CHAPTER 7 ECONOMIC BEHAVIOR AND RATIONALITY

In this chapter we consider how people behave when they engage in economic activities. Can we make some general conclusions about how people make economic decisions? Do people normally make decisions that clearly move them toward their final goals? What factors may complicate or influence people's decisions? We look at both historical perspectives and contemporary research on this topic, and discuss its implications for economic theory.

1. HISTORICAL PERSPECTIVES ON ECONOMIC BEHAVIOR

In Chapter 5, we mentioned Adam Smith's concept of the invisible hand, according to which people acting in their own self-interest would, through markets, promote the general welfare. The concept of the invisible hand is famous, but it is often taken out of context to mean *only* by behaving in their self-interest will people do what is best for the entire society.

This interpretation would have astonished Smith, who, before writing *An Inquiry into the Nature and Causes of the Wealth of Nations*, had written another book, *The Theory of Moral Sentiments*, in which he examined the issue of how people are motivated. His emphasis there is on the desire of people to have self-respect and the respect of others. While he recognizes that selfish desires often motivate people, he believes that they will be held in check by "moral sentiments" and a degree of empathy toward others. Thus, Smith's vision of human motivation was one in which individual self-interest was mixed with social motives.

Smith was followed by other economists, such as the trade theorist David Ricardo and the philosopher/economist John Stuart Mill. They held similarly complex views of human nature and motivations. In 1890 Alfred Marshall tried to codify these ideas in a very influential text called *Principles of Economics*, which was the standard economics textbook in the early twentieth century. Marshall assumed that people were motivated by a desire to improve the human condition. He specifically focused on the reduction of poverty so as to allow people to develop their higher moral and intellectual faculties, rather than being condemned to lives of desperate effort for simple survival.

Later in the twentieth century, a different approach came to dominate economics known as the **neoclassical model**. This approach took a narrower view of human motivations. The basic neoclassical model builds a simplified story about economic life by assuming that there are only two main types of economic actors (firms and households) and by making simplifying assumptions about how these two types of actors behave and interact. We presented this model back in Chapter 1, in Figure 1.5. The model assumes that firms maximize their profits from producing and selling goods and services, and households maximize their utility (or satisfaction) from consuming goods and services. Economic actors are assumed to be self-interested and "rational," meaning that people generally make logical decisions that produce the best outcomes for themselves. Also, firms and households are assumed to interact mainly in perfectly competitive markets (the subject of Chapter 16). Given some additional assumptions, explored later in this book, the model can be elegantly expressed in figures, equations, and graphs.

neoclassical model: a model that portrays the economy as a collection of profit-maximizing firms and utility-maximizing households interacting through perfectly competitive markets

Some benefits can be gained from looking at economic behavior in this way. The assumptions reduce the actual (very complicated) economy to something that is much more limited but also easier to analyze. The traditional model is particularly well suited for analyzing the determination of prices, the volume of trade, and economic efficiency in certain cases.

The neoclassical model was introduced to generations of students in 1948 with the publication of Paul Samuelson's textbook *Economics: An Introductory Analysis*, which went on to become the best-selling economics text ever. Samuelson's text promoted the idea that economics should be "value free" (i.e., it should be based on positive, rather than normative, analysis) and that it should be largely deductive, meaning that it should derive conclusions directly from the simple assumptions stated above about the motivations of economic actors.

Most other economics textbooks in the latter half of the twentieth century took this approach, often deriving policy implications from the neoclassical model that generally supported a laissez-faire approach by government. But as discussed in Chapter 1, we need to be careful in differentiating between positive and normative analysis. Some economists have asserted not only that economic actors act to maximize their utility or profits, but that they *should* act this way. Thus profit-maximizing behavior by firms and utility-maximizing behavior by households came to be considered "rational" behavior, and acting otherwise was irrational, or even irresponsible. Nobel Prize-winning economist Milton Friedman famously stated in his 1962 book *Capitalism and Freedom* that: "There is one and only one social responsibility of business—to use its resources and engage in activities to increase its profits so long as it stays within the rules of the game."

But is the neoclassical theory correct in assuming that people exhibit maximizing behavior? Do businesses really always act in ways to maximize their profits and do people really always act in ways that maximize their utility? Now well into the twenty-first century, most economists have accepted that human motivations are much more complex. As we will see in the next section, in recent years economists have devised many creative experiments to explore how people make actual economic decisions, typically showing how context can influence decisions. While this model of behavior can't necessarily be summed up in tidy mathematical equations and graphs, it is more comprehensive, and more realistic, than the neoclassical model. And as we will see, it often leads to significantly different policy recommendations.

Discussion Questions

1 Do you agree with the assumption of the neoclassical model that human behavior is rational and self-interested? Can you think of some examples of economic behavior that might contradict these assumptions?

2 Do you believe economics should strive, as much as possible, to be value free? What do you think are the advantages and disadvantages of this approach?

2. BEHAVIORAL ECONOMICS

Over the past few decades, the neoclassical view of human behavior is being increasingly replaced by an alternative commonly called **behavioral economics**. Behavioral economics gathers insights from numerous disciplines including economics, psychology, sociology, anthropology, neuroscience, and biology to determine and predict how people actually make economic decisions. Behavioral economics emphasizes using experiments and other empirical evidence to test hypotheses. Studies in this area have proven valuable in explaining behaviors that may appear to be irrational, and why people often seem to act against their own interests.

behavioral economics: a subfield of microeconomics that uses insights from various social and biological sciences to explore how people make actual economic decisions

In this section we summarize some of the main research findings from behavioral economics—results that often diverge from the assumptions of the neoclassical model. We consider research from six categories of behavioral economics research:

1. The role of context in economic decisions
2. The role of time in economic decisions
3. The role of emotions in economic decisions
4. The role of influential factors
5. Selfishness and altruism
6. Insights from neuroeconomics

2.1 THE ROLE OF CONTEXT IN ECONOMIC DECISIONS

One of the main findings of behavioral economics is that people's preferences and decisions may vary significantly depending on the context.[1] Consider one study that illustrates this point. The setting is a three-hour seminar class that has a short break in the middle, when the professor offers the students a snack. Every week, the professor provides the students with a list of possible snacks, and the students vote on which snack they want. Only the snack with the most votes is then provided. The results of this experiment show that every week students tend to pick the same snack—the one that is their favorite.

