Lesson One
Decisions in the Face of Scarcity

What is your favorite breakfast? Is it bacon and eggs? A breakfast burrito? How about a stack of pancakes? Whatever it is, you can probably taste it right now by just thinking about it. Did you have your favorite breakfast this morning? For most of us, the answer is probably "no." We probably did not start today with our favorite breakfast. Maybe we had some cereal and a glass of orange juice. Maybe we had a toaster pastry. Maybe some of us didn't have breakfast at all (*not* a good idea). Why would we have a breakfast that tastes just *okay*—instead of our favorite breakfast?

The simplest answer is most of us don't have all the ingredients for our favorite breakfast in our cupboards or refrigerators every day. So, instead of bacon and eggs, we all probably keep a box of cereal handy. And we keep that cereal handy because it's quick and easy, and most of the time cheaper than buying and making a big breakfast. Sound familiar?

You might be wondering why an economic textbook would be so interested in what you chose to have for breakfast, but this is exactly the kind of thing that economics is interested in! That is because economics is the social science of decision-making in reference to the production, distribution, and consumption of goods and services.

It is important to understand that economics is a science. Just like any science, be it chemistry, physics, psychology, or sociology, economics is a study of nature. Maybe this is easier to understand if we explain it this way: economics is a study of things that occur

naturally. In other words, when economists try to say something about how people respond to changing prices, they are trying to explain a phenomenon that occurred naturally. Nobody tells people how to react to a higher price; people just naturally do what they do. Therefore, economics is scientific: it is concerned with discovering and describing the truth about naturally occurring phenomena. To say that economics is a "social" science takes this yet one-step further. Just like other social sciences, the nature that economics is interested is human nature. Social scientists attempt to discover and describe the truth about the way that people behave. Economics, as a social science, does not seek to create new truths; it only seeks to uncover and explain things that are already true.

Economics has a special focus. Instead of thinking about all human behavior, economics is specifically interested in the way that humans behave as decision-makers. In this course, you will learn a lot about making decisions. Unfortunately, you may not learn a lot about how to make decisions (you already do that!), but you will instead learn how economists talk about and analyze the way that people (you included) make decisions. An analogy can be drawn to the physical sciences: taking an anatomy or biology class will not make your eyesight any better, but it may help you understand how the eye works.

Decisions

Now that you know what economics is, it is time to justify its existence. A social science dedicated to decision-making is only needed if people actually make decisions. If you wake up every morning to find a delicious lobster omelet waiting for you on the kitchen table, you may never have to make any decisions about breakfast. However, that is not typically going to be the case. We can tell from examining our own lives that we make many decisions every single day. But do decisions *have* to exist, or are we just unlucky?

Well, if you could get economists to agree on anything, it would probably be this: decisions must exist. There are two facts that are universally accepted in economics that lead us to this conclusion. If you don't agree with these two facts, then we have a serious problem on our hands because you probably won't believe anything else in the rest of this book. Fortunately, these two facts are relatively simple and not too controversial.

First: humans have unlimited wants. All of us can imagine one thing—a game, a vehicle, a long-lost friend, a solution to a problem—that we would be delighted to find waiting for us. There are always things that we want. In addition, when we get the things we want now, there are different things that we want. This is not to say

that people are greedy, although that's one possible negative interpretation. Rather, it is best to think about it this way: humans have an unlimited capacity to be made happier. There is no special amount of possessions at which humans reach their potential for happiness; no level of happiness where humans say, "That's it! Nothing can possibly make me any happier!" Something is always capable of increasing your happiness, and humans want to be happy, so we say that human wants are unlimited.

The second fundamental fact is that society's resources are limited. The specific word that economists use to describe this reality is scarcity. Scarcity is the name given to the fact that our resources are not infinite. Normally, you might think of the word "scarce" as meaning rare or hard to find, but this is not how economists define the word. When economists say "scarce," they simply mean limited. So even oxygen, of which there is *a lot*, is scarce, because there is only a *certain amount* of it. Water is scarce, lumber is scarce, land is scarce, honey is scarce, gold is scarce.

Let's take these two facts and add them together. On the one hand, I have unlimited human wants. On the other, I have limited resources that I can use to fulfill those unlimited human wants. Can I fulfill unlimited wants with limited resources? If you want 20 pizzas, will 10 pizzas satisfy you? Will 20 when you need 30? The obvious answer is "no." The same is true of all humans—unlimited wants cannot be satisfied with limited resources. This means that some human wants will go unsatisfied. This sad fact, since it is so fundamental to economics, is why economics is sometimes referred to as the *dismal science*. If some, but not all, human wants can be satisfied, this implies that there are decisions to be made. Broadly speaking, humans have to decide which human wants will be satisfied and which will not, but on an individual basis, we all have to decide which of our own wants will be satisfied and which will not.

