

The psychology of poverty

Theories about poverty often fall into two general categories: that the behaviors of poor people reflect the best choices they can make in unfavorable circumstances, and, alternatively, that these behaviors are a result of a unique “culture of poverty” based on deviant values. The first view presumes that people are highly rational, hold coherent and well-informed beliefs, and pursue their goals effectively with no need for help. The second view attributes to the poor a variety of shortcomings that make them misguided, uninformed, impulsive, and in need of paternalistic guidance in order to make reasonable choices. While there is no doubt that people—the poor included—are at times methodical and calculating, and at other times fallible or misguided, a third, alternate theory takes a different tack and is informed by recent behavioral research. According to this view, scarcity experienced as a result of economic instability and poverty reduces already limited cognitive resources, resulting in detrimental behaviors and ineffective decision-making.

In the research summarized here, Sendhil Mullainathan examines the implications of this perspective on the challenges of creating economic mobility. Current policies designed to improve outcomes for poor people may be effective when successfully implemented, but program administrators may find it difficult to get people in the door, and then to carry through with the program. Similarly, early childhood programs that rely on parental participation and complementary parental behaviors may not succeed if poor parents do not follow through. A variety of costly behaviors by the poor such as debt traps, failure to take available and necessary medications, or obesity, may further inhibit economic mobility. Mullainathan suggests that these behaviors are a result of increased psychological stress caused by poverty, and that it may be possible to design antipoverty programs that make it easier for poor people to succeed if this reduced functioning is taken into account. In this article, the psychology of scarcity is examined, followed by a brief discussion of policy implications and potential policy responses.

Psychology of scarcity

Mullainathan argues that cognitive resources, such as attention and self-control, are limited. Using both laboratory and field research, he demonstrates that scarcity further reduces

This article summarizes the 2010–2011 IRP New Perspectives in Social Policy Seminar given by Sendhil Mullainathan on September 21, 2010. This seminar series is designed to reach beyond familiar and well-explored fields of poverty research, to challenge accepted paradigms, and to open paths to new research models and methodologies.

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those already limited resources, hampering the ability of poor people to follow through on tasks or to make effective decisions.

Attention

Attention is a scarce resource; people can only focus on a limited number of things at one time. One must choose what to focus on, although this choice is not always conscious. Numerous laboratory experiments have demonstrated that people have limited attention and that they have the capacity to allocate this attention. In a case when subjects must choose between two things to pay attention to, unattended things are generally not remembered at all. In the real world, this means that parents may not be able to attend fully to their jobs if they are also worrying about problems at home, while inattention at home could result in early symptoms of a child’s illness going unnoticed, or medication for a chronic condition not being taken.

Mullainathan and his colleagues did a field study in three countries that demonstrated that simply directing someone’s attention to something they have stated they wanted to do, but might otherwise forget, can have significant results. In this case, people voluntarily agreed to participate in a savings program. Those who received a single text message reminder if they failed to meet their savings goal in a given month had a 6 percent higher savings rate than those who did not receive a reminder. Similar kinds of studies on medication-taking by HIV patients have found very high compliance rates achieved with simple reminders such as a pill bottle that lights up and beeps if it is not opened each day. In both cases, people have the intention to do something, but on their own may fail to allocate some of their limited attention to achieving that goal. Simply focusing people’s attention on the stated goal may be sufficient to get them to achieve it.

Self-control

Another limited cognitive resource with similar consequences is self-control. The Stanford marshmallow experiment, conducted in 1972 by Walter Mischel, is a classic illustration of self-control.¹ Children were led into a room, given a choice of treats, then left alone in the room with the instruction that they could eat the treat, but if they could wait for 15 minutes without eating it, they would be rewarded with a second treat. Video of the children shows that this was a difficult task. Another study conducted by Baba Shiv and Alexander Fedorikhin demonstrated how depletion limits self-control.² Subjects asked to remember either a 2-digit or 7-digit number for 10 minutes waited in a room with a choice of cake or fruit salad. Those working to remember the longer number were considerably more likely to choose cake than those asked to remember the shorter number.

Mullainathan and his colleagues conducted a field study to investigate the real-world implications of these psycho-

logical findings. In this case, the researchers confirmed their theory that workers may face self-control problems that limit their productivity, and that making a binding commitment to work harder can actually produce that result. In a data-entry firm, where workers are compensated on a piece-rate basis, employees were given the opportunity to improve their production (and thus increase their pay) by setting a threshold for themselves. If they met the threshold, they would be paid the regular rate, but if they fell short, they would only earn half the rate. Economically, choosing to agree to a threshold is clearly a bad deal, since they do not earn anything extra if they meet it, and earn half what they would have otherwise if they do not meet it. Still, given this opportunity, workers chose to set the threshold about a third of the time. Workers randomly assigned to receive the threshold offer on a given day (whether or not they chose it) had production and earnings that were higher than those not given the offer. This illustrates that lack of self-control did limit productivity, and that it is possible for an individual to increase his or her self-control.

