

**The Persistence of Poverty in the Context of Economic Instability:
A Behavioral Perspective**

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We review recent findings regarding the psychology of decision-making in contexts of poverty, and consider their application to public policy. Of particular interest are the oft-neglected psychological and behavioral consequences of economic scarcity and instability. The novel framework highlights the psychological costs of low and unstable incomes, and how these can transform small and momentary financial hurdles into long-lasting poverty traps. Economic instability, we suggest, not only has obvious financial ramifications, but it also exacerbates the need for constant focus and attention, and can distract from the very opportunities otherwise designed to alleviate the effects of poverty. We describe a variety of alternative public policy strategies that emerge from this new behavioral perspective that are not readily apparent from conventional theories that permeate the design of social programs.

Introduction

The most recent Census reports show that the number of Americans living at or near the poverty level—at just over 15 percent, or 46.2 million individuals in 2011—is at its highest level since President Johnson’s war on poverty in the 1960s (U.S. Census Bureau, 2011b).¹ And many more Americans – nearly a hundred million – are living precariously near the poverty line, and experiencing ongoing challenges balancing their finances (Hacker, 2006; U.S. Census Bureau, n.d.). Although the aftermath of the 2008 recession may be appropriately blamed for recent upticks in poverty, the prospects for economic mobility did not appear measurably better in prior decades. Permanently moving out of poverty is rare and challenging: More than half of those individuals in the bottom income quintile in 1994 remained there 10 years later, and less than 4 percent reached the top quintile (Acs & Zimmerman, 2008). Equally troublesome is the long-term societal costs of inter-generational poverty in the order of \$500 billion annually (Holtzer, Schanzenbach, Duncan & Ludwig, 2007). Why has the problem of poverty in the U.S. proven so intransigent and the public investments to eradicate poverty not proven more effective than anticipated?²

In this manuscript, we apply recent insights emanating from behavioral research to our understanding of decision making under conditions of economic scarcity and instability (Shah, Mullainathan & Shafir, 2012), and we consider the implications of this perspective for the implementation poverty programs and policy.³ Our application is grounded in the economic reality of the lives of the poor - it posits that the psychological costs of low and unstable income

¹ The poverty line in 2012 for a family of four was \$23,000.

² Poverty’s impact on children’s educational achievement and health result in lower productivity of the nation’s economy and higher health care costs (Aber, Morris & Raver, 2012) . Also, see Tanner (2012).

³ See Barr, Mullainathan, & Shafir (2008) for applications to consumer financial behavior.

streams can prove unexpectedly high, transforming small and passing financial hurdles into longstanding and severe poverty traps.

Deviating from traditional social science approaches, we take poverty and income instability as given. Our framework starts with a somewhat different question: “How do the particular conditions of poverty and income instability affect the quality of decision-making and the personal choices and behaviors of the poor? And under what conditions are these most likely to perpetuate the cycle of poverty?”

Old and New Perspectives on the Determinants of Poverty

Most common explanations of poverty draw on accounts of human capital and related social science theories addressing the variety of social and economic factors that influence the personal choices of the poor.⁴ As the dominant perspective on poverty and its causes, these theories highlight several assumptions that drive the design of poverty alleviation strategies. According to the human capital view, many Americans lack the education, skills and work experience needed to be productive and earn wages sufficient to meet their basic consumption needs, and still save a little for a rainy day (Besharov & Call, 2009; Haskins & Sawhill, 2010). Proposed solutions to the human capital challenge include enhanced quality of early education and childcare, improved quality of schooling, greater access to adult job and training programs; or addressing earnings deficiencies directly through income maintenance programs such as the Earned Income Tax Credit. From this perspective, if incomes are low due to low human capital, we must increase or supplement individual abilities so as to enhance human capital.

⁴ Cancian & Danziger (2009) provide comprehensive background to theories and empirical reviews of poverty and poverty policy. We seek not to replicate their work, and comparable reviews, in this manuscript.

A variety of social science approaches expand on the human capital perspective by incorporating sociological, cultural, and environmental features that affect personal choice (e.g. Jencks & Mayer, 1990). In the personal choices view, many Americans are and remain poor because of the choices they have made, and continue to make. Poor attendance or performance on the job drive down productivity and earnings and interfere with wage growth and with promotions out of entry-level jobs. And regrettable choices outside of work, according to this view, aggravate the problem: teen pregnancy, substance abuse, living in economically deprived neighborhoods, and reliance on public assistance and income support programs instead of searching for a job and a new place to live, all contribute to poverty's persistence.

Of course, opinions differ on *why* the counterproductive choices persist. Some argue that the source of the problem is the welfare state itself, creating cultural and social norms that drive, among other things, toward reliance on welfare, non-marital fertility, and divorce (Danziger, Corcoran, Heflin et al., 2000)⁵. Others attribute the problems to experiences and environments in early childhood (or even *in utero*); failure to promote critical mental and cognitive capacities in infancy can create a lifelong shortfall of important capacities and compromise subsequent decision-making (Noble, Houston, Kan & Sowell, 2012; Shonkoff & Phillips, 2000; Stevens, Lauinger & Neville, 2009). Those different interpretations in turn lead to somewhat different policy solutions—from conditional cash transfers (intended to encourage choices that reinforce better behavior, ranging from preventive health care to getting good grades in school),⁶ and more stringent public safety net (intended to introduce incentives, alter expectations, or impose

⁵ We acknowledge but do not fully describe other at-risk factors that contribute to poverty including depression and related mental health issues, substance abuse, victimized by domestic violence.

⁶ For example, see Riccio, Dechausay, Greenberg et al. (2010) for a description of the Opportunity New York City conditional cash program.

requirements to work), to investments in high quality early childhood care and education. A diversity of solutions notwithstanding, these approaches share a common assumption: to make a large dent in poverty, one must work on the choices of low-income people. The attributes that come with low income – poor education and health, unsafe and violent surroundings, negligent parenting -- underlie what amount to bad choices. And bad choices contribute to the human capital shortfall.

We describe an alternative. And while still grounded in human cognition and behavior, this account is not confined to poverty. Consider the following vignette.

Linda is 26 year old, and works as a paralegal in a downtown office. She has a baby, and together with her husband who is an electrician, they manage a life that's financially modest and fairly busy. Linda would very much like to advance to a better place and, being well educated and smart, is encouraged by her firm to go to law school. The first hurdle is the LSAT (Law School Admission Test). Linda hires more childcare and begins to use her non-work time to study. The texture of her life subtly changes. She gets a bit less sleep, she has even less quality time with her husband who feels neglected, the cost of extra child care further increases their financial tensions, and Linda is constantly preoccupied, for the first time since college, with what will happen if she doesn't do well on the test. Her typed reports at work have many more errors, she is distracted by trying to make sense of things she studied, which later seem unclear or hard to remember, and on occasion she falls asleep at her desk, something she had never done before. Her boss seems profoundly unimpressed, her husband is gloomy, and the baby, whom she sees less, appears to her fidgety and morose. She forgets a lunch date with a friend, cancels her regular checkup for the first time, and neglects the traditional weekend calls to her aging parents. She lets herself go a bit physically--eating more junk food and foregoing the gym. What makes matters worse is that she isn't even able to do her studying well. Between the fatigue, the disappointed boss, husband and baby, and feeling lethargic, she finds herself procrastinating, her mind wandering, and preoccupied. Thankfully, the day of the LSATs comes and somehow Linda does fine. She gradually begins to put the pieces back together. Luckily friends, family and even coworkers understand. Her mind is less encumbered, she spend more time with the baby, she sleeps, she exercises. She is herself again. And then, one fine day, she gets accepted to a highly competitive law school...

This vignette captures something very intuitive about human behavior. Linda's problems stem not from her intrinsic abilities, but from her need to juggle multiple demands. The vignette highlights the ways in which mental life changes when challenges are great and persistent, when people are preoccupied or overwhelmed. At those times, intellectual resources become scarce, self-control depleted, and choices compromised. With mental resources stretched, it is easier to neglect things, give in more readily to temptations, and apply temporary "band-aid" solutions to persistent problems because mental capacity is not available to apply full treatment. The overburdened mind functions poorly; decisions can be shortsighted and wrong-headed.

This vignette also provides a perspective on poverty. Linda was able to recuperate from a temporary "shock" to her life (the LSAT), and return to her pursuits. Presumably, she would similarly be able to bounce back from small financial crises. For the poor, in contrast, something as simple as finding money to fix a broken car could have overwhelming consequences. It is a bit like an LSAT that does not easily go away. Where will that money come from? If one is financially comfortable and their car breaks down, liquid savings are an option. Cutting back on consumption of luxury items is another. Using a second car and forgoing fixing this one for a while may be another. These are easy options. A bit of rearranging required, but hardly a serious mental challenge. But when one is poor, there is sufficient savings, luxury items are already uncommon, and there is no second car. Now, fixing a broken car entails some real challenge: Will the money come from skipping rent, a payday loan, or money reserved for some other highly needed expense? For the poor, such concerns can easily transform basic economic challenges into highly consuming mental ones.