But with a different group of students, who are taking a similar three-hour seminar class with a break, the students are instead asked in advance which snacks they will prefer for the next three weeks. In this case, students tend to vote for variety, thinking that they will not want the same snack every week. But this is precisely what students actually do want when they get to vote every week! When planning ahead, students think they will want variety, but when the time comes to consume a snack students tend to stick with their favorite each time. Similar experiments have shown that people who go grocery shopping infrequently also tend to think that they will want variety, but in reality they tend to want their favorite foods most of the time.

Another illustration of behavior that does not fit older, rigid definitions of rationality concerns the way that we process information. The person widely recognized as the founder of behavioral economics is not even an economist by training. Despite being educated as a psychologist, Daniel Kahneman won the 2002 Nobel Prize in economics. Kahneman's research has found that people tend to give

undue weight to information that is easily available or vivid, something he called the **availability heuristic**. ("Heuristic" refers to simplified methods for quickly solving problems.) For example, consider the results of one experiment involving students deciding which courses to take next semester. First, they see a summary of evaluations from hundreds of other students indicating that a certain course is very good. But then they watch a video interview of just one student, who gives a negative review of the course. Even when students were told in advance that such a negative review was atypical, they tended to be more influenced by the single vivid negative review than the summary of hundreds of evaluations.

availability heuristic: placing undue importance on particular information because it is readily available or vivid

Kahneman has also shown that the way a decision is presented to people can significantly influence their choices, an effect he refers to as **framing**. For example, consider a gas station that advertises a special 5-cent-per-gallon discount for paying cash. Meanwhile, another station with the same prices indicates that they charge a 5-cent-per-gallon surcharge to customers who pay by credit card. Although the prices end up exactly the same, experiments suggest that consumers respond more favorably to the station that advertises the apparent discount. For another famous example of the importance of framing, see Box 7.1.

framing: changing the way a particular decision is presented to people in order to influence their behavior

Another area of seemingly irrational economic behavior is personal finance. Some companies offer their employees the option of matching contributions to their retirement plans; for each $1 the employee voluntarily contributes to his or her retirement plan, the employer matches it with an additional contribution. For example, with a 50 percent matching program, for each $1 an employee contributes, the employer contributes 50 cents. This amounts to an instant 50 percent rate of return on the employee's investment—clearly a good deal.

Although most financial advisors suggest taking advantage of matching contributions, many employees do not enroll in such programs, voluntarily forgoing the opportunity to garner thousands of additional dollars for retirement. This is not necessarily irrational, as some employees may have pressing current economic needs that make it difficult for them to contribute to a retirement plan. However, one research study looked at what happened when a large company changed its policy from a matching program that required employees to sign up for it (an "opt-in" program) to a similar program in which employees were automatically enrolled but could opt out if they wanted to.[2] Under the new (opt-out) program, 86 percent of employees stayed in the program. For comparable employees prior to the change, the participation rate was only 37 percent. The economic advantages were the same in either case, and the huge difference in participation rates is difficult to justify on the basis of the fairly simple paperwork needed to sign up for the program. Again, the results demonstrate that framing can have a significant influence on people's choices.

This example illustrates that in many circumstances people tend to go with the default option when presented with a choice—essentially the choice that results if they don't do anything. Another classic example of the power of defaults looks at whether people are registered to donate their organs at death.[3] In some European countries,

such as Austria, Belgium, and France, people are automatically registered as organ donors, but can opt out if they choose to. In these countries, about 98–99 percent of people stay registered. But in other European countries, such as Denmark, Germany, and the United Kingdom, people must sign up to be organ donors. In other words, the default option is that they are not registered. In these countries, less than 20 percent of people register to be organ donors.

BOX 7.1 THE EFFECT OF FRAMING ON DECISIONS

In a famous 1981 experiment, Daniel Kahneman and his colleague Amos Tversky showed how the framing of a choice can significantly influence people's decisions.[4] They first presented respondents with the following scenario:

> Imagine you are a physician working in an Asian village, and 600 people have come down with a life-threatening disease. Two possible treatments exist. If you choose treatment A, you will save exactly 200 people. If you choose treatment B, there is a one-third chance that you will save all 600 people, and a two-thirds chance you will save no one. Which treatment do you choose, A or B?

Tversky and Kahneman found that the majority of respondents (72 percent) chose treatment A, which saves exactly 200 people. They also presented respondents with this scenario:

> You are a physician working in an Asian village, and 600 people have come down with a life-threatening disease. Two possible treatments exist. If you choose treatment C, exactly 400 people will die. If you choose treatment D, there is a one-third chance that no one will die, and a two-thirds chance that everyone will die. Which treatment do you choose, C or D?

In this case, they found that the majority of respondents (78 percent) chose treatment D, which offers a one-third chance that no one will die. But if you compare the two questions carefully, you will notice that they are exactly the same! Treatments A and C are identical, and so are treatments B and D. The only thing that changes is the way the options are presented, or framed, to respondents.

Tversky and Kahneman concluded that people evaluate gains and losses differently. While treatments A and C are quantitatively identical, treatment A is framed as a gain (i.e., you save 200 people) while treatment C is framed as a loss (i.e., 400 people die). It seems people are more likely to take risks when it comes to losses than gains. In other words, people prefer a "sure thing" when it comes to a potential gain but are willing to take a chance if it involves avoiding a loss.

