report

Overcoming behavioral obstacles to escaping poverty

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abstract

International development policy is ripe for an overhaul. Behavioral science can help policymakers to spur changes in behaviors that are difficult to explain from a conventional economic perspective and impede economic development. We focus here on two well-documented, often coinciding psychological phenomena that have particularly wide-ranging implications for development policy: present bias (favoring immediate rewards over long-term considerations) and limited attention. We present a number of general policy recommendations that are informed by insight into these phenomena and offer concrete examples of how the recommendations can be implemented to help low-income individuals improve their lives and reach their long-term goals.

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Core Findings

What is the issue?
International development policy should take human psychological phenomena into account as well as classic economic theory. In particular, research shows that individuals exhibit irrational biases toward the present, and poverty limits their attention spans. Developing interventions that account for these phenomena can boost uptake and effectiveness.

How can you act?
Selected recommendations include:
1) Timing the delivery of interventions for when people are most likely to be receptive, such as after a harvest
2) Offering programs that lock in or otherwise increase commitment to savings
3) Using cognitive aids to remind people of optimal behavior

Who should take the lead?
Behavioral science researchers, policymakers in development

How can international development policies induce farmers to adopt improved agricultural technologies, get parents to vaccinate their children, prompt patients to comply with treatment regimens, and encourage poor people to save more? These seemingly disparate challenges have a common feature: insights from behavioral science can help to improve the effectiveness of efforts to address them.

For example, the standard rational perspective of classic economic theory would predict that offering a higher interest rate should motivate people to save more. A recent field experiment in Chile found, however, that a large majority of participants did not increase savings in response to this approach, even though interest rates increased substantially, from 0.3% to 5%. By contrast, savings almost doubled when subjects were able to announce their savings goals to a self-help group and had their progress publicly monitored and rewarded in nonmonetary ways—such as with praise—at the group's weekly meetings.[1] Thus, a basic understanding of even a small number of the principles that guide human behavior can help policymakers to alter behaviors that make little sense from a conventional economic perspective and pose challenges to economic development.

We discuss two well-studied psychological phenomena that have wide-ranging implications for international development policy: present bias and limited attention. For clarity, we begin by explaining the two concepts separately, although they operate concurrently in many of the situations we discuss.

Present Bias Deters Investment in the Future

Investing in the future is critical to people's well-being. Such investments can take many forms, such as saving to buy business supplies without paying exorbitant interest rates to a moneylender, purchasing fertilizer to improve next year's crop yield, sending children to school, or traveling to get preventative medical care. These examples might sound like obvious steps to take, but behavioral science reveals that people often fail to expend small amounts of money, time, or effort up front to obtain much larger benefits in the future. When it comes to trading off between immediate and future outcomes, such decisions depend on the relative weight one assigns to results achieved now versus later on. The pull of instant gratification often keeps people from making the optimal choices they say they would have made if someone had asked them to reflect on those decisions when not under the immediate influence of temptation. In other words, present bias—overweighting short-term versus long-term rewards—gets in the way.[2]

This deviation from optimality occurs frequently. In the abstract, people often prefer to make the long-run investment but then are tempted in the moment to take the immediate benefit, only to regret the choice later.[3] For example, a parent who knows she should be saving for her child's school fees might falter and purchase a tempting meal if she walks past a restaurant when she is hungry. Conversely, a small but unpleasant obstacle right now can have a large influence on decisions: a parent might want to vaccinate her child, but the prospect of a long, hot walk to the clinic (when she doesn't know for sure that the clinic will even be open) might lead her to procrastinate—perhaps indefinitely.

Present bias is common to those in rich and poor countries alike.[2] Behavioral scientists have not only documented the phenomenon but have also worked with international development experts and policymakers to design programs that take it into account. Many of these programs have been rigorously tested and proved to be effective at changing behavior in ways that lead to positive long-run outcomes.

