

# OVERVIEW

Human decision making and  
development policy

# Overview

## Human decision making and development policy

Every person seeks to steer his or her own course, and a great deal of development policy aims to supply the resources and information people in low- and middle-income economies require in their voyage through life. But while such an approach is often appropriate, it can be incomplete. To understand why, consider a comparison with airplane pilots. During the middle decades of the 20th century, a number of flight and engine instruments were developed with the intention of improving how pilots steer their aircraft. But by the 1980s, the multiplying technological improvements and additional information had the

**This Report aims to inspire and guide the researchers and practitioners who can help advance a new set of development approaches based on a fuller consideration of psychological and social influences.**

opposite effect of what the designers had intended: instead of assisting pilots in steering their courses, airplane cockpits had become increasingly complex environments in which the technical improvements stressed and even overwhelmed the pilots. Rates of pilot error rose. Experts in the field of human factors design—a multidisciplinary field based on the core

idea that decision making is the product of an interaction between mind and context—were contacted. The airplane cockpit was redesigned with close attention to how information is packaged and presented, so that it fit the human body and its cognitive abilities. These days, airplane cockpits contain fewer instruments than several decades ago because the design of cockpit instrument displays is based on a deeper understanding of human cognitive processes (Wiener and Nagel 1988).

The title of this Report, *Mind, Society, and Behavior*, captures the idea that paying attention to how humans think (the processes of mind) and how history and context shape thinking (the influence of society) can improve the design and implementation of development policies and interventions that target human choice and action (behavior). To put it differently, development policy is due for its own redesign based on careful consideration of human factors.

This Report aims to integrate recent findings on the psychological and social underpinnings of behavior to make them available for more systematic use by both researchers and practitioners in development communities. The Report draws on findings from many disciplines, including neuroscience, cognitive science, psychology, behavioral economics, sociology, political science, and anthropology. In ongoing research, these findings help explain decisions that individuals make in many aspects of development, including savings, investment, energy consumption, health, and child rearing. The findings also enhance the understanding of how collective behaviors—such as widespread trust or widespread corruption—develop and become entrenched in a society. The findings apply not only

to individuals in developing countries but also to development professionals, who are themselves prone to error when decision-making contexts are complex.

This approach expands the set of tools and strategies for promoting development and combating poverty. The strength of standard economics is that it places human cognition and motivation in a “black box,” intentionally simplifying the “messy and mysterious internal workings of actors” (Freese 2009, 98) by using models that often assume that people consider all possible costs and benefits from a self-interested perspective and then make a thoughtful and rational decision. This approach can be powerful and useful, but in a number of contexts, it also has a liability: it ignores the psychological and social influences on behavior. Individuals are not calculating automatons. Rather, people are malleable and emotional actors whose decision making is influenced by contextual cues, local social networks and social norms, and shared mental models. All of these play a role in determining what individuals perceive as desirable, possible, or even “thinkable” for their lives. The new tools based on this full consideration of human factors do not displace existing policy approaches based on affecting self-interested personal incentives; rather, they complement and enhance them. Some of the new approaches cost very little to implement because they depend on nuances in design or implementation, such as changing the timing of cash transfers, labeling something differently, simplifying the steps for service take-up, offering reminders, activating a latent social norm, or reducing the salience of a stigmatized identity. Others offer entirely new approaches to understanding and fighting poverty.

These approaches are already widespread among firms in the private sector, which are often preoccupied with understanding customer behavior in its natural contexts. When a company introduces a product, whether a new brand of breakfast cereal, toothpaste, or cell phone, it is entering a competitive market, where small differences in usability and user satisfaction mean the difference between product take-up and rejection. In the intensive and interactive design phase, the company conducts significant qualitative and quantitative research on its customers to understand seemingly peripheral but nonetheless critical drivers of behavior: When and where do customers typically eat breakfast? Are they at home, work, school, on a bus, in a train, or in a car? What is the social meaning of the meal? Does it involve valued rituals? Is it a communal or more private event? Does behavior change need to be coordinated across many people or

can it occur individually? These examples may seem trivial in comparison to the challenges that governments and international organizations face in developing countries. Yet they hold an important lesson: when failure affects the profit-making bottom line, product designers begin to pay close attention to how humans *actually* think and decide. Engineers, private firms, and marketers of all stripes have long paid attention to the inherent limits of human cognitive capacity, the role that social preferences and the context play in our decision making, and the use of mental shortcuts and mental models for filtering and interpreting information. The development community needs to do the same.

The body of evidence on decision making in developing country contexts is still coming into view, and many of the emerging policy implications require further study. Nevertheless, this Report aims to inspire and guide the researchers and practitioners who can help discover the possibilities and limits of a new set of approaches. For example, can simplifying the enrollment process for financial aid increase participation? Can changing the timing of fertilizer purchases to coincide with harvest earnings increase the rate of use? Can providing a role model change a person's opinion of what is possible in life and what is “right” for a society? Can marketing a social norm of safe driving reduce accident rates? Can providing information about the energy consumption of neighbors induce individuals to conserve? As this Report will argue, the answers provided by new insights into human factors in cognition and decision making are a resounding *yes* (see, respectively, Bettinger and others 2012; Duflo, Kremer, and Robinson 2011; Beaman and others 2009, 2012; Habyarimana and Jack 2011; Allcott 2011; Allcott and Rogers 2014).

From the hundreds of empirical papers on human decision making that form the basis of this Report, three principles stand out as providing the direction for new approaches to understanding behavior and designing and implementing development policy. First, people make most judgments and most choices automatically, not deliberately: we call this “thinking automatically.” Second, how people act and think often depends on what others around them do and think: we call this “thinking socially.” Third, individuals in a given society share a common perspective on making sense of the world around them and understanding themselves: we call this “thinking with mental models.”

To illustrate how all three types of thinking matter for development, consider the problems of low personal savings and high household debt, which are common across the developing world (and in many

high-income countries, as well). Much of economic policy operates on the assumption that increasing savings rates requires an increase in the rate of return for savers. But other factors beyond the standard variables of prices, incomes, and regulations also affect saving behavior, including automatic thinking that reacts to the framing and perception of choices, the widespread tendency to adhere to social norms, and the mental models of one's place in life. Field experiments in Kenya, South Africa, and Ethiopia demonstrate the relevance of these three principles of human decision making to a key development problem.

In Kenya, many households report a lack of cash as an impediment to investing in preventive health products, such as insecticide-treated mosquito nets. However, by providing people with a lockable metal box, a padlock, and a passbook that a household simply labels with the name of a preventive health product, researchers increased savings, and investment in these products rose by 66–75 percent (Dupas and Robinson 2013). The idea behind the program is that although money is fungible—and cash on hand can be spent at any time—people tend to allocate funds through a process of “mental accounting” in which they define categories of spending and structure their spending behaviors accordingly. What was important about the metal box, the lock, and the labeled passbook was that it allowed people to put the money in a mental account for preventive health products. The intervention worked because mental accounting is one way in which people are often “thinking automatically” and is an example of a more general framing or labeling effect in which assigning something to a category influences how it is perceived.

Conventional financial literacy programs in low-income countries have had limited effects (Xu and Zia 2012). In contrast, a recent effort in South Africa to teach financial literacy through an engaging television soap opera improved the financial choices that individuals made. Financial messages were embedded in a soap opera about a financially reckless character. Households that watched the soap opera for two months were less likely to gamble and less likely to purchase goods through an expensive installment plan (Berg and Zia 2013). The households felt emotionally engaged with the show's characters, which made them more receptive to the financial messages than would be the case in standard financial literacy programs. The success of the intervention depended on “thinking socially”—our tendency to identify with and learn from others.

In Ethiopia, disadvantaged individuals commonly report feelings of low psychological agency, often

making comments like “we have neither a dream nor an imagination” or “we live only for today” (Bernard, Dercon, and Taffesse 2011, 1). In 2010, randomly selected households were invited to watch an hour of inspirational videos comprising four documentaries of individuals from the region telling their personal stories about how they had improved their socioeconomic position by setting goals and working hard. Six months later, the households that had watched the inspirational videos had higher total savings and had invested more in their children's education, on average. Surveys revealed that the videos had increased people's aspirations and hopes, especially for their children's educational future (Bernard and others 2014). The study illustrates the ability of an intervention to change a mental model—one's belief in what is possible in the future (Bernard and Taffesse 2014).

The view that labeling, role models, and aspirations can affect savings is not inconsistent with the view that people respond in predictable ways to changes in interest rates or prices and other incentives. The new approaches do not replace standard economics. But the new approaches enhance our understanding of the development process and the way development policies and interventions can be designed and implemented.