An effect similar to framing is known as **anchoring**, in which people rely on a piece of information that is not necessarily relevant as a reference point in making a decision. In one powerful example, graduate students at MIT were first asked to write down the last two digits of their Social Security numbers.[5] They were then asked whether they would pay this amount, in dollars, for various products, including a fancy bottle of wine and a cordless keyboard. Assuming rational behavior, the last two digits of one's Social Security number should have no relation to one's willingness to pay for a product. However, the subjects with the highest Social Security numbers indicated a willingness to pay about 300 percent more than those with the lowest numbers;

apparently they used their Social Security numbers as an "anchor" in evaluating the worth of the products.

anchoring effect: overreliance on a piece of information that may or may not be relevant as a reference point when making a decision

In a real-world example of anchoring, the high-end kitchen equipment company Williams-Sonoma was disappointed with its sales of a $279 bread maker. Then the company started offering a "deluxe" model for $429. Although they did not sell too many of the deluxe model, sales of the $279 model almost doubled because now it seemed like a relative bargain.[6]

2.2 THE ROLE OF TIME IN ECONOMIC DECISIONS

The retirement program example cited above suggests that in making their decisions people might not appropriately weigh the future. In other words, people seem to place undue emphasis on gains or benefits received today without considering the implications of their decisions for the future. Further evidence of this is the large number of people who have acquired significant high-interest credit card debt due to excessive spending. According to one study, about 6 percent of Americans are considered "compulsive shoppers," who seek instant gratification with little concern for the troublesome consequences of running up a great deal of debt.

But you do not need to be a compulsive shopper to fall short of the ideal "rational consumer" who knows and weighs all the relevant costs and benefits. Economists say that someone who does not pay much attention to the future consequences of his or her actions has a high **time discount rate**. This means that in his or her mind, future events are heavily discounted or diminished when weighed against the pleasures of today. (A more detailed analysis of the "discount rate" is presented in Chapter 12.) On the other hand, people who have a low time discount rate place more relevance on future consequences. Economists usually assume that people who invest in a college education have a relatively low time discount rate, because they are willing to forgo current income or relaxation, and pay substantial tuition, to study for some expected future gain.

time discount rate: an economic concept describing the relative weighting of present benefits or costs compared to future benefits or costs

Various studies have shown how high time discount rates can lead to seemingly irrational behavior. Economists can determine someone's implicit discount rate by asking them whether they would prefer a given amount of money now, say $100, or a higher amount of money in the future, say $120 a year from now. Those who choose to take the money now have a relatively high time discount rate. Many analyses find that people who have high discount rates are more likely to make unhealthy choices inconsistent with their long-term goals. For example, a 2016 study reviewing the literature on the topic reported that those with high time discount rates are consistently found to be more likely to smoke, abuse alcohol, take illicit drugs, and engage in risky sexual behaviors.[7]

High discounting also leads to purchase decisions that may seem attractive now, but turn out to be irrational in the long term. A 2016 paper looked at vehicle purchase decisions by Chinese consumers, comparing traditional gas cars and electric vehicles.[8] While electric vehicles are more expensive to purchase, their low

operational costs generally make them cheaper than gas cars over the entire life cycle of the vehicle. The authors found that people with high discount rates "showed irrational purchase behavior" by preferring gas cars with lower initial costs but higher ownership costs overall.

2.3 THE ROLE OF EMOTIONS IN ECONOMIC DECISIONS

The potential conflict between our reasoning and our emotions has long been studied by philosophers and writers. The conventional view is that emotions get in the way of good decision making, as they tend to interfere with logical reasoning. But again, research from behavioral economics suggests a more nuanced reality. It does not seem to be true that decisions based on logical reasoning are always "better" than those based on emotion or intuition. Instead, studies suggest that reasoning is most effective when used for making relatively simple economic decisions, but for more complex decisions we can become overwhelmed by too much information.

Research by Ap Dijksterhuis, a psychologist in the Netherlands, has shed some valuable insight on the limits of reasoned decision making. In one experiment, he and his colleagues surveyed shoppers about their purchases as they were leaving stores, asking them how much they had thought about items before buying them. A few weeks later, they asked these same consumers how satisfied they were with their purchases. For relatively simple products, like small kitchen tools or clothing accessories, those who thought more about their purchases tended to be more satisfied, as we might suspect. But for complex products, such as furniture, those people who deliberated the most tended to be the *least* satisfied with their purchases. Dijksterhuis and his colleagues conclude:

> Contrary to conventional wisdom, it is not always advantageous to engage in thorough conscious deliberation before choosing. On the basis of recent insights into the characteristics of conscious and unconscious thought, we [find] that purchases of complex products were viewed more favorably when decisions had been made in the absence of attentive deliberation.[9]

Even for relatively simple decisions, there is such a thing as "thinking too much." Another experiment with college students involved their tasting five brands of strawberry jam.[10] In one case, students simply ranked the jams from best to worst. The student rankings were highly correlated with the results of independent testing by *Consumer Reports*, suggesting that the students' rankings were reasonable. But in another case students were asked to fill out a written questionnaire explaining their preferences. As a result of the additional deliberation, students' rankings were no longer significantly correlated with the *Consumer Report* rankings. The researcher concluded:

> This experiment illuminates the danger of always relying on the rational brain. There is such a thing as too much analysis. When you overthink at the wrong moment, you cut yourself off from the wisdom of your emotions, which are much better at assessing actual preferences. You lose the ability to know what you really want.[11]

2.4 THE ROLE OF INFLUENTIAL FACTORS

Another important aspect of decision making relates to the outside influences on us. We have already seen how our decisions can be affected by framing and anchoring.

Certain economic actors, such as businesses and politicians, may be motivated to use the lessons from behavioral economics to benefit themselves. The literature in behavioral economics demonstrates a variety of ways in which decision making can be distorted by outside influences to result in choices that do not align with people's goals and well-being. While we will explore the impact of advertising in more detail in the next chapter, it is clear that advertisers have learned how to apply the lessons of behavioral economics to make their ads more effective. Eric Wanner, an early proponent of behavioral economics, wrote:

> Advertising is a business that tries to shape how people think about their choices. Neoclassical economics can explain ads only as providing information. But if the seller can invest in advertising that frames the choice, that frame will skew the buyer's decision.[12]

These realities have long been well known to politicians and advertisers, who, since the early part of the twentieth century, have often based their successes on assuming *irrational* consumers and voters. For example, food companies are well known to cater to the innate physical preference for sugar, fat, and salt. While these ingredients are crucial for health when eaten in appropriate amounts, they were rarely available in sufficient quantity during most of human evolution. We are all therefore born with some degree of craving for these substances and don't always recognize when we've had "enough," leading to adverse health effects.

