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Using Behavioral Economics to Reduce Poverty and Oppression

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USING BEHAVIORAL ECONOMICS TO REDUCE POVERTY AND OPPRESSION

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Abstract: *Until recently, economics conceived of poverty solely as a lack of material resources. This view likely captures the reality of poverty experienced by many people around the globe. However, two waves of behavioral economics demonstrate that the narrowing of people's external environments may change people themselves: poverty lowers the quality of decision-making, and poverty and oppression may depress the capacity to aspire. Poverty and a history of oppression also change how individuals are perceived. To overcome these effects may require helping people acquire new mental models. This essay discusses key findings from behavioral economics, the implications for agency, and some interventions with promising outcomes. We hope to inspire scholars and policymakers to think more deeply about the nature of poverty and oppression and to consider policies that target the psychological and sociological factors that create cycles of poverty.*

KEY WORDS: psychology of scarcity, culture, cognition, mental models, agency, role models, participatory theater

I. INTRODUCTION

There can be much more to poverty than meets the eye. In standard economics, poverty is only a lack of material resources. This view captures the reality for many people around the globe. However, for other people, poverty is a deeper problem. Two waves of behavioral economics, with very different foci, demonstrate that poverty affects cognition and preferences in ways that lead individuals to make decisions that can perpetuate their poverty. Addressing these causes of poverty sometimes requires giving people more than material resources and economic opportunities. To bring their opportunities into clearer focus, individuals may need new mental models of how the world works. To address the causes of poverty and oppression may also require creating a cognitive foundation for shifts in social constructs and social norms. This essay discusses key findings from the two waves of behavioral economics on the effects of poverty and oppression, what these effects mean for our understanding of agency, and some interventions that can help break cycles of poverty. We hope to inspire scholars and policymakers to think more deeply about the nature of poverty and oppression and to consider how policies that affect psychological and sociological factors can serve as levers for increasing well-being.

In standard economics, people have stable preferences, a stable sense of who they are, and a far-sighted view of their opportunities. The decision maker is *Homo economicus*, that is, a rational actor who has no trouble saving a proportion of his income for future needs and who wisely invests in health care, education, and capital to reap rewards in the future. He never

succumbs to temptation and does not suffer from any psychological states that compromise his future.

Behavioral economics has a more realistic view of human nature. The first wave of behavioral economics focuses on universal biases and bounded rationality. It shows that poverty creates a psychology of scarcity that leads to short-sighted decision making.[1] People in a context of scarcity—including people who are not poor but who are experimentally induced to experience scarcity—often take the most convenient actions to satisfy urgent needs, such as excessive borrowing at high interest rates, and thereby amplify their resource scarcity in the long run.[2] They are so distracted by fears of not being able to meet urgent needs that they have low productivity.[3]

The second wave of behavioral economics recognizes deeper departures from standard economics that draw on sociology and the new field of cultural psychology, which emerged in the 1990s. The second wave recognizes that choice sets are circumscribed by social constructs—concepts that exist because people agree that they exist and through which people make sense of the world. Social structures and social interactions shape these concepts.[4] Social constructs may be passed down over centuries. For example, modern Italians whose ancestors lived in self-governing city-states in the Middle Ages have today greater trust in people outside their family, more nonprofit organizations, higher participation in referenda, and greater self-efficacy than do people living in regions that did not experience self-government in the Middle Ages.[5] These groups have different conceptions of the role that a citizen can play in society.

Experience gives people taken-for-granted knowledge structures that influence perception and cognition and gives them scripts for how to behave in many situations. Such knowledge structures are called mental models or schemas.[6] People have mental models for almost

everything they have experienced or been exposed to—for example, whether they should be honest or corrupt, how adults ought to interact with children, how to partition people into categories, and what people in those categories are like. Social norms are embedded in mental models.

The concept of mental models goes back at least to Immanuel Kant, who argues that people bring concepts to everything they see and that perceptions without concepts are blind.[7] Kenneth Craik argues in *The Nature of Explanation* that reasoning based on mental models better explains a great deal of behavior than does reasoning based on traditional economic theory.[8] Human thinking, Craik asserts, is essentially the manipulation of internal models of the world to predict the immediate future, which is critical to our ability to navigate the world. Mental models help explain, for instance, why jurors who learn all the same facts of a case may arrive at different conclusions about "what happened" in a situation and why.

The power of mental models is captured by a story Nelson Mandela told of a time when he took an Ethiopian Airways flight home to South Africa: "As I was boarding the plane I saw that the pilot was black. I had never seen a black pilot before, and the instant I did I had to quell my panic: How could a black man fly an airplane?"[9] Mandela, a black man himself, had absorbed from his cultural surroundings the idea that "pilot" is a category of white persons. Black skin signaled a lack of category-fit, even for someone who ought to be able to mentally override the influence of this social construct! In the same way, individuals who grew up never seeing women in positions of authority or public responsibility have a different idea of what gender means than those who grew up in a society where gender equality was practiced. Poor people who grew up in impoverished neighborhoods may lack a mental model in which it is possible that they or their children escape poverty.

Being social creatures, humans engage in vast amounts of social learning.[10] A key aspect of social learning is the unconscious adoption of cultural mental models, as in the examples given above. Mental models layer cultural meanings, associations, and presumed causal relationships on top of objective phenomena. Mental models are epistemological resources that mediate our experience of objective reality[11] and, thus, have important consequences for economic behavior.[12] A common metaphor is that people see the world through "cultural lenses."

We are sometimes asked whether—for the sake of parsimony and streamlined communication—these ideas could be incorporated into standard economic concepts of preferences and beliefs. The answer is: "No, not really." Unlike preferences in the standard economic model, a cultural lens is dynamic rather than fixed. This feature of humans has been demonstrated in a wide range of empirical work in economics, primarily in finance, by Ulrike Malmendier. She captures this feature of humans in the term she uses for economic agents: *Homo experiens*[13]; in other words, the meanings we give to things depend on what we have experienced. Furthermore, culture can lead to preference reversals. Culture is fragmented; it is not an entity. The cultural mental models that influence a person at a particular moment may depend on seemingly inconsequential aspects of context.[14]

On the surface, the concept of "beliefs" is a better candidate than preferences for capturing the influence of cultural mental models on how we think and act. However, this conceptualization also misses the mark. It does not capture the degree to which cultural ideas can (1) "get under the skin" and become part of a person's identity; (2) be widely shared, sometimes exclusively within a particular community; (3) be dependent on cues that bring a mental model to the top of one's mind; and (4) include inconsistencies, of which normally an individual will

not be aware. These features have major implications for truly understanding and addressing through policy the cultural ideas that perpetuate poverty and oppression.