Limited Attention Impairs Decisionmaking

To understand poverty, one must recognize that its defining features—the shortage of money, time, and basic necessities such as sleep and food—affect psychological functioning in nonobvious ways that can undermine poor people's ability to escape their circumstances. This is true even when policies or programs are implemented that, in principle, provide sufficient

opportunities for people to pull themselves out of poverty. Everyone has limited attentional bandwidth, but wealthy people, freed from having to spend this precious attention on acquiring food, shelter, and other basics, have more attention available for handling unexpected hassles and making strategic decisions to improve their circumstances. In contrast, the challenge of navigating everyday life when one lacks adequate resources is enormous. Poor people are often left with little or no spare attentional capacity to devote to such important things as remembering to take their pills every day or navigating the complicated bureaucratic process to qualify for an assistance program. Making matters worse, poverty directly affects the environment in which people live, which often creates additional attentional demands. For example, lack of access to such basic services as piped water, electricity, child care, and affordable financial services adds numerous daily decisions to the cognitive plate of a person in poverty, whose attentional bandwidth is already scarce.[4,5]

Principles for Policymakers

In general, policies aimed at serving the poor will be more effective if they alleviate the difficulties imposed by present bias and limited attention. Although both conditions are pervasive across humanity, they take a greater toll on the well-being of those experiencing scarcity than on the well-being of those who are wealthier. Next, we discuss several policy strategies that can achieve this goal and provide evidence of their effectiveness in a range of sectors.

Reduce the Up-Front Cost of Future-Oriented Behavior

Everyone has some tendency to procrastinate; people delay doing what they know is in their long-term interest because they usually have no compelling reason to bear the up-front cost today when they can put it off until tomorrow. The narrowing of attention produced by poverty—focusing on immediately pressing needs to the exclusion of other important but less urgent needs[5]—aggravates this natural present bias. As a result, even minor up-front costs, such as small copayments, minor inconveniences, or the need to expend extra effort, can be important barriers to investment in future well-being.

A key practical policy lesson that flows from this understanding is that the way to battle procrastination in well-being investments is to reduce and ideally abolish the up-front cost of obtaining health products that offer substantial benefits at reasonable prices but go underutilized. Fifteen randomized trials showed dramatic increases in uptake in response to even small reductions in prices for products such as insecticide-treated bed nets (ITNs) for avoiding mosquito-borne diseases, dilute chlorine for disinfecting drinking water, and deworming tablets.[6] This principle helped catalyze large-scale distribution of free ITNs in sub-Saharan Africa, an effort that is estimated to have saved 4 million lives since 2000.[7] Similar actions could produce cost effective increases in the use of many other prophylactic products that can increase the well-being of people living in the developing world.

Likewise, reducing the up-front costs associated with education could yield outsized benefits. One study illustrating this point found that providing free school uniforms to students in Kenya at a cost to the state of $6 a student, a small fraction of the total cost of a child's education, led to a 6.4 percentage point increase in school attendance.[8] Helping countries reduce or eliminate school fees and giving vouchers for free school uniforms are practical and straightforward policies that could improve school enrollment in places where it is low.

Beyond reducing fees for long-term investments, minimizing or eliminating what might seem like trivial inconveniences can dramatically increase the uptake of services. This approach could include strategies such as reducing or simplifying paperwork (or better yet, instituting automatic enrollment in programs), minimizing travel times required to take advantage of programs, and helping with child care and transportation. In one instance, helping households to fill out the application for an interest-free loan to cover the cost of piped water in Morocco increased participation from 10% to 69%.[9] (This jump mirrors the U.S. finding that helping families fill in FAFSA forms for federal student aid increased

4m

lives saved in sub-Saharan Africa from insecticide-treated bed net interventions, since 2000

the cost of a school uniform intervention in Kenya associated with a 6.4 percentage point increase in attendance is **$6 per student**

33%

increase in immunization rates in rural Rajasthan associated with the provision of free lentils at clinics

"It can sometimes be better to charge a small fee and make a service very convenient than to charge nothing for a very inconvenient service"

low-income students' first-year college attendance rate by 24%.)[10]