The broken car is not unique: income shocks abound for poor individuals: Our own estimates with data from the Survey of Income and Program Participation show that the lowest

income households experience twice as many income shocks (defined as monthly income changes of 33 percent or higher) over a two year period, and over 70 percent have no savings or comparable assets, as compared with households at higher income quintiles who not only experience fewer shocks but also are 90 percent more likely to have over \$1000 in savings. Many jobs offer no security and little prospect for growth, with frequent fluctuations in hours and sometimes in wages. Low-income individuals live near a financial precipice. Financially, things can turn alarming at any moment. They have fewer financial buffers, and limited access to liquid financial resources, such as savings and low cost credit (Barr, 2012). And there is less inessential consumption to cut back on. In addition, there are the other stressors: Neighborhoods are dangerous, health insurance is not always available, and close friends and relatives often need help. These conditions imply two important things: First, that income instability is a persistent complication, requiring constant juggling, and making life at the edge even harder to manage; and second, that this constant struggle affects the making of decisions, requiring persistent focus on the management of instability, and risking miscalculation and distraction elsewhere, rendering long-term consequences more dire.

With this as a backdrop, the personal choice perspective turns on its head: Misguided choices are now a consequence (not a cause) of poverty. From this perspective, parents may fail to follow through on enrolling and engaging in early childhood programs for their children not because of ignorance or negligence; they may fail despite their better intentions because their minds are captured by other concerns, much like Linda, in the vignette above, neglects her friends or eats unhealthy food, despite better intentions. Traditional perspectives on poverty relegate such bad decisions to personal characteristics intrinsic to the *poor*. The view we

propose in this manuscript is that such decisions may be a result of the mindset brought about by the circumstances of poverty.

This new perspective allows a reinterpretation of the human capital account. Workers who are depleted and distracted by their financial burdens will be more likely to err on the job, will fail to follow clear instructions, may be less sensitive and courteous to demanding customers. And *investing* in human capital itself becomes more difficult. Signing up for a training program requires mental bandwidth; one must make some time and space, consider the program details, and follow through on signing up. Then, keeping up with the program requires overcoming the daily temptation to skip a class as one deals with the day-to-day struggles that stand in the way, like finding a babysitter, or effective transportation. Even learning while in class requires having the mental resources to listen, focus and absorb. Economic instability and the attention it persistently captures make all of this more difficult.

The rest of this manuscript draws out this argument in greater detail. We begin with a brief descriptive account of the financial lives of the poor as background, followed by a review of the behavioral findings most pertinent to a better understanding of the psychic resources taxed by instability. The behavioral review includes summaries of relatively new empirical evidence about socio-economic differences in the psychology of decision-making. Informed by these findings, the remainder of the paper considers a broad set of policy implications on poverty alleviation strategies.

The Financial Lives of the Poor

A persistent lack of “economic slack” is endemic to the lives of the poor (Mullainathan & Shafir, 2009). Most people experience some financial tightness at *sometime* in their lives, but

for the poor these periods are frequent, if not constant, and cumulative. Periods of financial tightness are becoming increasingly more common and unpredictable as the traditional buffers for the poor from stable housing, jobs and cash safety nets are cut back or eliminated. This means continuously living on the margin of being either poor or near-poor, and nearly always at risk of spiraling further into poverty (Masumura, Hisnanick & U.S. Census Bureau, 2005)⁷. As nicely summarized in coverage of new analyses using data from the Panel Study of Income Dynamics “...the new face of the working poor, suffering not so much from a dearth of possessions as from a cavalcade of chaos — pay cuts and eviction notices, car troubles and medical crises — that rattles [their] finances and nudges [a] family toward the economic brink” (Gosselin, 2004).

Much of this economic instability arises from volatility in earnings (Gottchalk & Moffitt, 2009). The low wage labor market has become increasingly precarious characterized by temporary or seasonal employment, and susceptibility to layoffs or reductions in hours (Kaye & Nightingale, 2000; Loprest, Acs, Ratcliff & Vinopal, 2009; Schohet & Rangarajan, 2004). Low income workers are much more likely to hold multiple jobs and jobs without fixed schedules during standard weekday hours, and to have experienced declining real value in their wages (DeNavas-Walt et al., 2009; Kalleburg, Reskin & Hudson, 2000). These labor trends are paralleled by shifts in social assistance expenditure built toward rewarding work and supporting the elderly and disabled (Ben-Shalom, Moffitt & Scholz, 2011). This has created “stickiness” in

⁷ Households in the lowest income quintile have the highest incidence of substantial income declines (50 percent or larger), with 16 percent making no recovery within a year (i.e., their income remained at less than one-half of the pre-drop level for at least one year). Another 33 percent made an incomplete recovery (to less than 100 percent of the pre-drop level), while 51 percent made a full recovery (to 100 percent or more of the pre-drop level) (Acs, Loprest & Nichols, 2009). Furthermore, estimates suggest that only 1.8 percent of the population continuously lived in poverty from 2004 to 2007, but approximately 31.0 percent of the population had at least one spell of poverty lasting 2 or more months during this same 4-year period (DeNavas-Walt, Proctor & Smith, 2009).

social policy levers intended to protect individuals from a loss or cutback in work hours.

Enrolling in public assistance programs takes effort, and once enrolled, access to emergency assistance is rare (Schott, Pavetti & Finch, 2012).

The irony of many of the financial coping strategies adopted by the poor is that they prove effective and satisfactory in the short term (i.e. today's consumption is protected), but they risk creating deeper poverty soon thereafter. About one sixth of families in the lowest income quintile have been late in paying a bill within the last year (Caskey, 2006). The most common result is paying high reconnection and late fees and a lower credit score. Some families cut back on basic but less essential needs, like food (Bar, 2009). Or they ignore the bills that will have the least negative direct consequences. Such strategies may be coupled with easy-to-access but costly alternative credit sources; Americans spend about \$13 billion annually for transactions with alternative financial services providers.⁸ Like delaying bill payments, this strategy will solve today's problem but will result in new and more serious financial problems tomorrow. Some tap into private safety nets, social networks such as families and friends, but relying on these might have similarly precarious and unreliable future reciprocity demands (e.g. see Hernandez & Ziolo-Guest, 2009).

Accumulating savings before instability strikes would guard against such shocks, but transforming small amounts of money to more substantial savings is difficult and rare. The urban poor typically deal with relatively small amounts of cash in-flows, receiving weekly or bi-weekly paychecks. Net of the necessary rent, utility and other bills, they are typically left with only small amounts of cash on hand. In recent polls, nearly two-thirds of Americans report living paycheck

⁸ Center for Financial Services Innovation, "Fact Sheet: The Unbanked and Underbanked."

to paycheck (Forsyth, 2012). Nearly 57 percent of low income families are *asset-poor*, defined as lacking the liquid resources necessary to finance consumption for three months at the federal poverty level (McKernan & Ratcliffe, 2009). It is especially hard to save if a person does not have a savings or checking account, which is the case for one quarter of families in the bottom income quintile.⁹

Even more troubling, but consistent with the behavioral analysis we describe further below, is that despite the high threat of adverse events, poor individuals are less likely to have unemployment insurance (driven by the labor market and job circumstances described earlier), car insurance, life insurance, disability insurance, or other forms of insurance protection. Surprisingly, even health insurance coverage is low despite many individuals having access to Medicaid and CHIP. The national uninsured rate is 15.4 percent among children in poverty, compared to 9.8 percent for all children (U.S. Census Bureau, 2011b). This combination of circumstances — instability of both income and expenses, combined with low savings and no insurance — translates into much higher rates of material hardship for the poor and near-poor, as adverse events jeopardize their ability to meet basic living needs.

The Psychology of Decision-Making

The study of behavioral economics and decision-making is informed by research on human perception, cognition, and choice behavior to provide a more faithful account of the factors that shape people's decisions. In what follows, we focus on those elements of this research program that are most pertinent to understanding decision making in the context of

⁹ Evidence from the Detroit Area Household Financial Services Survey indicates that more than two-thirds of those currently unbanked were previously banked. Conversely, more than half of those presently banked had previously either closed a bank account voluntarily (because of inconvenience, fees, or a move) or had an account that was closed by the bank (because of overdrafts, low balances, low activity, or other difficulties).

poverty. An overview of the psychological concepts and literature is provided next, though readers can also refer to more extensive expositions of these concepts in Mullainathan & Shafir (2013).

Cognitive Load

Any attempt to understand mental function must include the limits to human capacity that come into play when too many demands are placed on our minds. To stay on track, to sift through the many demands, we need to impose attentional control, both to disengage attention from current distractions, and to redirect it to what matters most (Mischel & Ayduk, 2011). But that, paradoxically, gets increasingly difficult to do as our mind finds itself processing additional information, when it experiences what psychologists call cognitive load. Cognitive load is easily manipulated in the lab, where, for example, having subjects maintain an eight-digit number in active memory affects performance relative to those who are asked to maintain an easier, two-digit number. Among our most fundamental abilities to be affected by cognitive load are cognitive capacity and executive control. *Cognitive capacity* refers to the cognitive mechanisms that underlie the ability to solve problems, retain information, engage in logical reasoning, and so on. Perhaps the most prominent feature of our everyday capacity is fluid intelligence, the ability to think and reason abstractly and solve problems independent of any specific learning or experience. *Executive control* underlies our ability to manage our cognitive activities - decide whether, at any particular moment, we want to attend, plan, initiate or inhibit certain actions, or control an impulse. Like a computer's central processor, executive control is essential to functioning well. It determines our ability to shift attention, control memory, multi-task, and self-monitor.

Studies show that cognitive capacity and executive control are impeded under cognitive load (DeFockert, Rees, Frith & Lavie, 2001; Lavie, 2000; Lavie, Hirst, de Fockert & Viding, 2004). Increased load reduces the executive control of attention, for example, as measured via participants' performance on task-switching and on response inhibition tasks (Roberts, Hager & Heron, 1994). Similarly, prospective memory, the ability to remember to perform tasks in the future, is heavily affected by cognitive load (Marsch & Hicks, 1998). Load also changes how people reason and solve problems (Kahneman & Frederick, 2002), increasing reliance on heuristics and shortcuts, including foregoing the making of active decisions, instead opting for default options that may not always lead to the best solution.