Just as corporations often seek to increases profits, even if their products do more harm than good, politicians also often find it hard to resist easily appealing to emotions of greed, even fear, rather than offering sound information on which voters can make good decisions. According to a 2019 survey, 64 percent of Americans believe it is hard or somewhat hard to determine what is true and what is not when politicians speak.[13] Politicians who repeatedly distort the truth, or outright lie, can be successful because our brains are more likely to accept a piece of information as valid the more frequently we are exposed to it.[14]

2.5 SELFISHNESS AND ALTRUISM

As mentioned earlier, the neoclassical model assumes that people are self-interested, and will make choices that produce the best outcomes for themselves. Some economists interpret this to mean: "Rational people are *only* self-interested, and any non-self-interested acts are irrational." This probably explains a good deal of why economics students (and economics faculty) have frequently been shown, in tests, to be more selfish than others (see Box 7.2).

The opposite of pure self-interest is **altruism**, which means a concern for the wellbeing of others, without thought about oneself. Although it would be excessively idealistic to assume that altruism is the prime mover in human behavior, it is reasonable to assert that altruism does enter into many people's decision making—contrary to the simple neoclassical model of "rational" selfishness.

altruism: actions focused on the well-being of others, without thought about oneself

Especially relevant to economics is the fact that much economic behavior may be motivated by a desire to advance **the common good**—the general good of society, of which one's own interests are only a part. Striving to advance the common good means seeing your own well-being as connected to the larger well-being of society.

That is, people are often willing to participate in the creation of social benefits, even if this involves some personal sacrifice, as long as they feel that others are also contributing.

the common good: the general well-being of society, including one's own well-being

BOX 7.3 THE ULTIMATUM GAME

A famous behavioral economics experiment is known as the "Ultimatum Game." In this game, two people are told that they will be given a sum of money, say $20, to share. The first person gets to propose a way of splitting the sum. This person may offer to give $10 to the second person, or only $8, or $1, and plan to keep the rest. The second person cannot offer any input to this decision but can only decide whether to accept the offer or reject it. If the second person rejects the offer, both people will walk away empty-handed. If the offer is accepted, they get the money and split it as the first person indicated.

If the two individuals act only from narrow financial self-interest, then the first person should offer the second person the smallest possible amount—say $1—in order to keep the most for himself or herself. The second person should accept this offer because, from the point of view of pure financial self-interest, $1 is better than nothing.

In fact, researchers find that deals that vary too far from a 50–50 split tend to be rejected. Specifically, offers of around 40 percent or more are almost always accepted, while offers of 20 percent or less are almost always rejected.[15] People would rather walk away with nothing than be treated in a way that they perceive as unfair. Also, whether out of a sense of fairness or a fear of rejection, individuals who propose a split often offer something close to 50–50.

A 2021 analysis reviewed over 200 studies of the ultimatum game or the dictator game (a variant of the ultimatum game where the second person must accept whatever allocation is chosen by the first person). The authors conclude that people in developed countries, with more exposure to market mechanisms, are less likely than people in developing countries to incorporate notions of fairness into their behavior. They suggest that social relations are more important in lower-income countries, where people may be more dependent on others in adverse situations such as an illness or loss of property.[16]

Economists are increasingly realizing that a well-functioning economy cannot rely only on self-interest. Without such values as trust and honesty, for example, even the simplest transaction would require elaborate safeguards or policing. Imagine if you were afraid to pay for something until you had it in your hands and the merchant was afraid that as soon as you had what you wanted, you would run out of the store without paying. Such a situation would require police in every store—but what if the police themselves were unethical? Without ethical values that promote trust, inefficiencies would overwhelm any economic system and business would grind to a halt. A 2020 analysis of 32 countries found that a 10 percent increase in the level of trust in a society increases economic growth by an average of 0.5 percent annually.[17]

Fortunately, behavioral economics experiments demonstrate that people really *do* pay attention to social norms, and they are willing to reward those who follow these

norms and to punish people who violate them, even when this has a cost in terms of their narrow self-interest, as discussed in Box 7.3.

Other recent evidence suggests that pursuing pure self-interest does not lead to happiness. A 2017 journal article by economist Tom Lane reviewed dozens of studies that looked at the relationship between happiness levels and economic behavior.[18] In particular, are happy people more likely to be selfish or generous? Lane draws a clear conclusion: "happiness tends to result from pro-social behavior," including trust and generosity. For example, one study found that giving to charity increases happiness as much as if one's income doubled. Economic experiments show that those participants who are more generous in lab games tend to report higher levels of happiness. Volunteering is also positively correlated with higher happiness. Meanwhile, there "is clear evidence of a negative relationship between happiness and selfishness."

These results not only present a conundrum for the neoclassical model of economic behavior, but they raise questions about what it means to be an economist. Are economists people who merely study human behavior, or should they advocate for specific types of behavior? The neoclassical approach, at least implicitly, accepts self-interest as rational. But if the goal of economics is to enhance well-being, as we've asserted, then recent scientific findings suggest that economists should be promoting pro-social behavior, rather than self-interest. In other words, it appears that being trustful and generous is more "rational" than selfishness, if one wants to be happy in life.