The need to travel even modest distances (that is, more than a 10- to 15-minute walk) is another type of inconvenience that can powerfully dampen service uptake. In Malawi, the likelihood that people would show up to receive the results of an HIV test fell sharply when the distance they needed to travel increased by even a small amount.[11] Similarly, in Kenya, the likelihood that people would take advantage of protected springs as a water source that reduced the risk of diarrhea fell with small increases in the distance they had to travel to reach the water.[12]

Because price and inconvenience are both barriers to investing in future well-being, policymakers should think carefully about the trade-offs between them. One might assume that the poor would be willing to endure significant inconvenience to avoid even a small financial cost for services, but this assumption has a serious flaw: it fails to appreciate that overcoming inconvenience requires attention (to plan for and solve logistical challenges) that poor people cannot spare. Therefore, it can sometimes be better to charge a small fee and make a service very convenient than to charge nothing for a very inconvenient service.

This point is illustrated by the success of a nonprofit entrepreneurial program for delivering preventive health products in rural Uganda. A randomized evaluation found impressive community health gains when women sold underused health products such as ITNs, water purification tablets, and antimalarial drugs door to door at a discounted (but nontrivial) price, eliminating the hassle of seeking these products out.[13]

Charging a bit to reduce inconvenience is a very promising approach that deserves to be scaled up. Notably, it could be expanded to improve maternal and child health broadly, because travel is particularly difficult for pregnant women and those with young infants. Ideally, all pregnant women would undergo at least one prenatal checkup (so a medical professional can assess risk factors and encourage the mother to have a trained attendant at the birth) and all infants would receive basic immunizations. Evidence suggests that use of such services would increase dramatically if they were provided within villages or at least at coordinated central locations accessible by cheap and easy transportation and if other forms of assistance were available (for example, a teen helper coming to the woman's door to accompany her or watch her other children while she went for a checkup). Conversely, in situations where logistical constraints require that services be provided at less convenient locations, small (but immediate) material incentives (for example, a bag of lentils and a set of metal plates) can be an effective way to offset inconvenience. In India, free lentils increased immunization rates in rural Rajasthan from 6% to 39%.[14]

Time the Delivery of Subsidies for When People Are Most Likely to Be Receptive

Both present bias and limited attention suggest that the timing of interventions can be critically important in ways that are not obvious from a traditional economic perspective. For example, sugarcane farmers in India typically receive their income once a year—at the time of harvest—and therefore tend to be relatively rich right after the harvest and relatively poor right before it. In a powerful illustration of both the attentional costs of poverty and the importance of timing, a recent study documented that these farmers perform worse on tests of sustained attention in the period immediately before the harvest, when money is tight. The difference in scores translates to roughly 10 IQ points.[15]

Traditionally, the timing of subsidies has been determined arbitrarily, presumably on the assumption that a subsidy delivered now is

"At times, people will take elaborate steps to protect themselves from succumbing to short-term temptations"

at least as useful as a subsidy delivered later. But recent evidence from behavioral science and development research indicates that this approach misses an opportunity to enhance uptake: it would be more effective to give subsidies at times when people are most likely to have the attentional bandwidth needed to think about and take full advantage of them. It seems probable, for instance, that the low-income sugarcane farmers would be in a better mental state to evaluate and accept a beneficial offer immediately after the harvest, when they face fewer pressing demands.

Aligning the timing of subsidies with the timing of important decisions or expenses is another effective strategy. In Tanzania, promoters of health insurance deliberately went to the distribution points of a cash transfer program to sign people up for health insurance when they received the transfers (and therefore had greater liquidity). This deliberate timing contributed to a 20 percentage point increase in the use of health insurance.[16] Similarly, farmers respond more favorably to the promotion of agricultural products (such as fertilizer and hybrid seeds) if approached at harvest time, when they have money available for those investments and when their attentional capacity is not overly taxed by the need to grapple with scarce financial resources. Finally, subsidies to encourage education could be timed to coincide with when school fees are due. In a recent demonstration of the value of this approach, a program in Bogota, Columbia, that offered cash conditionally in exchange for reenrolling children in school produced higher rates of reenrollment when a portion of the monthly transfer was postponed until just before the reenrollment period. Moreover, this time-sensitive design was particularly effective for those who needed it the most (and whose families were most likely to be facing scarce liquidity and attention): the students from the families with the lowest incomes and the lowest participation rates.[17] To maximize effectiveness, such programs should give parents advance notice of the subsidy and possibly even help with planning and budgeting, to ensure that they have money available to pay for expenses beyond those covered by the subsidy.

