PART 1

An expanded understanding of human behavior for economic development: A conceptual framework

Introduction

This first part of this Report presents a framework for understanding and using recent findings on human decision making. The three chapters in part 1 develop the three elements of the framework:

1. *Thinking automatically.* Much of our thinking is automatic, not deliberative. It is based on what effortlessly comes to mind. In contrast to standard assumptions that we perform complex calculations and consider all possible routes of action, humans reach for simple solutions and use mental shortcuts much of the time. Thus minor situational changes can have a large impact on behavior and, ultimately, on the achievement of development goals. Simplifying the choice environment can help people make choices and enact behaviors that benefit them.

2. *Thinking socially.* Humans are not autonomous thinkers or decision makers but deeply social animals. We have innate preferences for altruism, cooperation, and reciprocity, and we are strongly affected by the social norms and networks in our communities. We often want to meet others' expectations of us, and we act on the basis of shared identities. Recognizing the importance of social preferences and norms in decision making can help policy makers improve program efficacy and develop new tools for achieving development objectives.

3. *Thinking with mental models.* Individuals do not respond to objective experience but to mental representations of experience constructed from culturally available mental models. People have access to multiple and often conflicting mental models, and which one they invoke to make a choice depends on the context. Human decision making, therefore, is powerfully shaped by both contextual cues and the past experiences of individuals and societies. Showing people new ways of thinking can expand the set of mental models they draw on and their capacity to aspire and can thus increase social welfare.

These three elements of the framework are of first-order importance for development policy, poverty alleviation, and the policy design process itself. These elements have two important implications:

- "Economic man" is a fiction, not a reality. Policies that assume that rational decision making will always prevail can go astray in many contexts and may miss opportunities for low-cost, high-efficacy interventions. Updating the standard assumptions about human decision making is essential to pushing forward the frontier of development policy making.

- The interplay of institutions and individuals is more complex than is often recognized; yet the potential for temporary interventions and changes in institutions to alter long-standing patterns is greater than has been recognized.

CHAPTER 1

Thinking automatically

Two systems of thinking

To make a judgment or decision, individuals simplify the problem. They construct a representation in their heads and then reach a judgment or decision based on that simplification. There is a broad consensus in psychology that to do this, people use two systems of thinking. Sometimes, they think in a way that is deliberative, reflective, and effortful—as when solving a difficult math problem or in trying to overcome an impulse in acts of self-control. This type of thinking is hard. It is cognitively taxing and can be exhausting. Our capacity to engage in it is limited. It is difficult to spend even a few minutes focusing attention in a concentrated manner. This Report refers to this way of thinking as thinking deliberatively (the *deliberative system*).

We normally think of ourselves in terms of the deliberative system—the conscious reasoning self—yet automatic operations generate complex patterns of ideas that influence nearly all our judgments and decisions.

Most of the time, we use another mode of thinking, with relatively little interference from the deliberative system. When we detect anger in the image of a face or make sense of speech in a fraction of a second, our minds are operating in automatic mode. This mode of thinking is effortless, fast, and largely outside voluntary control. The mental reserves for this kind of cognitive activity are vast. This Report refers to this mode as thinking automatically (the *automatic system*). The two systems are also called System 1 (automatic system) and System 2 (deliberative system) (Stanovich and West 2000; Kahneman 2003) (see table 1.1).

The psychologists Daniel Kahneman and Amos Tversky established that people tend to rely on the automatic system to make decisions. People evaluate alternatives quickly, based on what automatically comes to mind.[1] People rarely, if ever, consider all alternatives. Although often perfectly capable of more careful analysis, people are hard wired to use just a small part of the relevant information to reach conclusions. By observing mental processes under controlled experimental conditions, Kahneman and Tversky developed a new understanding of human action that helped lay the foundation for the field of *behavioral economics*—a subfield of economics that draws on the psychological, social, and cultural foundations of human decision making.

Their work dispelled a central cognitive illusion. We normally think of ourselves in terms of the deliberative system—the conscious reasoning self—yet, in fact, the automatic operations of thinking generate complex patterns of ideas that influence nearly all our judgments and decisions. In a recent book, Kahneman (2011) compares the deliberative system to a supporting character in a play who believes herself to be the hero.

The automatic and deliberative systems interact. The automatic system effortlessly generates impressions and feelings that are the main sources of the explicit beliefs and reflective choices of the deliberative system. In routine situations, we use the automatic system without much oversight from the deliberative

system, unless the deliberative system is provoked to check it.

To see how lightly the deliberative system regulates the automatic system, consider this problem: a bat and ball cost $1.10. The bat costs $1.00 more than the ball. How much does the ball cost? Most people answer "10 cents," since $1.10 can be easily broken into a sum $1 and 10 cents. The automatic system provides a plausible response, based on what comes quickly to mind, before the deliberative system has time to intervene and regulate our judgment. The correct answer is 5 cents (since $0.05 + $1.05 = $1.10).[2]

When individuals are under cognitive strain, it is even more difficult to activate the deliberative system. Poverty, time pressure, and financial stress all can cause cognitive strain (see chapter 4). Sugar cane farmers in India offer an example of how financial distress can deplete mental resources. The farmers typically receive their income once a year, at the time of harvest. Just before the harvest, 99 percent of the farmers have incurred loans. Just after the harvest, they have received most of the earnings for the season and only 13 percent of farmers are indebted. Their financial distress before the harvest takes a measurable toll on their cognitive resources. Before receiving their harvest income, farmers perform worse on a series of cognitive tests than when they take the same tests after receiving their earnings, a gap that cannot be explained by differences before and after harvest in nutrition, physical exhaustion, biological stress, or learning. The difference in scores is roughly equivalent to three-quarters of the cognitive deficit associated with losing an entire night's sleep (Mani and others 2013).

The idea that people have two systems of thinking is not new and has been anticipated in the work of many psychologists and philosophers over the centuries (Frankish and Evans 2009). However, research over the past four decades has vastly expanded our understanding of the implications for development and, more broadly, for economic policy. One central implication is the power of *framing*. The term *frame* applies to descriptions of decision problems at two levels (Kahneman and Tversky 2000, xiv):

- *Description and presentation.* The formulation to which decision makers are exposed is called a frame. A frame in this sense is the way choices are described and presented.
- *"Mental editing" and interpretation.* A frame is also the interpretation that decision makers construct for themselves, based on the way they mentally edit and interpret the information they receive. When situations are complex or ambiguous or entail missing information, default assumptions and other "mental models" that individuals bring to a problem influence what they pay attention to and how they interpret what they perceive. Framing in this sense is a part of decision making.

The first meaning of framing concerns what is done to the decision maker: for example, putting in bold letters that a payday loan costs $15 for two weeks and leaving to the small print the fact that the annual interest rate is 400 percent. The second meaning of framing concerns what the decision maker does.

Figure 1.1 depicts an individual looking through a window frame. The frame provides only a very narrow view of an urban scene that leads the viewer to imagine it as a park. The figure captures a central feature of automatic thinking: what our attention is drawn to and what we focus on are not always the things most needed for good decision making.