This decision does not have to take place in an organized way. You probably don't sit down and do calculations to decide what to have for breakfast—the same way that the US Government does not form a committee to decide which of its citizens' wants will be satisfied and which will not. However, the very fact that some wants are satisfied and some wants are unsatisfied implies that a decision has been made, whether explicitly and formally, or informally by accident.

Summary

In this course, you are going to study the way that economists describe and analyze all sorts of decisions, even your decision about what kind of breakfast to have. Now, most of us believe that economics is primarily concerned with money. It is true that money comes up a lot, but that's not because economists are only interested in money. There are three reasons money is a topic that comes up frequently in economics: 1) a lot of your decisions, especially the hard ones, involve money; 2) decisions made about or involving money are easy to measure and talk about; and 3) money, because it can be used for so many different goods or services, is a great way to tie multiple decisions together.

At the end of this course, you will see some examples of economics used in very specific fields, such as healthcare. Decisions about health (or healthy living) are important decisions that economists also look at. There is a whole field of economics called Sports Economics that investigates decisions that people make in the setting of sports—like the decision to bunt or steal a base in baseball. Economists also talk about decisions to get married, to have children, and get an education. Therefore, economics is not limited just to decisions about buying and selling; economics is interested in all decision-making behavior. In the next chapter, we will start to talk about *how* people make decisions.

Lesson Two
Costs and Benefits

Consider the example of Diane's typical morning. She wakes up at 7:30AM. She puts on a pot of coffee and while it brews, she takes a 15-minute shower and gets dressed. She pours herself a cup of coffee and has a bagel. She gets into her car and puts on the radio station that gives the best traffic reports so that she can determine the best route to work. She drives to work and starts her day.

Pretty boring, right? It might appear that way on the surface, but even on this pretty mundane morning, Diane has made quite a few decisions. In addition, because she is making decisions, in the eyes of an economist, she has already done some interesting things. Though there are many more, here are some examples of how economists might analyze Diane's morning:

- Diane woke up at 7:30AM. Why? Most people try to get as much sleep as possible. Diane probably did the same, but she had to go to work. Maybe she could have slept in a little later, but then she would have possibly rushed and that would have negatively affected the rest of her day. She could have gotten up earlier than 7:30 to have a more relaxed morning, but perhaps Diane doesn't believe that being able to sit down and read the morning paper is as good as a few extra minutes of sleep.

- Her shower was 15 minutes long. Most people want to take showers as long as possible, but there are some problems: Diane has only so much time to get ready for work and there's only so much hot water. Notice that this decision was probably made at the same time as her decision to wake up at 7:30. She could sleep until 7:40 if she only took a five-minute shower, but those ten extra minutes of sleep are not as good (in Diane's eyes) as ten more minutes in the shower.

- Certainly there are more delicious breakfasts out there than a bagel and a cup of coffee (see Lesson #1), but that is what Diane chose. Why? Well, not only does she want her meal to taste good, but she also wants it to be fast and easy to prepare. Maybe Diane is worried that if she fried up some eggs, she would get food on her nice clean work clothes, or she will have more dishes to do later on. So once again, she has found a balance. Sure, she loses some happiness from her breakfast not being eggs Benedict with a side of fresh fruit, but she gains happiness from having it being fast and easy.

- Taking the expressway is probably faster than taking surface streets. However, if Diane knows there is an accident or some other backup on the expressway, the additional time it takes to stop at stoplights on the surface streets is less than the time it would take to sit in a traffic jam.

We could go on and on describing seemingly simple decisions that Diane, or any person makes in a single day, but the point is this: people make decisions by comparing the negative results of making a certain decision to the positive things about making a decision, and they pick decisions for which the good things outweigh the bad things.

Rational behavior

Economists have very special words to describe these negative results and positive results. The negative results that come from a decision are called **costs**. The positive results that come from a decision are called **benefits**. You are probably guessing that if the benefits outweigh the costs, then a certain decision is a good one. You are right. Now going back to the example, Diane decided that the benefits of sleeping in until 7:40 AM (feeling more rested) were not as great as the costs (feeling more rushed).

Economists are convinced that decisions that have benefits that are greater than the costs are good ones. There is really no reason to think that anyone would intentionally make a choice that had costs that were greater than the benefits.

The key word here is "intentionally." We can certainly imagine that someone might unintentionally make choices that have costs greater than benefits. Suppose you have never tried lentil soup. From looking at the can and reading the label, you might decide that lentil soup would be something that you like, so you buy the can of soup. Is it possible that you have made the wrong decision? Sure it is. It could be that you get home, cook the soup, taste it, and realize you have purchased a can of soup that does not make you very happy. Regardless, you made a decision that you *thought* had benefits greater than its costs, and that is what matters.