Rational actors update their beliefs when they receive new information; real humans often do not. My belief that my car is fine and does not need servicing would be easily corrected by a mechanic who showed me a faulty part that needed replacing. However, my belief that Donald Trump won the U.S. presidential election in 2020 or that women do not belong in school might not change in the face of seemingly unambiguous evidence to the contrary. In standard economics, beliefs are subjective probabilities about the state of the world that individuals rationally update when new information becomes available. In behavioral economics, in contrast, confirmatory bias, motivated reasoning, and perceptions mediated by cultural mental models impede updating.[15] For these reasons, we see mental models as different from beliefs as they are conceptualized in economics. Nothing would prevent us from using the phrase "shared beliefs" to capture widely held and deeply influential beliefs that are a part of cultural lenses, but we think that this language downplays the degree to which these beliefs become naturalized and taken for granted within a community, especially when the community holds monolithic as opposed to pluralistic beliefs. Changing shared beliefs often requires something besides information delivered in a dry way. As our examples will show, changing cultural beliefs often requires emotionally engaging experiences and common knowledge that people in the relevant community have changed their beliefs.

Does this approach have analytic traction? It depends on the objective. Our objective is not to identify every possible belief or mental model in order to specify a more complete utility function. Instead, our objective is to identify one mental model, or a small number of them, that

influences poverty or oppression in a particular context as a starting point for thinking about policies that could increase agency by expanding individuals' repertoires of mental models.

Behavioral economics points to new ways to address poverty and oppression. The first wave of behavioral economics suggests policies that go beyond the provision of resources to simplify choice problems and "nudge" stressed, fast-thinking, and present-biased individuals to make better decisions. We discuss a multifaceted program that helped people become healthier, happier, and less poor by providing assets as well as easy access to savings, on-the-job training, and encouragement.

The second wave of behavioral economics suggests policies that go beyond the psychology of scarcity to understand sociocultural factors related to poverty and powerlessness. This line of work indicates that people may need more than additional material resources or a nudge to build a better life. They—and the society in which they live—may also (or instead) need new epistemological resources, including new ideas about how the world works and what the place in it should be of people who have earlier been categorized as outsiders. It is not easy for people to change longstanding attitudes. Eviatar Zerubavel notes that people develop irrational and difficult-to-control commitments to cultural mental models.[16] Yet, recent experiments show that interventions can change longstanding attitudes and that role models are a powerful mechanism by which to do it.

The main argument of our essay is that mental models acquired in contexts of poverty and oppression—and mental models *not* acquired by individuals who are chronically in such contexts—are *a causal factor in the persistence of poverty and oppression.* People tend to essentialize cultural categories and their meanings instead of realizing how much depends on circumstance and can be changed.

In Sections II and III, we summarize findings from the psychology of scarcity and from an impact evaluation in seven countries of a randomized intervention that addressed economic, informational, and psychological needs of the "ultra poor." Section IV examines implications of behavioral economics for agency. Section V discusses three interventions that led individuals to adopt new mental models.[17] These examples show that "cultural tool kits" influence individual behavior, institutions, and social equilibrium and that policy interventions can change the tool kits.

II. The Psychology of Scarcity

The brain changes in response to an external environment of poverty. Some of the changes have beneficial effects, such as people becoming more focused on their most immediate and pressing problems. Poor people leaving a supermarket who are asked the prices of specific items that they purchased are much more likely to answer the questions correctly than people with higher income.[18] But poverty also tends to narrow one's focus in harmful ways. In Kenya, many poor households do not invest in fertilizer, despite the very high rates of return they would get were they to do so; when it is time to apply fertilizer to their fields, other needs seem more urgent.[19] A metaphor in psychology that captures this double-edged sword is "tunneling," which describes a process of attentional narrowing. Immediate problems enter the tunnel and get a lot of attention; other important issues do not get into the tunnel and are not addressed. The cognitive burden that people experience when they are under acute scarcity—whether of money, time, opportunities to search for information, or something else—makes them less forward-thinking and less controlled: "scarcity captures the mind."[20] A grisly example is of a firefighter

in Sussex, England who rushed from a party to an emergency call, didn't put on his seatbelt, and in a collision was thrown to his death from his car.[21] Sendhil Mullainathan and Eldar Shafir report that firefighters en route to a fire often use an onboard computer display to study the layout of the building they are going to, a practice that makes vehicle collisions a leading cause of firefighter deaths: "Firefighters, it turns out, do not merely focus on getting to the fire prepared and on time; they tunnel on it." [22]

Sugar cane farmers in India have only one harvest a year and typically receive most of their income at the time of harvest. They find it difficult to smooth their consumption. The same farmers who experience scarcity in the months before harvest experience abundance in the months right after harvest. Just before the harvest, most sugar farmers in India hold loans (99 percent versus 13 percent after the harvest) and have pawned some of their belongings (78 percent versus 4 percent after the harvest).[23] Over the course of many months, Anandi Mani and colleagues studied the same 464 farmers when they were relatively poor (one month before harvest) and relatively rich (one month after harvest). Pre- and post-harvest, the researchers gave two tests of cognition to the farmers. One test was Raven's Progressive Matrices, a common component of IQ tests. It assesses the ability to think logically and solve novel problems ("fluid intelligence"). It does not require any formal education. Each question on the test presents a sequence of shapes with one shape missing and multiple-choice answers. The correct answer is the alternative that best fits in the missing space.

The second test was a version of the Stroop test. It measures the ability to carry out goal-directed behavior despite misleading, irrelevant information ("executive control"). In this task, the individual sees strings of items, such as 2 2 2 2, and has to quickly say how many items are in the string (the answer is 4).