Offer Programs That Lock In or Otherwise Increase Commitments to Savings

People are often well aware that temptation or distraction at critical moments can derail their pursuit of long-term goals. As a result, to keep themselves on track, they may be willing—even eager—to subject themselves to costly penalties for failing to stick to their goals.[18] African farmers living in poverty offer an example of how such *commitment savings* approaches can be made to work. Impoverished farmers sometimes underuse technologies that they say they want and know can increase profits. This is probably partly because they get paid at harvest but do not need hybrid seed and fertilizer until months later; holding on to their money that long can be hard. Offering a small, time-limited discount on the cost of acquiring fertilizer (for example, in the form of free delivery) right after harvest, when money is relatively plentiful, is a form of commitment savings that has been found to increase purchase rates of fertilizers in Kenya by 11 percentage points.[19] Estimates suggest that to produce a similar purchase rate later on, when fertilizer would normally be bought, a 50% subsidy of the purchase price would be needed.

At times, people will take elaborate steps to protect themselves from succumbing to short-term temptations.[20,21] They may choose, for instance, to lock their money away where they cannot access it for some predetermined length of time.[22,23] Some people may even pay for this restriction on their freedom, for example, by accepting a lower interest rate on money they cannot easily access on a whim.

One concern with commitment devices is that they come with a risk: Locking money away means it is not available for unanticipated but genuinely important expenses. This worry

can prevent people from taking advantage of commitment devices or can constrain people's ability to cope if they do commit and then an urgent situation arises. An alternative, inspired by work on the theory of mental accounting, is soft commitments, such as labeling a savings account for particular expenditures (like education) without a strict constraint on how the money in it can actually be spent.[24] In a recent study in Uganda, researchers compared a program in which saved money could only be used for educational expenses with a program in which the savings were encouraged but not required to go to education (that is, it was possible to simply withdraw the cash). In both cases, families saved more and spent more on education supplies than a control group did. But families saved the most money in the latter case, when they knew they could still withdraw the money for other things if they needed to.[25]

Thus, making commitment devices available (and easy to use) can be an effective tool—and one that is even sought out by individuals who recognize their susceptibility to short-term temptation, poor planning, and distraction—especially at times of peak demand on people's limited attentional resources. These tools are, however, not useful for all individuals, and softer commitments, such as earmarking an account for particular expenses, may be preferable in situations when more flexibility is required.

Introduce Cognitive Aids

Because poor people often have to attend to multiple pressing needs at the same time, the limits of their attention are continually strained.[5] Thus, it is not surprising that they may be more likely than others to miss crucial information or forget to take intended actions that could improve their welfare. Sometimes, statements explicitly pointing out what might seem obvious to a person not suffering from attentional scarcity can make a big difference. In a recent study, experienced seaweed farmers in Indonesia had noticed that the spacing between their seaweed strands affected their yield, so they paid attention to the spacing when planting the strands. But the farmers failed to notice that the size of the strands they planted also affected their yield, even though the lower yield was easily observable. Consequently, they did not consider strand size in farming decisions and did not even know what the size of the strands they used was. The study showed that merely offering farmers the opportunity to observe how researchers varied the size of the strands and the effect of that variable on yield was not enough for farmers to notice the relationship. Only when researchers explicitly pointed out the relationship between strand size and yield did farmers notice it and change their practices.[26] This result has nothing to do with the intelligence of the farmers. A fact is only obvious if the observer has the spare attentional capacity to notice it.[27]