The *mind, society, and behavior* framework points to new tools for achieving development objectives, as well as new means of increasing the effectiveness of existing interventions. It provides more entry points for policy and new tools that practitioners can draw on in their efforts to reduce poverty and increase shared prosperity. This Report discusses how taking the human factors more completely into account in decision making sheds light on a number of areas: the persistence of poverty, early childhood development, household finance, productivity, health, and climate change. The framework and many examples in the Report show how impediments to people's ability to process information and the ways societies shape mindsets can be sources of development disadvantage but also can be changed.

The three ways of thinking emphasized here apply equally to all human beings. They are not limited to those at higher or lower income levels, or to those at higher or lower educational levels, or to those in high-income or low-income countries. Numerous examples from high-income countries throughout this Report demonstrate the universality of psychological and social influences on decision making. The Report documents the cognitive limitations of people in all walks of life, including World Bank staff (see spotlight 3 and chapter 10). Development professionals themselves

think automatically, think socially, and think with mental models and, as a result, may misidentify the causes of behavior and overlook potential solutions to development problems. Development organizations could be more effective if practitioners became aware of their own biases and if organizations implemented procedures that mitigate their effects.

For development practitioners, identifying psychological and social influences on behavior and constructing policies that work with them—rather than against them—require a more empirical and experimental approach to policy design. Because human decision making is so complicated, predicting how beneficiaries will respond to particular interventions is a challenge. The processes of devising and implementing development policy would benefit from richer diagnoses of behavioral drivers (see spotlight 4) and early experimentation in program design that anticipates failures and creates feedback loops that allow practitioners to incrementally and continuously improve the design of interventions.

## Three principles of human decision making

The organizing framework of part 1 of the Report rests on three principles of human decision making: thinking automatically, thinking socially, and thinking with mental models. Although these principles are based on recent groundbreaking research from across the social sciences, it is worth emphasizing that the new research, in some ways, brings the discipline of economics full circle to where it began, with Adam Smith in the late 18th century, and to perspectives that were prominent in the early and middle parts of the 20th century (box O.1).

### First principle: Thinking automatically

In the simplifying assumptions employed in a number of economic models, economic actors consider the full universe of information and environmental cues and look far into the future to make thoughtful decisions in the present that will advance their fixed, long-term goals. Of course, actual human decision making is almost never like this (see, for example, Gilovich, Griffin, and Kahneman 2002; Goldstein 2009). People typically have more information than they can process. There are an unmanageably large number of ways to organize the information that bears on almost any decision.

Thus psychologists have long distinguished two kinds of processes that people use when thinking: those that are fast, automatic, effortless, and associative; and those that are slow, deliberative, effortful, serial, and reflective. Psychologists describe the two

modes, metaphorically, as two distinct systems in the mind: System 1, the *automatic system*, and System 2, the *deliberative system* (Kahneman 2003). Chapter 1 will discuss this division in more detail, but table O.1

### Box O.1 The evolution of thinking in economics about human decision making

Since the foundational work of Adam Smith ([1759, 1776] 1976), economists have explored psychological and social influences on human decision making. John Maynard Keynes recognized “money illusion”—the tendency to think of money in nominal rather than in real terms—and used it in his proposed solution to unemployment. He also recognized that many of our long-term investments reflect “animal spirits”—intuitions and emotions—not cool-headed calculation. Gunnar Myrdal was a student of cultural stagnation. Herbert Simon and F. A. Hayek based much of their work on the recognition that human beings can process only so much information at once and are not capable of carefully weighing the costs and benefits of every possible outcome of their decisions. Albert Hirschman argued that it is useful to remember that people have complex motives; they value cooperation and loyalty.

However, in much of the 20th century, through the work of Paul Samuelson and many others, there was “a steady tendency toward the rejection of hedonistic, introspective, psychological elements” (Samuelson 1938, 344). Milton Friedman, in his famous essay, “On the Methodology of Positive Economics” (1953), and others in the 1950s argued persuasively, based on the evidence available at the time, that economists could safely ignore psychological factors in making predictions about market outcomes. The individual economic actor could be understood as if he behaved like a dispassionate, rational, and purely self-interested agent since individuals who did not behave that way would be driven out of the market by those who did. The assumptions of perfect calculation and fixed and wholly self-regarding preferences embedded in standard economic models became taken-for-granted beliefs in many circles.

The past 30 years of research in decision making across many behavioral and social sciences have led economists to a stage where they measure and formalize the psychological and social aspects of decision making that many of the foundational contributors to economics believed were important. Empirical work demonstrates that people do not make decisions by taking into account all costs and benefits. People want to conform to social expectations. People do not have unchanging or arbitrarily changing tastes. Preferences depend on the context in which they are elicited and on the social institutions that have formed the interpretive frameworks through which individuals see the world (Basu 2010; Fehr and Hoff 2011).

Economics has thus come full circle. After a respite of about 40 years, an economics based on a more realistic understanding of human beings is being reinvented. But this time, it builds on a large body of empirical evidence—microlevel evidence from across the behavioral and social sciences. The mind, unlike a computer, is psychological, not logical; malleable, not fixed. It is surely rational to treat identical problems identically, but often people do not; their choices change when the default option or the order of choices changes. People draw on mental models that depend on the situation and the culture to interpret experiences and make decisions. This Report shows that a more interdisciplinary perspective on human behavior can improve the predictive power of economics and provide new tools for development policy.

**Table O.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 ( <i>narrow frame</i> )	Considers a broad set of relevant factors ( <i>wide frame</i> )
Effortless	Effortful
Associative	Based on reasoning
Intuitive	Reflective

Sources: Kahneman 2003; Evans 2008.

provides an overview. Most people think of themselves as primarily deliberative thinkers—but of course they tend to think about their own thinking processes automatically and under the influence of received mental models about who they are and how the mind works. In reality, the automatic system influences most of our judgments and decisions, often in powerful and even decisive ways. Most people, most of the time, are not aware of many of the influences on their decisions. People who engage in automatic thinking can make what they themselves believe to be large and systematic mistakes; that is, people can look back on the choices they made while engaging in automatic thinking and wish that they had decided otherwise.

Automatic thinking causes us to simplify problems and see them through *narrow frames*. We fill in missing information based on our assumptions about the world and evaluate situations based on associations that automatically come to mind and belief systems that we take for granted. In so doing, we may form a mistaken picture of a situation, just as looking through a small window overlooking an urban park could mislead someone into thinking he or she was in a more bucolic place (figure O.1).

The fact that individuals rely on automatic thinking has significant implications for understanding development challenges and for designing the best policies to overcome them. If policy makers revise their assumptions about the degree to which people deliberate when making decisions, they may be able to design policies that make it simpler and easier for individuals to choose behaviors consistent with their desired outcomes and best interests.

For example, policy makers can help by paying close attention to such factors as the framing of choices and the default options—an idea referred to as *choice architecture* (Thaler and Sunstein 2008). The way that the cost of borrowing is framed can affect how much

high-interest debt people will choose to incur. For some of the poorest individuals in many countries, the repeated use of small, short-term, unsecured loans is a fact of life; these loans carry interest rates that would be over 400 percent if multiplied over a year. Yet the high cost of these loans is often not obvious to borrowers. In the United States, creditors called payday lenders offer a short-term loan until the next payday arrives. The cost of the loan is typically portrayed as a fixed fee per loan—say, \$15 for every \$100 borrowed for two weeks—rather than as an effective annual interest rate, or what the cost would be if the loan were repeated over time.

A field trial in the United States demonstrated the power of framing by testing an intervention that presented the cost of borrowing more transparently (Bertrand and Morse 2011). One group received the standard envelope from the payday lender, which includes the cash and the paperwork for the loan. The envelope stated the amount due and the due date, as shown in figure O.2, panel a. Another group received a cash envelope that also showed how the dollar fees accumulate when a loan is outstanding for three months, compared to the equivalent fees for borrowing the same amount with a credit card (figure O.2, panel b). Those who received the envelope on which the costs of the loan were reframed in accumulated dollar amounts were 11 percent less likely to borrow from the payday lenders in the four months following the intervention. The study captures a key implication of chapter 1, which is that adjusting what information is provided, and the format in which it is provided, can help people make better decisions.

### Second principle: Thinking socially

Individuals are social animals who are influenced by social preferences, social networks, social identities, and social norms: most people care about what those around them are doing and how they fit into their groups, and they imitate the behavior of others almost automatically, as shown in figure O.3. Many people have social preferences for fairness and reciprocity and possess a cooperative spirit. These traits can play into both good and bad collective outcomes; societies that are high in trust, as well as those that are high in corruption, require extensive amounts of cooperation (see spotlight 1). Chapter 2 focuses on “thinking socially.”

*Human sociality* (the tendency of people to be concerned with and associate with each other) adds a layer of complexity and realism to the analysis of human decision making and behavior. Because many economic policies assume individuals are self-regarding, autonomous decision makers, these policies often focus on external material incentives, like prices.

However, human sociality implies that behavior is also influenced by social expectations, social recognition, patterns of cooperation, care of in-group members, and social norms. Indeed, the design of institutions, and the ways in which they organize groups and use material incentives, can suppress or evoke motivation for cooperative tasks, such as community development and school monitoring.