Post-harvest, the farmers got 25 percent more items correct on Raven's Matrices than they did pre-harvest. On the Stroop task, post-harvest farmers took 10 percent less time to respond and made 13 percent fewer errors than they did pre-harvest. Thus, a person who looks intelligent and controlled post-harvest might look rather slow and impulsive pre-harvest. The impact of scarcity on cognitive functioning was about the same as the impact of losing a night's sleep. The authors eliminate two alternative explanations of the lower quality of thinking pre-harvest: food deprivation and overwork. The farmers were not so poor that they cut back on nutrition preharvest and they were not working more in the pre-harvest period of the survey than in the post-harvest period. The pre-harvest surveys occurred sufficiently many weeks before the actual harvest that preparation for the harvest had not yet started in earnest.

As Johannes Haushofer and Ernst Fehr explain, the feeling of having less than one needs has measurable biological consequences, too, which have other consequences for behavior.[24] For farmers in Kenya, but not for non-farmers, periods of drought trigger high levels of self-reported worry. Drought elevates the stress hormone cortisol, as measured with salivary samples ten days after a period of drought. Evidence that fear of a negative-income shock drives the increase in cortisol levels is that large cash transfers ($1,500) reduce cortisol levels.

To assess the impact of elevated levels of cortisol on behavior, pharmacological elevation of cortisol was induced in a randomized experiment with young adults in the Netherlands by giving subjects hydrocortisone pills for eight consecutive days, while another group (the control group) took a placebo pill over the same period. Hydrocortisone raises cortisol levels in the brain. The eight-day period of taking daily hydrocortisone pills made individuals more short-sighted, as measured experimentally by whether they chose a smaller, earlier payment rather than a larger, delayed payment. As Haushofer and Fehr emphasize, it may be that the stress hormone

changes the allocation of attention, biasing it toward salient cues. That is, immediate consumption is more salient than delayed consumption. Both increased risk aversion and impatience lead to behaviors that make it more difficult to escape poverty.

As of this writing, a question that has not been addressed is the following: If one put the sugar cane farmers in India into the lab experiment with hydrocortisone pills, would the cognitive performance difference between the pre- and post-harvest farmers correspond to the difference in behavior caused by some dosage of hydrocortisone? If not, then poverty affects decision-makers for reasons beyond the jump in their cortisol level.

Has the reduction in productivity caused by financial strain been measured in the real world? Yes. It has been measured in a field experience in a poor region of rural India. Supreet Kaur and colleagues set up a firm in rural India that hired 408 male workers under two-week contracts in the lean season, when there is little agricultural work available.[25] The firm trained the workers to produce disposable plates for restaurants by stitching together leaves from the sal tree. This work is physically and cognitively demanding.

Most of the workers were very poor. Seventy percent lived in mud houses. Over half had debts at stores that sold basic consumption goods. The median debt of the workers was $120. Workers were asked at baseline, “How worried are you about your finances,” with 75 percent responding that they were “very worried” and an additional 18 percent that they were “quite worried.”

Workers were paid a piece rate per completed plate that satisfied a quality standard: no holes in the plate, a minimum size, a round shape. All workers were paid at the end of the first day to enhance their trust in the firm. It was explained to the workers that after the first day, there would be two different payment schedules. The “late-pay” group would receive no further

payments for their work until the end of the contract on day thirteen. The "early-pay" group would receive their earnings for the first week on day eight, and then the rest of their earnings on day thirteen.

Compared to the late-pay group, those in the early-pay group were more productive. On average, their hourly output increased by 5 percent. For the workers with the least wealth, productivity was higher by almost 10 percent. The impact of early pay persisted for several days. The evidence rules out as mechanisms an improvement in nutrition and shows that an important mechanism was the allocation of attention. Compared to the late-pay group, the early-pay group better planned the selection of leaves and the placement of stitches: they used fewer leaves and stitches per plate and took out fewer stitches that they decided were in the wrong place. In this remarkable field experiment, the workers who were under less financial strain produced more plates, made fewer errors per plate, and had higher earnings.

Evidence that early payment reduced financial stress is that those in the early-pay group used much of the early payment to pay off loans. Compared to the late-pay group, the people in the early-pay group were three times more likely to pay off their loans, an increase of forty percentage points. If you think that a person is poor (only) because of his fixed traits, think again: poverty itself impairs the quality of decision-making and lowers productivity.

Strikingly similar results have been established in lab experiments for the effect of powerlessness. An extremely low rank in a hierarchy alters cognition.[26] Low-rank individuals attend more vigilantly than high-rank individuals to their immediate environment, which impairs their ability to distinguish between goal-relevant and goal-irrelevant features, perform difficult tasks, and plan: "Low-power individuals focus on the details at the expense of the 'bigger picture'."[27] Just as sugar farmers in India performed worse in the Stroop task pre-harvest than the

same farmers did post-harvest, so did people randomly assigned to be a subordinate in a computer-based task perform worse than people randomly assigned to be a superior, as well as compared to people in the control group (the latter two groups performed equally well).

A self-affirmation intervention designed to mitigate the stigma of poverty also demonstrates the impact of a feeling of powerlessness on the quality of judgment. Clients at an urban soup kitchen in New Jersey who were randomly assigned to describe an experience that made them feel proud or successful exhibited better executive control, higher fluid intelligence, and a greater willingness to consider applying for a government benefit program than did clients assigned to the (non-affirmed) control group.[28] The intervention did not affect wealthy individuals recruited to perform the same cognitive tasks.

The literature on the psychology of scarcity raises practical questions that researchers are investigating at the time of this writing. For example, can a financial product be designed that smooths out a farmer's sugar cane harvest payment, yielding him a fixed monthly income over the year? Does aligning the timing of cash transfers to periods when farmers are relatively better off enhance the efficiency with which they use the funds (which runs counter to intuition)? Do antipoverty programs help the poor with self-control? How can policy be designed to "graduate" the extremely poor from poverty? This last question is the subject of a body of work-in-progress that we discuss in the next section.