Development practitioners are increasingly using the idea of dual-system thinking to address problems of poverty and development, as this *World Development Report* will discuss. Since people may be powerfully influenced by the way that options are described, simple changes in descriptions of options can sometimes change behavior. Policies that make it easier to reach the right decisions can sometimes boost welfare substantially and at low cost. This is especially important for individuals living in poverty, as chapter 4 will show. If policy can change which frame people use for a decision, it can in some cases change the decisions they make.

A second broad policy implication of our reliance on automatic thinking is the limited power of merely providing information. *Confirmation bias* is the tendency to automatically interpret information in ways that support prior beliefs (Dawson, Gilovich, and Regan 2002). Confirmation bias gives rise to biased

Table 1.1 People have two systems of thinking

Individuals have two systems of thinking—the automatic system and the deliberative system. The automatic system influences nearly all our judgments and decisions.

Automatic system	Deliberative system
Considers what automatically comes to mind (*narrow frame*)	Considers a broad set of relevant factors (*wide frame*)
Effortless	Effortful
Associative	Based on reasoning
Intuitive	Reflective

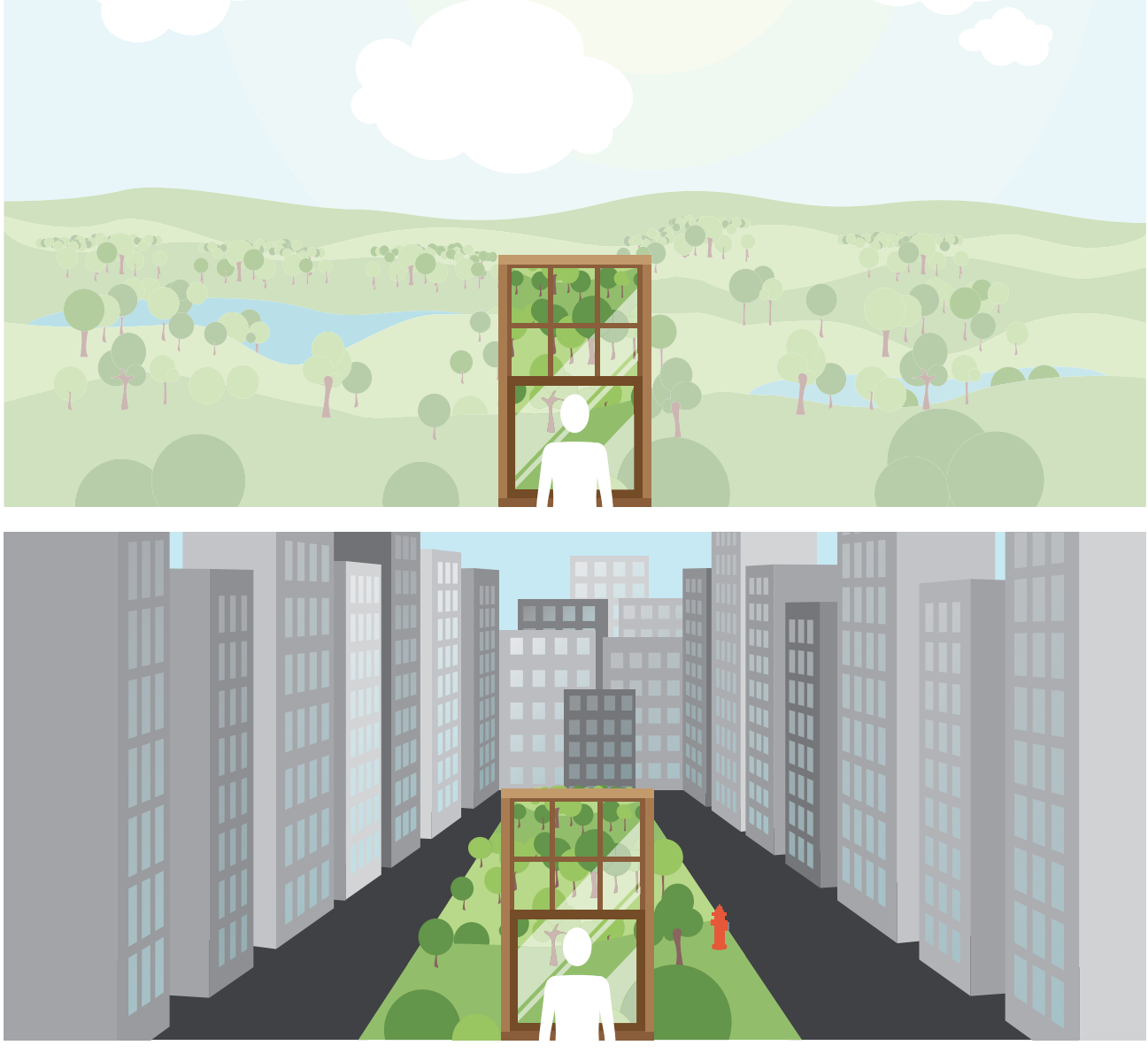
Sources: Kahneman 2003; Evans 2008.

information search, as well. As novelist Jane Austen once wrote, "We each begin probably with a little bias and upon that bias build every circumstance in favor of it."[3] Confirmation bias contributes to overconfidence in personal beliefs. People may fail to recognize that they do not know what they claim to know, and they may fail to learn from new information (see chapter 10 for a discussion of how these biases affect development professionals and a survey experiment that explores possible confirmation bias among World Bank staff). Persuasion and education must engage with the automatic system to overcome resistance to new points of view (see spotlight 2 on entertainment education). This is old news to political consultants and advertisers, and policy makers have also surely discovered it from their own experience.

This chapter offers a synthesis of the scientific evidence on the power of the automatic system to produce systematic behavioral biases. Thirty years ago, people might reasonably have viewed the findings of

Figure 1.1 Framing affects what we pay attention to and how we interpret it

To make most decisions and judgments, we use narrow framing and draw on default assumptions and associations, which can give us a misleading picture of the situation. Even seemingly irrelevant details of how a situation is presented can affect our perceptions, since we tend to jump to conclusions based on limited information.



behavioral economics as a few anomalies. "Sometimes, some people are loss averse," the narrative might have gone, "but I don't behave like that. And it certainly would be naïve to design policy based on this assumption." But over the past few decades, evidence has mounted that automatic thinking cuts across wide swathes of human behavior to the point that it can no longer be ignored. The anomalies that behavioral economics is trying to explain are not minor and scattered. They are systematic regularities that can be of first-order importance for health, child development, productivity, resource allocation, and the process of policy design itself.

The analytical foundations of public policy have traditionally come from standard economic theory. In standard economic theory, an important behavioral assumption is that people use information in an unbiased way and perform careful calculations. The calculations allow them to make choices based on an unbiased consideration of all possible outcomes of alternative choices that might be made. After people make a choice and observe the outcome, they use the information in an unbiased way to make the next decision, and so on. Figure 1.2, panel a, represents this idealized process.