People often behave as *conditional cooperators*—that is, individuals who prefer to cooperate as long as others

are cooperating. Figure O.4 shows the results of a “public goods game” that was played in eight countries. It demonstrates that although the proportion of conditional cooperators versus free riders varies across countries, conditional cooperators are the dominant type in every one. In other words, in no society where this behavior has been studied does the canonical theory of economic behavior hold (Henrich and others 2001).

Social preferences and social influences can lead societies into self-reinforcing collective patterns of

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**Figure O.1 Automatic thinking gives us a partial view of the world**

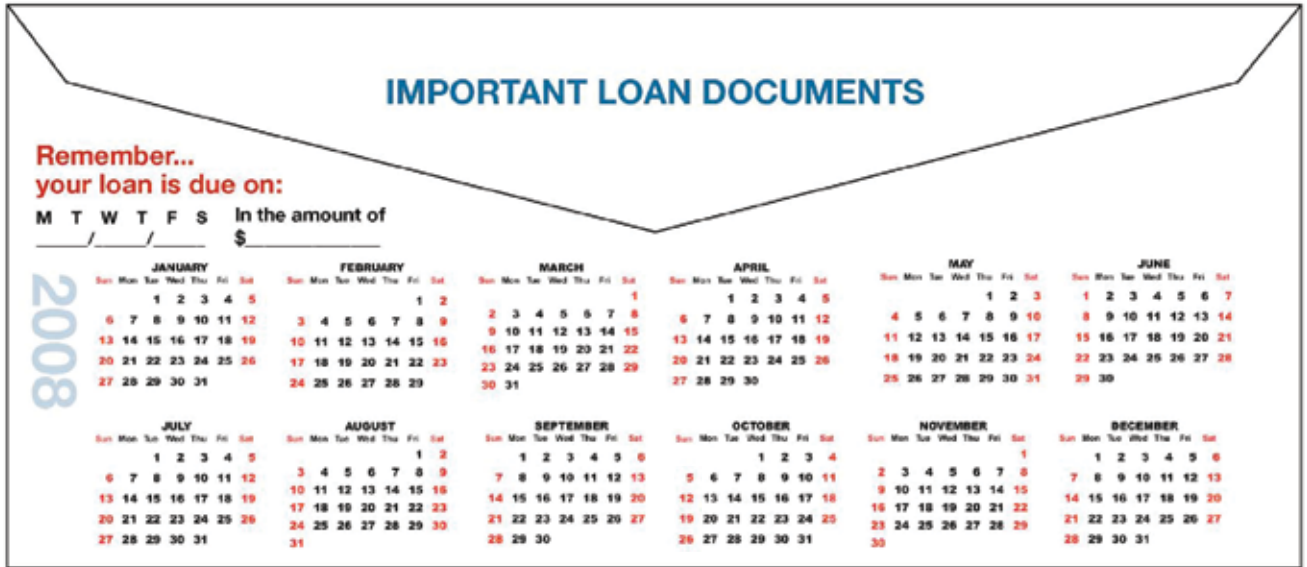
To make most decisions and judgments, we think automatically. We use narrow framing and draw on default assumptions and associations, which can give us a misleading picture of a situation. Even seemingly irrelevant details about how a situation is presented can affect how we perceive it, since we tend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



**Figure O.2 Reframing decisions can improve welfare: The case of payday borrowing**

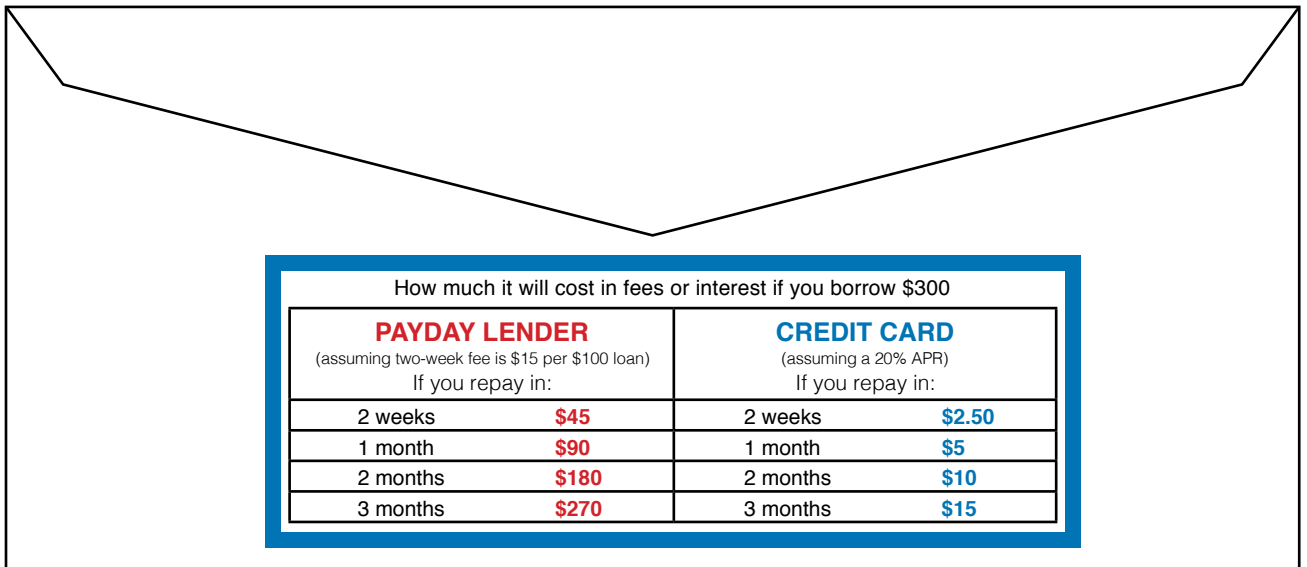
**a. The standard envelope**

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.



behavior. In many cases, these patterns are highly desirable, representing patterns of trust and shared values. But when group behaviors influence individual preferences and individual preferences combine into group behaviors, societies can also end up coordinating activity around a common focal point that is ill-advised or even destructive for the community. Racial or ethnic segregation and corruption are just two examples (spotlight 1). When self-reinforcing “coordinated points” emerge in a society,

they can be very resistant to change. Social meanings and norms, and the social networks that we are a part of, pull us toward certain frames and patterns of collective behavior.

Conversely, taking the human factor of sociality into account can help in devising innovative policy interventions and making existing interventions more effective. In India, microfinance clients who were randomly assigned to meet weekly, rather than monthly, had more informal social contact with one another

### Figure O.3 What others think, expect, and do influences our preferences and decisions

Humans are inherently social. In making decisions, we are often affected by what others are thinking and doing and what they expect from us. Others can pull us toward certain frames and patterns of collective behavior.



two years after the loan cycle ended, were more willing to pool risks, and were three times less likely to default on their second loan (Feigenberg, Field, and Pande 2013). In Uganda and Malawi, agricultural extension activities were much more successful when peer farmers were used in training activities (Vasilaky and Leonard 2013; BenYishay and Mobarak 2014). Individuals generally want to repay their loans and to adopt better technology, but they may have trouble motivating themselves to do it. By drawing on social motivations, policy can help them reach their goals and protect their interests.