III. A Multifaceted Program to Graduate People from Ultra Poverty

The "ultra poor" are the approximately one billion people who live on less than $1.25 a day measured at the 2015 purchasing power parity exchange rate. All over the world, a

substantial fraction of the income group immediately above the ultra-poor class are small entrepreneurs who raise capital, invest in their projects, and are the residual claimants of the revenues. A large nongovernmental organization (NGO) in Bangladesh, Building Resources Across Communities (BRAC), pioneered a multifaceted program to help the poorest households establish sustainable self-employment activities. One name for the program is Targeting the Ultra Poor (TUP). This program, which has promising results, tackles both the low capacity of the ultra poor to earn income and the psychological impact of entrenched poverty on agency, including impairment of the ability to set long-term goals, devise plans, and carry them out.[29] Researchers have implemented comparable randomized studies of the TUP program in six additional countries across three continents—Ethiopia, Ghana, Honduras, India, Pakistan, and Peru—as well as a similar program in post-war Uganda.[30] Most of the beneficiaries of these programs were illiterate women. Before the six-country program began, most of the beneficiaries had supported themselves by casual labor and begging. Their children worked rather than went to school. Before the program in Uganda began, most of the beneficiaries lived in refugee camps. At the time of the program, people were "rebuilding their livelihoods from almost nothing."[31]

We will describe the TUP program primarily as it worked in India. There were five facets of support. A beneficiary household had a choice of productive assets from a short list. In many countries, people chose livestock to raise, whether it was six goats, one cow, or a group of guinea pigs. Before the asset was transferred, households received training on running a business and how to care for the asset they chose. For the eighteen-month duration of the program, a field officer made weekly visits to each household for coaching. A field officer would ask whether the household wanted to deposit anything into savings accounts, so that participants could convert their earnings into future investments. These visits were meant to ensure that the household was

carrying out the tasks necessary to grow their livelihood into a stable income-generating activity and to help them believe that they *could* get on a path out of ultra poverty. Households received unconditional cash support ($6–$9 per week for three to ten months, depending on the asset chosen) and eighteen months of basic health services and health education. Figure 1 illustrates for India the facets of TUP and the duration of each facet.

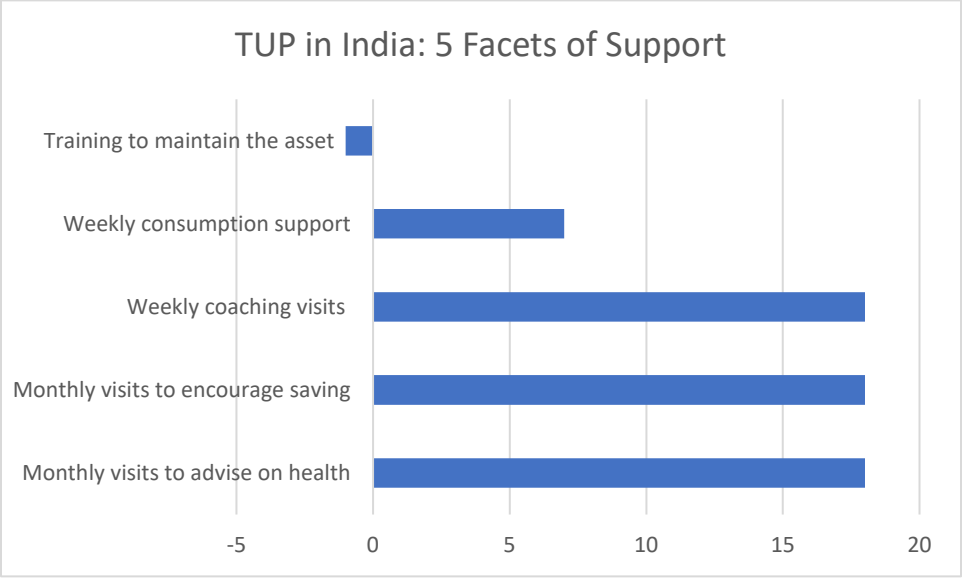

Figure 1. Targeting the Ultra Poor for Intervention in West Bengal, India

Note: The *x*-axis shows the timing of the five facets of support, measured in months, using as a baseline (time zero) the date of the transfer of productive assets (at some point in 2007–2008). The duration of weekly consumption support ($7.60 in 2007 in purchasing power parity terms) depended on the asset that the household selected. For the most common choice, six goats, the weekly consumption support lasted seven months, as shown in the figure. For the next most commonly chosen asset, one cow, the weekly consumption support lasted nine months (not shown in the figure).

In India, the program was costly but cost-effective. Using consumption as the measure of benefit, the benefit-cost ratio of TUP in India ten years after the transfer of the productive assets was close to 400 percent.

The researchers constructed an index of freedom from stress as a weighted average of three measures: lack of emotional distress, self-perception of life, and the absence of a prolonged period of worry in the past year. The results were positive for India and for all other countries that implemented TUP programs. The researchers concluded that the beneficiaries were richer, happier, and healthier. However, as of ten years after the transfer of the productive assets, the beneficiaries in India had just barely escaped poverty. Their average daily consumption per capita had risen from $1.35 (at baseline) to $3.53, which was slightly above the World Bank moderate poverty line.

IV. Conceptualizing Agency

In standard economics, an individual has fixed preferences and acts on them in a methodical and calculating way. Given his preferences, his actions depend on his costs and benefits as well as his material and time constraints:

Equation (1): Actions = *f* (incentives, material and time constraints)

To put this in terms of textbook economics, an individual chooses his actions as the best possible point on his opportunity set and his (exogenous) preferences are summarized by a set of indifference curves. The first wave of behavioral economics shows that this view is often misleading. For example, merely directing someone's attention to something can have substantial results. In low-income countries, adopting minimal components of a healthy and productive life—such as using chlorinated or piped water,[32] having cash on hand in case of

emergency health needs,[33] and immunizing children against deadly diseases[34]—depend on small differences in the institutional environment or details of context, such as whether chlorine dispensers are visible at the water source or whether the household has been given a box with a lock and key that reminds them to save. The reason people in high-income countries by and large drink safe water, get their children immunized, and purchase health insurance is not their superior decision-making skills, but rather the "subtle paternalism" in those societies that guides people into "choosing" the better option. You'd have to go out of your way to drink dirty water in a country where every tap pours forth fresh, sanitized water, whereas gathering clean, safe water in developing countries requires acting against the status quo. Esther Duflo points out that *real* agency happening on the ground is constrained not only by institutions and laws, but by the practical ability to make choices and the "power of inertia."[35] Context matters. We represent the perspective of the first wave of behavioral economics this way:

