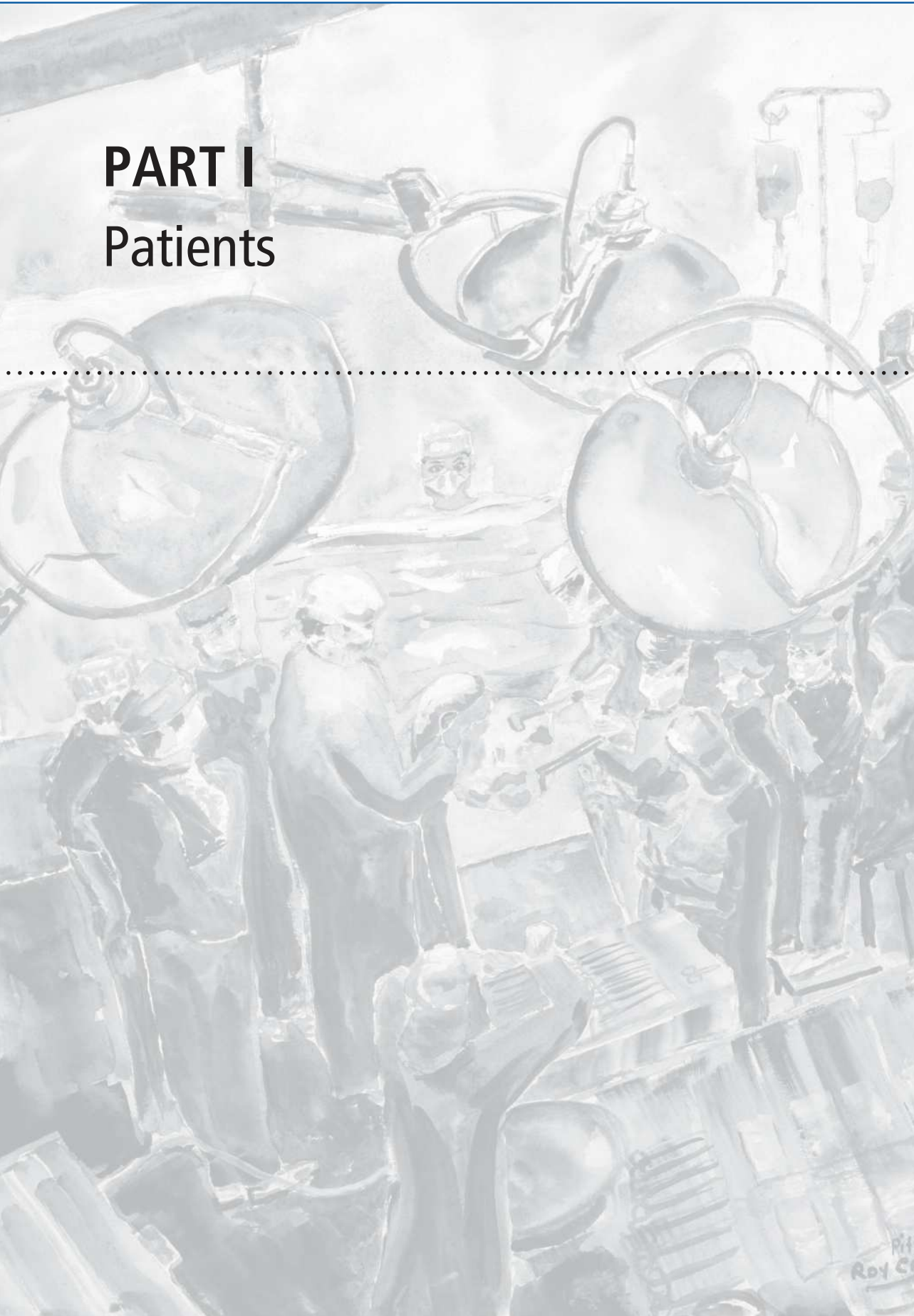


PART I

Patients



1

How Economists View Human Behavior

One feature shared by the actors within the healthcare sector is that they are humans or entities run by humans. If you are human, you have likely wanted medical care at some point in your life. If you are human, you have likely wanted other things too, like food, or companionship, or really cool pants.¹

Humans exist in a world where they have things that they want and limited resources to spend to get them. At the center of economics is the idea that humans will look at the resources that they have, and the things that they want, and will do their best to use those resources to acquire the mix of things that they believe will make them the happiest.