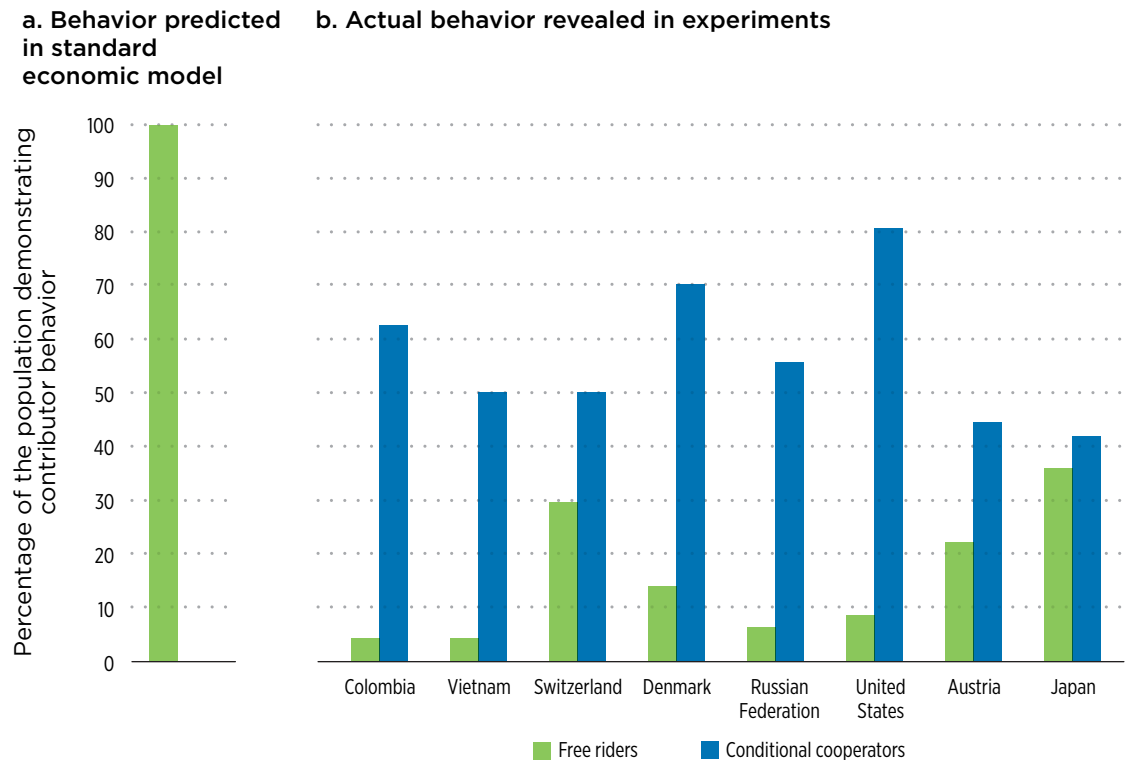
The case of a public emergency in Bogotá, Colombia, illustrates how policy approaches can both undermine and nurture cooperative behaviors (spotlight 5). In 1997, part of a tunnel providing water to the city collapsed, triggering a water shortage emergency. The city government's first action was to declare a public emergency and initiate a communication program warning inhabitants of the coming crisis. While this

step was intended to promote water conservation, it instead increased both water consumption and hoarding. Recognizing the problem, the city government changed its communication strategy, sent around volunteers to educate people about the most effective conservation measures, and began publicizing daily water consumption figures and naming individuals who were cooperating with the effort, as well as those who were not. The mayor appeared in a television ad taking a shower with his wife, explaining how the tap could be turned off while soaping and suggesting taking showers in pairs. These strategies strengthened cooperation, and reductions in water use persisted long after the tunnel was repaired.

The principle of thinking socially has several implications for policy. Chapter 2 examines the scope for economic and social incentives in a world where human sociality is a major factor influencing behavior, shows how institutions and interventions can be designed to support cooperative behavior, and demonstrates how

#### Figure O.4 In experimental situations, most people behave as conditional cooperators rather than free riders

The standard economic model (panel a) assumes that people free ride. Actual experimental data (panel b) show that across eight societies, the majority of individuals behave as conditional cooperators rather than free riders when playing a public goods game. The model of free riding was not supported in any society studied.



Source: Martinsson, Pham-Khanh, and Villegas-Palacio 2013.

Note: Other players did not fit into either of the two categories, which is why the bars do not sum to 100 percent.

social networks and social norms shape behavior and can serve as the basis of new kinds of interventions.

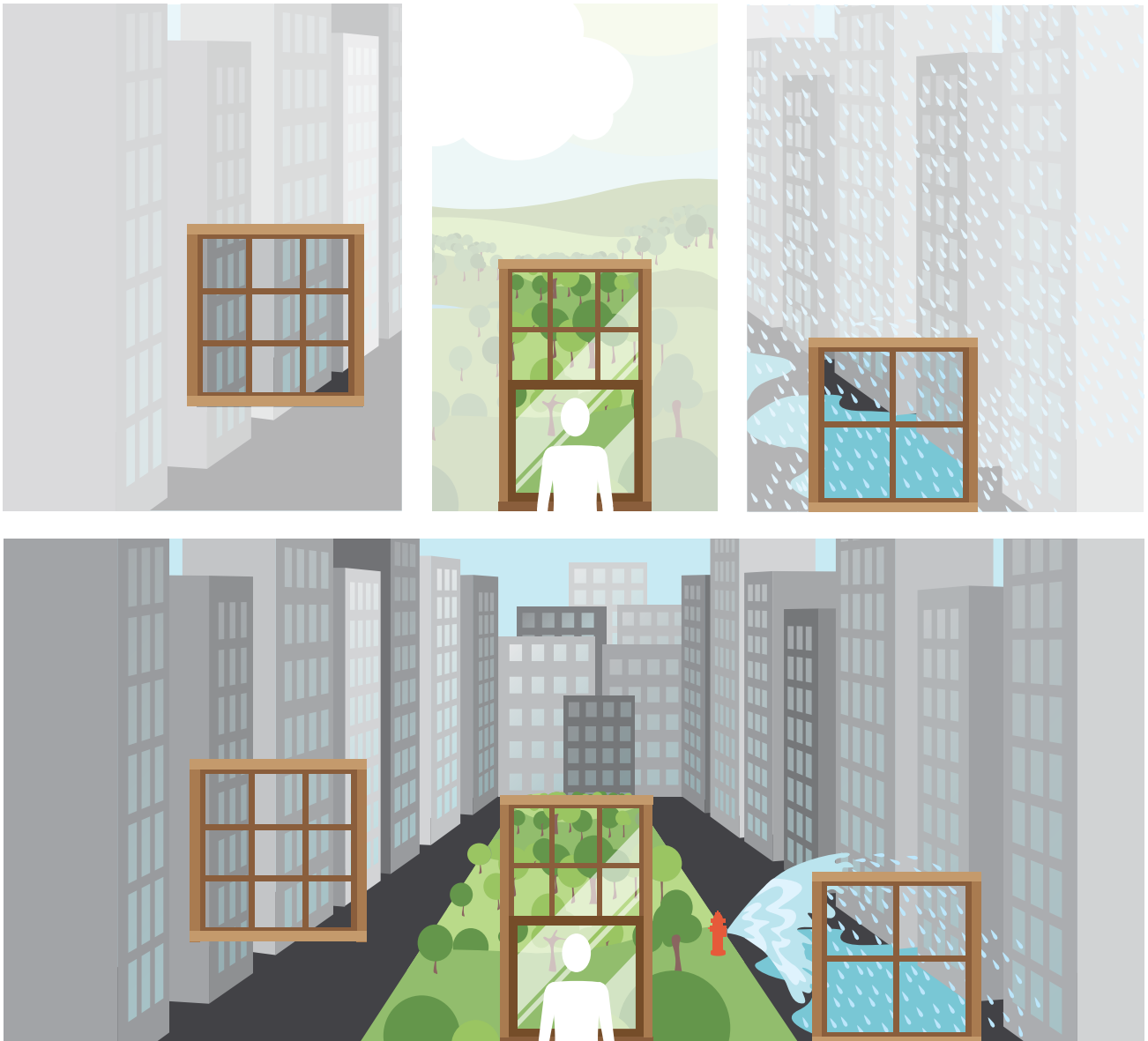
### Third principle: Thinking with mental models

When people think, they generally do not draw on concepts that they have invented themselves. Instead, they use concepts, categories, identities, prototypes, stereotypes, causal narratives, and worldviews drawn from their communities. These are all examples of

mental models. *Mental models* affect what individuals perceive and how they interpret what they perceive, as shown in figure O.5. There are mental models for how much to talk to children, what risks to insure, what to save for, what the climate is like, and what causes disease. Many mental models are useful; others are not and contribute to the intergenerational transmission of poverty. Mental models come from the cognitive side of social interactions, which people often refer to

#### Figure O.5 Thinking draws on mental models

Individuals do not respond to objective experience but to mental representations of experience. In constructing their mental representations, people use interpretive frames provided by mental models. People have access to multiple and often conflicting mental models. Using a different mental model can change what an individual perceives and how he or she interprets it.



as *culture*. Culture influences individual decision making because it serves as a set of interrelated schemes of meaning that people use when they act and make choices. These schemes of meaning function like tools for enabling and guiding action (DiMaggio 1997).

Mental models and social beliefs and practices often become deeply rooted in individuals. We tend to internalize aspects of society, taking them for granted as inevitable “social facts.” People’s mental models shape their understanding of what is right, what is natural, and what is possible in life. Social relations and structures, in turn, are the basis of socially constructed “common sense,” which represents the evidence, ideologies, and aspirations that individuals take for granted and use to make decisions—and which in some cases increase social differences. A body of writing by anthropologists and other social scientists points out that what people take to be hard evidence and common sense (their basic mental models of their world and how it works) is often shaped by economic relationships, religious affiliations, and social group identities (Bourdieu 1977; Kleinman 2006). Much of that work argues that achieving social change in a situation where mental models have been internalized may require influencing not only the cognitive decision making of particular individuals but also social practices and institutions.

A canonical example of a mental model is a *stereotype*, which is a mental model of a social group. Stereotypes affect the opportunities available to people and shape processes of social inclusion and exclusion. As a result of stereotypes, people from disadvantaged groups tend to underestimate their abilities (Guyon and Huillery 2014) and may even perform worse in social situations when they are reminded of their group membership. In these and other ways, the stereotypes can be self-fulfilling and can reinforce economic differences among groups (for example, see Ridgeway 2011 on gender stereotypes).