Equation (2): Actions = g(incentives, material and time constraints, context)

The second wave of behavioral economics takes into account not only that attention and self-control are limited, but also that experiences and exposure may lead individuals to absorb new mental models. For individuals living in entrenched poverty, there may be little correspondence between their subjective judgments of feasible actions to improve their lives, and the actual set of feasible actions. In the United States, there are stories of public school teachers who thought it was impossible to successfully educate kids from the most poverty-stricken neighborhoods. But seeing teachers with whom they could identify educate impoverished children to a high standard with very limited resources changed their beliefs and behavior in a

way that simply *telling* them that they could do a better job never would. To take another example, a farmer may think that he is doing the best he can with his meager resources until he learns via a documentary film about villagers like himself who prospered by making various small investments. Once he has seen people just like him make different choices and achieve higher sustained income levels, he will be more likely to make novel investments himself and to invest more in the education of his children.[36]

The lesson of these examples—and of many other studies in the second wave of behavioral economics—is that behavior is constrained by individuals' ability (or lack thereof) to imagine more prosperous and rewarding lives. Actions are affected not only by contextual features that would scarcely matter to a rational actor, but also by cultural mental models that influence perception, self-image, aspirations, and meanings. The sequence of events we have in mind is one in which sociocultural environments shape the person and his cognitive tool kit (see Figure 2).

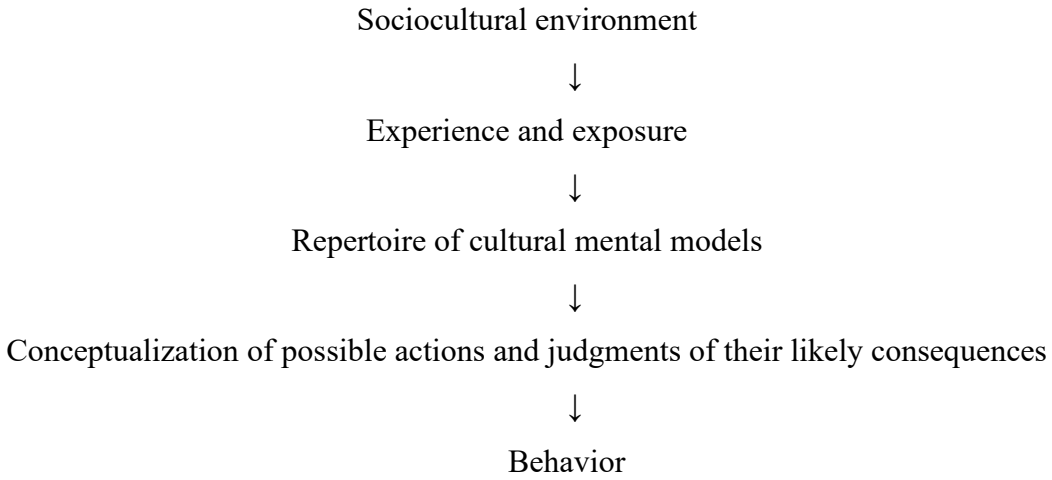

Figure 2. The Enculturated Actor

In areas of entrenched poverty or oppression, individuals may have little experience or exposure to lives better than their own. This leads them to have mental models that constrain what they imagine and aspire to. In contrast, in materially and culturally rich contexts, individuals have broad experiences and exposure and numerous, more flexible, or better adapted mental models, which all work to broaden their imagination and increase their agency. We represent the perspective of the second wave of behavioral economics this way:

Equation (3): Actions = *h*(incentives, material and time constraints, context, cultural mental models)

Karla Hoff and Joseph Stiglitz show that the bidirectional causal relationship between cultural mental models and societal outcomes gives rise to multiple equilibria.[37] There are many different ways of partitioning the world, and many different networks of mental models can sustain different systems of classification. For example, if only men are believed to be capable of being good political leaders, then most people in the community will vote against women who seek elected positions of public responsibility, the community will never be exposed to good women leaders, and it can sustain the belief that women cannot be good leaders. Indeed, few women would seek such positions. However, there may be another equilibrium in which a large proportion of political leaders are women. This equilibrium may sustain a belief that women can be good leaders, which motivates people to vote for some female candidates. In the 2021 election for German chancellor to succeed Angela Merkel, one of the male candidates used the feminine form of the word “chancellor” to increase the association between himself and the popular

female leader: "'He can be chancellor,' read some of Scholz's campaign posters, using the feminine form of chancellor in German—*kanzlerin*—sending the message that he was channeling his inner Merkel."[38] Merkel had become a prototype for the category of good political leader.

The divergence between what an individual believes is possible or probable, and what is objectively possible or probable, creates an "agency gap." Idiosyncratic reasons might explain why an individual does not see the world objectively, but we are not concerned with those here. Instead, our focus is on agency gaps created by widely shared mental models that people have because they live under conditions, such as poverty or oppression, that undermine their agency.. An impoverished repertoire of mental models might stem from geographical segregation of the poor. It might also stem from social stigma, for example, membership in an ethnic group or gender that is labeled as inferior and unable to mix freely with others. How to expand individuals' experiences and exposure and thereby spur individuals to form and to draw on more adaptive mental models is the subject of the remainder of this essay.

V. Mechanisms to Create New Mental Models and Close Agency Gaps

More than dry data is often required to change how people think and what they believe. What is critical may not be the provision of information, but *its delivery in a form that is easily absorbed by individuals who think with particular mental models*. Role models can sometimes close the gap between what an individual believes he or she can do and what is truly possible. A role model can create for a person a visualized representation or narrative that changes his behavior. In a region of India with a high level of anemia, a field experiment publicized information that regular consumption of iron-fortified salt would make people stronger and

healthier. The information had no effect on a household's consumption of the fortified salt unless a member of the household had watched a short film that featured expectant parents consuming the salt as a way to help them have a strong son.[39] The narrative, not the information alone, changed how people thought. Figure 3 puts in italics the influence of role models.