So, the economist's point of view is that each time you make a decision, you are answering the question “given my resources what is the choice that will make me the best off?”² A person's answer to this question will depend on three factors:

1. the person's preferences over possible goods and activities,
2. the costs of the goods and activities, and
3. the resources that the person has to spend.

Doing your best given these factors is called *optimization*, and following the *optimal* (i.e. best possible) decision given the information that you have is called behaving *rationally*.

Things Humans Want

Humans value a great many things: tacos, naps, watching sunsets, socks, and the list goes on. Every person places different values on things, whereas I love tacos and naps, you may also love naps but only be lukewarm on

¹ To be fair, if you are a dog then you also have wants, like food, or companionship, or a really cool ball. Also, kudos on being able to read.

² Given mathematical representations of preferences, prices, and resources (i.e. your budget) this question is mathematically solvable, which is a subject covered in most microeconomics textbooks. This is the basis for the branch of economics known as “consumer theory,” the study of consumer choices.

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tacos. Each person will have their own set of *preferences*, or list of which things they like more than others.

While it may not be feasible to write down every single preference you have in every situation that may arise, economists generally believe that these preferences exist somewhere within your psyche. They use a concept called *utility* to create some general rules about preferences and how people behave. Utility is the abstract happiness or satisfaction that you derive from something that you value. The more you value the object or activity, the more utility you get. So, given any two options that cost the same, a person will pick the option that gives the most utility.³

For the purposes of understanding how people behave with regards to health and medical care, we can identify a few categories of things that people value. The first is your health. People value their health and, given the same amount of everything else, would prefer to be healthier. Would you rather have (A) some ice cream, or (B) some ice cream and the flu? The answer is clearly A. Given the simple choice between being more healthy and being less healthy (with no other strings attached to the decision), people will pick to be more healthy.

Humans also value a wide array of goods and activities. Let's put them into three groups:

1. goods and activities that have no bearing on your health,
2. goods and activities that are good for your health, and
3. goods and activities that are bad for your health.

The amount of utility that a person gets from the first group is based on how much happiness a person gets from that good or activity. If I like black T-shirts, then the more black T-shirts that I have, the happier I am. There is no tradeoff between the number of black T-shirts and my health.

The latter two groups are a little more complicated, because humans get direct utility (or happiness) from the good or activity itself, but also indirect utility from the good or activity's impact on their health. The overall satisfaction that an individual gets will then be the combination of the direct and indirect components.

An example of a good or activity that is good for your health is kale. Kale gives little in the way of direct utility, but because it has a positive effect on health, which people value greatly, it has become a somewhat popular vegetable. An example of a good or activity that is bad for your health is chocolate cake. Chocolate cake gives a lot in the way of direct

³ Utility is expressed in units called *utils* which are completely arbitrary and do not mean anything beyond "more of these are preferred to fewer of these."

utility, but because it has a negative effect on health, which people value greatly, it is eaten sparingly.

Decisions will depend on how much direct satisfaction a good or activity gives, as well as any health ramifications, and the costs of the goods or activities. It is important to underscore that individuals care about *all* of these things. A person may rationally choose to smoke marijuana, eat a lot of chocolate cake, or engage in unprotected sex with many different partners. All of these activities are risky from a health perspective but may also provide a great deal of direct satisfaction.⁴

Costs

This brings us to one of the most obnoxious, but also true, economist sayings, “there is no such thing as a free lunch.” Everything humans want costs something. The most commonly discussed cost is money, and keeping track of money costs is what accountants do, which is why the money cost of something is often called the *accounting cost*. But there are lots of other costs that may apply as well, such as costs to your time, your mental well-being, or your social standing. These costs need not be concrete in the sense that you give up something tangible, they just need to be felt enough to influence your behavior. If you count up all of the costs that could influence the behavior of a human then you have what economists call *economic cost*.⁵

Accounting Costs

Accounting costs are important for keeping track of finances, but do not always influence your decision-making. The difference has to do with timing relative to the time the decision is made: are you thinking about money that you have yet to spend, or money that has already left your pocket?