But confronted with the mounting empirical evidence on large and costly errors that people often make in critical choices—such as poor financial decisions and the failure to adhere to health regimens, take health precautions, and adopt income-increasing techniques after receiving new information—economists have come to recognize the importance of considering the possible impacts on behavior of our dual system of thinking, automatic and deliberative, in the design and testing of policy. As shown in figure 1.2, panel b, a more behavioral model of decision making entails several departures from the standard economic model, of which two are among the most relevant for policy making:

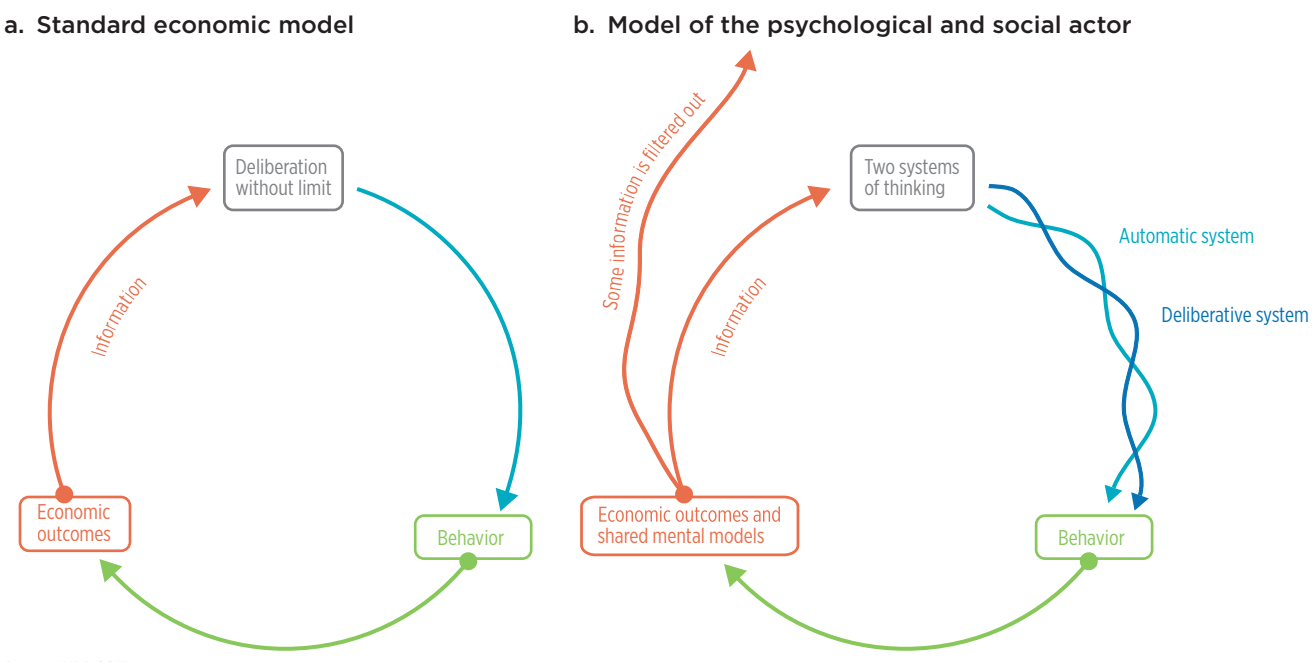
- People may process only the information that is most *salient* to them, which may lead them to miss key information and overlook critical consequences.
- There may be a mismatch between intentions and actions (the *intention-action divide*). Even if people understand the full consequences of their actions, they may make decisions that favor the present at the expense of the future, so that they consistently fail to carry out plans that match their goals and fulfill their interests.

Biases in assessing information

The world is awash with information, most of which is irrelevant to any particular decision. When deciding what to eat for lunch, we must consider how much

Figure 1.2 A more behavioral model of decision making expands the standard economic model

In the standard economic model (panel a), decision makers use information in an unbiased way and deliberate carefully about all choices and possible consequences. In a more behavioral model (panel b), decision makers may overlook some relevant information because they think automatically as well as deliberatively.



Source: WDR 2015 team.

money we have. There are, however, a myriad of things we are unlikely to find useful to consider, such as the color of our shirt. When people think about what to get for lunch, they do not first consider the color of their shirt and then decide it is irrelevant. Shirt color never enters their deliberative system because their automatic system has already decided that it is not important. And so the individual uses no cognitive energy to think about it.

The automatic system is relying on a framework of understanding—a frame, in short—to organize experience and distinguish between the things one needs to consider and the things one can ignore. Most frames are adaptive. People could not accomplish anything, or even survive, if they did not have some type of frame in place and use some mental shortcuts. A radically simplified set of frames and mental shortcuts can perform admirably well in many cases (Todd and Gigerenzer 2000). However, sometimes frames lead people to ignore what is necessary for optimal decision making.

Seemingly minor and low-cost policy changes may have a large impact on the achievement of development goals and the reduction of poverty.

Even if one has the tools of the deliberative system with which to assess evidence carefully and accurately, the automatic system may bias the information that the deliberative system is using.

Shirt color is not usually a relevant factor. However on occasion, it might be: for instance, a white shirt that we did not want to stain. The next sections examine the biases in judgment that result when relevant factors are overlooked. Chapters 2 and 3 will link this problem to social change, a fundamental aspect of development.

Framing

When making decisions, people may give greater weight than they should to information that has limited, if any, relevance. Consider the case of Mr. Sanders, who ran a stop sign while driving and collided with a garbage truck. He was accused of being drunk while driving and was being tried. Two groups of students were asked to judge Mr. Sanders' guilt or innocence in a mock jury. Except for the description of Mr. Sanders' behavior at a party just before the accident, the two groups were given the same testimony. One group heard the first line, below, and the other heard the second line:

> *Version 1:* On his way out the door, Sanders staggered against a serving table, knocking a bowl to the floor.

> *Version 2:* On his way out the door, Sanders staggered against a serving table, knocking a bowl of guacamole dip to the floor and splattering guacamole on the white shag carpet.

Did the two groups of students reach a different judgment? Should they have? They did, but they should not have, since the information about what was in the bowl was arguably irrelevant to Mr. Sanders' possible drunkenness.[4] But those who heard the additional detail about the guacamole were more likely to believe that he was guilty (Reyes, Thompson, and Bower 1980).

A natural interpretation is that the information about the guacamole made the incident more salient. A piece of information is *salient* when it stands out against other pieces of information. Even though students were actively thinking about whether Mr. Sanders was drunk and attempting to weigh the evidence objectively, their automatic system may have been "telling" some students that this piece of information was decisive.[5]

Given the role of salience, it will come as no surprise that the way in which facts are presented has a great influence on whether they are absorbed and how judgments are reached. What matters is not only the entire set of available information and how each piece might be logically weighed, but also the sequencing of information and the psychological salience of different types of information. The term for the ease with which mental content comes to mind is *accessibility* (Kahneman 2003). Automatic thinking is shaped by the accessibility of different features of the situation. Seemingly unimportant features of the context of decision making—how many choices one must make sense of, whether it resonates with us emotionally, whether it activates events in recent memory—can all affect accessibility and therefore judgment (and behavior).