2.6 INSIGHTS FROM NEUROECONOMICS

An additional modern perspective on economic behavior looks at the role our brains, physiology, and genetics play in how we make economic decisions. Referred to as **neuroeconomics**, this relatively new interdisciplinary field recognizes that the physical and social sciences are complementary, with both being necessary in order to obtain a comprehensive picture of how we make decisions.

neuroeconomics: the interdisciplinary field that studies the role our brains, physiology, and genetics play in how we make economic decisions

One approach taken in neuroeconomic studies is to observe people's brains using a functional magnetic resonance imaging (fMRI) machine, which indicates which parts of one's brain are activated in different circumstances. The results of several such studies basically confirm the findings from the previous section—that when people are being treated fairly or engaging in cooperative behavior, regions of the brain associated with positive emotions and rewarding situations are activated.[19] But even when we are not personally involved, simply observing others acting cooperatively stimulates empathetic neural responses, leading to positive emotions. On the other hand, when observing others being treated unfairly or exposed to pain, our brains react in a similar manner as if we had been treated unfairly or suffered pain.[20] In other words, we seem to have an innate preference for situations in which all people behave in socially responsible ways. An extensive 2021 review of neuroeconomics research concludes that our brains are generally wired in favor of "prosocial behavior, including trust, altruism, reciprocity, empathy, generosity, or concern for equity."[21]

Other neuroeconomic studies look at whether various economic decisions are evaluated using similar or different regions of the brain. For example, one study found

that we evaluate decisions about money similarly to how we make decisions about which goods to purchase. However, we evaluate people differently than brands of products, suggesting that brands do not have a "personality" in any human sense. Another area of research in neuroeconomics uses brain imaging to predict people's choices. One study found that brain activity could be used to predict which product a consumer will choose. Another study found that the neural activity of adolescents when listening to different songs was a more accurate predictor of a song's eventual commercial success than their stated reactions to the songs.[22]

Neuroeconomics, along with behavioral economics, shows that the traditional lines between the field of economics and other disciplines are becoming more blurred. Instead, only through interdisciplinary research can we truly gain "a more precise and thorough understanding of the different components of consumer behavior."[23]

Now that we have considered economic behavior from various perspectives, we can present a summary of the model of economic behavior that will be applied in future chapters.

Discussion Questions

1 Can you think of any other economic situations where people seem to make irrational decisions? For the most part, do you think people are rational or irrational?

2 Discuss how one or more conclusions reached by behavioral economists help you to understand an experience that you have had making an economic decision.

3. ECONOMIC BEHAVIOR IN CONTEXTUAL ECONOMICS

Recent research has generally refuted the neoclassical view of self-interested people making logical economic decisions that maximize their utility (or profits in the case of businesses). At the least, the neoclassical model applies only to some decision making, with other, often significant, decisions being made based on other factors that can *appear* irrational or support the common good. We now try to use the lessons from the previous section to develop a more modern and accurate, though perhaps less precise, model of economic behavior. (Recall our discussion of accuracy vs. precision in Chapter 3.) We will base this model on some concepts that have been suggested as alternatives to maximizing behavior.

3.1 ALTERNATIVES TO MAXIMIZING BEHAVIOR

Economic decisions are always made subject to constraints, including limits on income and other resources and on physical or intellectual capacities. A universal constraint is time. Every day you face the choice of how to allocate 24 hours among competing activities such as sleeping, studying, going to class, eating, and entertainment. You cannot decide to allocate 10 hours each day to sleeping, 5 hours to studying, and 10 hours to hanging out with friends because you do not have 25 hours available. To put this in terms that were introduced in Chapter 1, your "production-possibilities frontier" has only 24 hours per day.

Another important factor in an economic model of behavior is *information.* In assessing their options, economic actors make use of their existing knowledge but often need to collect additional information. Consider the decision to purchase an automobile. Numerous factors go into such a decision. Should you buy a new car or a

used one? What is the relative importance of fuel economy, safety, and luxury features? What about resale value and maintenance costs? Making a rational decision requires that you obtain information on these various factors.

The neoclassical approach tends to assume that rational economic actors have "perfect information." This doesn't necessarily mean that people will collect all the information that relates to a particular economic decision. In practice, this means that people will collect information until the perceived costs of acquiring additional information exceed the perceived benefits. However, there is no way of guaranteeing that people can make such a calculation, especially since they don't know enough about the information they don't collect. Maybe some additional searching will yield valuable information, or maybe it won't.

One of the early challenges to the neoclassical model came from Herbert Simon, another psychologist who received the Nobel Memorial Prize in economic science (in 1978). Considering the matter of whether it is indeed possible for people to identify the optimal point at which one should cease gathering additional information, Simon logically showed that, in fact, one first needs to have complete knowledge of all choices in order to identify that optimal point! Moreover, determining what additional information might be out there and then gathering it can be very costly in time, effort, and money. Accordingly, Simon maintained, people rarely optimize. Instead they do what he called **satisficing**; they choose an outcome that would be satisfactory and then seek an option that at least reaches that standard.

satisfice: to choose an outcome that would be satisfactory and then seek an option that at least reaches that standard

Given constraints of time and information, satisficing seems to be a reasonable behavior. If an individual finds that the "satisfactory" level was set too low, a search for options that meet that level will result in a "solution" rather quickly. In this case, the level may then be adjusted to a higher standard. Conversely, if the level is set too high, a long search will not yield an acceptable outcome, and the "satisficer" may lower his or her expectations for the outcome.

Another deviation from maximizing behavior as traditionally defined has been called **meliorating**—defined as starting from the present level of well-being and finding opportunities to do better. A simple example is a fisherman who wishes to keep the biggest fish he can catch that day. He first catches a fish. He doesn't stop there, but goes on to catch a second fish, which he compares to the first one—keeping the larger and releasing the other. Each subsequent catch is compared to the one he has retained as the largest so far. At the end of the day, the fish that he takes home will be the largest of all those caught.

meliorating: starting from the present level of well-being and continuously attempting to do better

Satisficing and meliorating may both be preferred strategies in cases of **bounded rationality**. The general idea is that, instead of considering all possible options, people limit their attention to some more-or-less arbitrarily defined subset of the universe of possibilities. With satisficing or meliorating behavior, people may not choose the "best" choices available to them, but they at least make decisions that move them toward their goals.

bounded rationality: the hypothesis that people make choices among a somewhat arbitrary subset of all possible options due to limits on information, time, or cognitive abilities