Some forms of cognitive load, such as peripheral stimuli that distract the mind from engaging with what matters most, are produced externally. Indeed, the contexts of the poor provide an especially large array of unwanted and distracting stimuli, including living environments that are louder (Evans, Eckenrode & Marcynyszyn, 2007), more crowded (Evans et al., 2007) and less safe (Kling, Liebman & Katz, 2007). Research has explored the role that noise plays in impeding children's learning: One study found that children's reading levels in classrooms situated near passing trains were lower than those of children in the same school who happen to be in classrooms on the school's quiet side, a pattern that was successfully addressed through the installation of noise-absorbing insulation in the noisy classrooms (Bronzaft, 1981).

Perhaps even more consequential are those causes of cognitive load that are produced internally, for example, by thoughts that are persistent and distracting. Living in the context of poverty presents everyday practical challenges and poses critical demands on attention, planning, problem solving, and self-control. The need to attend to difficult situations, implement drastic measures, and make difficult decisions requires cognitive resources. In times of need, a middle-

income or rich person can, with relatively little effort, resort to savings, or cutback on (by their own admission) more frivolous spending. In contrast, a poor person in times of need is forced to cut back on essential expenses and often must pay a high cost for doing so. She must contemplate difficult tradeoffs, and must carefully juggle immediate expenses with trickling incomes and anticipated payments. Because of the lack of economic slack, poverty—and scarcity more generally—proves to be a domineering context. The more we have on our minds, the less we can attend to, perceive, or remember. And, paradoxically, the less well we attend to important matters, the more overwhelming our context can get. Although the limits of everyday cognition have been recognized in areas ranging from driving and chess playing to the design of cockpits and air-traffic control towers, its explicit role in the management of our everyday lives has been given less thought. Recent work has begun to explore the implications of cognitive and behavioral limitations for policy design (Thaler & Sunstein, 2009), but only recently has attention been turned towards the cognitive challenges faced by the poor (Mullainathan & Shafir, 2013; Shah et al., 2012).

Recent studies have looked at how everyday financial concerns can produce cognitive load among the poor (Mani, Mullainathan, Shafir & Zhao, submitted for publication). Several experiments were conducted with shoppers at a NJ mall. Participants saw several hypothetical scenarios, each describing a financial problem they might experience. For example, they were to imagine that their car required costly servicing, and they were asked how they would go about solving this problem: would they opt to fix the car, in which case where would they procure the funds? Or would they take a chance and hope that it lasts a while longer. Participants were randomly assigned either to a “hard” condition, where the scenarios involved relatively high costs (the car would cost \$1,500 to fix), thereby making the financial challenge more difficult, or

they were assigned to an “easy” condition, where costs were lower (the car would cost \$150 to fix) making the financial challenges substantially easier.

After viewing each scenario, and while thinking about how they might go about solving the problem, participants were given a series of tasks to perform, including Raven’s Progressive Matrices (Raven, Raven & Court, 2003, updated 2004), which are commonly used to measure “fluid intelligence” in IQ tests, and a spatial task typically used to gauge executive control, namely, one’s ability to inhibit a prepotent impulse in favor of a different response (Davidson, Amso, Anderson & Diamond, 2006). Both are non-verbal tasks, intended to minimize the potential impact of literacy skills.

Having completed the tasks, participants were divided, based on median household income, into “rich” and “poor,” and their average accuracy on the Raven’s Matrices and cognitive control tasks were computed. For the financially “easy” scenarios (where the car did not cost much to fix), the performance of the poor was indistinguishable from that of the rich; yet, for the financially “hard” challenges, the poor performed significantly worse than the rich on both the Ravens and the cognitive control tasks. In both tasks, the performance of the rich was uninfluenced by problem difficulty – they performed equally well when the challenge was hard and when it was easy. The poor, on the other hand, performed significantly worse when they faced the hard as compared with the easy condition. (As a result, they performed reliably worse than the rich overall.)

Despite their fine performance when problems were easily manageable, the financially challenging scenarios impeded the cognitive abilities of the poor. And the effect was substantial. Intelligence researchers tend to gauge interventions by their implied impact on IQ. They assume

a normal distribution of IQ scores, with a mean of 100 and a standard deviation of 15, so that an intervention with an effect equivalent to 1/3 of a standard deviation corresponds to about 5 IQ points. By that measure the effects observed in the studies above correspond to between 13 and 14 IQ points. By most commonly used descriptive classifications of IQ, 13 points suffice to move you from “average” to “superior” intelligence. Or, in the other direction, losing 13 points can take you from “average” to “borderline deficient.”

Results on the executive control tests were similar to those with fluid intelligence. Following the financially easy questions, the poor and the well-off looked similar - they were able to control their impulses to the same degree, and made about the same number of errors. But the financially hard questions changed things dramatically. The well-off subjects continued to do just as well as they did with the financially easy questions, exhibiting the same level of executive control. The poorer subjects, on the other hand, now did significantly worse. They were more impulsive, with the number of correct responses diminishing from 83 percent in the context of the financially easy scenarios, to 63 percent in the context of scenarios that were financially more challenging. Beyond fluid intelligence, a focus on scarcity also reduced executive control.

Decisions that require control are influenced by two competing forces: present-focused drives that push the person in the direction of acting impulsively and succumbing to temptation, counteracted by long-term goals driven by resource-intensive cognitions that help resist that impulse (Hinson, Jameson & Whitney, 2003; Hoch & Loewenstein, 1991; Loewenstein, 1996; Shiv & Fedorikhin, 1999; Sjoberg, 1990; Ward & Mann, 2000). There is evidence that, like an over-exercised muscle, the repeated exercise of self-control itself depletes subsequent self-control (Baumeister, Bratslavsky, Muraven & Tice, 1998; Baumeister & Tierney, 2011; Muraven & Baumeister, 2000), and as discussed further below, it is possible that the very challenges that

come with instability present a greater need for self-control, and thus more depletion just when self-control is most needed. Moreover, self-control is compromised whenever the resources devoted to resisting temptation are distracted, with attention focused elsewhere. And cognitive load is one such source of weakening. The impact of impulses on behavior tends to increase under cognitive load (Frieese, Hofmann & Wanke, 2008), thus affecting self-discipline. For instance, when dieters are under cognitive load, they exhibit less self-controlled eating and show decreased executive function (Hinson et al., 2003; Shiv & Fedorikhin, 1999; Ward & Mann, 2000). After asking study participants to remember either a 2-digit or 7-digit number, those participants asked to recall a 7-digit number were significantly more likely to opt for cake (63 percent) than those who were asked to recall a 2-digit number (43 percent).

The same person apparently has a lower IQ and less effective control when she is preoccupied by scarcity than when she is not. And the effect is both substantial and persistent. Several versions of this study were run, always with the same results. The effect cannot be attributed to a general fear of math, since when non-financial versions of the problems were run using the exact same numbers, no effect was observed: there was no difference between the rich and the poor. The effect appears confined to problems that are financial in nature. And it is not attributable to a lack of motivation. In one replication of the study, participants were paid for every right answer. Presumably the low-income participants have a *greater* incentive to do well: after all, the money matters to them more. In fact, they did just a tiny bit worse. Low-income participants left the mall with less money after having contemplated the harder scenarios, an effect that was absent among the financially more comfortable.

Note, again, that the difference appears to be not between poor and rich *people*. The poor performed just like the rich when the car cost little to fix, when their financial concerns had not

become dominant. What we see is the burden of having to deal with poverty concerns: a person who is taxed by the challenges of poverty performs worse on executive control and intelligence tests if you catch her at a time of concern. And, of course, performing less well, rather than alleviating the burden, is likely to make it worse.

Limited Attention Attentional limitations are inherent to human information processing. They are amply researched and fairly well understood (e.g. Baddeley & Hitch, 1974; Neisser, 1976). Our short-term memory capacity is severely limited (Miller, 1956), and our perceptual and fluid reasoning abilities are similarly constrained, and further burdened by cognitive load. In classic “dichotic listening” tasks, subjects pay attention to, and are very good at reporting, the audio message played in their right ear, but know remarkably little about – do not even realize it was in a different language -- the message contemporaneously heard in the left ear.

Of course, limited attention affects have been amply studied in several domains. In one popular demonstration, people fail to see a person in a gorilla suit walk across a basketball court while they are busy counting ball passes (Simons & Chabris 1999; [watch here](#)). In another, people walking across a western US campus were much less likely to notice a clown riding a unicycle in the middle of the plaza when they were talking on a cell phone, compared to those who were not (Hyman, Boss, Wise, McKenzie & Caggiano, 2010). Recent functional magnetic resonance imaging (fMRI) work has found that attenuated attention in the periphery of a visual target of focus occurs already at the level of the visual cortex (Yi, Woodman, Widders, Marois & Chun, 2004).