Anchoring

An *anchor* is an aspect of the environment that has no direct relevance to a decision but that nonetheless affects judgments. Anchoring is an extreme example of automatic thinking. For example, sometimes the last thing that comes to mind has a disproportionate influence on decision making. Sometimes the anchor will be obvious and appropriate, as in the case of comparison

shopping. But sometimes the anchor will be inappropriate; the automatic system is grabbing onto anything it can to help it in its interpretation of a choice context. Even subliminal anchors can affect judgment.

Consider an experimental study of experts in the field of law. Experienced jurists participated in a study of sentencing decisions (Englich, Mussweiler, and Strack 2006). All the jurists, who were either judges or experienced lawyers, read a description of a criminal case that could end in a jail sentence of up to one year. They were asked what sentence they would hand down, given the facts of the case. Some were told that a newspaper article had speculated that the sentence would be three months, while others were told that an article had speculated that the sentence would be nine months. Those jurists given the larger anchor gave significantly longer sentences than those given the smaller anchor. In a companion study, the anchor came not from a newspaper report but from the roll of a pair of dice, rigged to come out three or nine when they were rolled in front of the jurist. Again, the high anchor produced longer sentences than the low one. This finding has been replicated in dozens of experiments.

You can confirm the importance of anchoring effects by a simple experiment. Ask people to compute, within five seconds, the product of the numbers one through eight, either as $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8$ or reversed as $8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$. Because your respondents will not have enough time to calculate the full set of products, they will have to estimate the answer. You will almost certainly find that when the sequence starts with small numbers, individuals will estimate the product to be smaller than when the sequence starts with big numbers. This experiment has been done rigorously (Montier 2007). When the sequence started with the small numbers, the median estimate was 512. When the sequence started with the large numbers, the median estimate was 2,250. (The correct answer is 40,320.) People jumped to conclusions based on a very partial view of the problem.

The power of anchors has implications for survey design and analysis. A prior question, or the inclusion of some specific candidate answers in a multiple-choice question, can influence what information an individual retrieves: this is the automatic system at work. As an illustration, consider a survey that included these two questions about personal happiness asked in two different orders (Schwartz, Strack, and Mai 1991):

A. "How happy are you with life in general?"
B. "How often do you normally go out on a date?"

When the dating question came first, the answers to the questions were highly correlated, but when it was asked second, the responses were uncorrelated. Evidently, the first question was an anchor for the response to the second question. The anchor automatically evoked thoughts that affected individuals' judgment about whether or not dating affected happiness.

To a surprising degree, the quality of decisions that an individual makes in life (like the quality of answers to subjective questions on surveys) depends on the anchors that happen to be present. Policy makers increasingly take heed of this fact. A change in context that makes one comparison (such as one number, one fact, one experience, one competitor, or one role model) particularly salient can change what people choose and whether a government program is taken up. The power of framing and anchoring is illustrated by consumers' decisions in the credit market, discussed next.

Application: Consumer decisions in credit markets

People in financial distress may resort to borrowing at extremely high interest rates. This practice has been a long-standing concern in fighting poverty. Appropriate policy remedies based on standard models would assume that choices are careful and consistent and therefore would focus on reducing the risks that the poor face (and hence the risk of financial distress) and on improving the terms on which the poor can borrow (and hence the opportunities to escape distress). But the implication of the findings from psychology and behavioral economics is that there are additional targets of policy; that is, policy makers can try to improve the quality of the decisions that people make that lead to distress or that perpetuate distress. Recent field trials among low-income populations in the United States and Mexico demonstrate the potential for very simple policies to improve financial decision making.

A field trial on payday borrowing

In many countries, some of the poorest individuals resort to payday borrowing, for which they incur extremely high interest costs. Payday loans (also called payday advances) are small, short-term, unsecured loans that anyone with a payroll record can normally obtain. Many payday borrowers have no access to alternative sources of funds—this is the last resort. For those individuals, the choice is thus not from whom to borrow, but only whether to borrow and, if so, how much. A field trial of payday borrowing in the United States tried to remedy the factors that could potentially lead people to borrow more than they would actually want

to if they assessed the full costs (Bertrand and Morse 2011). The field trial randomly divided borrowers into groups. A control group received the standard payday loan company envelope with the cash and the paperwork for their loan (figure 1.3, panel a). Another group received a cash envelope that showed, in addition, how the dollar fees accumulate when a loan is outstanding for three months, compared to the equivalent fees for borrowing the same amount on a credit card (figure 1.3, panel b). The envelopes provided some *anchoring* to help borrowers evaluate the cost of payday loans.

The experiment incorporated behavioral principles about possible cognitive biases and ways to debias consumers. Whereas the payday loan shops highlight the small dollar cost of the transaction (for example, $15 for a two-week loan of $100), individuals may be misled by the apparently low costs and fail to add up in their own minds the costs over time and thus recognize the high implicit interest rate of the loans.

The results of the field experiment suggest that borrowers were indeed biased: they were applying too narrow a decision frame. Compared to the control group, individuals who received the envelope with the "dollar anchor" were 11 percent less likely to borrow from the payday lenders in the four months that followed the intervention.

The findings illustrate the "peanuts effect": people do not consider the consequences of a small dollar transaction because they view small amounts of money as "peanuts"; as a result, they incur high costs or forgo lucrative opportunities (Prelec and Loewenstein 1991). Fruit vendors in Chennai, India, provide a particularly vivid example (Banerjee and Duflo 2011). Each day, the vendors buy fruit on credit to sell during the day. They borrow about 1,000 rupees (the equivalent of $45 in purchasing parity) each morning at the rate of almost 5 percent per day and pay back the funds with interest at the end of the day. By forgoing two cups of tea each day, they could save enough after 90 days to avoid having to borrow and would thus increase their incomes by 40 rupees a day, equivalent to about half a day's wages. But they do not do that. "The point is that these vendors are sitting under what appears to be as close to a money tree as we are likely to find anywhere," as Banerjee and Duflo (2011, 191) put it. "Why don't they shake it a bit more?" The answer is clear, in behavioral terms. Thinking as they always do (automatically) rather than deliberatively, the vendors fail to go through the exercise of adding up the small fees incurred over time to make the dollar costs salient enough to warrant consideration. This example illustrates why getting people to think more broadly about their decisions can sometimes change their behavior. If the field test on payday lending had been an actual policy change in the way information was presented, then individuals would have been exposed to the more informative envelopes every time they visited a payday store instead of just once, and the effects probably would have been even stronger. And slight alterations in the envelopes might have had larger effects. Relative to other policy alternatives—such as subsidies to loans and measures to reduce risk—the intervention has a low cost. Thus it is reasonable to consider such interventions as complements to more standard policies in the credit market to help the poor.