How does scarcity tax these resources?

Having established that cognitive resources such as attention and self-control are both important and limited, the next issue is to demonstrate how having very little of them taxes these resources. This section begins with a conceptual argument, which is followed by experimental evidence.

The packing problem: A suitcase metaphor

The conceptual argument derives from the “knapsack problem” in complexity and computational theory. Imagine packing for a trip, using either a small or large suitcase. If you have a large suitcase, it is an easy task to pack everything important with room to spare. You may even choose not to completely fill the suitcase. With a small suitcase, however, the task becomes much more complex. If not all important items will fit, you must consider trade-offs, such as what to take out if one more item is added. The suitcase can represent any resource, such as money. In that case, someone with ample resources can easily purchase all needed items with money left over. They may consider the wisdom and value of a particular small purchase, but are not likely to explicitly consider what other item must be given up in its place. In contrast, someone with limited funds must spend a lot of time and mental energy thinking about what to purchase, as each item chosen means some other item or items is foregone. In other words, having fewer resources makes decision-making much more complex. Complex problems draw on limited cognitive resources, which in turn means that there are fewer resources available for self-control.

Evidence on the effects of scarcity

Mullainathan and his colleagues have experimental evidence that people with less money are much more likely to know how much things cost than those with more money, even for items things that poorer people were less likely to spend

money on. In a study conducted in Boston, people at a train station were asked what the initial fare was when you first get into a taxi. People with a low socioeconomic status (SES) were considerably more likely to correctly identify this amount than people with a high SES, even though they were much less likely to actually take a taxi. People with less money were paying better attention to the price, because prices matter more to them. Similar studies have been done with people leaving a supermarket, who are asked the price of specific items and the total amount they spent. Again, people with a low SES are much more likely to be able to answer these questions correctly than people with a high SES.

Mullainathan and his colleagues were also able to show that poorer people have a clear and absolute understanding of the value of a dollar, while more wealthy people may infer the value of a dollar based on the context. People were asked to imagine that a friend went to buy an appliance priced at \$100, \$500, or \$1,000. The friend was informed that a store 45 minutes away offered the same item on sale for \$50 less. Subjects were asked if they would advise their friend to travel to the other store to save \$50. The response to this question varied greatly depending on the income level of the respondents. In a high-income area, subjects were much less likely to advise traveling to save \$50 as the initial price of the item rose. In contrast, in a low-income area, subjects were much more likely to advise travel, and the initial price of the item made little difference to their recommendation.

An experiment conducted in a New Jersey mall showed that asking poor people to think about money depleted their cognitive resources. Participants were asked to consider either an easy or hard financial problem or an easy or hard non-financial mathematics problem. While they were considering the problem, they were asked to complete a test of cognitive control that required concentration. For those with below-median income, there was a significant drop in the cognitive control test score, while those with above-median income showed little change.

A final piece of evidence that scarcity is depleting comes from a real-world example, harvest of sugar cane in India. Sugar cane is a crop that is harvested once a year, but the harvests are staggered over some months, so the same calendar month could be a pre-harvest month for some farmers and a post-harvest month for others. Since sugar cane farmers receive all of their annual income at once, they will be poor immediately before the harvest, and rich after. This creates panel data that allowed the researchers to compare pre- and post-harvest spending while controlling for month effects such as festival spending and seasonality. Farmers were not very good at smoothing spending across the year; while expenditures on food were similar in pre- and post-harvest months, post-harvest spending on other items was dramatically higher. Study outcomes included the Stroop test, a psychological test of attention, as well as allostatic load, a physiological measure of stress.³ Mullainathan and his colleagues found that farmers scored significantly better on the Stroop test in the month after harvest than they did

in the month before harvest. They also found that farmers had significantly lower stress levels after the harvest. These results support the researchers' argument that scarcity taxes cognitive resources.

What are the consequences of reduced cognitive resources?

The evidence presented above shows that scarcity can be distracting, since managing tight resources requires more attention and self-control. One final piece of evidence from a laboratory experiment suggests some of the implications of reduced cognitive resources on the lives of the poor, including facilitating self-destructive credit practices. This experiment uses a "Family Feud" game to create a condition of scarcity. Subjects played a game in which they had to guess popular answers to a question. They earned points for correct answers, and received a monetary reward based on their total number of points over 20 rounds. All participants had the opportunity to complete practice rounds before playing for money. Half of the subjects were in a "rich" group, and had ample time (50 seconds) to complete each round of the task, while the other half were in a "poor" group, and had quite limited time available for each round (20 seconds). Within each group, one-third were permitted to "borrow" seconds from a future round, one-third could borrow at a 100 percent interest rate (one additional second in the current round "cost" two seconds from a future round), and the remaining third could not borrow. The intention of the borrowing condition was to allow participants to allocate their time according to how familiar they were with each question, so that, ideally, they could have more time to answer questions with which they were less familiar. Those in the poor group were more likely to borrow than those in the rich group. Those in the poor group were also less sensitive to the interest rate; they were nearly as likely to borrow at the 1:2 rate as at the 1:1 rate, while those in the rich group were much less likely to borrow seconds when they cost more.