The effects of limited attention also represent a core component of the psychology of decision-making in the context of poverty. The attempt to regulate attention is in part a tug of

war between competing goals. And although we can often decide what to attend to, some stimuli are automatically salient, or can be flagged as motivationally salient by reward-processing mechanisms in the brain (Field & Cox, 2008; Knudsen, 2007). In such cases, despite conflicting goals, attention can be hijacked. In a series of starvation experiments conducted in Minnesota during WWII, healthy and highly educated male volunteers were given extremely small rations of food for 24 weeks. The quality of their thoughts and aspirations changed substantially. But perhaps most prominent was their focus on food. And not necessarily in ways that were productive. They read recipes and collected cookbooks and made plans to open restaurants, a focus that was of little help in their condition; if anything, it had the undesirable effect of only making them hungrier (Kalm & Semba, 2005; Tucker, 2006). Other experiments have shown that scarcity quickly becomes top-of-mind (Mullainathan & Shafir, 2013). In one study, inducing thirst in subjects led to quicker recognition and greater recall of thirst-related words (Aarts, Dijksterhuis & De Vries, 2001). In another, showing dieters food words led to diminished performance immediately thereafter due to the distraction that the lingering thoughts of food brought about (Bryan, Mullainathan & Shafir, 2010). Scarcity captured attention.

A recent set of experimental studies documents how scarcity captures attention and how this contributes to poorer decision-making (Shah et al., 2012). In several laboratory experiments, participants were given resources they could use to earn rewards while playing games. Some participants were randomly assigned to be “poor,” and given fewer resources; others were assigned to be “rich,” and given greater resources. Subsequent measures showed that the poor were more focused than the rich in how they allocated their resources - they deliberated longer and were more careful. But this focus came at a cost. As poor participants focused heavily on each round of the game, they neglected other concerns. As they concentrated on the chance to

patch things right now, they neglected the future consequences of borrowing. When they were given the ability to borrow at exorbitant interest rates, poor participants, who were heavily focused on trying to complete each round, borrowed too much. As a result, poor participants did worse when they had the option to borrow than when they did not. This was not the case for the rich participants. (Remember: The “poor” and “rich” in this case are experimental subjects randomly assigned.)

One of the fundamental observations in decision-making research is the exceedingly local nature of everyday decisions. More global perspectives, along with considerations about the long term, are often discounted in favor of issues salient at the moment. Narrow focusing has clear implications for planning. Careful attention devoted to decisions in the present – how to pay a bill, or afford a trip, or a doctor – imply relatively less attention allocated to decisions that are less immediate, such as how to plan for retirement, or if to save at all. Today’s focal goals can inhibit the attention given to long-term goals (Neisser, 1979; Shah, Friedman & Kruglanski, 2002; Simons & Chabris, 1999). As we saw above, a greater focus on current rounds led participants in several experiments to borrow at high-rates, something they avoided when greater abundance allowed them to focus less locally (Shah et al., 2012).

Focusing on one thing leaves out most other concerns. And neglecting priorities as minor as taking a daily prescription pill or the payment of an overdue bill, can trigger a chain of events that leads to poorer health or to costly financial outcomes. When resources are depleted, people make less fortuitous choices, which further diminish the ability to deal with challenging circumstances, and can yield predictable poverty traps. The challenges of poverty—particularly when exacerbated by the complexity of income instability—can produce debilitating feedback effects that perpetuate the cycles of poverty.

Preoccupations with pressing budgetary concerns leave fewer cognitive resources available to guide choice and action. Just as an air traffic controller who is focusing on a potential collision course is prone to neglect other planes under her control, so do the poor, when attending to juggling monetary concerns, lose their capacity to give other problems their full consideration. Of course, the fact that one's attention is focused on solving a pressing immediate problem can be a good thing – the controller *should* focus her attention on that potential collision - nobody wants her to be thinking instead of how to arrange her retirement savings! The *now* vs. *later* aspect of attention is highly effective: yet, when one's attention is persistently focused on certain aspects of the problem, this can become a real problem. And the instability inherent to the lives of the poor is one major source of persistent attention.

A Behavioral Lens on Poverty and Economic Instability

Poverty is a context of depleted economic resources. And, in turn, it is a context that continuously strains psychological and cognitive resources. The theoretical underpinnings of the behavioral account of decision-making in the context of poverty emerge from the analysis of human cognition described above, and presented in earlier work by Mullainathan & Shafir (2009, 2013) The recognition of the malleability, vulnerability, or, for that matter, the relevance of human cognition is not one that is easy to glean in the traditional framework: Cognitive capacity is largely seen as static and unresponsive to income level. Economic circumstances are not assumed to affect the attention or self-control available for decisions and action. Rather, the traditional view of poverty would contend that cognitive capacity is inherited or shaped by long-term environmental factors that can no longer be adjusted for as researchers and policy makers design programs to help improve the lives of the poor.

While the rich experience temporary setbacks, their access to financial and other compensating resources allows them to rebound with little if any life-altering tangible negative ramifications. A financial set-back might result in a postponed vacation, a broken car might require taking a taxi to work, a moment of disengaged parenting might mean unfinished homework. Under the same conditions of income instability, the costs are much higher for the poor: A dip in income might result in money owed to a loan shark, a broken care might mean being late to work and one step closer to job loss, a moment of disengaged parenting might result in a teenager roaming unsafe streets. Under conditions of poverty and income instability, a demanding job-training program may be foregone in order to cope with a crisis at hand. Remembering to complete and submit a form under a deadline will take the back burner. The demands posed by income volatility can easily interfere with enrollment, attendance, and engagement in programs precisely intended to assuage such volatility, thereby affecting opportunities for economic mobility.

A conventional model of poverty would point to income enhancement as an ultimate outcome achieved through a variety of services and financial incentives. Such a model assumes that individuals will take-up and engage in useful programs, and that the right decisions will be converted into appropriate behaviors that yield higher earnings, lower rates of public assistance, and perhaps even some savings. The behavioral perspective starts at a different place: Being poor means having little economic slack, which, coupled with unstable income, means constantly needing to attend, to problem solve, and to juggle. This continuous juggling, in turn, causes distraction, depleted resources, and compromised decision-making, which contribute to low and erratic rates of planning, take-up, show-up, and follow-through. Moreover, financial juggling has high current and future costs for the poor as income shocks are often handled by relying on

high cost financial alternatives as a short term fix, imposing a future economic tax on income stability. Such “taxes” interfere with maximizing the benefits of programs thus limiting the impact of well-intended policies on economic mobility outcomes.

Building more evidence in support of the hypotheses borne out of this framework is the next step. That scarcity imposes costs on decision-making has garnered substantial empirical support. One study gauged the cognitive capacity -- via Ravens and executive control tasks -- of Indian sugar cane farmers, who receive income annually at harvest time, and find it hard to smooth their consumption. As a result, they are poor before harvest and richer after. The study found that the farmers performed much worse on fluid intelligence and executive control when they were poor (pre-harvest) than when they were rich (post-harvest). The same person behaved less intelligent and more impulsive under greater scarcity. (For further analysis and discussion, see Mani et al., submitted for publication; Mullainathan & Shafir, 2013).

Further support can be obtained from studies not about the poor, but which provide examples of the kind of research that might shed more light. Consider, for example, another sort of scarcity, such as that experienced by air traffic controllers (ATCs). These are workers with highly demanding job. Like many, they have days that are very busy, and others that are reasonably calm. Studies have found that the difficulty of an ATC’s workday is associated with behaviors such as marital withdrawal and the increased passive disciplining of children (e.g. sending to one’s room) but not, for example, with anger (Repetti, 1989, 1994). Apparently, following a hard day’s work, ATC’s lack the energy and patience to engage in demanding interactions, arguments and fights. The preponderance of evening shift work and the impact of irregular schedules may have similar consequences for the life outcomes of low-income workers, who end up exhibiting more withdrawal, and less tolerant and more dismissive parenting

(Presser, 2005). Like ATCs after a hectic day, low-income individuals have sapped their attention and self-control, resulting in the common experience of cognitive depletion, with spillovers into the rest of life. The poor, you might say, are keeping more planes in the air. But unlike ATCs, it is rare that the poor are able to go home after “all planes have landed,” rest, re-energize, and arrive refreshed and prepared the next day.

It is empirically difficult to gauge the causal relationship between aspects of human cognition and features of income instability. One possibility is to examine whether income shocks are associated with the kinds of behaviors that suggest decision-making under cognitive load. One possibility is to look at the timing of disbursement of social assistance income. Many low-income families receive food stamps once, at the beginning of each month, from the Supplemental Nutrition Assistance program (SNAP). If budgeting and allocation of resources toward food are constrained (potentially because it is hard to be mindful and pay attention to budgeting beyond the very near future), then the end of the month might become a particularly tight period for consumption and spending. In fact, other works has shown reduced caloric intake at the end of the month (Shapiro, 2005; Stephens, 2003). Using data from Chicago Public Schools, we also find a few end-of-the month differences in outcomes. There is a 40 percent increase in school disciplinary events among 5th to 8th graders at the end of the month as compared to the beginning of the month for students whose families participate in SNAP, statistically larger than the same comparison among students who are not receiving SNAP benefits. Using data from national time use studies, we further find that public benefits recipients sleep for 70 minutes less on average at the end of each month compared to other times in the month. While it is not possible to cleanly attribute these types of effects to cognitive function, per se, these statistical patterns timed at moments of hypothesized income scarcity which, we

have previously argued may affect cognitive function, may be especially problematic for children's ability to participate and excel in school (Gennetian, Seshadri, Hess, Winn & Goerge, 2013).