Simplification of loan products

Consider next the plight of consumers who have limited experience in a market in which they must choose a product. An experiment in the credit market in Mexico City sheds light on the difficulties consumers have (Giné, Martinez Cuellar, and Mazer 2014). Low-income individuals from Mexico City were invited to choose the best one-year, 10,000 peso ($800) loan product from a randomized list of loan products representative of the local credit market. Individuals could earn rewards if they identified the lowest-cost product. Only 39 percent of people could identify the lowest-cost product when presented with the actual brochures designed by the banks for their customers (figure 1.4, panel a). But a much larger fraction (68 percent) could identify the lowest-cost credit product from a user-friendly summary sheet designed by the Consumer Financial Credit Bureau of Mexico (figure 1.4, panel b).

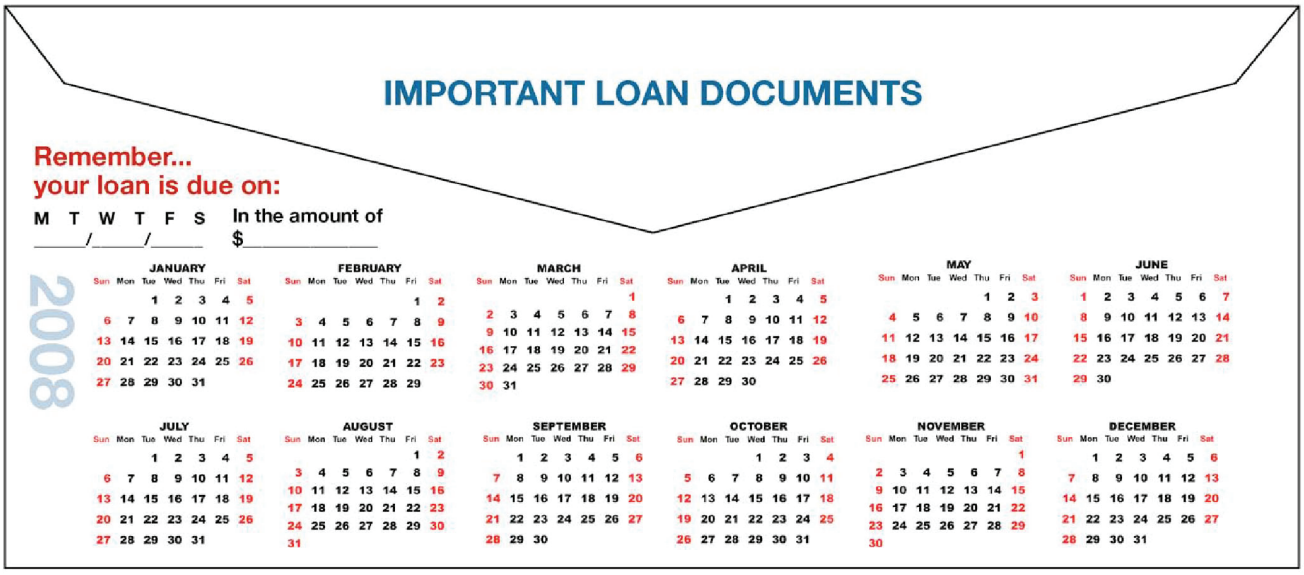
Some participants in the experiment received personalized text messages conveying financial information. No text message intervention significantly affected the ability to identify the lowest-cost loan product. In the experiment, only the way that information was disclosed on the loan products affected decision making.

Experimentation on finding the best ways to make the nature of their opportunities salient to individuals is an active area of research. Studies include how best to disseminate information about national employment programs in India (Dutta and others 2014); how best to inform young people and their parents about the return to higher education (Jensen 2010; Dinkelman and Martínez 2014); how best to make people aware of the risks of AIDS (Dupas 2011); and how best to increase awareness and use of contraception (Munshi and Myaux 2006). Chapters in part 2 discuss many applications.

Figure 1.3 Reframing decisions can improve welfare: The case of payday borrowing

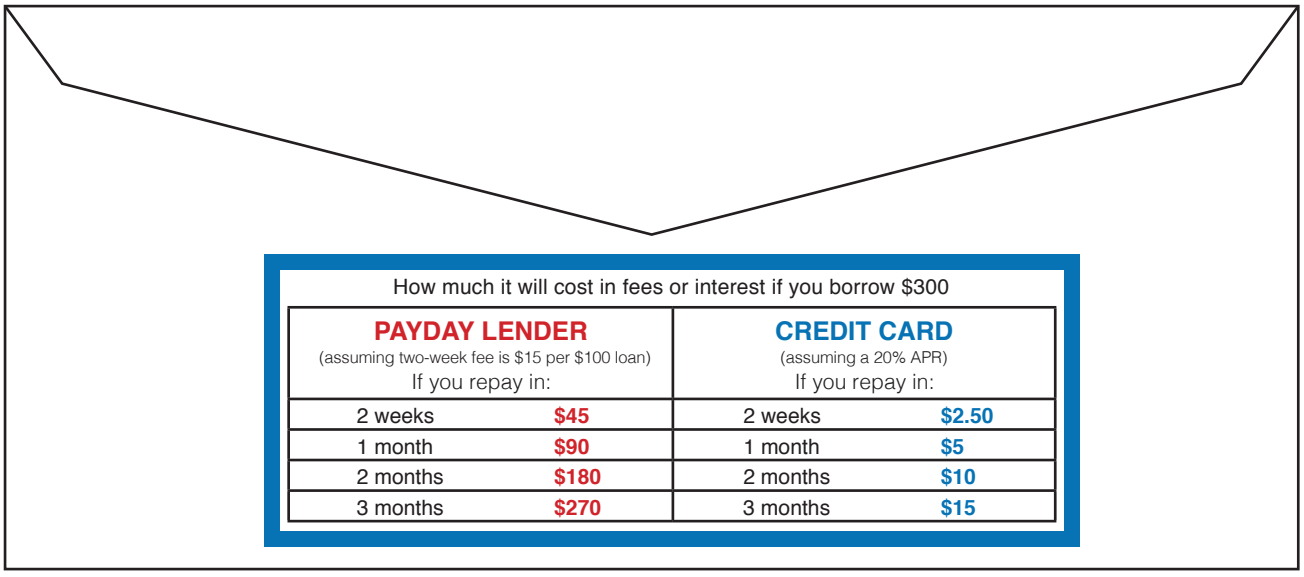
a. The standard envelope

A payday borrower receives his cash in an envelope. The standard envelope shows only a calendar and the due date of the loan.



b. The envelope comparing the costs of the payday loan and credit card borrowing

In a field experiment, randomly chosen borrowers received envelopes that showed how the dollar fees accumulate when a payday loan is outstanding for three months, compared to the fees to borrow the same amount with a credit card.