Sociocultural environment (*enhanced with new role models*)

↓

Experience and exposure (*experience or exposure to novel situations creates new associations and meanings*)

↓

Repertoire of mental models (*expanded to accommodate new ideas of how the world works and what life could be like*)

↓

Perceived possible actions and likely consequences (*expanded perception, changes in beliefs*)

↓

Behavior (*enhanced agency due to new beliefs, goals, vicarious learning, motivation*).

Figure 3. The Effect of Role Models on the Enculturated Actor

We present below three interventions that made it possible for individuals or whole communities to form more adaptive and functional mental models of key social actors—"good parent," "good leader," "good husband," and "good wife."

A. Intervention 1: A short-term conditional cash transfer with long-term impacts

If parents cannot imagine breaking the cycle of poverty, they will invest too little in their children. A lack of cognitive stimulation and healthful nutrition to children contributes to the intergenerational transmission of poverty. Karen Macours, Norbert Schady, and Renos Vakis teamed up with the government of Nicaragua to design a pilot program—Atención a Crisis—to boost parents' incentives, material means, and aspirations for their children.[40] The program targeted all four variables on the right-hand side of Equation (3). The government implemented the program in 2006 in fifty-six randomly chosen communities in a drought-plagued area where nearly all households were poor. Households that were below a poverty line were invited to participate in the program. An additional set of poor communities were followed as the control group.

To increase the incentives and the means of households to invest in their children, the program gave a substantial bimonthly cash transfer to the main caregiver in each participating household, conditional on three things: (i) school attendance of the primary-school-age children in the household; (ii) regular visits of the children to health clinics; and (iii) parents' attendance at meetings in which ways to promote children's nutrition, health, and education were discussed.

In addition, to raise aspirations, the program gave a $200 lump-sum grant to the main female caregiver in randomly selected one-third of the households, conditional on investing the money in a nonagricultural business. (The reason for the random transfer was to be able to isolate the impact of this grant in this field experiment.) With this grant, a seamstress, for example, might buy a sewing machine. The grant was large in relative terms: it was equal to one-third of average annual household income of the beneficiaries.

We now turn to the feature of the program that bears directly on mental models. To provide role models, the program held a separate assembly for each group of at most thirty women who lived near each other. At the meetings, the participants elected people from their immediate neighborhood to the position of program promoter. Each promoter was assigned a group of ten beneficiaries who lived close to her. The promoter's job was to encourage the group members to invest in their children. Within the groups, there were also women who held leadership positions in the community unrelated to Atención a Crisis. The two sets overlap, since many health coordinators and teachers volunteered to be program promoters. We will refer to these two overlapping sets of women as "leaders."

Interviews showed that the promoters "took ownership" of the program's goals. As instructed by program representatives, the promoters met frequently with small groups of beneficiary women to talk about investing in children's nutrition and education:

> During payment days, for instance, promotoras [promoters] would often organize with the beneficiaries in their group to collectively buy food products and material for their children. Among other things, this allowed beneficiaries to directly observe investments by their promotoras. Qualitative evidence further confirms that beneficiaries were very aware of investments by others, with plenty of stories about children in the village going to school well fed, with new clothes and material [paper and pens or pencils].[41]

We will call "funded leaders" those leaders who had received the largest package (the conditional cash transfer plus the $200 investment grant). We will call "unfunded leaders" those leaders who received only the one-year-long cash transfer. Compared to unfunded leaders, funded leaders had higher aspirations for their children and played a more active leadership role in Atención a Crisis.

Substantial variation occurred across assemblies in the number of funded leaders. Lopping off the outliers at the bottom and top ten percentiles of the distribution, the share of the leaders in each assembly who received the $200 grant ranged from zero to two-thirds. This random variation makes it possible to evaluate the effect that funded leaders had on the other participants. In assemblies where all of the promoters received the investment grant, the program effects were remarkably durable. Two years after the transfer program ended, the impact of being in a group with funded leaders was as large or larger than the impact during the program's implementation. For example, the share of animal proteins and fruits and vegetables in households' total food expenditures was higher, households were more likely to have a toy for the children to play with, and parents were more likely to tell stories or sing to their children and read to them each week. In contrast, Atención a Crisis had *no* positive impact two years out for beneficiaries who were *not* exposed to any leader with the $200 grant.

What can explain this? Not incentives and transfers. Recall that the conditional cash transfer ended after one year, and among all non-leader beneficiaries the same proportion—one-third—had received the investment grant. The survey responses of the participants suggest that *the driving force was the role model effect of the leaders*. The leaders who had received the grant and invested it (as required) in a nonagricultural business had higher aspirations for their children. This opened an "aspirations window"[42] for beneficiaries in their network. The leaders amplified the impact of the program during its one year of operation and made its impact persist.

Underlying the changes in behavior were changes in aspirations. One additional funded leader in the assembly that a participant attended increased by nearly 50 percent the expectations of the participants in her assembly that their children would move into a professional or skilled

salary job. The role models made salient to the women the value of using a portion of their meager incomes to give their children a greater chance to lead better lives than their parents.

B. Intervention 2: Participatory theater

Many communities in developing countries are extremely patriarchal. Women are taught from childhood that, as adults, they should confine themselves to household tasks and a limited set of "female" occupations. Wives are expected to defer to their husbands' and in-laws' wishes in all matters.[43] The Organization for Economic Cooperation and Development (OECD) has a standardized survey on domestic violence that is implemented in over 100 countries on nationally representative samples. In more than half of low-income countries, the majority of women believe that, under some conditions, wife beating is justified. As one Ethiopian woman commented, "It is sometimes necessary for husbands to beat their wives when they commit mistakes to correct them … it is also a sign of strong manhood."[44] Social acceptance of domestic violence undermines the enforcement of laws against it.[45]

Individuals have an incentive to follow the prescriptive norms of their community if violations are sanctioned. As a result, change in behavior that is regulated by social norms has to occur at the community or societal level as well as at the individual level. Changing widely held attitudes is difficult. Even to question social norms about women's place is sanctioned in some communities.[46] As of this writing, only two field experiments have been conducted on mass media entertainment that embeds in stories educational messages about the cruelty of domestic violence. In both cases, viewing the "edutainment" had little effect on the social acceptability of domestic violence.[47] Sociologists emphasize that to induce change in routinized behaviors, a

high level of engagement is necessary. Pierre Bourdieu argues that individuals must not only think differently, but also practice acting differently.[48]

To create a more active approach, Augusto Boal invented forum theater.[49] He chose this name because forum theater involves discussion between the audience and the actors. Boal was influenced by Paulo Freire, who argued that to learn how to stop oppression, an individual must *cocreate* the knowledge and develop the self-assertiveness to act on it.[50] Forum theater tries to achieve this.