Another striking illustration of the effects of income shock on cognitive function comes from the case of the Earned Income Tax Credit (EITC). This refund, which is typically received annually, is so large that it can represent a 40 percent pay increase for some workers. As with food stamps, people have greater material wealth (partly measured through reports of lower rates of homelessness) during the months after receipt of EITC and less wealth during the months before. Using data from the U.S. Census, we find that the proportion of male births is statistically lower when the first trimester of pregnancy falls before (versus after) the EITC payment would have been received; and the magnitude of this difference increases with the generosity of the EITC benefit. One probable mechanism is the behavioral struggle and resulting stress when the first trimester occurs in times of great financial need; stress, it is known, can result in spontaneous abortions particularly likely to affect males (Fukuda, Fukuda, Shimizu & Moller, 1998).

These quasi-experimental empirical explorations illustrate how income scarcity and instability may affect cognition in ways that have real implications for outcomes that researchers and policymakers care about. Clearly more work is needed to delineate the full causal mechanisms.

A Behavioral Perspective on Why Poverty Policies Might Fail to Meet their Potential

Most of today's well-intended social policy programs are designed with little flexibility or room for slippage. They impose high costs to any small miscalculation and thus are often met

with mixed or lower than expected success rates.¹⁰ Assuming that poor individuals act as prescribed by standard economic thinking, namely, by gauging the “quantified” benefits and costs of participation, policymakers and researchers are often left puzzled as to why participation is not broader, engagement not more intensive, and drop off so high. Statistics on nearly all garden variety, mobility-enhancing programs in the U.S. show a persistent discrepancy between the proportion of those eligible to receive a program’s benefits or services and actual take-up or enrollment rates.¹¹ And these discrepancies cannot be explained by strategic rationing. In fact, according to conventional economic thinking, lower than full participation essentially separates those who really need the program from those who need it less, and thus contributes to efficiency in delivering program services. Essentially, the screening and sorting under existing hurdles is presumed to select for those whose cost-benefit analyses dictate the greatest need to be served. Our framework implies something very different: Those who might benefit the most from various programs are often those whose poverty and instability have taxed the most attention and imposed the greatest load. And this tends to interfere with well-calibrated planning and

¹⁰ We can point to three categories of poverty reduction strategies. First, in a synthesis of 46 welfare-to-work programs in the U.S., Smedslund, Hagen, Steiro et al. (2006) conclude that compared to participants in a control group, participants in the programs show consistent but small increases in employment of about 4 percentage points on average and in earnings of about \$2000 on average—a result that is also consistent with findings from Greenberg, Michalopoulos, &Robins (2003) in their review of job training programs. Second, reviews of evidence on the effects of early childhood programs are mixed. Some intensive high quality programs targeted to very small groups of high risk children (such as the High/Scope Perry Preschool Study) showing promising large effects on measures of achievement as well as long term success in adult earnings and behavior. On the other hand, emerging results from evaluations of larger programs such as Head Start show much smaller benefits on aspects of children’s cognitive and behavioral development (see Montie, Xiang, &Schweinhardt (2006) commentary). Third, although some promising solutions have arisen to decrease default rates on loans, and opening of savings accounts in the formal banking sector, evidence is quite mixed on the success of financial literacy programs that often accompany these initiatives and the extent to which these short-term behaviors contribute to long-term improvements in savings, budgeting, and credit worthiness (Caskey, 2006).

¹¹ A recent GAO report estimated in FY2005 approximately 40 percent of individuals eligible for TANF cash assistance were enrolled. TANF is complicated because of the dramatic reforms that occurred in the 1990s that set forth restrictions as well as strong messages that succeeded in limiting future reliance. Coupled with work diversion programs and federally funding that is contingent on performance standards. Even in the current recession TANF enrollments rates have not escalated.

evaluation. By this reasoning, the imposition of program hurdles may serve to deprive precisely those who need the programs' benefits and services the most.

On the other side of the divide are behaviorally informed programs structured to benefit poor individuals without requiring that they redirect their already strained attention or plan beyond their already limited horizon. These include, for example, opt-out options that effortlessly, and substantially, increase retirement savings (see Choi, Laibson & Madrian, 2005), and social programs where enrollment is automatic or presumptive, and where higher take up rates are typically observed (Currie, 2006). Recipients of Earned Income Tax refunds opt by default for a lump sum payment that strategically acts as a forced savings plan to pay off debt (Beverly, Tescher, Romich & Marzahl, 2005); and individuals are more likely to open a savings account when they have learned about the total amount of their EIC refund, such as at tax-filing time (Azurdia, Freedman, Hamilton & Schultz, 2013; "The SaveNYC Account," 2010). Doing away with demanding cost-benefit analyses, these programs benefit from design features that impose fewer demands on planning, attention, and self-control.

The pattern of lower take-up or enrollment when attention and action are required is seen in numerous job training programs¹² as well as teen parenting and marriage programs.¹³ Strategies that reduce attentional costs are often as, if not more, effective in increasing take-up as approaches that might best be characterized as "throwing the kitchen sink at the problem" and offering a range of expensive support services. Consider a relatively recent federally funded relationship-enhancing program called Building Strong Families (BSF). BSF implemented a

¹² In the Job Training Partnership Act Demonstration over one-third of participants did not engage in any form of education, training, or employment assistance (Barnow & King, 2000).

¹³ In the Building Strong Families study only about 40 percent of couples indicated in the follow-up period they had attended a relationship skills group session (Wood, McConnell, Moore, Clarkwest & Hsueh, 2012).

variety of incentives and supports to encourage take-up and retention (including a breakthrough father friendly social and physical infrastructure—imagine large faux leather couches and blue versus pink painted walls), yet 84 percent of participants did not complete the prescribed curriculum (Dion, Hershey, Zaveri & Avellar, 2008). Now compare this with the original Becoming Parents Program (designed and operated by Pamela Jordan) after which BSF was modeled. In that program, relatively minor situational components such as “meals and a ride” had a sustaining positive influence on retention (<http://www.becomingparents.com/>, 2013). Was it the offer of meals and rides, or the actual availability of a ride to a meal that produced a measurable difference in subsequent participation (by alleviating the coordination and attention needed to make sure one is fed and can get to the program)? It is often not easy to unpack the influence of such program components. One may argue, for example, that the offered ride to the meal actually reduces transaction costs, not just the burden on planning and attention. Either way, this component -- psychologists call them “channel factors” -- directly addresses a common decision hurdle likely to impact show-up rates. .

Relationship enhancement and parenting programs may be particularly worth revisiting from a behavioral perspective because in order to succeed they depend on recurring day-to-day decisions by parents. Billions of public dollars are invested in home visiting and related early childhood interventions (Daro & Dodge, 2010; Kahn & Moore, 2010; Sweet & Appelbaum, 2004)¹⁴, supported by a distinguished literature on the influence of parenting styles on children’s behavioral problems, and learning and success in school (Bornstein, 2012; Gershoff, Lansford, Sexton, Davis-Kean & Sameroff, 2012; Lugo-Gil & Tamis-LeMonda, 2008). Yet challenges to

¹⁴ See the Administration for Children and Families, U.S. Department of Health and Human Services initiative documenting the literature, procedures, practices and models of various home visiting programs at <http://homvee.acf.hhs.gov/>.

altering parenting styles persist, despite access to intensive education and one-on-one coaching. Explanations abound regarding the potential social and cultural challenges to altering parenting, but our framework suggests something that is rarely considered: Economic conditions may trigger the disengaged parenting styles that appear most detrimental to children. Low and unstable income puts high demands on mental resources that can easily contribute to feeling frayed, on edge, and impulsive at home with partners and children. What well-intended parenting programs assume is that what is learned can then be utilized on a day-to-day basis. But the recommended strategies are often not poised to fit in the real contexts of the lives of the poor.

Home visiting programs are, for the most part, context-agnostic often providing a range of visits on some calendar-oriented schedule for families identified based on some set of socio-economic risk factors. The core aspects of the program are not designed in a way that can easily adapt to changing day-to-day circumstances, some of which might or might not be predictable. For those at-risk families with some economic stability, receptiveness and translation of skill-building might be high as might be the ability to absorb the stress of managing a toddler along with everything else; for those with high levels of economic instability, any newly learned parenting skill will easily be put on the back burner in the face of a stressor, and thus dilute the programs overall impacts.

This same tendency can affect the success of a myriad of initiatives including savings for college, or for home ownership, even when these come with generous financial benefits. In contexts of low resources and economic instability, a crisis will often mean that opportunities are eschewed. Appendices A through C describe additional case studies where a behavioral framework can uncover aspects of existing social programs that interfere with program success in ways that would not be envisioned by a traditional perspective.

Using the Behavioral Perspective to Inform a New Poverty Research and Policy Agenda

The notion that poverty and economic instability can affect cognitive processes, which then limit the effectiveness of policies, opens the door to more fundamental structural changes both in policy and in practice. At its best, the current public safety net is designed to catch individuals who experience economic falls, making sure they do not hit bottom; at its worst, the current safety net system fails to help the neediest because of bureaucratic hurdles and poorly structured programs. Current economic realities suggest the need for a safety net system designed to ensure that economic mobility is enabled and that minor shocks do not snowball into financial ruin. Taking cognitive challenges and limitations into account, the insights presented here suggest the need for greater instability proofing of current programs and the wise design of new stability-enhancing programs.