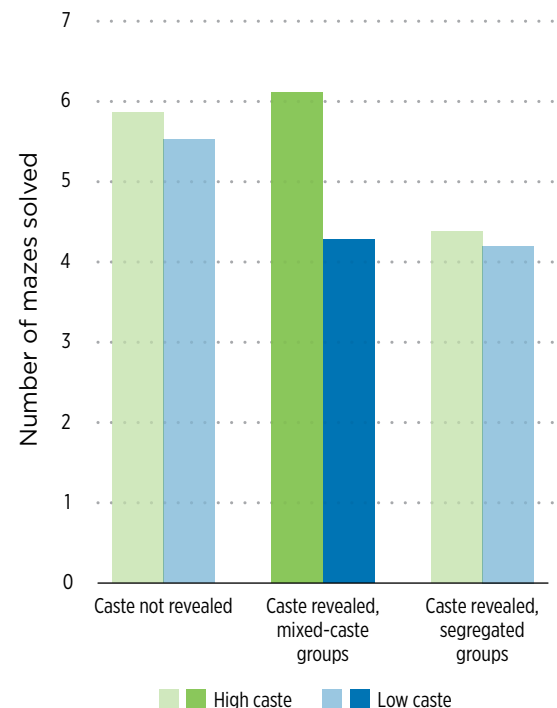
In India, low-caste boys were essentially just as good at solving puzzles as high-caste boys when caste identity was not revealed, as shown in figure O.6. However, in mixed-caste groups, revealing the boys’ castes before puzzle-solving sessions created a significant “caste gap” in achievement in which low-caste boys underperformed the high-caste boys by 23 percent, controlling for other individual variables (Hoff and Pandey 2006, 2014). Making caste salient to the test takers invoked identities, which in turn affected performance. The performance of the stigmatized low-caste boys declined relative to the performance of the high-caste boys. When caste was revealed to the high-caste boys when they were not mixed with low-caste boys, the high-caste boys underperformed, perhaps because

the revelation evoked a sense of entitlement and “Why try?” The simple presence of a stereotype can contribute to measured ability differences, which in turn can reinforce the stereotype and serve as a basis for distinction and exclusion, in a vicious cycle.

Finding ways to break this cycle could increase the well-being of marginalized individuals enormously. Evidence from a number of contexts suggests that invoking positive identities can counteract stereotypes and raise aspirations. Having individuals contemplate their own strengths has led to higher academic achievement among at-risk minorities in the United States, to greater interest in antipoverty programs among poor people, and to an increase in the probability of finding a job among the unemployed in the United Kingdom (Cohen and others 2009; Hall, Zhao, and Shafir 2014; Bennis 2013).

#### Figure O.6 Cuing a stigmatized or entitled identity can affect students’ performance

High-caste and low-caste boys from villages in India were randomly assigned to groups that varied the salience of caste identity. When their caste was not revealed, high-caste and low-caste boys were statistically indistinguishable in solving mazes. Revealing caste in mixed classrooms decreased the performance of low-caste boys. But publicly revealing caste in caste-segregated classrooms—a marker of high-caste entitlement—depressed the performance of both high-caste and low-caste boys, and again their performance was statistically indistinguishable.



Source: Hoff and Pandey 2014.

These considerations expand the toolkits of policy makers in other ways, as well. An increasingly important set of development interventions involves the media. Exposure to fiction, such as a serial drama, can change mental models (see spotlight 2 on entertainment education). For example, when people living in societies with high fertility were exposed to engaging soap operas about families with few children, fertility rates declined (Jensen and Oster 2009; La Ferrara, Chong, and Duryea 2012).

Shared mental models are persistent and can exert a major influence on individual choices and aggregate social outcomes. Because mental models are somewhat malleable, interventions can target them to promote development objectives. Individuals have many different and competing mental models that they can bring to bear on any situation; which one they use depends on which one the context activates. Policies that expose individuals to new ways of thinking and alternative understandings of the world can expand the available set of mental models and thus play an important role in development.

## Psychological and social perspectives on policy

In many cases, a fuller understanding of human decision making can help societies achieve broadly shared goals like higher savings or better health and in this

way improve individual well-being. Table O.2 presents examples of interventions based on a more realistic understanding of human behavior that takes human factors into account. Drawing on insights from modern behavioral and social sciences can generate new kinds of interventions that can be highly cost effective.

An expanded understanding of human behavior can improve development policy. Whereas part 1 of this Report is organized by principles of human behavior, part 2 is organized by development problems and illustrates how these principles can be applied in a number of policy domains.

### Poverty

Poverty is not only a deficit in material resources but also a context in which decisions are made. It can impose a cognitive burden on individuals that makes it especially difficult for them to think deliberately (Mullainathan and Shafir 2013). Individuals who must exert a great deal of mental energy every day just to ensure access to necessities such as food and clean water are left with less energy for careful deliberation than those who, simply by virtue of living in an area with good infrastructure and good institutions, can instead focus on investing in a business or going to school committee meetings. Poor people may thus be forced to rely even more heavily on automatic decision making than those who are not poor (chapter 4).

**Table O.2 Examples of highly cost-effective behavioral interventions**

Intervention	Description	Outcome
Reminders	Weekly text messages to remind patients to take their HIV drugs in Kenya.	<b>Adherence to a medical regimen</b> Weekly reminders improved the rate of drug adherence to 53% from a baseline of 40%.
Nonmonetary gifts	Small nonfinancial incentives and prizes—like lentils and metal dinner plates—were combined with a reliable immunization provider within the community in India.	<b>Immunization rate</b> Among children aged 1–3, rates of full immunization were 39% with the lentils incentives compared to 18% in the group with only the reliable immunization provision. In areas with no intervention, the rate of full immunization was 6%.
Public notices	Small stickers were placed in randomly selected buses encouraging passengers to “heckle and chide” reckless drivers in Kenya.	<b>Traffic accidents</b> Annual insurance claims rates for accidents declined from 10% to 5%.
Making products convenient	Chlorine dispensers were provided free of charge at local water sources, and promoters of chlorination to treat water were hired to visit houses in Kenya.	<b>Take-up of chlorination</b> The take-up rate was 60% in households with dispensers, compared to 7% for the comparison group.
Inspirational messages	Poor households were shown videos about how people like them had escaped from poverty or improved their socioeconomic status in Ethiopia.	<b>Aspirations and investment</b> Aspirations for children increased. Total savings and investments in schooling were higher after six months.
Timing of cash transfers	Part of a conditional cash transfer was automatically saved and given as a lump sum at the time when decisions about school enrollment were made in Colombia.	<b>Enrollment in higher education</b> Enrollment increased in the next school year, without a decline in current attendance.

Sources: Pop-Eleches and others 2011; Banerjee and others 2010; Habyarimana and Jack 2011; Kremer and others 2009; Bernard and others 2014; Barrera-Osorio and others 2011.

Sugar cane farmers in India, for example, typically receive their income once a year, at the time of harvest. The large income difference between just before the harvest and just after affects financial decision making. Right before the harvest, these farmers are much more likely to have taken on loans and to have pawned some of their belongings. This financial distress takes a toll on the cognitive resources that the farmers have available before harvest time (Mani and others 2013). Farmers perform worse on the same series of cognitive tests before receiving their harvest income than after receiving their earnings—a difference in scores that is equivalent to roughly 10 IQ points. In this sense, poverty imposes a *cognitive tax*.

## Drawing on insights from modern behavioral and social sciences can generate new kinds of interventions that can be highly cost effective.

Development policy aimed at reducing or removing the cognitive tax on poverty might seek to shift the timing of critical decisions away from periods when cognitive capacity and energy (*bandwidth*) are predictably low (such as moving school enrollment decisions closer to periods when income is higher) or targeting assistance to decisions that may require a lot of bandwidth (such as choosing a health insurance plan or applying to a higher education program).

Psychological and anthropological research also suggests that poverty generates a mental model through which the poor see themselves and their opportunities. In particular, it can dull the capacity to imagine a better life (Appadurai 2004). Evidence also shows that interventions and policy designs that alter this mental model so that people can recognize their own potential more easily—or that at least spare poor people from reminders of their deprivation—can increase important development outcomes such as school achievement, labor market participation, and the take-up of antipoverty programs.

### Child development

High stress and insufficient socioemotional and cognitive stimulation in the earliest years, which tend to be associated with growing up poor, can impair the development of both the automatic decision-making system (for instance, the ability to cope with stress)

and the deliberative system (for example, the ability to pay attention). Chapter 5 discusses these issues.

In all countries studied to date, whether low, middle, or high income, there is a divergence as early as age three in the cognitive and noncognitive skills of children in households at the bottom of the national wealth distribution and those in households at the top. The disparity stems in part from problems that policy can address.