Simple reminders are another type of straightforward cognitive aid that can be surprisingly beneficial. All people sometimes forget to do things they meant to do—take pills, mail the rent check, and so on. But, perhaps unsurprisingly, when attention is overtaxed, people are even less likely to follow through with intended actions. When attention is completely taken up with pressing demands, people are unlikely to step back and ask whether they are forgetting to do something. A policy problem that exemplifies the worsened *intention–action gap* that occurs when bandwidth is constrained is the incomplete adherence to medical treatment regimens for conditions like tuberculosis or HIV/AIDS. In the case of HIV, patients commonly receive a 1-month supply of pills and must remember to take those pills every day. Even when patients understand and genuinely intend to adhere to their treatment, they often forget to do so amid the chaos of other pressing demands on their attention. The consequences of such forgetting can be life-threatening, but a simple fix can help. For example, research in rural Kenya demonstrated that the percentage of HIV patients who achieved perfect or near-perfect treatment adherence (that is, at least 90%) during the nearly yearlong study period increased from 40% to 53% when they received weekly text-message reminders.[28]

Similarly, although breastfeeding is considered the best practice for nourishing babies (especially because high-quality infant formula and clean water are not available in much of the developing world), competing responsibilities—such

as household chores or caring for older children—can make keeping it up difficult. Simple cognitive aids can help, including, for example, physical reminders, such as stickers on bottles, that note that bottles are appropriate primarily for older infants and toddlers.

Sometimes aids that might seem unnecessary to a person whose attention is not overburdened can be enormously helpful to someone whose attention is overwhelmed. Simple actions, like pointing out well-known facts at the right time or sending well-timed reminders, can be important tools to improve decisionmaking among the poor. Reminder messages in particular have been delivered in field experiments by text message, e-mail, postcard, letter, phone, and in-person survey. They have been shown to improve a wide range of outcomes, including saving rates in Uganda;[25] loan repayment in Bolivia, Peru, and the Philippines;[29,30] compliance with obligatory child support payments in the United States;[31] vaccination rates in rural Guatemala;[32] use of water treatment products in Kenya;[33,34] and payment of delinquent fines in the United Kingdom.[35] But reminders must not be too frequent or they risk crossing the line from useful aid to additional drain on limited attention.[28] Also, they are likely to be especially effective for irregular events, such as immunization visits, for which people are less able to form a habit.

A Need for Experimentation

A couple of issues relating to these strategies merit consideration. When tested, certain minor variations often work better than others—sometimes in ways and for reasons that would have been difficult to anticipate without testing. This not only suggests the need for more experimentation but also underscores the sometimes surprising impact of subtle design features. For example, not all reminders are equally effective. Although weekly messages worked very well for HIV treatment adherence in rural Kenya, an alternative design with daily messages did not affect adherence (presumably because too-frequent messages are ignored—or, worse, become an added cognitive burden).[28] Additional research is needed to provide generalizable rules of thumb for design issues such as timing, length, and frequency of reminders; mode of delivery; content; and framing of messages. But even with more research, general rules can offer only limited guidance about the optimal implementation of a policy. It is often difficult to predict how cultural differences and unobserved variation between contexts might influence the effect of even a well-researched treatment. Thus, wherever feasible, any new policy applying behavioral principles should be evaluated rigorously in the context in which it is meant to be implemented before being deployed at scale (as should all new policies).

"opportunities exist to layer behavioral interventions on top of existing programs"

A second issue is that although many findings demonstrate that the strategies listed here have had significant effects in the short run, little is known about how long the effects last. This uncertainty is immaterial in situations where the goal is to encourage one-off actions, such as when sending a one-time reminder to get children vaccinated. It is more of a concern when the effectiveness of a policy or program depends on people taking sustained, repeated action to form a new habit, as is the case when daily reminders are sent with the intention of increasing compliance with long-term medical regimens. Further research is needed to clarify the long-term effects of some of these techniques.