Target economic instability directly

Whether in periods of economic expansion or recession, the poor have faced substantial uncertainty in the low-wage labor market. And the social safety net has not quite adapted to this uncertainty on wages, hours and work schedules. Even in 2005, when the economy was strong, 54 million jobs were terminated, and 20 million of those were not instigated by the employee (U.S. Department of Labor, 2006a). Nearly 3.7 million of the involuntarily terminated were actively seeking employment (Kling, 2006; U.S. Department of Labor, 2006b). In 2005, a time of economic growth, 7.9 million Americans started using Unemployment Insurance. While this is an important policy that has helped many individuals weather hard times, with the explicit goal of supplementing income during gaps in employment (with various conditions, e.g., job loss must be involuntary, etc.) — it has failed to insure against employment shocks in the form of

reduction in hours, or loss in the value of wages, among other things. What if UI could be redesigned to absorb the common labor market uncertainties in hours and earnings? Perhaps a portion of paychecks could be reserved into government sponsored instability insurance accounts, to be drawn down when hours and earnings decline or when jobs are lost (for more information, see Kling, 2006)? An employer would determine new employees' average number of hours worked and dollars earned. Whenever an employee works fewer than the anticipated number of hours their paycheck would be supplemented from their account. (The accounts could be capped at specific value relative to total salary allowing them to be exhausted through a limited amount against future earnings.)

Of course, there are costs to offering such programs for both employees and employers. For employees income is being put away that could otherwise be used toward their immediate consumption. For employers such a program incurs administrative costs, though these may largely be one-time fixed costs. The benefits to both, however, could be substantial, increasing worker productivity, attendance, reduced use of leave (to take care of spiraling crises), and increasing employees' human capital due to reduced susceptibility to the vagaries of earnings instability. One concern may be the impact on initial terms of employment. Employers or employees may side-step their commitment by setting up low numbers of guaranteed hours that feed into IIA contributions. A variety of incentives can be structured to discourage this type of situation, varying from purely financial (government subsidies or tax reductions that tie IIA to some minimum hour requirements), to behavioral, such as automating opt-in to a certain number of hours or earnings per week, with options to opt-out (for alternatives arrangements with varying hours and earnings).

Of course, while earning's insurance can contribute to economic stability, it is not a standalone solution. The impact of income volatility could be addressed irrespective of the source of the trigger by providing low cost public insurance. An imperfect example of this is family assistance often made available through state funds, and state's diversion of TANF money to families already receiving TANF but experiencing a short-term crisis. One bolder and broader design builds on Janet Currie's (*The Invisible Safety Net*) "safety net card". Each family receives a card which would be linked to an individual's personal tax information, through which participants are automatically enrolled in public benefits on an annual basis. If a participant experiences a crisis they would be able to call a number on the back of the card, and be given temporary eligibility for public benefits allowing them to quickly overcome a hurdle that might otherwise develop into a poverty trap.

The timing of income delivery may also be strategically manipulated to reduce cognitive demands on smoothing consumption. While most paychecks and social supports are monthly or bi-monthly, the default disbursement scheme could be more frequent. This may wreak temporary havoc on the supply and response of grocery food retailers, for example in the case of food stamp assistance, but ultimately may balance the inventory of food and prices throughout the month. More frequent benefit receipt may not be helpful to everyone. Lumpier disbursement of funds might have countervailing effects on savings. One prominent example is the EITC refund as a forced saving device which is often used to buy large consumer durables or pay down debt (Romich & Weisner, 2000).

Create Financial Buffers

Economic instability could also be weathered through one's own financial cushion.¹⁵ Savings provide a form of self-insurance to low-income households; yet, in the context of daily struggles to make ends meet, can be exceedingly difficult to come by. Nearly 38 percent of households with incomes less than \$25,000 cite winning the lottery as the most practical strategy for accumulating wealth, just shy of the 41 percent who report saving a little bit each month as a strategy (Consumer Federation of America, 2006).¹⁶ In the face of economic instability, any savings strategy must be self-replenishing and easy (but not too easy) to access (i.e. liquid but not too liquid).

Many existing strategies to promote savings assume that savings are low because of lack of knowledge or information. This has fueled a public and private sector response focused on financial education and related budgeting information strategies.¹⁷ Some of these financial education programs suggest positive effects on improving budgeting and savings but also show that benefits mostly accrue to the small self-selected group that is motivated and takes up these opportunities (Caskey, 2006; Schreiner, Clancy & Sherraden, 2002). Public guidance and education strategies such as media campaigns are challenging because, unlike clear messages about “wearing a seatbelt” or “saying no to drugs,” low savings and the obstacles to saving more stem from a myriad of behaviors that are difficult to capture, or adjust, through a sound bite.

¹⁵ Regrettably, current eligibility criteria for many government programs limit the amount of assets individuals can hold.

¹⁶ See Hogarth, Anguelov, & Hilbert (2004); Hogarth, Anguelov, & Lee (2004) analyses of financial knowledge, based on a series of survey questions, and behavior as measured through bill payment, credit, assets and investments.

¹⁷ The private sector offers more than 4,000 personal finance websites. One critique is that these private online approaches do not focus on financial information or numeracy (Gale & Levine, 2010). Dave Ramsey, Financial Peace University, emphasizes paying off small loans first as emotional victories over debt and habit formation.

A more productive avenue might be to develop a suite of new financial products made readily available to individuals who are heavily income-constrained and/or might have poor credit ratings. Such products would be designed to lower the demands on juggling income and expenses by, for example, automating necessary bill payments, presenting useful and simple graphical depictions of expenses and income inflows across a set of compartmentalized categories, and perhaps providing (limited but easy) access to low cost credit with a built-in payback mechanism (Mills, Gennetian, Amick & Powers, 2010). Following on earlier insights around and the behaviorally informed design of “choice architectures” in several policy domains (Shafir, 2012; Thaler & Sunstein, 2009), the guiding motivation behind such products is to create an architecture that is specifically designed to help manage highly constrained funds.

Nearly half (43.9 percent) of American households are considered “liquid asset poor,” meaning they lack the savings to cover basic expenses for three months if unemployment, a medical emergency or other crisis leads to a loss of stable income (Assets & Opportunity Scorecard). Having easy access to some form of low cost credit is critical, yet opportunities are quite rare for those individuals who might benefit the most. The option is embodied in some emergency assistance programs available to community college students (for example, in a program called Dreamkeepers sponsored by Scholarship America). In fact, loan amounts of \$500 to low income individuals have been found to be associated with as much a reduction in the incidence of hardship as a tripling of household income (Mayer & Jencks, 1989).

Design Programs in the Shadow of Instability

Many well-intentioned programs unwittingly impose regressive bandwidth taxes. In fact, for a bandwidth-limited individual, a program’s cognitive costs can present an impediment that

offsets any presumed cost-benefit analysis. This implies that even small costs (like asking individuals to front \$1 for their otherwise subsidized metro card), can impose having to go through trade-off thinking, decide, remember, and then implement and, consequently, present a sufficient obstacle to actually using the card to get to work. The demands on attention make it even more difficult to make sense of intricate eligibility criteria, and uncertainty and complexity can reduce a person's likelihood of applying for benefits. Recent developments, such as Express Lane Eligibility (ELE), have reduced the burden on clients; ELE uses other government programs enrollment to inform individuals of their eligibility and in some cases automatically enroll individuals into Medicaid. A variety of non-governmental organizations have also adopted electronic tools that inform individuals of work supports they are eligible for, and break the benefits access process into actionable steps, an improvement even if individuals still have to apply in person.

One poignant example is a simplification of the Free Application for Federal Student Aid (FAFSA) through prepopulation of economic and demographic data from tax filings. When helping fill out their taxes, an H&R Block assistant informed customers with college-aged children of the eventual cost of college were they to obtain federal aid (often quite below their expectations), and then offered to have the application forms automatically completed. College attendance increased by roughly 8 percentage points (more than a thirty percent relative increase) among those who were informed of college costs and had their FAFSA completed compared to those who only received information about the cost of college (Bettinger, Long, Oreopoulos & Sanbonmatsu, 2009).

Discussion

Recent research in the behavioral sciences has highlighted the attentional demands, cognitive load, distraction, and depleted executive and self-control processes that characterize life under scarcity, and their consequent impact on decision-making. This, we suggest here, provides a new lens through which to view many persistent problems and conventional concerns that characterize policy makers' approaches to the lives of the poor, as well as the continuing intransigency of poverty alleviation attempts. The new framework, we propose, promises to provide new and complementary solutions to improving the impact of existing programs, and to the design of new policies.

Poverty is complex. No one theoretical account or solution can possibly address the myriad circumstances and challenges that face the poor, not even considering the multiple physical and health barriers that are endemic to life in poverty (e.g. depression, substance abuse, domestic violence, see Danziger and Danziger [2009]). However, one predominant aspect is the persistent need to juggle and struggle to make ends meet. (For some detailed accounts, see Edin & Lein, 1997, as well as a recent update, Halpern-Meekin et al., forthcoming. Also Collins et al., 2010, for an international perspective.) Highly creative strategies for coping—from high cost solutions such as transferring debt from one high interest credit card to the next, to low cost ones such as bartering with neighbors to do house repairs rather than calling expensive repair men--require constant attention, and can be depleting and leave little capacity for making decisions about a variety of other matters, especially for tomorrow or the more distant future.

A behaviorally informed framework calls for policy and program re-design that are attuned to the problems of scarcity *and* instability, and include policy strategies that target economic instability directly, create buffers, and are designed to be, to the extent possible, instability-proof. If economic instability exacerbates financial and psychic costs, then moments

of financial stability represent “re-set” moments, offering less depleted circumstances for more considered and insightful decision-making. Building and further testing evidence in support of this framework seems an excellent next step for the effective conduct of poverty policy.