Sunk Cost

Money that you have already spent at the time you are making a decision is a type of accounting cost called a *sunk cost*. Economists do not consider

⁴ This is not to say that everyone gains direct utility from these activities, just that some people do.

⁵ Accounting costs and economic costs are both important, but in different ways. Accounting costs are vital for keeping track of finances and accurate budgeting. Economic costs on the other hand are costs that are relevant to choices.

these costs to be part of your decision-making, and do not count them as economic costs. If you go to buy ice cream, then it only matters how much money you have to spend at that time: having \$100 available to spend and having spent \$20 the week before is the same as having \$100 available to spend and having spent \$1,000 the week before. The money spent the week before is *sunk*, and is no longer recoverable, as such it has no influence on your ability to buy things at that moment.

This is important when thinking about how health insurance will influence how a human decides how much medical care to purchase. The price of the health insurance plan itself (the *premium*), is a sunk cost by the time that person decides how much care to get. When you ask yourself, “should I go to the emergency room?” you likely consider how much the emergency room is going to cost you as a direct result of your visit, but do not likely consider how much you already spent to buy your health insurance plan that year. The health insurance premium is sunk, and while the money spent on the premium is important for accounting, that expenditure is not important for the decision-making process in the moment.

Cash Out-of-Pocket

An accounting cost that does matter for the decision-making process is any cash spent out of your own pocket due to your decision. To go back to the example of “should I go to the emergency room?” the price of the emergency room visit is extremely important to decision-making. The details of your health insurance plan, such as whether you have to pay \$50 or \$250 out-of-pocket, has a large bearing on whether or not you ultimately decide to go to the emergency room. Cash spent out-of-pocket is both an accounting cost and an economic cost.

Economic Costs

There are several types of costs that influence your decision-making but that do not require money to change hands. These costs would not show up on an accounting balance sheet but are relevant to human behavior.

Time Cost

The time you spend on an activity carries a time cost, sometimes referred to as a waiting cost. An easy example is to think about choosing a food truck from among several available. One thing that will help you decide which

one to buy from is how long the lines are. The food is going to cost you both money and time spent waiting.⁶

Time costs can be a barrier to obtaining medical care, and can pop up at several points in the process of obtaining care. There can be time costs when trying to schedule an appointment (e.g. waiting on hold if you call to schedule your appointment), time spent traveling to the appointment, and time spent physically waiting in a waiting room or examination room.

Travel Cost

If you do not have a car (or a friend or family member with a car who will help you) and need get across a city to get to a medical appointment, then the travel cost of obtaining medical care might be quite large, and may prevent you from getting care at all. Travel costs include time spent traveling (which is a time cost), but also include things like bus fares, tolls, gas, or other expenses related to traveling. Note that any cash spent on travel could rightfully be considered an accounting cost as well.

Travel costs become particularly important when thinking about policies for getting care to disadvantaged populations who may have limited travel options: policies that push down the out-of-pocket price of care but that do not help with transportation may not be as effective. Free care is attractive to those with little income, but is irrelevant if they are incapable of getting to the location where the care is being delivered.

Discomfort

Physical or emotional discomfort is another cost that can influence decision-making. Many people avoid going to the dentist because of the cost of discomfort. Think right now about having your teeth scraped by the dental hygienist. Chances are you just physically cringed, I did writing this.⁷ Desire to avoid physical discomfort can prevent individuals from seeking care, such as those who avoid the dentist because they do not like getting their teeth scraped.