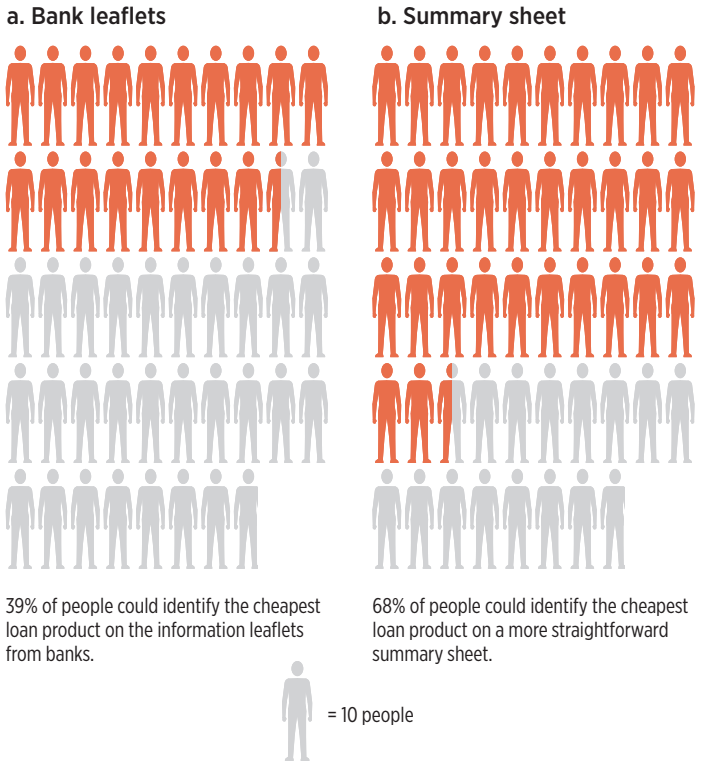
Borrowers who received the envelope with the costs of the loans expressed in dollar amounts were 11 percent less likely to borrow in the next four months compared to the group that received the standard envelope. Payday borrowing decreased when consumers could think more broadly about the true costs of the loan.

Source: Bertrand and Morse 2011.

Note: APR = annual percentage rate.

Figure 1.4 Clarifying a form can help borrowers find a better loan product

Low-income subjects from Mexico City were invited to classrooms to choose the cheapest one-year, $800 (10,000 peso) loan product from a set of five products representative of actual credit products offered by banks in Mexico City. They could earn rewards by getting the right answer. When using the banks' descriptions of their products, only 39 percent of the people could identify the cheapest credit product. When using the more straightforward summary sheet, 68 percent could identify the cheapest credit.



Source: Giné, Martinez Cuellar, and Mazer 2014.

Biases in assessing value

Even when individuals make unbiased assessments of information, they may make biased assessments of value. When people think automatically, the way in which their choices are presented and the context in which they make decisions may systematically influence their preferences. Factors that would be unimportant under the standard assumption that people have unlimited capacities to process information, but that in fact can be quite important, include the following:

- The *default option*, to which decisions would revert if no other decision was made or no other action taken
- The labels on options
- The number of options
- The sequence in which the options are presented
- The connections, if any, that are drawn between the current decision problem and decisions that the individual made earlier
- The gap between the period when a decision maker forms an intention and the period when he has funds available to pay for it
- The salience of a social identity
- The salience of relevant norms.[6]

Well-thought-out policy can improve development outcomes by changing the context of decision making, especially in situations in which even people trained in deliberative thinking might struggle. Several examples related to default options—which are the choices that are selected automatically unless an alternative is specified—are considered next.

Default options and other framing effects

Many countries all over the world, both rich and poor, seek to remove the impediments students face in obtaining postsecondary education. Policies based on the standard model would focus on lowering the costs and increasing the information about opportunities. But policies based on the psychological and social actor would widen the focus to include framing, broadly understood to include the small details of the consumer's choice set. A recent study in the United States uncovered the enormous sensitivity of students' college application decisions to a small change in the cost of sending test scores to colleges (Pallais, forthcoming). In 1998, when a popular university readiness examination (the ACT) increased from three to four the number of free score reports that test takers could send to colleges, students sent substantially more reports. Figure 1.5 shows that most high school students graduating before 1998 sent exactly three reports and that most high school students graduating after 1998 sent exactly four reports.[7] The change in behavior was the same for low- and high-income students, which suggests that the students' choices were not based on a deliberative decision that weighed benefits and costs, but instead on unthinking acceptance of a default option: three reports were free, and each additional report would have cost another $6.

This is another money tree. While students did not need to limit the number of schools to which they applied to the number of free score reports, most students—both low income and high income—did. As a result, the low-income students were saving $6 but forgoing $1,700 in lifetime income for each dollar they saved, on average.

The vast influence of default options on decisions has been widely replicated in many domains, including

saving and insurance decisions with massive financial consequences.[8] Why are these findings so surprising and important? It is not that money trees are everywhere, but the findings give us valuable information on decision making and on the potential for designing policies that improve welfare. If individuals carefully compared costs and benefits, as standard policy analysis assumes, a switch from three free options to four free options should not affect decisions as long as the costs of doing so are small (which, at $6, they were in the United States). Defaults can influence choices in a number of ways. Until the moment an individual makes a decision, preferences often are not clearly specified. Since constructing a preference requires effort but accepting the default choice is effortless, people may choose the default. Decision makers might also construe the default as a recommendation. A default option is just one example of a frame, broadly defined as a way of structuring choices, that may affect an individual's behavior by influencing what is salient to him or her and the cognitive costs that a decision entails.

Loss aversion

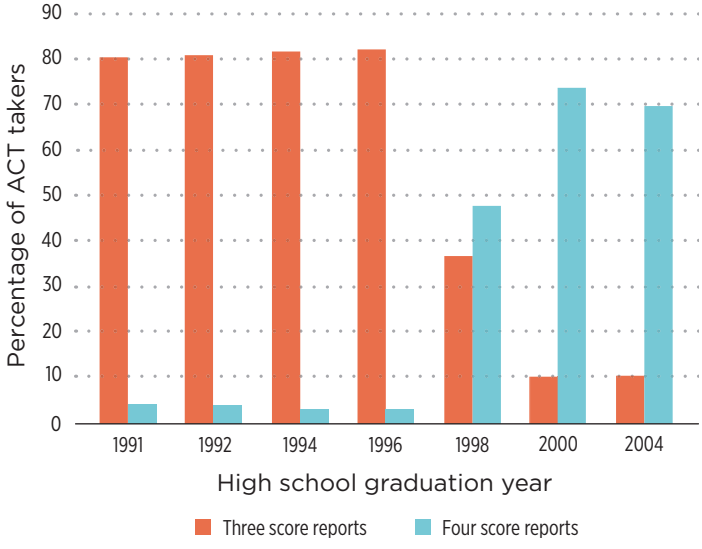
In general, people make decisions based on a consideration of changes in values from a *reference point*, rather than on the basis of absolute values. The reference point is the benchmark. When people evaluate whether or not they like something, they tend to implicitly ask themselves, "Compared to what?" It turns out that when thinking about something as a loss, people generally count the difference more than they would count it if they thought about the same thing as a gain. They feel the losses more acutely than they would feel the gains of a similar size (*loss aversion*). This psychological phenomenon is widespread and helps explain a large set of phenomena in financial markets (Kahneman and Tversky 1979; Shiller 2000).