The problem of insufficient stimulation to children is of particular concern for low-income countries. A study of caregiving practices by mothers in 28 developing countries found that socioemotional caregiving did not vary widely by level of development. In contrast, the amount of cognitive stimulation that mothers provide is systematically lower in countries with lower measures of economic, health, and education variables, according to the United Nations Human Development Index (figure O.7). In this study, the level of cognitive stimulation was measured by the number of times that a caregiver read books, told stories, and engaged in naming, counting, or drawing with the child. When cognitive stimulation among infants is low, they have fewer and less sophisticated linguistic interactions, which can result in less facility with language and impede future scholastic achievement.

Very early childhood stimulation has a large impact on adult success in the labor market, a 20-year study in Jamaica found (Gertler and others 2014). Community health workers made weekly home visits to teach mothers how to play and interact with their children in ways that promote cognitive and emotional development. Children who were randomly selected to participate in the program earned 25 percent more as adults than those in the control group who did not participate in the program—enough to close the earnings gap with a population that was not disadvantaged.

### Household finance

Making a good financial decision is difficult. It requires individuals to understand the future cost of money, focus on gains and losses evenhandedly, resist the temptation to consume too much, and avoid procrastinating. Recent behavioral and social insights demonstrate the difficulties involved, while also opening avenues for policy makers to help individuals make decisions that serve their interests and achieve their goals (chapter 6).

High consumer debt often results from a form of thinking automatically, in which individuals attach much more weight to current consumption through borrowing than to the loss of consumption that will occur when they have to pay back a loan in the future. Certain types of financial regulation can help

consumers frame their decisions about borrowing in a broader context that encompasses more than the prospect of immediate consumption. This kind of regulation helps individuals make financial decisions that they would likely prefer if they had thought deliberately about them rather than automatically.

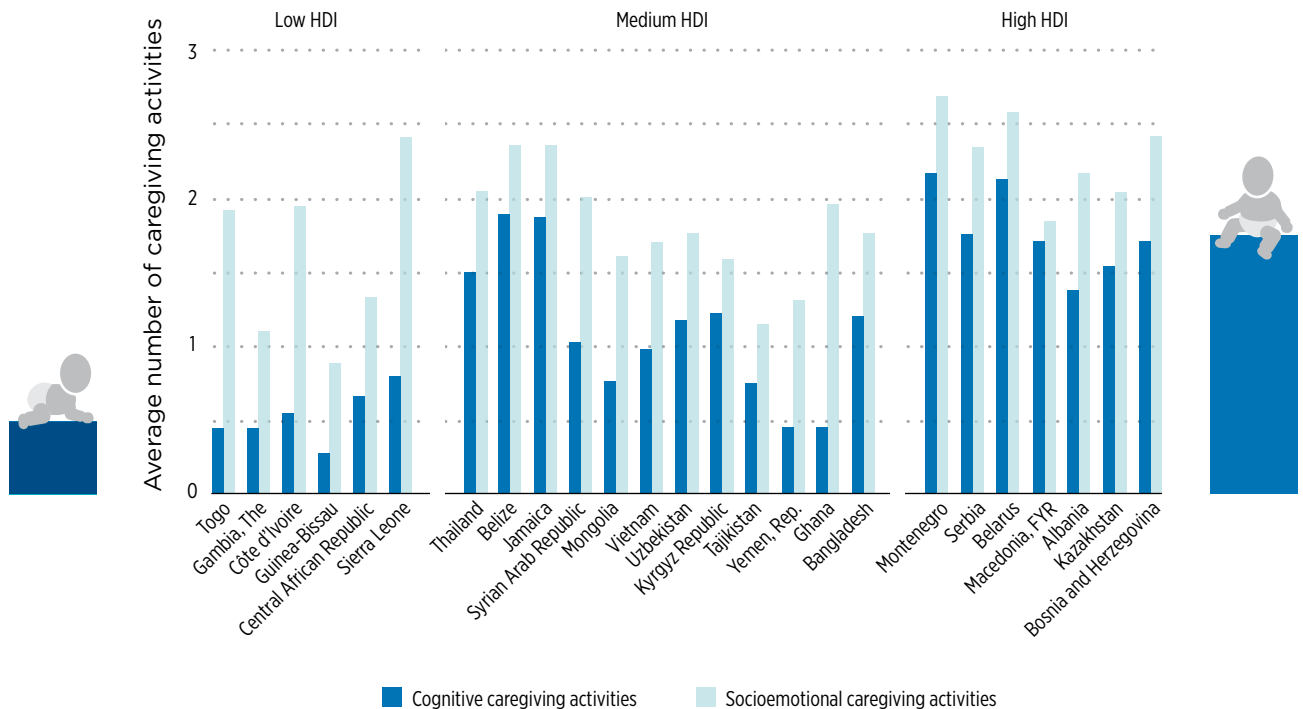
An experiment with a low-income population in Mexico shows how bandwidth constraints may limit how people process financial information (Giné, Martinez Cuellar, and Mazer 2014). Low-income individuals from Mexico City were invited to choose the best one-year, 10,000 peso loan product (that is, roughly \$800) from a randomized list of loan products resembling ones locally available. Individuals could earn rewards if they identified the lowest-cost product. As shown in figure O.8, panel a, only 39 percent of people could identify the lowest-cost product when presented with brochures designed by banks for their customers. But a much larger fraction (68 percent) of individuals

could identify the lowest-cost credit product using a user-friendly summary sheet designed by the Consumer Financial Credit Bureau of Mexico (figure O.8, panel b).

Another set of interventions has focused on savings. Some programs have helped individuals attain their savings goals through the use of reminders that make the goals more salient. A series of studies in Bolivia, Peru, and the Philippines show that simple, timely text messages reminding people to save improve savings rates in line with their goals (Karlan, Morten, and Zinman 2012). Other programs have helped individuals increase their savings by offering *commitment devices* in which consumers voluntarily give up access to their savings until they meet a specified target level of savings. When savings accounts were offered in the Philippines without the option of withdrawal for six months, nearly 30 percent of those offered the accounts accepted them (Ashraf, Karlan, and Yin 2006).

**Figure O.7** There is greater variation across countries in cognitive caregiving than in socioemotional caregiving

Cognitive caregiving activities, shown by the dark bars, tend to be much greater in countries with high Human Development Indexes (HDI) than in countries with low HDI, although there are only slight differences in socioemotional activities (light bars) across countries. The height of the bars with babies on them indicates the average number of cognitive caregiving activities reported by parents in low- and high-HDI countries.

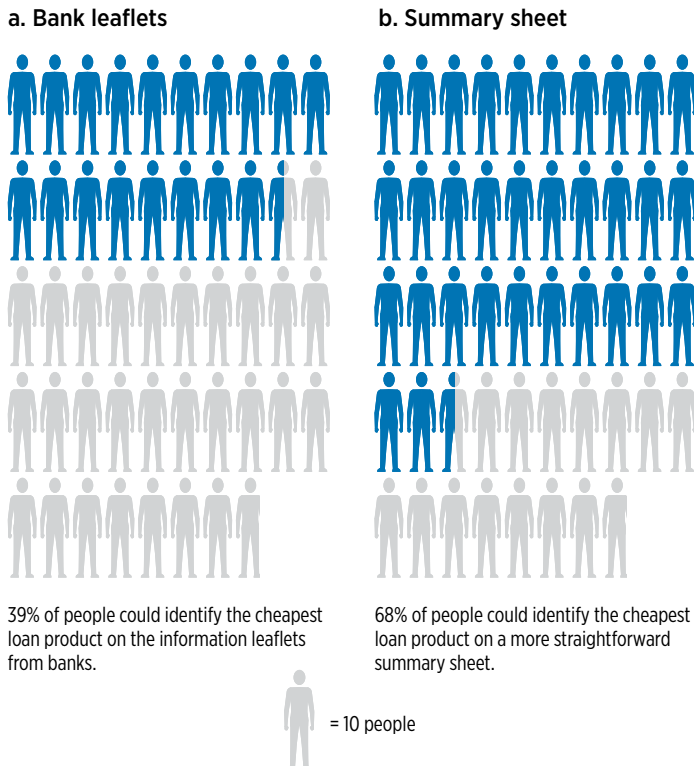


Source: Bornstein and Putnick 2012.

Note: The bar graphs show the number of caregiving activities reported by mothers in the past three days, based on comparable data from 28 developing countries ranked by the United Nations Human Development Index (HDI). The three categories of cognitive caregiving activities measured were reading books; telling stories; and naming, counting, or drawing with the child.

### Figure O.8 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, Martínez Cuellar, and Mazer 2014.

After one year, individuals who had been offered and had used the accounts increased savings by 82 percent more than a control group that was not offered such accounts. These and other studies show that psychological and social factors impede financial decision making and that interventions that target these factors can help individuals achieve financial goals.