Physical discomfort is not the only form of discomfort cost that can influence decisions: fear and anxiety are also discomfort costs. I dislike roller coasters. This is not because I dislike riding them, once I get on, I usually have a good time. But I often have anxiety about the roller coaster

⁶ Economists often roughly approximate a cash value to the cost of time spent waiting using a person's wage. The idea is that the wage is how much money you could have been making if you weren't stuck waiting. So, if your wage is \$15 an hour, and you were waiting 30 minutes, that wait cost you approximately \$7.50 worth of time.

⁷ Some of you might have instead thought, "getting my teeth scraped, now that's what I'm talking about!" and smiled. This book is not here to judge you.

while waiting in line to get on the ride. I usually decide that the discomfort I experience during the wait is not worth it. Fear and discomfort can keep people from seeking medical care as well. Many individuals will avoid therapy for traumatic experiences due to a desire to avoid the discomfort associated with reliving those experiences.

Social Status

Some behaviors carry costs that are felt within one's social group. For example, certain religious communities do not allow for some forms of medical treatment, so, for a member of that community, utilizing a forbidden type of medical care can carry with it the additional cost of paying a social penalty in terms of lost status within the community.

These social costs need not be extreme to be effective at changing behavior. As a society, we use social norms to impose the social cost of being labeled as "gross" to make many types of disease-spreading behavior costly. Behaviors such as spitting, picking your nose, or using your hands to serve yourself at a buffet are considered to be gross, and individuals avoid these behaviors in order to avoid the cost of being labeled as a gross person.

Social status costs can also come from breaking social norms within your immediate social group as individuals do not want to deal with the judgment of others for non-conformity. This is sometimes referred to as "peer pressure." A new mother, for example, may find it to be more costly to choose to formula feed if all of the mothers in her social group breast feed (or vice versa).

Opportunity Cost

Opportunity cost is the cost of giving up your next best option. One way to think of opportunity cost is as a quantification of fear of missing out (sometimes called "FOMO"). If you choose to stay home and study on a night that your friends are going out together you incur a larger opportunity cost of studying than on a night where none of your friends have any social activities planned. Every activity has an opportunity cost. You can only be in one place doing one activity at any one time. So, the other options that are available at a given time will dictate an activity's opportunity cost.

Opportunity cost is the reason why it is more difficult to decide what to order at a restaurant with many enticing menu options. If the menu has only one appealing option and everything else on the menu is essentially fried tree bark then the opportunity cost of that single appealing option is low and the decision is easy to make. When a menu has many enticing options then the decision becomes much more difficult, that is because

choosing any item means that you do not choose to order the next most delicious looking thing and incur a larger opportunity cost.⁸

Optimizing

With the above concepts, we can now understand the economist's view of human behavior. Given a choice, a person will look at the options presented to them, and choose the option that they like the most subject to the resources that they have available and the cost of those choices. A human will try to do the thing that they believe will make them the best off.

This is not to say that choices are always easy. There are complications to deciding that can arise and make it difficult to be completely sure what the best option is. It is also possible that what an individual believes to be their best option at the time of a decision may not in truth actually be a very good choice.

Perception and Choice

The value that a person places on goods and activities, as well as the costs that person assigns to choices, are based on that individual's perceptions. A decision-maker need not be correct in their perception for that perception to influence their behavior, they need only believe it to be true. If I believe that a medicine will taste bad (even if it in truth tastes fantastic), my incorrect belief about the taste will still have some influence on my decision. This means that incorrect information (or worse, active disinformation) about the benefits or costs of a given choice can greatly alter individual decisions.

Misinformation

Problems can arise when individuals are misinformed about the benefits or costs of medical treatment. A classic example of this problem is incorrect beliefs surrounding the costs of vaccines. In 1998, the *Lancet* published a study linking the Measles, Mumps and Rubella (MMR) vaccine to among other things, childhood autism (Wakefield et al. 1998). This study was later shown to be fraudulent and was retracted (Godlee et al. 2011). However,

⁸ You may then ask, "why not order both?" In that case you are trading off an opportunity cost for a larger cost in the form of cash out-of-pocket, and perhaps an additional cost to your social status for gluttony. You would also incur the opportunity cost of not ordering the next best item on the menu. There is still no free lunch, and even more so at a restaurant.

the false story that the MMR vaccine causes autism may have caused many people to worry about vaccines carrying additional costs in the form of health risks, lowering vaccine utilization in some populations.