Appendix A. The Supplemental Nutrition Assistance Program

The Supplemental Nutrition Assistance Program (SNAP) (formerly known as the Food Stamps Program) was created “to permit low-income households to obtain a more nutritious diet...by increasing their purchasing power” (Food and Nutrition Service, 2008b), and with over 46 million participants as of October 2012, SNAP is currently one of the nation’s largest and most important components of the safety net (Food and Nutrition Service, January 4, 2013). In addition to its practical function of providing food to individuals, SNAP has been understood to also help households smooth income over periods of volatility (Gunderson & Ziliak, 2003). Participation rates in SNAP are countercyclical to that of the economy, with rates rising as the macroeconomic situation declines (Ziliak, Gunderson & Figlio, 2003). Individuals eligible for SNAP must have gross income under 130 percent of poverty (Food and Nutrition Service, 2013) and have limited assets and resources.¹⁸ The amount of benefit a family receives is based on the estimated cost of a thrifty food plan. In 2012 the maximum benefit for a family of four without income was roughly \$500 per month (Food and Nutrition Service, 2008a). For every dollar increase in income there is about a 30 cents decrease in the amount of benefits a family receives.

To receive benefits individuals must apply, usually in-person. Once an individual applies, they will receive a determination decision in less than 30 days, or if the application has been expedited they will receive a determination in less than 7 days.¹⁹ Eligible individuals can continuously receive benefits without fears of hitting a time limit as is the case with the Temporary Assistance for Needy Families program.²⁰ However, eligible individuals must re-

¹⁸ Countable resources must be under \$2,000 or \$3000 if at least one person in the household is at least 60 years old or disabled.

¹⁹ In response to the question: “Are processing times changing?” <http://www.fns.usda.gov/snap/snap.htm> (U.S. Department of Agriculture, 2012, 2013)

²⁰ Able-bodied adults without dependents can only receive benefits for 3 months in a 3 year period if they do not work or participate in job search related activities.

certify anywhere from every 3 to 12 months depending on the state of location²¹. Federal regulations declare that “[s]tate agencies must assign the longest certification period possible based on the predictability of the household’s circumstances” (7 CFR 273.10) which is usually interpreted as at least six months (Finegold, 2008).

Until very recently, take-up for SNAP had been consistently low. In fiscal year 2007, only about 66 percent of all eligible individuals, and only 56 percent of eligible working participants received SNAP (Cunningham & Caster, November 2009). Researchers have explored potential explanations for the low take-up of SNAP and among other explanations believe some important factors that reduce take up include transaction costs and stigma of receiving benefits (Currie, 2006; Currie & Grogger, 2001; Kaushal & Gao, 2009; Moffitt, 1983).

This line of research has yielded valuable insights about the SNAP program but its impact has been limited in stimulating any redesign of SNAP. For the most part, longer periods between recertification have consistently been associated with higher rates of take-up, and lower rates of drop-off, among eligible families (Hanratty, 2006; Ratcliffe, McKernan & Finegold, 2007; Wilde, Cook, Gunderson, Nord & Tiehen, 2000). Research has also shown that simplification²² of the certification process increases participation rate (Kaushal & Gao, 2009). Motivated primarily under the assumption that stigma interfered with take-up, the most dramatic change to SNAP occurred during the late 1990s when States started replacing paper vouchers with Electronic Benefit Transfer (EBT) cards. EBT cards look and operate in a similar fashion to prepaid debit cards and, in this way, feel quite main stream. Whether or not such a change addressed stigma per se is unknown, but regardless, moving from paper to EBT Card

²¹ If every member of the household is disabled/elderly states can extend certification periods to 24 months.

²² Families now only have to report if their income increases over 130 percent of FPL, whereas previously households had to report income or family structure changes that may impact eligibility and benefits

significantly appeared to increase participation (Kabbani & Wilde, 2003; Kaushal & Gao, 2009; Kornfeld, 2002; Wilde et al., 2000).

In short, the traditional perspectives have contributed to two main (important) changes in the features of SNAP: A move from paper to debit card presumably to address stigma of public assistance receipt, and longer recertification periods to reduce transaction costs.

What if individuals who are eligible but do not receive SNAP benefits were categorized into two broad types: newly eligible and historically eligible? Newly eligible clients seek out social assistance in response to a recent rather stressful event (Bartlett, Burnstein & Hamilton, 2004; Gennetian & Miller, 2002).²³ Their decisions are also being made under a reasonable amount of stress, driving them to focus on the immediate crisis at hand and, in this case, ensuring that food is on the table for dinner that evening. Because of fraud concerns, the search for financial help from any public safety net typically requires finding the right place to apply, getting oneself to the right location at the right time, and often waiting in line for many hours (not to mention, risking the chance that one does not have the proper documentation in hand to even complete the process). These steps are demanded even when the outcome is quite uncertain, and at best, even when the successful completion of these steps may not lead to a consistent benefit payment for several weeks. SNAP might instead allow new applicants to walk into a public benefits office (or, more radically an office that is co-located with places like unemployment offices) and leave with a fully functional interim EBT card. This will directly address immediate financial hardship. More importantly, it will free mental resources to focus on broader strategies to address the crisis; perhaps the immediate money available to pay for today's food or gas will mean that the opportunity to go to an available job interview will not be

²³ Change in family composition, loss of a source of income, and/or member of family become sick/disabled.

forgotten or delayed. Functionally, online determination of eligibility will further facilitate the process²⁴. Everyone has access to a public library. This reduces time spent waiting in line and getting to and from a public benefit office, and the stigma of receiving benefits.

For the second type of individual, i.e. those households historically eligible for SNAP but do not take-up benefits, consider their reasons: (1) they do not know they are eligible, (2) they know they are eligible, but procrastinate, or are too distracted, (3) they know they are eligible, but on balance do not believe the benefit of receiving SNAP is higher than the cost. Individuals may fall into category 1 because they are mentally depleted and applying for SNAP, despite available information, has gone ignored. Individuals may fall into category 3 for a variety of reasons: they may value the present much more than the future and do not apply for SNAP because of the discomfort of today. Additionally, individuals in category 3 may not apply because they cannot force themselves to act. Changing an individual's thought process in category 3 can be difficult, and while other behavioral work may reverse this type of thinking (e.g. conditional cash transfers are one policy intervention that make current benefits readily apparent), it is beyond the scope of this discussion. A simple intervention may increase participation rates across each of these groups by leveraging taxes. Tax forms require individuals to disclose most of the information needed to determine SNAP eligibility. At that moment, an opt-out option could be available to leave open the option of easy SNAP enrollment. The income information would be relatively fresh, and could be renewed annually. Simply put, unless an individual chooses not to, their tax information will be used to determine SNAP eligibility, and this could be followed up by receipt of an EBT card in the mail.

²⁴ Individuals who receive services from nongovernmental organizations, like food banks, soup kitchens, and churches, would be able to assist individuals applying for food stamps.

If increased receipt of SNAP benefits among eligible participants is a policy objective, the behavioral perspective offers several possible avenues. Re-characterizing new applicants as those “undergoing a recent stressful event” and others as a broad category of historically eligible (not just prior recipients) give rise to new strategies.

Appendix B: Opportunity NYC Conditional Cash Transfer Program

Launched in 2007, Opportunity NYC-Family Rewards, is a Conditional Cash Transfer (CCT) program designed to financially reward individuals if they participate in and satisfy the conditions of a set of predetermined activities intended to improve health, children's educational attainment and employment. The program does not utilize case managers or social services. Rather, the program relies heavily on the marketing of incentives and the dissemination of information about resources and services families can access. After proof of participation, families directly receive cash that is deposited into either a bank account or prepaid debit card. The program is the first of its kind in the U.S. and is inspired by similar CCT programs that proved successful in Central and South America (i.e. Progres-Oportunidades in Mexico, Levy, 2006).

Opportunity NYC launched in New York City's six highest poverty neighborhoods in 2007. Nearly 2,400 families who were recruited based on meeting eligibility criteria²⁵ were randomly selected to participate in the study's program group. Individuals and families were recruited through neighborhood partner organizations. Participants were informed of the program's benefits, how and when benefits could be collected during orientation sessions and through ongoing marketing campaigns. To receive benefits participants could open free, no-fee, no minimum Opportunity-NYC bank accounts, receive benefits using an existing bank account, or access funds using a prepaid card. Participants were offered a 50 dollar bonus if they opened an Opportunity NYC account, resulting in 55 percent take-up. The process for receiving the CCT's was relatively simple: Individuals had a list of predefined activities and depending on

²⁵ Eligibility criteria includes: live in one of the 6 neighborhoods have at least one child in fourth, seventh, or ninth grade, and have an income level at or below 130 percent of FPL (to document income families produced proof of receipt of food stamps or Medicaid).

activity, participation was documented either by automatically validating participation with administrative records (i.e., children's test scores) or by mailing in a completed "coupon", with documentation (e.g., a signed doctor's form) proving the activity was completed. Once activities are validated, cash is automatically deposited into either a bank account or a prepaid debit card.

Early evaluation results indicate that this program had small but significant effects on a variety of outcomes, including reduced material hardship, increased savings, increased the likelihood of having a checking account by over 20 percent, reduced reliance on alternative banking institutions such as check cashers, and increased the use of regular health care providers while reducing the use of emergency room service. In its first two years, the program did not improve overall education outcomes for grades K-8, nor did it increase use of regular medical check-ups or improve parents' relationships or earnings. Combined with evidence from welfare, work and income security programs, CCTs appear to generally support the contention that targeted financial incentives can produce modest changes in improving some aspects of economic behavior, education and health.