3.2 THE MODEL OF ECONOMIC BEHAVIOR IN CONTEXTUAL ECONOMICS

We are now ready to summarize the current "state of the art" thinking about economic behavior, and contrast that thinking to the neoclassical model. Drawing from two recent journal articles,[24] we present five core principles of the model of economic behavior that will be used in later chapters in this text:

1. *People try to choose the best option available to them, but they often make mistakes.* While people may seek to engage in maximizing behavior, they sometimes aren't successful due to insufficient or inaccurate information, poor judgment, limited resources, and other issues. We might think of economic decisions as being a somewhat "muddled" process, rather than the maximizing process envisioned by the neoclassical model.
2. *People make economic decisions using various reference points to help them.* We saw previously how framing and anchoring can influence economic decisions. Another important finding from the work of Daniel Kahneman is that people evaluate losses and gains of equivalent magnitude differently. Specifically, people tend to display **loss aversion**—that losses are weighed more heavily than equivalent gains. Based on economic experiments, people value losses about twice as much as gains, on average. Thus a loss of $100 is valued about the same as a gain of $200, in terms of how much welfare changes.

loss aversion: the tendency for most people to value losses more than equivalent magnitude gains, in terms of how much welfare changes

3. *People have self-control problems.* Most people have a "present bias" when making decisions with long-term impacts. The fact that most people fail to adequately save for retirement is perhaps the most obvious, and important, example of this problem. Running up large credit card debts and under-investing in education are other examples.
4. *While people often engage in selfish behavior, people also care about the welfare of others, even people they do not know.* People may care about others in order to increase their own well-being or out of true altruism and concern for the common good. The distinction isn't critical because the bottom line is that we seem to have an innate concern for the welfare of others. Any model that assumes only self-interested behavior is inadequate.
5. *People can be influenced to make bad (or good) decisions.* Advertising can clearly be effective, leading to choices that are unhealthy and unwise. Advertisers can also take advantage of framing, anchoring, and present bias to influence people to buy things they don't really need. But the fact that people's preferences aren't fixed, or even known to them, also means that policies can be designed to help them make healthier, wiser choices. Specifically, defaults can be constructed to encourage the "right" choices, such as saving enough for retirement, being properly vaccinated, and eating healthy foods. We'll consider the policy implications of our model of economic behavior in more detail in the final section of this chapter.

This model is supported by the scientific studies reviewed above, and it is also consistent with experience and common sense. We are all human beings, often far from perfect, normally with good intentions but subject to many influential factors. Having an accurate model of human behavior is clearly important, particularly because specific policy recommendations can follow from one's economic model. We now turn to how the policy recommendations that follow from the contextual economics model often differ from those supported by the neoclassical model.

4. POLICY INFERENCES FROM OUR MODEL OF ECONOMIC BEHAVIOR

As discussed in Chapter 5, welfare analysis demonstrates that when economic actors behave rationally in their own self-interest, under certain assumptions this yields the "best" outcome for society in terms of economic efficiency. Support for a laissez-faire approach to government policy is often based on the view that government involvement in markets moves us away from this efficient equilibrium.

However, the model of economic behavior presented in this chapter reveals that economic actors often do not behave rationally or in their own self-interest and can be significantly influenced by various factors. As you might expect, adopting this model of behavior provides a justification for a more active role of government policy in affecting market outcomes.

4.1 PREDICTABLE IRRATIONALITY AND NUDGES

While economic behavior often appears irrational, it is not random. Deviations from "optimal" behavior are typically in a specific direction, as suggested by the title of economist Dan Ariely's 2010 book *Predictably Irrational*.[25] For example, most people irrationally under-save for retirement, rather than over-save. People tend to place too little value on the future, not too much. People tend to eat foods that aren't healthy enough, not *too* healthy. And so on. As Ariely writes, behavioral economics shows that:

> . . . we are all far less rational in our decision making than standard economic theory assumes. Our irrational behaviors are neither random nor senseless—they are systematic and predictable. We all make the same types of mistakes over and over, because of the basic wiring of our brains. . . . We usually think of ourselves as sitting in the driver's seat, with ultimate control over the decisions we make and the direction our life takes; but, alas, this perception has more to do with our desires—with how we want to view ourselves—than with reality.[26]

If people continually make mistakes in the same direction, how can policies be devised to help them make "better" decisions? One answer comes from the 2008 book *Nudge*, by economist Richard Thaler (who won the Nobel Prize in economics in 2017) and legal scholar Cass Sunstein.[27] They advocate for policy "nudges" that encourage, but do not force, people to make certain decisions, an approach they refer to as **libertarian paternalism**. While they recognize that these two terms are seen by many as unappealing and contradictory, they argue that "they are far more attractive together than alone":

> The libertarian aspect of our strategies lies in the straightforward insistence that, in general, people should be free to do what they like—and to opt out of undesirable arrangements if they want to do so. We strive to design policies that maintain or increase freedom of choice. . . . The paternalistic aspect lies in the claim that it is legitimate for choice architects to try to influence people's behavior in order to make their lives longer, healthier, and better. In other words, we argue for self-conscious efforts, by institutions in the private sector and also by government, to steer people's choices in a direction that will improve their lives.

libertarian paternalism: the policy approach advocated in the 2008 book *Nudge*, where people remain free to make their own choices but are nudged toward specific choices by the way decisions are designed

Thaler and Sunstein provide numerous examples in their book related to decisions about health, financial management, education, and the environment. Consider the problem of insufficient saving for retirement. They note that many people intend to increase the amount they save for retirement as they proceed through their careers, but never get around to it for many of the reasons we've discussed in this chapter. Behavioral economics research finds that people are more likely to make desirable changes in behavior if they make commitments in advance, even if they can later back out of those commitments. Recognizing this, the book describes the "Save More Tomorrow" idea, where workers enroll in a program that automatically increases the percentage of their income that is set aside for their retirement each time they get a raise. As increased saving is timed to correspond with pay raises, workers don't see their take-home pay go down. Workers enrolled in the program can opt out of it anytime, but most don't. Evidence shows that the program is very effective. In one case, prior to the program workers at a company were saving an average of 3.5 percent of their income for retirement. Save More Tomorrow was implemented, and after four years average saving rates increased to 13.6 percent.