This cuts the other way as well. If people are convinced that a product is beneficial for their health, even if the product is not, then they may be willing to purchase said product. False advertising of medicine was a huge problem in the United States prior to the 1912 Sherley Amendment to the Pure Food and Drugs Act, which prohibited false and misleading claims about medicines. Prior to this amendment, false advertising of inert (or sometimes dangerous) medicines was common, and profitable (Parascandola 1999). For example, a best-selling treatment for tuberculosis prior to the Sherley Amendment was “Radam’s Microbe Killer,” a purported medicine that was 99 percent water with trace amounts of acid and red wine (Hemmingson et al. 2015).⁹

Uncertainty and Risk

Perception of costs and benefits is also important when dealing with decisions around uncertain outcomes. If the cost or the outcome of an activity (such as a surgery) is uncertain, then individuals will make their decisions based on their best guess of what the outcome will be.¹⁰

That said, humans tend to dislike risk, a trait economists refer to as *risk aversion* or being *risk averse*. Risk aversion means that when given two options, one that on average gives you some money (say \$100), but sometimes gives less and sometimes gives more, and another option that gives you the \$100 for certain, the risk averse person will prefer the certain option. People are not risk averse in all situations: under some circumstances such as gambling, uncertainty is considered fun. In other situations, such as uncertainty around whether or not you will develop a life-threatening illness, uncertainty is rarely desired.

The Future

The future is by definition uncertain. When individuals make decisions that impact their future, they also make their best guess as to outcomes. If you are trying to decide whether to go to school to become a doctor or

⁹ False claims of efficacy in medicine still exist, but are more aggressively pushed back against in the United States. In 2020, televangelist Jim Bakker sold a colloidal silver solution as a cure for COVID-19 (it is not a cure for COVID-19) on his television program. He was promptly sued by the State of Missouri (Schwartz 2020).

¹⁰ The mathematical concept commonly used for this best guess is “expected value,” which can be calculated when the possible outcomes and their probabilities are known. This concept is important for understanding insurance and will be discussed in greater detail in Chapter 10.

to become a lawyer, you make you best guess as to which of these future career paths will make you better off and choose that one.

The future has an additional property of not being right now. Humans dislike waiting for things and place less value on something the longer that they have to wait for it. Economists call this *discounting*, and the *discount rate* (or rate of time preference) is the rate at which something loses value the longer you have to wait for it. So if you have a larger discount rate, then that means you are more impatient. This is a useful concept when thinking about policies aimed at avoiding health costs in the future: if smokers on have high discount rates, then an anti-smoking campaign that highlights benefits to quitting in the future, such as lowered risk for future illness, may be less effective at its goal than an anti-smoking campaign aimed at highlighting more immediate benefits to quitting such as that smokers tend to get paid less (Hotchkiss and Pitts 2013; Darden et al. 2021).

Making decisions about the future can be tricky. You may have to compare one value right now with another value that is off in the future. You could get a job now and get a going market wage, or you could go to medical school and lose money now (go into debt), but get a much higher wage later. To do this comparison, economists use the concept of *present value*, which scales a value obtained in the future to what it is worth to you right now using your discount rate.¹¹ The rational decision about the future is made by comparing the present values of different possibilities and picking the one that is the most valuable.

Self-Assessment

1. Consider the statement “Smoking is bad for your health, therefore nobody should ever smoke.” What is correct about this statement? What is incorrect? Write a more accurate statement.
2. Would the money that you spent on a gym membership last year influence your decision whether or not to purchase a gym membership next year? Why or why not?
3. Give an example of a situation where out-of-pocket cost does not limit who has access to medical care, but ...
(a) time cost is a limiting factor that prevents some people from accessing care.

¹¹ The present value of a cup of coffee a year from now is what the guarantee of a cup of coffee in one year is worth to you right now. It is not the value of giving you that coffee right now. The mathematics of present value calculations are covered in most economics textbooks.