Economists describe the behavior of making decisions that are thought to be good ones (instead of making decisions that are thought to be bad ones) as being rational. (In reality, it is slightly more complicated that this, but rest assured that this definition still works very well.) By this definition, you would probably conclude that most people are rational, and that is true. However, this does not mean that most people are reasonable, or even smart.

Measuring costs and benefits

To make things easier, we usually try to measure costs and benefits in units that can be easily compared to one another. It might be easy for Diane to figure out which is greater: the cost of being rushed or the benefit of being well-rested. However, if we were trying to analyze Diane's decision, we would want to have measurements of these costs and benefits. We could use fake happiness-units or something like that, but in practice, it's usually easier to measure costs and benefits in a unit we all understand: dollars.

Instead of saying that Diane prefers to wake up at 7:30 because ten extra minutes of sleep has costs that are greater than the benefits, we might say something like this: sleeping for ten extra minutes provides Diane with $25 worth of value, but the cost of having a rushed morning is $30. Therefore, the costs of this decision outweigh the benefits, so she should not sleep in for ten more minutes. What exactly do these numbers mean? We will talk more about money, and what it is, in the Macroeconomics unit of this book, but for now, money simply represents goods and services that we could go out and buy in the market. If someone were to ask you what the value of $20 meant to you, you would probably imagine what you would do with that $20, and that would be its value. Would you spend it on MP3s? Magazines? Whatever you choose, that is what $20 means to you.

The same is true with Diane. If we say that ten extra minutes of sleep provides Diane with $25 worth of value, what we mean is that sleeping in for ten extra minutes gives her as much happiness as $25 worth of goods or services that she would buy if she were given $25. We also said that having a rushed morning imposes costs equal to $30 on Diane. This means that Diane would gladly give away $30 (or the last $30 worth of goods and services that she just purchased) to avoid having a rushed morning. What we are trying to do is measure changes in happiness (benefits are positive changes, costs are negative changes) in terms of the changes in income or material goods that would also cause that same change in happiness.

Sometimes costs and benefits are already measured in dollars. If you buy a sandwich in a sandwich shop, you have to pay them in dollars (not in happiness), so it is easy to measure the cost of the sandwich in that case. However, there are other costs of the sandwich that are not included in that price. Likewise, if you work for someone, you are paid in dollars. The benefits of having the job are easy to measure. Again, there are other possible benefits that are not included in your wage. Can you identify these missing costs and benefits?

Suppose you walk into a restaurant to buy a sandwich and you notice that they have four sandwiches on their menu: tuna, egg salad, roast beef, and peanut butter and jelly. Suppose that each sandwich costs $2.99. Also, suppose that it smells funny in the sandwich shop and you would be willing to pay $3.50 to make the funny smell go away. That means the cost of each sandwich totals $2.99 + $3.50 = $6.49. This way of thinking about cost is referred to by economists as opportunity cost. Opportunity cost is money or anything else that you must give up (or suffer through, like the funny smell) in order to get something. By using this term instead of just the word “cost,” economists make it clear that they are talking about a complete definition of costs, not just money costs. So remember: when an economist uses the word “costs,” they *always* mean opportunity costs. The same is true for this book.

Maybe you like tuna the most and egg salad the least. Perhaps peanut butter and jelly and roast beef are somewhere in the middle. We could find out what benefit you get from each sandwich buy seeing how much you’d be willing to give up to get the sandwich (or how extra income would be the same to you as getting the sandwich). The table below gives the costs and benefits of each sandwich type. Notice that there are no money benefits of the sandwich.

Sandwich	Money Costs	Other Costs	Opportunity Costs	Money Benefits	Other Benefits	Total Benefits	Net Benefit
Tuna	$2.99	$3.50	$6.49	$0	$10.00	$10.00	$3.51
PB & J	$2.99	$3.50	$6.49	$0	$8.00	$8.00	$1.51
Roast Beef	$2.99	$3.50	$6.49	$0	$7.00	$7.00	$0.51
Egg Salad	$2.99	$3.50	$6.49	$0	$2.00	$2.00	–$4.49

Which of these sandwiches would be a good purchase? Well, all of them except for the egg salad provide positive net benefit—that is, they have benefits that outweigh the costs. Let us just assume that you only have money to buy one sandwich. Which one do you pick? The tuna sandwich provides the greatest net benefit, so that's the one you pick. It may seem odd to you that you wouldn't try to buy all three sandwiches, because we just said that a rational person makes any choice where the benefits outweigh the costs. So why is it that you do not feel bad about not buying the second and third sandwiches? It is because there is a cost that is still missing. We will discuss that cost in the next lesson.