, the more complex the order is, the more we tend to think that someone must be in charge of it all. But our study of markets will tell us a different story. Consider the complex “order” that is New York City: millions of people interacting with one another, getting food, going to work, finding a place to live, etc. If you think about it, it is an enormously complex order, even more complex than the order that gives rise to the unplanned existence of pencils. For instance, I am told that on any given day, there is only about two or three days' worth of food left in New York City, yet no one even thinks about this when we take for granted that all sorts of foods will always be available at any time we go to any of the stores in New York. In fact, if the *New York Post* were to publish a large front page headline proclaiming “Only 2 Days of Food Left in City!” we might just see a panic, but that headline would be basically true on any given day.