Reference points are behind what economists call "money illusion." Many people prefer a 6 percent income raise when there is 4 percent inflation to a 3 percent raise with no inflation (Shafir, Diamond, and Tversky 1997). They prefer the former option, which is expressed in high numerical terms, even though the real dollar value of the latter option is higher. Reference points can mislead when they are established in terms of nominal rather than real values.

By setting goals, individuals identify a particular value as a reference point against which to measure performance. If individuals do not meet the goal, they are likely to experience the disappointment as a loss (Suvorov and van de Ven 2008). Loss aversion may thus make goals a credible and effective instrument for self-regulation.

Figure 1.5 A small change in the college application process had a huge impact on college attendance

When the number of free test score reports that a high school student could send to colleges increased from three to four in the United States in 1998, low-income students applied for and attended more selective colleges, which increased their projected average lifetime income by roughly $10,000, far outweighing the $6 cost of sending an additional score report.



Source: Pallais, forthcoming.

Loss aversion can also be used to influence the behavior of others. In Chicago, for instance, teachers were paid a bonus at the beginning of the school year, in advance, but were told they would lose it if students did not meet a threshold level of achievement by the end of the school year (Fryer and others 2012). These teachers expended a substantially greater effort than did teachers who were in all other respects similar but who could receive the bonus only at the end of the year. The potential loss of the bonus was more salient than the potential gain of the bonus. The change in frame may also have had a powerful effect by changing the meaning of achieving high results. A gain may have been perceived as a reward for superior performance, whereas a loss may have been perceived as a punishment for failing to meet a certain performance norm. Policies that increase aspirations may affect behavior in part by changing the benchmark for what is considered a loss. Chapter 3 will discuss early work that suggests that interventions have raised the aspirations and accordingly changed behaviors among teenage girls in rural India (Beaman and others 2009) and households in rural Ethiopia (Bernard and others 2014). Chapter 2 will discuss an intervention regarding aspirations for sex workers in India (Ghosal and others 2013).

Factoring in psychological aversion to losses with reference to the status quo can be important in understanding the decisions of policy makers, too. Trade policy may offer an example. Industries suffering losses are more likely than others to receive trade protection (Trefler 1993; Baron and Kemp 2004). Intuitively, the prospect of losing tens of thousands of jobs in old sectors may loom much larger than the prospect of creating many more jobs under free-market policies in new sectors (Freund and Ozden 2008). According to some economists, the reason that political reform often occurs during crises is that when large numbers of people have experienced losses, they are more willing to gamble to recover what they have lost; that is, they become risk seeking (Weyland 1996).

Choice architecture

A *choice architect* is someone who organizes the context in which people make decisions. Many people are choice architects, most without realizing it. Think of doctors describing the available treatments to patients, matchmakers describing marriage choices, or moneylenders describing loan products. *Choice architecture* influences decision making by simplifying the presentation of options, by automatically evoking particular associations, or by making one option more salient or easier to choose than the alternatives (Thaler and Sunstein 2008).

The policy mechanisms discussed in this chapter include framing, anchoring, simplification, reminders, and commitment devices. Policy makers can employ these mechanisms to help people make better decisions, which in turn can reduce poverty.

When individuals are thinking automatically, a mere "nudge" may change their behavior. A *nudge* is a policy that achieves behavior change without actually changing the set of choices. It does not forbid, penalize, or reward any particular choices. Instead, it points people toward a particular choice by changing the default option, the description, the anchor, or the reference point. To encourage people to choose a more healthy diet, for example, according to Thaler and Sunstein, "Putting the fruit at eye level counts as a nudge. Banning junk food does not" (2008, 6). Putting the fruit at eye level is a change in framing.

A component of choice architecture is simplicity. Too many options or too much complexity may lead individuals to avoid thinking through a decision, to postpone indefinitely making an active decision, or to make error-ridden decisions. Consider an example in voting in which individuals may have to make choices in scenarios for which they have limited experience and little or no education or training to prepare them.

Application: Simplification at the ballot box in Brazil

A common policy recommendation to promote development is to improve public services by increasing the political influence of the neediest citizens. But how can it be done? The *World Development Report 2004: Making Services Work for Poor People* cites the fact that "the poor have little clout with politicians" as a cause of underprovision of public services. The report devotes a whole chapter to increasing citizen influence on politicians by strengthening "elections, informed voting, and other traditional voice mechanisms" (World Bank 2004, 78). After the report was written, a simple way to achieve this objective occurred in Brazil.

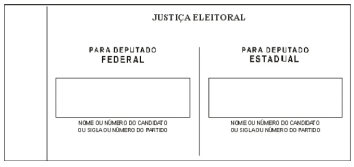
Federal law in Brazil makes voting compulsory for all citizens aged 18–70.[9] Although turnout was thus very high, over 30 percent of votes were blank or error ridden and were therefore discarded in 1994 (Fujiwara 2010, figure 2). Some 42 percent of adult Brazilians had not completed fourth grade. For them, the demands of voting by writing down the names of the candidates on paper ballots were heavy. Beginning in 1998, Brazil introduced electronic voting technology (see figure 1.6). Using the new technology, a voter saw a photo of the candidate he selected. The technology provided step-by-step directions that "walked" voters through the process of voting for candidates in the many different races and gave them an error message if they incorrectly marked a ballot. The new technology reduced the number of error-ridden and undercounted votes among the less educated. The intervention effectively enfranchised 11 percent of citizens, mainly the less educated. After the change, the share of valid votes increased to more than 90 percent of total votes. With more votes of the poor counted, more candidates from pro-poor parties have been elected to state legislatures.

An evaluation of this policy change identifies these effects by using the fact that when electronic voting technology was introduced in 1998, only municipalities

Figure 1.6 Simplifying voting procedures in Brazil is having positive welfare effects on the poor across generations

When Brazil simplified its voting procedures, more poor, illiterate, and semiliterate voters could cast proper ballots. The increase in the clout of the poor shifted state spending toward public health care. As a result, the number of low-birth-weight babies fell, paving the way for better adult health.

Until 1998, Brazilian elections used only paper ballots.



But only about 60% of voters had completed fourth grade. Less than 70% of the votes were correctly filled out. The rest had to be discarded.

Beginning in 1998, Brazil began to shift to electronic voting, where individuals didn't need to write anything.

To vote for a candidate, an individual typed the candidate's ID number into a simple keypad, which called up the candidate's photo. The voter confirmed his choice by pressing the green button, or canceled a mistake by pressing the orange button.

The reduction in error-ridden ballots meant the de facto enfranchisement of 11% of the electorate.

With more votes of the poor counted, more candidates from pro-poor parties were elected in state legislatures, which:

34%

Quickly increased states' budget shares on public health care, raising health expenditures by 34% over eight years

20%

Increased the fraction of uneducated pregnant women with regular prenatal visits by 20%

6%

Improved newborn health (reduced by 6% the prevalence of low-weight births)

Source: Fujiwara 2010.

with more than a threshold level of voters used the new technology because of the limited supply of devices, while the rest used paper ballots (Fujiwara 2010). Thus the study can compare outcomes for municipalities just above and just below the threshold to assess the effect of the introduction of electronic voting.