As one would expect, those in the poor group earned fewer points than those in the rich group. The more interesting result, however, comes from comparing the different borrowing conditions within each group. Those in the rich group gained no particular benefit from being able to borrow, but since they did not borrow often, it did not particularly hurt them either; there is no significant difference between points earned in the no-borrow and 1:2 interest rate conditions. For those in the poor group, however, borrowing consistently lowers their point total, and higher interest rate borrowing lowers their points more. The data show that this is because of over-borrowing; those in the poor group tended to borrow seconds a lot in the early rounds, thus leaving themselves little time for later rounds.

This experiment illustrates two important points. First, attention was required; participants needed to choose how much time to focus on the current problem, as compared to future problems. Those in the "poor" group tended to focus

on the current problem to the exclusion of future problems, and to their ultimate detriment. In this situation, credit turns out to be a bad thing; it may help with the current problem, but hurt with future problems, and thus overall. Second, this experiment was done with Princeton undergraduate students, so one can assume that outside factors such as financial literacy, upbringing, and early childhood development have no effect in this particular case. Nor could they have any effect in the sugar cane experiment, since the same people were being compared at two different times. This supports Mullainathan's contention that detrimental decision-making by the poor is attributable to the condition of having very little, not to shortcomings that are unchangeable characteristics of poor people.

Policy implications

In his seminar, Mullainathan concluded that these results have important public policy implications, particularly related to take-up and retention in programs designed to help the poor. As currently designed, many of these programs actually *create* cognitive burdens, thus adding unnecessary challenges for those they are intended to assist.

One example of this can be seen in programs designed to increase college attendance for low-income teens, which tends to be much lower than for their higher-income peers. Prevailing wisdom would say that reducing the cost would increase attendance, but simply making Pell Grants available did not significantly increase low-income attendance. Another explanation is that the student aid application was too complicated, and required more attention than people had. Having an administrator complete the form, rather than just providing information about it, resulted in significantly higher college enrollment.⁴ Simplification works because instability makes dealing with complexity particularly challenging; forms are tough for all of us, but toughest when attention is most depleted. Forward-looking actions require attention and self-control. Instability taxes both of these, and thus makes economic mobility harder.

Policy responses

Mullainathan identified two broad categories of policy responses—creating stability, and creating mobility programs that are resistant to the effects of instability. An example of the first type of policy response would be supplementing Unemployment Insurance with wage or hours worked insurance to help maintain a consistent salary for people facing a cutback yet retaining their job. Another approach would be a crisis-triggered social safety net card that people could have in-hand in the event of a sudden drop in income. Newly available financial products such as a debit card that includes a saving mechanism could also help in this area.

As currently constructed, many mobility programs rely on stability as a condition of success. How could these pro-

grams be structured differently in order to remove this condition? An illustration of this is training classes. Most of these are designed so that each class builds on the last, making them particularly prone to instability. If you miss one class, it is much harder to get yourself to the next class, and this only gets more difficult the more you miss. An “instability-proof” alternative would be to have rotating training class opportunities, where one could, for example, attend three of the next 10 classes over the next four months in order to receive a training certificate. This approach would present some challenges, since new curricula would be required, but the effort could pay off in creating a program that was much easier for participants to follow through on.

Poverty and economic instability reduce cognitive resources such as attention and self-control. These conditions make it much harder for the poor to behave in a way that will improve their economic fortunes, and much easier for them to make decisions that impede their mobility. Public policies should be designed to offset this scarcity phenomenon.■

¹W. Mischel, Y. Shoda, and M. I. Rodriguez, “Delay of Gratification in Children,” *Science* 244 No. 4907 (May 26, 1989): 933–938.

²B. Shiv and A. Fedorikhin, “Heart and Mind in Conflict: The Interplay of Affect and Cognition in Consumer Decision Making,” *Journal of Consumer Research* 26 (1999): 278–292.

³In the Stroop test, participants are asked to name the ink color for different words, where the word may be a color name that differs from the ink color (for example, the word “green” might be printed in blue ink, so the correct answer would be “blue.”) An alternate version of the Stroop test for people who are illiterate asks participants to count objects, where some of the objects are numbers. Both versions of the Stroop test were used in this study. Allostatic load is a measure of the body’s response to stress and can be measured using cardiovascular indicators such as heart rate.

⁴Bettinger, Long, Oreopoulos and Sanbonmatsu (2009) “The Role of Simplification and Information in College Decisions: Results from the H&R Block FAFSA Experiment.”