### Productivity

Automatic thinking, social thinking, and thinking with mental models also play a large role in worker motivation and the investment decisions of farmers and entrepreneurs (chapter 7). Even when monetary incentives are strong, individuals may not exert the amount of effort that they intend, unless or until a deadline or payday looms. For example, workers may frame the decision to work at each moment narrowly

and thus miss achieving their own goals (the so-called *intention-action divide*).

The gap between intentions and actions inspired an intervention that offered data entry workers in India the opportunity to select a contract in which each worker could choose a target for the number of accurately typed fields he or she entered. If a data entry worker achieved her target, she would be paid at the normal piece rate. If she missed her own target, however, she would be paid at a lower rate. If people can simply do what they intend to do, there is no benefit to choosing this kind of contract because workers do not increase their pay if they meet the target, but lower their pay if they do not. But if workers recognize that there is a gap between intentions and actions, the commitment contract can serve a useful purpose. Because effort has a cost in the present and a reward in the future, individuals may spend less time on effort than their deliberative minds would prefer. The commitment contract gives the individual an incentive to work harder than she might in the current moment when the work needs to be done. In the case of the data entry workers in India, about one-third chose the commitment contract—indicating that some of the workers themselves had a demand for commitment devices. The self-chosen commitment contracts did increase effort. Workers who opted for them increased their productivity by an amount equivalent to what would have been expected from an 18 percent increase in piece-rate wages (Kaur, Kremer, and Mullainathan 2014).

The way that an identical level of pay is described can also affect productivity. Take performance pay for teachers, in which teachers are paid a bonus at the end of the year that depends on the academic performance or improvement of their students. This kind of intervention failed to improve test scores in low-income neighborhoods in the U.S. city of Chicago (Fryer and others 2012). Another variant of the program, however, altered the timing of the bonuses and cast them as losses rather than as gains. At the beginning of the school year, teachers were given the amount that administrators expected the average bonus to be. If their students' performance turned out to be above average at the end of the year, they would receive an additional payment. If student performance was below average, however, they would have to return the difference between what they received at the beginning and the final bonus they would have received had their students performed above average. This loss-framed bonus improved test scores substantially. As these examples suggest, well-designed interventions that take into account people's tendencies to think automatically, socially, and with mental models can improve productivity.



## Health

The decisions people make about their health and their bodies emerge out of a tangle of information, the availability and prices of health goods and services, social norms and pressures, mental models of the causes of disease, and willingness to try certain interventions. By recognizing this broad array of human factors, development policy involving health can in some cases dramatically improve its results (chapter 8).

Consider the problem of open defecation. About 1 billion people defecate in the open, and defecation has been linked to infections in children that lead to stunted growth and in some cases death. A standard approach is to provide information, along with goods at a subsidized cost—in this case, to construct toilets. But even with these changes in place, new sanitation norms are also needed to end this unhealthy practice. Government officials in Zimbabwe developed “community health clubs” to create community structures that served as a source of group endorsement for new sanitation norms (Waterkeyn and Cairncross 2005).

A related approach to creating new norms with some promising anecdotal evidence is Community-Led Total Sanitation (CLTS). One core element of this approach is that CLTS leaders work with community members to make maps of dwellings and the locations where individuals defecate in the open. The facilitator uses a repertoire of exercises to help people recognize the implications of what they have seen for the spread of infections and to develop new norms accordingly. A recent and systematic study of CLTS in villages in India and Indonesia provides evidence of the initiative’s value as well as its limitations. The CLTS programs were found to decrease open defecation by 7 and 11 percent from very high levels in Indonesia and India, respectively, compared to control villages. But where CLTS was combined with subsidies for toilet construction, its impact on toilet availability within households was much higher. These findings suggest that CLTS can complement, but perhaps not substitute for, programs that provide resources for building toilets (Patil and others 2014; Cameron, Shah, and Olivia 2013).

Mental models of the body also affect health choices and behaviors. Beliefs about the causes of sterility, autism, and other conditions influence parents’ decisions to vaccinate their children, as well as to adopt appropriate therapies. In India, 35–50 percent of poor women report that the appropriate treatment for a child with diarrhea is to reduce fluid intake, which makes sense if the prevailing mental model attributes the cause of diarrhea to too much fluid (so the child is “leaking”) (Datta and Mullainathan 2014). However, there is a low-cost and extraordinarily successful therapy for diarrhea: oral

rehydration therapy (ORT). While ORT saves lives by preventing dehydration, it does not stop the symptoms of diarrhea, making the benefits less easy to perceive. The Bangladesh Rural Advancement Committee tackled the barriers to take-up of ORT by designing a home-based approach, in which community health workers were employed to teach mothers how to make ORT solutions at home in face-to-face social interactions that explained the value of the therapy. This and similar campaigns boosted the adoption of ORT in Bangladesh and across South Asia.

Initiatives to increase the use of health products and services often rely on subsidies, another area where psychological and social insights matter. Individuals may be willing to adopt and use health products if they are free but almost completely unwilling to use them when prices are just above zero (Kremer and Glennerster 2011). The reason is that prices for health products have many meanings in addition to the quantity of payment required in an exchange. A product that is free triggers an emotional response, and it may convey a social norm that everyone should be and will be using it. Setting prices at zero, however, can promote waste if people take the product but do not use it. Research on this topic in developing countries is recent, but the emerging message is that if products are valuable enough to subsidize, there may be significant payoffs to setting prices at zero and not just close to zero.

The choices of health care providers also arise from a complicated tangle of factors, including the scientific information at their disposal, how much and how they are paid, and professional and social norms. Simply reminding providers of the social expectations surrounding their performance can improve it. For example, clinicians in urban Tanzania significantly increased their effort when a visiting peer simply asked them to improve their care (Brock, Lange, and Leonard, forthcoming), even though the visit conveyed no new information, did not change incentives, and imposed no material consequences. While developing and enhancing professional and social norms in health care is not simple and the same solution will not work everywhere, there are many examples in which leadership has transformed social expectations and improved performance.

## Climate change

Responding to climate change is one of the defining challenges of our time. Poor countries and communities are generally more vulnerable to the effects of climate change and will also bear significant costs during transitions to low-carbon economies. Addressing climate change requires individuals and societies not only to overcome complex economic, political, technological,

and social challenges but also to get around a number of cognitive illusions and biases (chapter 9). Individuals ground their views of climate on their experience of recent weather. Ideological and social allegiances can result in *confirmation bias*, which is the tendency of individuals to interpret and filter information in a manner that supports their preconceptions or hypotheses. Individuals tend to ignore or underappreciate information presented in probabilities, including forecasts for seasonal rainfall and other climate-related variables. Human beings are far more concerned with the present than with the future, and many of the worst impacts of climate change could take place many years from now. People tend to avoid action in the face of the unknown. *Self-serving bias*—the tendency of individuals to prefer principles, particularly principles regarding fairness, that serve their interests—makes it hard to reach international agreements on how to share the burdens of mitigating and adapting to climate change.

Psychological and social perspectives also expand the menu of options for addressing climate change. One option is to use policy to foster new habits of energy use. In a study of the effect of an eight-month period of compulsory electricity rationing in Brazil, evidence shows that the policy led to a persistent reduction in electricity use, with consumption 14 percent lower even 10 years after rationing ended. Household data on the ownership of appliances and on consumption habits indicate that a change in habits was the main reason for the decrease in consumption (Costa 2012).

An energy conservation program in the United States illustrates how social comparisons can also influence energy consumption. The company running the program, Opower, mailed “home energy reports” to hundreds of thousands of households; these reports compared a household’s electricity use to the amount used by others in the neighborhood in the same time period. This simple information led to a 2 percent reduction in energy consumption, which was equivalent to reductions resulting from short-term increases in energy prices of 11–20 percent and a long-term increase of 5 percent (Allcott 2011; Allcott and Rogers 2014).

## The work of development professionals

Recognizing the human factor in decision making and behavior has two interrelated repercussions for the practice of development. First, experts, policy makers, and development professionals, like everyone else, are themselves subject to the biases and mistakes that can arise from thinking automatically, thinking socially, and using mental models. They need to be more aware of these biases, and organizations should implement

procedures to mitigate them. Second, seemingly small details of design can sometimes have big effects on individuals’ choices and actions. Moreover, similar challenges can have different underlying causes; solutions to a challenge in one context may not work in another. As a result, development practice requires an iterative process of discovery and learning. Multiple psychological and social factors can affect whether a policy succeeds; while some of these may be known before implementation, some will not be. This means that an iterative process of learning is needed, which in turn implies spreading resources (time, money, and expertise) over several cycles of design, implementation, and evaluation.