A performance of forum theater has several stages. It begins with an uninterrupted enactment of a play. The cruelty of oppression is made evident in a story of abuse that starkly captures patterns of behavior familiar to the audience. After the uninterrupted performance, a facilitator called the Joker comes onstage and asks whether everyone in the audience agrees with the actions that were taken onstage. He explains that the play will begin again and any member of the audience can shout "Stop" to interrupt the performance, go onstage, and take the role of a protagonist from whatever point in the play that they want the scene to be taken forward, and change the words and actions of the character they have chosen to play. The play begins again. A sequence of volunteers ("spect-actors") tries out strategies to avert the oppression. In Bourdieu's terms, they are "practicing how to feel and act differently." In some cases, men play the role of a female protagonist, just as in a number of village folk forms, men have long played women's roles.[51] A performance is both a play and its analysis in the form of interactions between actors and the audience.

We give one example of a play performed in forum theater. In *The Brick Factory*, the factory owner promises his workers overtime pay to persuade them to stay late to complete a large sales order.[52] However, when they have completed the order, he refuses to give the workers

overtime pay. As he says to the workers, he doesn't need to: "There are so many workers like you roaming around for work." Later that evening, the owner comes to the home of one of the workers, Phulmoni, to demand sex. When she refuses to continue the sexual relationship she has had with him in exchange for lending money to her husband, the factory owner threatens to have her husband jailed if the loans are not repaid that very evening. She gives in to the factory owner's demand for sex. Returning home, her husband discovers her in the arms of the factory owner. In the next scene, the villagers find her guilty of adultery and cane her as punishment. At the end of the play, two actors speak to the audience:

> First Person: "Hunger caused Phulmoni to go to work to the city. Taking advantage of her poverty, the owner forced himself on her. Phulmoni was judged guilty."
>
> Second Person: "But the owner is the guilty one. Who will punish him?"

The play ends with an unresolved problem that the spect-actors try to address; in that sense, forum theater plays are intentionally incomplete. The stage is used as a safe space where some power relations are relaxed and imaginative interactions are encouraged and performed.[53] The interactions onstage reveal to everyone present that ordinary villagers have the capacity to exercise "scripting power." This has consequences. A woman playing the spect-actor who does not defer to the actor who plays her husband will not be able to easily accept in silence abuse from her real husband. Experiments in psychology show that the experience of possessing power in one context increases the tendency to take action in another context.[54]

Forum theater highlights internal inconsistencies in a community's cultural representations. In *The Brick Factory,* the representation of men as rightful leaders to whom women must defer is inconsistent with the behavior of powerful men who cause innocent people to be deeply wronged. The factory owner in the drama reveals himself to be a bad person in his

every action; Phulmoni shows in her every action that she is selfless and generous. Changing a cultural representation can cause people to reorganize their own sense of self and to conceptualize alternative, realizable futures. Individuals become better able to resist experiences of devaluation. The new representations can be engines of societal transformation.

The audience plays a crucial role in this process. Ralph Yarrow calls forum theater "performing agency."[55] A forum theater performance is a workshop for negotiation over representations and the social norms embedded in them in which the audience participates.

Forum theater has been performed all over the world, but no randomized controlled trial to evaluate its impact has been done as of the time of this writing. The only large-scale evaluation of forum theater assesses the impact on domestic violence of Jana Sanskriti (JS), one of the largest forum theater groups in the world.[56] JS is a network of one core team and thirteen community-based theater troupes, with a total of about 500 actors in villages in West Bengal, India. JS has been performing forum theater in rural West Bengal for thirty years. In recent years (2002–2013), in the villages in which it is active, JS gave a median of two performances per year on issues of patriarchy or alcohol abuse, which contributes to domestic violence.

The impact of these performances was assessed on the basis of individual surveys of wives and their husbands in ninety-two villages. In villages not exposed to JS, 32 percent of the women reported that their husbands had physically abused them, and the majority of men (58 percent) believed it was legitimate for them to beat or hit their wives under some conditions. Controlling for observable differences between the villages with and without performances of JS, exposure to JS substantially reduced domestic violence and the proportion of husbands who believed that it was acceptable. Village exposure to JS also increased the ratio of female-to-male literacy rates.

Normally, cultural representations are tools of the powerful. A key feature of forum theater is that it gives ordinary people a medium in which they can collectively influence cultural representations. Changes in such representations, and the beliefs that underlie them, will change behavior. A society can get trapped in an equilibrium in which beliefs give rise to behaviors that sustain those beliefs. In the cash-transfer program in Nicaragua (discussed above), funded group leaders raised women's aspirations for their children; the leaders changed beliefs, which changed behaviors, which may ultimately sustain those beliefs. In forum theater, a collective process of constructing role models in fictional dramas raised women's aspirations and changed behaviors. The change in behavior will give rise to real-life role models.

C. Intervention 3: Political reservations for women

We now turn to political reservations for women. More than 100 countries have introduced affirmative action policies for women in public office. As of this writing, the impact of these policies has been evaluated only in India. A village government in India consists of an elected council and an elected chief, called the pradhan, who heads the village council. A 1993 constitutional amendment in India provided that in a randomly chosen one-third of villages, only women could run for pradhan. It also reserved for women in *every* village one-third of the seats on the village council.

Lori Beaman and collaborators examine how the reservations for women have changed beliefs and behavior—in particular, the attitudes and achievements of teenage girls, attitudes toward female leaders, and cultural mental models of women and political leaders.[57] The researchers administered a survey in almost 500 villages to randomly selected people ages 11–15 and their parents. In the villages that had had a female leader for two election cycles (a period of

seven years immediately preceding the survey), teenage girls had higher aspirations. They were less likely to want to be housewives, less likely to want their in-laws to determine their occupation, more likely to want to marry after the age of eighteen, and more likely to want a job that requires a high level of education. After seven years' exposure to female pradhans, parents' aspirations for their daughters' education and occupation also increased and fathers were likely to say, "I want my daughter to be a pradhan.[58] These changes in adolescent girls' attitudes occurred despite the absence of any change in school quality (measured by test scores) or in private-sector labor opportunities for females (measured by the jobs held by young adults).