Take another example—how to get people to reduce their home energy use. An experiment in California gave some residents a small electronic ball that would glow red when energy usage exceeded a given level, but glowed green with moderate usage. The results showed that the ball led to energy use reductions of 40 percent during peak-use periods, while text and e-mail notifications were ineffective. The key seems to be that the ball makes one's energy use more visible and provides an easily available reference point or "anchor" for decision making about energy use.

4.2 GOVERNMENT POLICY EXAMPLES

Governments around the world are increasingly devising policies based on the findings of behavioral economics, nudging people to make better decisions. For example, in 2007 New Zealand implemented the KiwiSaver program, which automatically enrolls workers in a national savings plan for retirement, with a default contribution of 3 percent. Workers have the freedom to opt out, or choose a higher contribution rate. Another example is the change to the fuel economy labels on new cars sold in the United States, starting with the 2013 model year. While the previous labels provided information on expected fuel economy in miles per gallon, the revised labels also indicate how much money you'll save, or how much extra you'll spend, over five years in fuel costs compared to the average new vehicle. Clearly, this change makes buyers more aware of the monetary benefits of choosing an efficient vehicle. In the case of

electric vehicles, one can save about $10,000 in fuel costs over five years compared to the average new vehicle. Without the sticker, potential buyers might well be unaware of these substantial savings.

The country that has made the most extensive use of behavioral economics in designing government policies is the United Kingdom. In 2010 the UK government set up the Behavioural Insights Team, commonly known as the "Nudge Unit," with the objectives of "improving outcomes by introducing a more realistic model of human behaviour to policy" and "enabling people to make 'better choices for themselves'."[28]

One of the issues studied by the Nudge Unit has been ways to reduce rates of tax evasion.[29] To encourage people to pay their taxes on time, they experimented with various versions of a reminder letter sent to people who had not yet paid their taxes. Making the letter as simple as possible did not significantly affect response rates. However, response rates nearly doubled when people were reminded of social norms such as "9 out of 10 people pay their taxes on time." This illustrates that people's behavior can be influenced when they are nudged to think of themselves in comparison to others.

In another study, the Nudge Unit studied ways to increase the proportion of young people from less advantaged backgrounds that apply to highly selective universities.[30] Some potential students were sent a letter from a current student enrolled at a prestigious university, also from a disadvantaged background, which emphasized the availability of government funding opportunities that can actually make more selective universities cheaper for students from low-income families than less selective universities. This letter significantly increased application rates to highly selective universities, compared to a group of students that received standard information about financial aid. Apparently, the letter encouraged students to have higher aspirations knowing that someone like them was able to enroll in a prestigious university, demonstrating the power of availability heuristics, discussed earlier in the chapter.

Insights from behavioral economics are also being increasingly applied to issues in developing countries. In 2015 the World Bank devoted its annual World Development Report to the topic of behavioral economics, stating that:

> In recent decades, research on decision making has cast doubt on the extent to which people make choices in [rational] ways. Novel policies based on a more accurate understanding of how people actually think and behave have shown great promise, especially for addressing some of the most difficult development challenges, such as increasing productivity, breaking the cycle of poverty from one generation to the next, and acting on climate change.[31]

Nudges appear to be even more important in developing countries because research shows that poverty imposes a "cognitive tax" on people, meaning that poverty induces stresses which hamper good decision making. For example, one study found that when farmers in India were under financial stress their cognitive scores, using IQ tests, significantly declined. And while people of all income levels tend to suffer from present bias, this problem is even more severe among poor people, who often must direct all their physical and mental resources toward present needs.

Numerous creative experiments have shown how behavioral economics can be used to design policies that address development challenges. In one study, researchers looked at ways to increase savings rates among construction workers in India who are paid weekly in cash handed to them in an envelope. Some workers were instead paid with the same total amount of cash but in two separate envelopes, with one marked as "savings." In principle, nothing prevented the workers from taking the

money out of the two envelopes and disregarding the implication that a specific amount of their income should be set aside as savings. However, the results showed that the savings envelope increased savings by 39–216 percent! This illustrates the effect of anchoring—the workers were given a powerful suggestion about what their appropriate savings should be. The authors also believed that taking money out of the savings envelope and spending it made the workers feel guilty, as if they were somehow cheating by spending money marked for savings.[32]

Lessons from behavioral economics are increasingly applied to environmental issues. Government officials in Bogotá, Colombia initially responded to a water shortage by sending residents information about the crisis and asking them to reduce their usage. Not only was the appeal ineffective; water consumption actually *increased* as many people began stockpiling water. The government then changed to a more effective strategy, trying to make water conservation a new social norm. They distributed free stickers with water conservation messages, to be placed on faucets at offices and schools. Households with exceptional water savings were presented with small awards and praised in the local media. The city's mayor even appeared in a TV ad taking a shower with his wife, promoting the benefits of turning off the water while soaping and taking showers in pairs! For another application of behavioral economics to conservation, see Box 7.4.

BOX 7.4 SOCIAL COMPARISONS AND ELECTRICITY USE

A traditional approach to reducing residential electricity consumption is to raise rates. The effectiveness of a rate increase depends on the elasticity of demand. A 2017 study found that the demand for electricity in the United States is highly inelastic in the short-term (within one year), with an elasticity of -0.1.[33] Thus, a 20 percent increase in electricity rates would induce only a 2 percent reduction in electricity demand. In addition to not being particularly effective, customers obviously object to higher utility rates.