One of the things that legislators could quickly affect in Brazil is funding for health care. Because of the shift in the political strength of the parties on the Left, state spending on public health care increased by 34 percent over eight years. Public health care is free in Brazil. The shift in the funding, for example, enabled 20 percent more uneducated pregnant women to make regular prenatal visits and improved newborn health (reducing the prevalence of low-weight births by 6 percent). This is a major development success, since newborn health, controlling for other factors, predicts lifetime health, education, and income.

These findings suggest that too little attention has been paid to the unrealistic demands on voters with little education to read instructions and fill out paper ballots at the voting booth. The head designer of Brazil's electronic voting technology described the new system's reduction in error-ridden votes as "a surprise" (Fujiwara 2010, 6). This design change in balloting was a simple policy that accomplished something quite difficult—a shift in the political clout of the neediest citizens and a shift in the allocation of public spending toward health services for the poor.

Overcoming intention-action divides

This chapter concludes with one additional way in which human behavior systematically departs from that assumed in the standard economic model: individuals have bounded willpower. The deliberative system can restrain the impulses of the automatic system, but as the chapter has repeatedly emphasized, the deliberative system has limited capacity. Consider the case of HIV/AIDS. A major cause of treatment failure all over the world is incomplete adherence to treatment regimens. In many cases, patients will receive pills from a clinic each month. If taken daily, the pills will postpone the worst symptoms of the disease for many years. Individuals who understand this and intend to take the pills may nonetheless find it hard to carry out their intention. The press of demands on them—caring for their children and earning a living—impairs their ability to remember to take the pills two times each day.

This is one of many instances of a divide between intentions and actions. Underlying many intention-action divides is *present bias*, an overweighting of the

present relative to the future that results in inconsistencies in choices over time. Achieving goals often requires incurring a cost in the present for a payoff in the future. Since the present is more salient than the future, people tend to overweight the costs relative to the benefit. The tendency increases the farther away the deadline lies (see, for example, Shu and Gneezy 2010). Later, individuals feel regret.

Policies that create reminders or remove small impediments in such areas as savings, adherence to health regimens, and voting in elections have had successes in narrowing intention-action divides. To improve adherence to HIV/AIDS drug regimens, a small-scale study tested the effect of reminders to take the antiretroviral medicine (Pop-Eleches and others 2011). Patients in Kenya were randomly divided into three groups. No reminders were given to the first group, weekly reminders were given to the second group, and daily reminders were given to the third group. The reminders were made through a low-cost messaging system on cell phones dispensed by the experimenters. The results were promising. Individuals who received a weekly reminder (through a low-cost short messaging service, often called SMS) increased adherence to the drug regimen by 13 percentage points, although a daily reminder had virtually no effect on adherence.[10] (Adherence was counted as positive if individuals took their drugs at least 90 percent of the days.) The findings suggest that despite SMS outages, accidental phone loss, and a dispersed rural population, the weekly intervention was effective at a very low marginal cost.

In Colombia, the government uses a conditional cash transfer (CCT) program under which families of students are paid every two months for attendance at school at least 80 percent of the time. Yet there is still a large drop in school enrollment in the higher grades of secondary school and a low rate of matriculation at tertiary institutions. Then a simple variation of the CCT was implemented that distributed two-thirds of the "good attendance" funds on the same bimonthly basis but distributed the remaining funds for all the months in a lump sum upon high school graduation. Students could receive the payment sooner by matriculating at an institution of higher education. The policy began to work much better. It increased matriculation by 49 percentage points (Barrera-Osorio and others 2011).

Commitment devices are an additional promising area of intervention to address present bias. They combine an awareness of the intention-action divide with an understanding of loss aversion. *Commitment devices* are strategies whereby people agree to have a penalty imposed on them (that is, they agree to incur a loss) if they do not reach a particular goal. People who are aware of their own tendency to procrastinate may find commitment devices attractive. Commitment devices helped people save money in a field experiment in the Philippines (Ashraf, Karlan, and Yin 2006) and helped people quit smoking in another field experiment in that country (Giné, Karlan, and Zinman 2010).

Conclusion

We have two systems of thinking: the automatic system and the deliberative system. When making decisions, we cannot manage without the automatic system, and it can produce remarkably well-adapted choices at a trivial cost of effort in decision making. The automatic system draws heavily on default assumptions and interpretive frames. It is very sensitive to what is salient and what associations effortlessly come to mind.

This chapter has demonstrated ways in which development practitioners might make the world easier to navigate for people who rely primarily on the automatic system—that is, for everyone. Since every choice set is presented in one way or another, making the crucial aspects of the choice salient and making it cognitively less costly to arrive at the right decision (such as choosing the lowest-cost loan product, following a medical regimen, or investing for retirement) can help people make better decisions.

The behavioral perspective on decision making suggests that seemingly minor and low-cost policy changes may have a large impact on the achievement of development goals and the reduction of poverty. The policy mechanisms discussed in this chapter include framing, anchoring, simplification, reminders, and commitment devices. Policy makers can employ these mechanisms to help people make better decisions, which in turn can reduce poverty.

Notes

1. Surveys are Kahneman (2003, 2011). A collection of pathbreaking findings is Slovic (1987). Popular accounts are Ariely (2008) and Vedantam (2010).
2. Daniel Kahneman (2003) describes this example in his Nobel Lecture, citing personal communication with Shane Frederick.
3. Cited by Michael Suk-Young Chwe (2014).
4. It may not have been completely irrelevant. Knowing that guacamole was available at the party could affect beliefs about how much he drank and how strongly the liquor affected him.
5. The finding from this experiment accords with a theme in literary criticism, in which "irrelevant" detail adds to believability. Pierre in *War and Peace*

notes how a man just before he dies adjusts his blindfold because it is too tight; Orwell notes how a condemned man swerves to avoid a puddle (Wood 2008).

6. A review is Schwartz (2013).
7. Those graduating in 1998 could send three score reports for free if they took the test as 11th graders and four reports for free if they took the test as 12th graders.
8. See Johnson and others (1993); Madrian and Shea (2001); Choi, Hardigree, and Thistle (2002); Johnson and Goldstein (2003); Thaler and Sunstein (2008).
9. A failure to register or vote makes a citizen ineligible to receive several public services until a fine is paid.
10. The reminders varied in content. Tailoring the content and implementation of a policy to overcome psychological resistance or cognitive biases requires experimentation. This is a theme throughout the Report. To take another example, a study of safe-sex programs in Uganda and Botswana suggests that interventions actually can be more effective when they establish a collective narrative and a shared fate than when they appeal only to self-interest (Swidler 2009). The success of different messages can vary across groups, perhaps due to different interpretive frames, which reinforces the need for piloting framing interventions, an idea developed in chapter 11.

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