The increase in teenage girls' aspirations is reflected in outcomes. In the never-reserved villages, the gender gap in ever attending school and knowing how to read and write was erased or reversed in villages with two cycles of reservation. Teenagers' gender gap in favor of boys in education and time spent on household chores was slightly reduced.

Seven years' exposure to female pradhans also changed men's perception of female leaders. In one experiment, villagers listened to recorded political speeches (adapted from actual village meetings) and ranked the speeches on a scale of effectiveness. The gender of the speaker was randomized. In the villages without political reservations for women as pradhan, both men and women ranked speeches by females lower than speeches by males, as did respondents in villages with only five years of exposure to a female pradhan. After seven years' exposure, though, men were *not* biased against female leaders.

The researchers also implemented a psychological test of implicit bias against female leaders. The Implicit Association Test (IAT) asked respondents to sort a series of terms into the left or right side of a computer screen. Sometimes the screen would be as shown in Figure 4A,

with categories paired in a way congruent with gender stereotypes. Sometimes, the pairing would be incongruent, as in Figure 4B.

Figure 4A. The Gender & Domestic Tasks/Leadership IAT: The Stereotype-Congruent Screen

Figure 4B. The Gender & Domestic Tasks/Leadership IAT: The Stereotype-Incongruent Screen

The terms to categorize were common first names for girls and boys and names of various leadership activities and domestic tasks. For each term, there was an obvious right answer. The difference in accuracy and speed between the tests in the stereotype-congruent condition and the stereotype-incongruent condition is a measure of the strength of the stereotype. Someone who categorizes words much faster when working with the pairings in Figure 4A than in Figure 4B has more implicit bias than someone who categorizes words with approximately equal speed in the two conditions. By this measure, exposure to female leaders through the political reservations weakened implicit bias: it increased the ability of men to associate women with leadership activities.[59]

The critical test of the impact of the reservations is women's electability in free elections for pradhan. In the free elections that followed two rounds of elections reserved for women, women were more likely to run for office and more likely to be elected. Exposure to female

leaders for two election cycles had changed individuals' understandings of what a good leader might look like and what a female leader could do. People have vivid images and scenarios in their minds to represent categories. Sociologists and anthropologists find that the images and scenarios are a fundamental element organizing individuals' understandings of themselves and the world.[60] The political reservations for women in villages in India changed these images and scenarios.

VI. Conclusion

Behavioral economics sheds light on how to reduce poverty and oppression. The first wave of behavioral economic shows that scarcity and powerlessness impair the quality of thinking. Nudges can boost agency and reduce the likelihood that individuals make decisions that they will later regret. The program called Targeting the Ultra Poor (TUP), which reduced extreme scarcity, set in motion processes of improved decision-making, investment, and productivity that increased the well-being and incomes of ultra-poor households in the long run.

The second wave of behavioral economics shows that individuals see the world through cultural lenses. The development of many of the concepts with which individuals think is a social and cultural process. The experience of prolonged poverty and oppression may give people a misleading set of cultural mental models regarding who they are, what influence they have over their life prospects and, thus, what aspirations they can realistically strive for. Their epistemological resources may be a binding constraint. In this sense, there is much more to poverty and oppression than meets the eye.

Fortunately, interventions have had some success in expanding the mental models of the poor and oppressed. We summarized three examples of successful interventions. First, in Nicaragua, Atención a Crisis gave parents new mental models regarding what the future could be like for their children. The increased investment of parents in their children may break the cycle of poverty, since the intervention helps children who, as adults, will be role models for others. Macours and Vakis hope to study the impact of the program in the long run.

Second, forum theater in rural India allowed individuals to "see" domestic violence in a new light. This allowed them to negotiate what behavior was acceptable and what behavior was cruel and unjust. Participants in forum theater, including the audience, could collectively construct new representations of a good husband and a good wife.

Third, an amendment to the Constitution of India reserving for women leadership positions in village government created prototypes of women as leaders that changed the cultural mental models of women. As a result, teenage girls aspired to more education, later marriage, and greater control over their occupations as adults.

All three of these interventions recognize the need for policy to expand individuals' cognitive tool kits. The interventions are success stories: they boosted agency, reduced poverty, and reduced the oppression of women in their households.

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[58] A similar change occurred in a field experiment in which professional call center recruiters were hired to help the few female high school graduates in remote villages in India find jobs in business-process outsourcing jobs (typically, call centers where, for example, people in the U.S. make airline reservations). See Robert Jensen, “Do Labor Market Opportunities Affect Young Women’s Work and Family Decisions? Experimental Evidence from India,” *The Quarterly Journal of Economics* 127, no. 2 (2012): 753–92. The women who got call center jobs became prototypes of women with financial independence. The prototypes influenced, among young women in the same village, the age of marriage, years of education, fertility rates, and

aspirations. The prototypes also changed how parents perceived and cared for their daughters. In particular, parents fed their young daughters better and kept them healthier, as measured by the body-mass index of girls ages 5–15. See an overview in Karla Hoff, "Do Social Factors Determine 'Who We Are' as Well as the Choice Sets We Have?" World Bank Blogs, June 22, 2016, https://blogs.worldbank.org/developmenttalk/do-social-factors-determine-who-we-are-well-choice-sets-we-have. In this experiment, unlike in the case of political reservations, we cannot completely rule out the possibility that it was an increase in the expected return to education, rather than a role model effect, that drove the changes in aspirations and behavior.

[59] A third measure by which to evaluate the impact of the political reservations for women was villagers' evaluation of the pradhan of their own villages. In the case of individuals who were exposed to a female pradhan in only one election cycle, evaluations of the female pradhans were less favorable than of the male pradhans in the control villages. However, in the case of individuals exposed in two consecutive elections to a female pradhan under political reservations, evaluations of the female pradhans were no less favorable than evaluations of male pradhans.

[60] Swidler, *Talk of Love*, 36.