An alternative to raising electricity rates is to use social comparisons to encourage energy conservation. Some utilities distribute home energy reports to their customers which compare a household's electricity consumption compared to their neighbors. Each household receives an overall rating, such as "Great," "Good," or "Below Average." Numerous studies have shown that these social comparisons can be just as effective in motivating energy conservation as relatively large rate increases. For example, a 2021 paper found that social comparisons in Sweden reduced electricity consumption by an average of 7 percent.[34] While home energy reports are typically delivered by mail, a 2019 study analyzed the effectiveness of electronic delivery instead. Based on data from 9,000 households in the United States, the paper found that social comparisons delivered electronically reduced electricity demand by an average of 3 percent−a result comparable to mail delivery. The authors conclude that electronic home energy reports "are as effective as physical reports in reducing electricity consumption and are more cost effective."[35]

4.3 CONCLUDING THOUGHTS

Some economists have viewed the developments in behavioral economics and related disciplines to be revolutionary, as something competing with neoclassical economics

for dominance in the field. But economist Richard Thaler presents a different perspective:

> I think it is time to stop thinking about behavioral economics as some kind of revolution. Rather, behavioral economics should be considered simply a return to the kind of open-minded, intuitively motivated discipline that was invented by Adam Smith and augmented by increasingly powerful statistical tools and datasets.[36]

Thaler suggests that economics is moving toward being a more "evidence-based," rather than theoretical, discipline. He states that "behavioral economics is simply one part of the growing importance of empirical work in economics." As discussed in Chapter 0, good data and good analysis are essential for being informed about issues and making good policy recommendations. As economists and policymakers continue to embrace the lessons from behavioral economics, the potential for economics to enhance people's well-being through effective policies will also increase.

Discussion Questions

1 Do you think "satisficing" should be considered rational behavior? What about "meliorating"? For example, recall the example of the fisherman who compares each fish that he catches to the one in the boat, keeping the larger one and throwing the others back into the water. What might be wrong with an attempt to perform the same exercise with choosing friends, instead of fish? What about selecting a spouse in this manner?

2 What do you think about libertarian paternalism as a way to guide policies? Do you think there are any problems with this approach?

REVIEW QUESTIONS

1. Did Adam Smith think that people were always self-interested?
2. What is the neoclassical model?
3. What are the policy implications of the neoclassical model?
4. What is behavioral economics?
5. What is the availability heuristic?
6. How can "framing" affect decision making?
7. Why is the default choice in a decision so important?
8. What is the anchoring effect?
9. What is the difference between a high and low time discount rate?
10. Does the evidence suggest that people should always make economic decisions without relying upon their emotions?
11. Does behavioral economics suggest that people's decisions can be significantly influenced by outside factors?
12. Does the scientific evidence indicate that people act only out of self-interest?
13. What does the evidence indicate about the relationship between selfishness and happiness?
14. What are some of the insights from neuroeconomics?
15. What is satisficing?
16. What is meliorating?
17. Explain the concept of bounded rationality.

18. Summarize the model of economic behavior in contextual economics.
19. What is loss aversion?
20. What are the policy implications of behavioral economics?
21. What is libertarian paternalism?
22. What are some policy examples of "nudges"?

EXERCISES

1. Which of the following is consistent with the view of human behavior as purely self-interested? Which may indicate broader motivations?
    a. Michael sells his car on eBay.
    b. Jane joins a community clean-up group.
    c. Ramon studies to become a doctor.
    d. Joe buys a birthday present for his daughter.
    e. Susan buys a new pair of shoes for herself.

2. Consider the process of applying to college and choosing a college to attend if admitted. Would you say that this process involves:
    a. Maximizing behavior
    b. Satisficing behavior
    c. Meliorating behavior
    d. Bounded rationality

    Could it involve a combination of them? Could this differ from person to person?

3. How does time discounting affect your own decision making? Do you do things today with a view toward future benefits, or do you look mainly for short-term satisfaction? Does your time discount rate differ in different areas of your life?

4. Consider a rational, profit-maximizing business firm. What motivations might the firm have that are not directly related to making a profit? For example, what if the firm made a donation to a community organization or voluntarily cleaned up pollution resulting from its production process? Why might it do this? How about if it offered employees a good healthcare plan or subsidized day care? Are these actions all ultimately directed at making more profit, or could there be something else involved?

5. Match each concept in Column A with an example in Column B.

Column A	Column B
a. Self-interest	1. Finding a restaurant that is close by and has food that is “good enough”
b. Altruism	2. Carefully examining all available automobile models to select the one that is best for you
c. Satisficing	3. Seeking the highest-paying job possible
d. Availability heuristic	4. Looking for a job that’s better than your current job
e. Meliorating	5. Volunteering at a homeless shelter
f. Utility-maximizing	6. Choosing a college because your older brother or sister went there and really recommends it
g. Optimizing	**7.** How households act in the neoclassical model

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NOTES

[1] Much of the material in this section draws upon Schwartz, 2005.
[2] Madrian and Shea, 2001.
[3] Johnson and Goldstein, 2003.
[4] Tversky and Kahneman, 1981,
[5] Example from Ariely, 2010.
[6] Lee, 2013.
[7] Story *et al*., 2016.
[8] Wu *et al*., 2016.
[9] Dijksterhuis *et al*., 2006, p. 1005.
[10] Example from Lehrer, 2009.
[11] Ibid, pp. 142-143.
[12] Owrid, 2014,
[13] Rainie *et al*., 2019.
[14] Konnikova, 2017.
[15] Güth and Kocher, 2014.
[16] Cochard *et al*., 2021.
[17] Smith, 2020.
[18] Lane, 2017.
[19] Stanca, 2011.
[20] Kable, 2012.
[21] Serra, 2021.
[22] Ibid.

[23] Solnais et al2013.
[24] Brzezicka and Wisniewski, 2013; Laibson and List, 2015.
[25] Ariely, 2010.
[26] Ibid, pp. 317, 321.
[27] Thaler and Sunstein, 2008.
[28] http://www.behaviouralinsights.co.uk/about-us/.
[29] Neatu, 2015.
[30] Sanders *et al*., 2017.
[31] World Bank, 2015.
[32] Madrian, 2014.
[33] Burke and Abayasekara, 2017.
[34] Kažukauskas *et al*., 2021.
[35] Henry *et al*., 2019.
[36] Thaler, 2016, p. 1597.