Some control group participants in the study went to the doctor, paid their bills on time, had a bank account, and had their children immunized without the encouragement of an incentive. The CCT was designed to incentivize and indeed encouraged higher rates of participation in some but not all of these activities. Most touted are CCTs effects on school performance that were most pronounced among the group of high school students who were high achievers to begin with (based on their test scores in 8th grade). Why didn't CCTs improve children's test scores more widely or attendance despite the generous incentives and a priori buy-in among participants to engage in such activities? Qualitative research uncovers a few possible reasons (Greenberg, Dechausay & Fraker, 2001). Although parents expressed a general desire to

do what is best for their children, they did not have the tools they needed to convert their goals into action. Sometimes this meant the need for more concrete interim steps to succeed. Families would also get distracted for periods of time due to crises, celebrations and the like; and their good intentions often went awry.

Despite providing cash for submitting a coupon, a significant proportion completed the activity but did not subsequently submit coupons in year 1 or year 2, compared to over 99 percent of individuals received cash for benefits that were automatically validated. In year 1, 17 percent of participants did not receive any rewards from the coupon books and in year 2 the rate increased to 20.4 percent. In survey reports, about 93 percent of participants felt that they knew what they needed to do to submit coupons and how to submit coupons and about 89 percent found the coupon book easy to understand. However, only about 63 percent reported not having any trouble keeping track of the coupons. Why? As one participant stated, “My brain be somewhere else. ... ’cause I just took my kids to the doctor last month, but me rushing to get them to the doctor, I forgot to bring those coupons. So half the time I be forgetting to bring it. It’s not that I don’t want to bring it; I be forgetting ’cause I be busy.” Indeed, the menu of incentives was long – more than 20 in the first year of the program – and the coupon book was dense, particularly for large families. Also, in certain cases, such as employment and some health activities, documentation requirements were complex.

Family Rewards is a promising program that appears to provide significant cash benefits to participants. The coupon-based reward system was an insurmountable challenge for over 10 percent of individuals who did complete their activity and had good intentions to follow through to receive their cash benefit but did not do so. These individuals understood how to use the coupons, but they were not able to convert that understanding into an actionable plan. It is not

entirely remarkable that the individuals who did reap the full benefits had a few systematic differences from those who did not in their education, income, etc. The common theme—for the individuals who struggled with prioritizing or optimizing the potential benefits of CCTs, or the individuals who when such activities were prioritized could not follow-through with reaping the full benefits of the cash—is that other things simply got in the way. What this means for CCTs is that benefits may not be reaching the individuals who can gain the most. The “hybrid” verification model, which used both coupons and automatically-verified means to determine whether a family should receive payment for an activity supports this contention. Implementation research suggests that coupons were helpful as a way for families to organize their involvement in the program. It reduced the amount of mental accounting that went on because they could look through the book and think about what they needed to do. However, many of the program’s most high-value rewards (e.g. the education rewards such as standardized tests, credit accumulation, graduation, attendance) were verified using administrative data and weren’t included as activities in the coupon book. Families didn’t have to “do” anything (“simplification” and default) to claim these rewards, but being out of sight also meant they were out of mind thus potentially diluting the intent of the CCT.

Re-framed through the behavioral lens of economic instability it is not surprising that re-prioritizing is hard to do, as is keeping track of things like coupons. Take-up and follow-through of activities with more immediate short-term benefits was higher than those that required a longer-term view (e.g. dealing with today’s issues like bill payment, emergency room vs. educational outcomes). Would commitment to activities improve by making short-term benefits more salient? Even with the right future oriented intentions, devices can help minimize distractions. Some parents created systems to reduce the mental burden of keeping track of

coupons: “one parent pasted folders for each child on her wall and inserted the relevant coupons in them so she would be reminded of what each child needed to do.” What a good idea! This participant recognized that her day-to-day life—coupled with the uncertainty and instability of income--would create difficulties keeping track of everything.

Appendix C: Early Head Start

Early Head Start was created in 1995 as a response to the “quiet crisis” (Carnegie Task Force on Meeting the Needs of Our Youngest Children, 1994) affecting children under the age of three and their families within the United States and in 2006 served close to 100,000 children or mothers (Child Outcomes Research and Evaluation, 2002). This program was initially launched at selected 68 sites and increased to over 400 sites across the country. Families were recruited into the program primarily through using local advertising, contacting individuals participating in public programs that serve similar populations such as WIC, and seeking referrals from local health care providers. Early Head Start seeks to improve children’s development and health, build strong family and community relationships, and provide help to the staff who bring new services to low-income households with pregnant women, infants, or toddlers. To do this Early Head Start provides intensive services to pregnant mothers and their newborn child for up to three years²⁶, during the most crucial period of the child’s life, in order to assist the families and support positive developmental trajectories. Services can include child care, case management, parenting education, home visits, healthcare and referrals, and family support.

When researchers from Mathematica Policy Research and Columbia University evaluated the Early Head Start program using a randomized controlled trial they found that low-income families with infants and toddlers from nearly every subgroup are positively affected by the program, but the impacts were small. Early Head Start had modest positive effects on children’s cognitive language abilities, social development, and parenting skills. Center-based programs showed the most pronounced effects on improved cognitive and social-emotional development

²⁶ Eligibility for enrollment in Early Head Start began once the mother became pregnant with the “focus child” and lasted until the child turned one. Therefore, families were qualified to receive program services for as long as three years (if the family registered during the pregnancy period) to approximately two years (if the family registered close to the child’s first birthday).

and some positive effects on parenting, while home-based programs demonstrated some positive impacts on social-emotional development of children's and reduced parenting stress. The mixed approach produced the most widespread and largest effects on language and social-emotional development of children and self-sufficiency and general parenting behaviors.

Despite the programs best efforts to tailoring services in as well as outside of the home, approximately *two-thirds* of families did not complete the Early Head Start program because they either moved away or dropped out before their eligibility ended. Furthermore, staff took away close to one-third of the families' program memberships as a result of a low attendance rate, poor behavior, or due to participants requesting to leave. A similar disappointing pattern is observed when looking at the intensity of service utilization: Only about half of participating families received services at the required intensity levels²⁷. The troubling pattern of low service utilization intensity and short enrollment duration has also been seen in other research looking at home visiting programs (Gomby, Culross & Behrman, 1999).

Early Head Start is a promising program that can address socio-economic inequities as early as age 1, during a highly malleable developmental period where policy can produce high returns to investment. Low utilization and retention are especially troubling. Living in poverty and faced with unstable financial conditions, life with a one year old only magnifies day to day demands with little energy reserved for practicing newly taught skills in the home. While parents of eligible Early Head Start children value their child's education and development—just like anyone else--periods of economic instability can easily undermine their good intentions. Emerging results from Head Start, the nation's attempt at providing early childhood education to

²⁷ Defines by AFC as: "Weekly Early Head Start home visits for home-based sites, at least 20 hours per week of Early Head Start center-based child care for center-based sites, and weekly Early Head Start home visits or at least 20 hours per week of Early Head Start center-based child care for mixed-approach sites."

vulnerable children since 1965 (Love, Kisker, Ross et al., 2002), show much smaller benefits on children's cognitive and behavioral development than hoped (Montie et al., 2006). A possible explanation for the Head Starts modest impact is that fifth never participated in the program (Child Outcomes Research and Evaluation, 2002).

Some of the structure around delivery of services of Early Head Start might maximize its benefits from the perspective of a fully participating child. This same structure may also interfere with full participation from the perspective of parents who act as agents on behalf of their children. Stringent drop off times are important for managing classrooms and day to day curricula but for some parents such stringency imposes costs, let's say, because of potentially erratic employment schedules.

In contrast to other child-care and child development programs, home visiting programs bring the services directly to their participants' home, which reduces the logistical burden put on parents and provides a forum for participation from the whole-family. A meta-analysis on home visiting suggests that overall home-visiting programs do accrue benefits to parents and children, though meta-analyses do not point to any one design feature that seems to produce the most positive effects and the estimated positive effects do not appear substantively larger than those enjoyed by Early Head Start programs (Sweet & Appelbaum, 2004). Although the logistical burdens might be reduced with home visiting, the success of the model still hinges on parent ability to follow through on a day to day basis without the handholding of a nurse. Indeed, common across a various early childhood preventive interventions, success hinges on the role and available energy of the parent to fully participate, consistently engage, and follow-through with recommendations.

The behavioral perspective points to strategies that can support the underlying

assumptions of these early childhood interventions about fully engaged parents, and parenting, by focusing on ways that the early childhood initiatives will not be easily upended due to attention that is redirected to a financial crisis at hand. One example is implementation intentions, i.e. prompts to develop a specific if-then plan. Rather than holding to unstructured intentions (“I should read to my child more”), implementation intentions prompt an individual to link situational cues with a response (“I will read to my child for 10 minutes right after dinner”). Implementation intentions have been shown to have surprising influences on a variety of behaviors: An implementation intentions intervention where a caller would ask a potential voter when and where they were intending to vote increased the probability they would vote by 9.1 percentage points (Gollwitzer, 1999). Such prompts—to read, play, or comparably interact with a child—could be easily designed and strategically posted throughout one’s household. Another strategy for redirecting attention that may be misdirected in the context of low and unstable income is reminders. Simple monthly text messages were found to increase savings rates by 6 percent, the probability of loan repayments by 7-9 percent, exercise levels by 8 percent, and smoking cessation rates by 15 percent—behaviors that similarly begin with good intentions (like good parenting) but also can easily fall to the wayside (Cadena & Schoar, 2011; Karlan, McConnell, Mullainathan & Zinman, 2010; Newton, Wiltshire & Elley, 2009; Rodgers, Corbett, Bramley et al., 2005).

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