Policymakers are in an ideal position to conduct much of this research. They are often mandated to implement specific programs in particular settings and populations, which seems to leave little room for experimentation of the type described above. But because many of these interventions are inexpensive or free to implement, opportunities exist to layer behavioral interventions on top of existing programs. For instance, automated reminder text messages can be sent in bulk at extremely low cost. Therefore, an existing program to promote vaccination

Sample behavioral strategies to enhance the effectiveness of development programs and policies

Recommended policy strategy	Psychological phenomenon behind recommendation	Sample policies
Reduce the up-front cost of future-oriented behavior	Present bias and limited attention	• Reduce or abolish copayments for underutilized preventive health products such as insecticide-treated bed nets, hand soap, or family planning products.[A] • Reduce logistical hurdles and, where relevant, the potential embarrassment associated with the uptake of preventive health and family planning products by organizing entrepreneurs to sell such products (at discounted prices) door to door, increasing convenience and privacy.[B] • Reduce bureaucratic hurdles to program uptake through automatic enrollment or simplified paperwork.[C] • Reduce travel times to take advantage of programs such as prenatal health care, either by providing such services within villages or by organizing easy, low-cost transportation to central locations.[D]
Time subsidies for when people are most likely to be receptive, such as when they are making important decisions or outlays	Present bias and limited attention	• Offer beneficial but high-cost products or services (for example, health insurance) at times when people have greater liquidity (for example, right after a cash transfer) and more spare attentional capacity to evaluate offers.[E] • Align the timing of cash transfers with the time at which school fees are due to encourage school enrollment.[F]
Offer programs that that lock in or otherwise facilitate savings	Present bias and limited attention	• Incentivize the purchase of farming technologies (for example, fertilizer, hybrid seed) immediately after the harvest, alleviating the need for farmers to save money from the harvest until the next year's planting season.[G] • When the inflexibility of hard commitments discourages participation or risks imposing undue costs on people, offer soft commitments, such as savings programs that are earmarked for specific expenses (for example, education) but still allow the savings to be used for other purposes.[H,I]
Introduce cognitive aids	Limited attention	• Provide text, e-mail, postcard, letter, or phone reminders of the need for important actions, such as taking HIV medication, contributing to savings accounts, or using water treatment products.[F,J–L]

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(such as a vaccination camp) could easily and cheaply send text reminders to a randomly chosen subset of the target population and then compare the vaccination rates in the groups that did and did not receive the reminders.

Other messaging interventions can be added to existing programs in similarly straightforward ways, especially when the program already includes communication with potential recipients. For instance, it is trivial to add a request for a soft commitment to an existing interaction with the recipient. Similarly, tests of optimal intervention timing can often be conducted without additional cost if programs are rolled out over a period of time. If, say, fertilizer discounts are already being made available to farmers, policymakers might be in a position to vary the timing at which these discounts are announced in randomly selected areas and thereby learn about the differential impact of the program as a function of offer timing. (This approach is a specific example of a more general method, called *phase-in design,* for achieving randomization even when programs are to be delivered to every household or individual in a particular area.) Such piggybacking of behavioral intervention tests on existing programs would allow even policymakers with strong and inflexible implementation mandates to discover techniques that could improve the effectiveness of the programs they already have in place.

Policymakers need to experiment, but they also need to be aware of their own biases. Like other humans, they have limited attentional bandwidth and often devote too little thought to decisions because they think they already know the answer or because their own cultural, political, or moral perspective constrains their thinking in ways they might not even notice. Indeed, even technically trained professionals at the World Bank recently were shown to make more mistakes when evaluating data that were presented as referring to a controversial topic in their field than they did when the same data were framed as referring to a neutral topic.[36] Relatedly, personal predispositions might lead some policymakers to presume that behavioral interventions are ineffective and others to see those same interventions as "silver bullet" solutions for all problems. The truth lies somewhere in between and is considerably more nuanced. Nevertheless, it is now clear that behavioral interventions are a valuable tool, and when such interventions are combined with more conventional policy tools—such as regulation, education and training, standard economic incentives, and infrastructure—they can help ameliorate poverty and improve well-being.

The Long View

Living in poverty puts additional and often overwhelming demands on a person's attention. This attentional burden can intensify present bias and otherwise impair decisionmaking, causing the poor to miss opportunities to improve their situation. Behavioral insights suggest techniques to lessen the negative impact of this attentional tax on the poor. These techniques often complement more traditional approaches to easing the burdens of the poor. Applications of the principles outlined here offer tremendous promise for improving the effectiveness of development programs.

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