### Development professionals

While the goal of development is to end poverty, development professionals are not always good at predicting how poverty shapes mindsets. The WDR 2015 team administered a randomized survey to examine judgment and decision making among World Bank staff. Although 42 percent of Bank staff predicted that most poor people in Nairobi, Kenya, would agree with the statement that “vaccines are risky because they can cause sterilization,” only 11 percent of the poor people sampled (defined in this case as the bottom third of the wealth distribution in that city) actually agreed with the statement. Similarly, staff predicted that many more poor residents of Jakarta, Indonesia, and Lima, Peru, would express feelings of helplessness and lack of control over their future than actually did, according to the WDR 2015 team survey. This finding suggests that development professionals may assume that poor individuals may be less autonomous, less responsible, less hopeful, and less knowledgeable than they in fact are. Beliefs like these about the context of poverty shape policy choices. It is important to check mental models of poverty against reality (chapter 10).

The WDR 2015 team survey also studied the ways in which ideological and political outlooks affect how World Bank staff members interpret data. Survey respondents were presented with identical data in two different contexts and then were asked to identify the conclusion that the data best supported. One context was politically and ideologically neutral: the question asked which of two skin creams was more effective. The second context was more politically and ideologically charged: the question asked whether minimum wage laws reduce poverty. The survey found that World Bank staff members were more likely to get the right answer in the skin cream context than in the minimum wage context, even though the data were the same in both. One might be tempted to add that this occurred

even though many World Bank staff members are highly trained experts on poverty, but in reality this occurred because World Bank staff members are highly trained on that topic. Faced with a demanding calculation, they interpreted new data in a manner consistent with their prior views, about which they felt confident. This survey followed the line of inquiry developed by Kahan and others (2013).

One way to overcome the natural limitations on judgment among development professionals may be to borrow and adapt certain methods from industry. *Dogfooding* is a practice in the technology industry in which company employees themselves use a product to experience it and discover its flaws. They work out its kinks before releasing it to the marketplace. Policy designers could try to go through the process of signing up for their own programs, or trying to access existing services, as a way of diagnosing problems firsthand. Similarly, the practice of *red teaming*, used in both the military and the private sector, could help uncover weaknesses in arguments before big decisions are made and programs are designed. In red teaming, an outside group has the role of challenging the plans, procedures, capabilities, and assumptions of an operational design, with the goal of taking the perspective of potential partners or adversaries. Red teaming is based on the insight, from social psychology, that group settings motivate individuals to argue vigorously. Group deliberation among people who disagree but who share a common interest in finding the truth can divide cognitive labor efficiently, increase the odds that the best design will come to light, and mitigate the effects of “groupthink.”

### **Adaptive design, adaptive interventions**

Because a number of competing factors may sway decision making in a particular context and because development professionals themselves may be prone to certain biases when assessing a situation, diagnosis and experimentation should be part of a continuous process of learning (chapter 11). Institutional mechanisms of development research and policy should ensure space for sound diagnosis and for effective feedback loops for adapting programs that align with the evidence gathered during implementation. This step might require changing institutional mental models and increasing an organization’s tolerance for failure. In many cases, the initial diagnosis may be incorrect or may be only partially successful. Only through implementation will this become clear. However, instead of penalizing failure or burying findings of failure, organizations need to recognize that the real failures are policy interventions in which learning from experience does not happen.

To see the usefulness of this approach, consider the problem of diarrheal disease and some experiments implemented in Kenya to learn about cost-effective methods to tackle it (Ahuja, Kremer, and Zwane 2010). Bacteria-laden water is a major contributor to the burden of disease among children and can lead to lifelong physical and cognitive impairment. Lack of access to clean water was diagnosed as a problem. Thus an early intervention aimed at improving the infrastructure at households’ water sources, which are naturally occurring springs. The springs were susceptible to contamination, such as fecal matter from the surrounding

**Development professionals are themselves subject to the biases and mistakes that can arise from thinking automatically, thinking socially, and using mental models. They need to be more aware of these biases, and organizations should implement procedures to mitigate them.**

environment. To reduce contamination, the springs were covered with concrete so that water flowed from an above-ground pipe rather than seeping from the ground. While this measure considerably improved water quality at the source, it had only moderate effects on the quality of the water consumed at home because the water was easily recontaminated while it was being carried or stored.

Thus the problem was redefined this way: households did not adequately treat their water at home. Another iteration of experiments demonstrated that providing free home delivery of chlorine or discount coupons that could be redeemed in local shops elicited high take-up of the water treatment product at first but failed to generate sustained results. People needed to chlorinate their water when they returned home from the spring, and they needed to continue to go to the store to purchase the chlorine when their initial supplies ran out.

These results suggested yet another diagnosis of the problem: households cannot sustain the use of water treatment over time. This led to the design of free chlorine dispensers next to the water source,

which made water treatment salient (the dispenser served as a reminder right when people were thinking about water) and convenient (there was no need to make a trip to the store, and the necessary agitation and wait time for the chlorine to work automatically occurred during the walk home). It also made water treatment a public act, which could be observed by whoever was at the spring at the time of water collection, allowing for social reinforcement of using water treatment. These dispensers proved to be the most cost-effective method for increasing water treatment and averting diarrheal incidents (Abdul Latif Jameel Poverty Action Lab 2012).

## Multiple behavioral and social factors can affect whether a policy succeeds. Thus development practice requires an iterative process of discovery and learning, which implies spreading time, money, and expertise over several cycles of design, implementation, and evaluation.

Results like these, as well as the process of continuous investigation used to establish them, are encouraging. So is the realization that a more complete consideration of the psychological and social factors involved in decision making may offer “low-hanging fruit”—that is, policies with relatively large gains at relatively low cost. But given that small changes in design and implementation can have large consequences for the success of an intervention, ongoing experimentation will be crucial. Analysis of existing or newly collected data and field observations will generate hypotheses that can inform the design of possible interventions. *Multi-armed interventions*—interventions that vary a number of parameters, such as the frequency of reminders or the method of rewarding effort—can shed light on which ones are more effective in meeting the social objective. The learning that takes place during implementation should then feed back into redefining, rediagnosing, and redesigning programs in a cycle of continued improvement (figure O.9).

Before policy makers launch initiatives to help individuals with decision making, they should confront a normative question: Why should governments be

in the business of shaping individual choices? There are three basic reasons, as discussed in spotlight 6. First, shaping choices can help people obtain their own goals. Reminders to save or take medicine help people who are otherwise caught up in life achieve objectives that they themselves have set. Commitment contracts, which markets underprovide, can reinforce decisions to adopt healthful behaviors. Matching the timing of social transfers to the timing of charges for school enrollment, or making it easier to buy fertilizer at harvest time when cash is at hand, can help overcome the divide between intentions and actions for people who may be forgetful or possess insufficient willpower (that is to say, all of us). Many development policies that operate at the boundary of economics and psychology can be understood in those terms.

Second, individuals' preferences and immediate aims do not always advance their own interests. Individuals might choose differently, in ways more consistent with their highest aspirations, if they had more time and scope for reflection. Third, socially reinforced practices and mental models can block choices that enhance agency and promote well-being and thus prevent individuals from even conceiving of certain courses of action—as when discrimination can sometimes lead people, understandably, to adopt low aspirations. Governments should act when inadequate engagement, situational framing, and social practices undermine agency and create or perpetuate poverty. Although development actors have legitimate differences on some of these issues and place different weights on individual freedoms and collective goals, widely shared and ratified human rights constitute a guiding principle for addressing these trade-offs.

Not every psychological or social insight calls for more government intervention; some call for less. Because policy makers are themselves subject to cognitive biases, they should search for and rely on sound evidence that their interventions have their intended effects, and allow the public to review and scrutinize their policies and interventions, especially those that aim to shape individual choice. Still, it is not the case that when governments refrain from action, individuals freely and consistently make choices in their own best interest, uninfluenced by anyone else. Any number of interested parties exploit people's tendency to think automatically, succumb to social pressure, and rely on mental models (Akerlof and Shiller, forthcoming), including moneylenders, advertisers, and elites of all types. In that context, governmental inaction does not necessarily leave space for individual freedom; rather, government inaction may amount to an indifference to the loss of freedom (Sunstein 2014).

### Figure O.9 Understanding behavior and identifying effective interventions are complex and iterative processes

In an approach that incorporates the psychological and social aspects of decision making, the intervention cycle looks different. The resources devoted to definition and diagnosis, as well as to design, are greater. The implementation period tests several interventions, each based on different assumptions about choice and behavior. One of the interventions is adapted and fed into a new round of definition, diagnosis, design, implementation, and testing. The process of refinement continues after the intervention is scaled up.



Source: WDR 2015 team.

This Report seeks to accelerate the process of applying the new insights into decision making to development policy. The possibilities and limits of this approach—based on viewing people more fully and recognizing that a combination of psychological and social forces affects their perception, cognition, decisions, and behaviors—are not yet completely known. The research presented in the Report comes from an active, exciting, and unsettled field. This Report is only the beginning of an approach that could eventually alter the field of development economics and enhance the effectiveness of development policies and interventions.

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