

A Behavioral Economics Perspective on Innovations in Savings Programs

Piyush Tantia, Shannon White, Josh Wright

Many programs designed to increase savings among low-income households fail to attract and retain the expected numbers of participants, and thus have only limited large-scale impact. These disappointing results have led to debates about the cost-effectiveness and general merit of funding such efforts. At the root of these debates are some more fundamental questions about why people find it so hard to save and routinely make poor savings decisions. Why, for example, do even those who have the capacity to put some money aside for emergencies routinely fail to do so, resulting in their incurring expensive debt or late fees when an emergency does occur? And why do people underutilize savings programs and products that would help them stabilize their finances and accumulate savings when these are made available to them?

It is routine to attribute the failure of such programs to the values or capacities of those they target. For instance, some argue that those with low and moderate incomes (LMI) fail to save because they don't fully understand or appreciate the importance of thrift, while others suggest that the LMI lack the capacity to make adequately thought-out, long-term financial calculations. However, research in the applied behavioral sciences makes it clear that the wealthy, middle-class and LMI all exhibit a number of frailties and quirks in their decision-making. The wealthy and LMI alike are frequently impatient and prone to poor planning. The difference is that the stakes are higher, and the decisions harder, for those living under precarious financial conditions.

Policies and programs aimed at improving savings have traditionally been built on a set of standard assumptions about human behavior, e.g., that preferences are consistent, that all information is processed accurately, and that decision-making is not influenced by extraneous information. As a result, savings policies and programs have focused primarily on a two-pronged approach involving increasing incentives and offering more information. Incentives usually take the form of matching contributions, while information often includes educational sessions and pamphlets about things like the cost of living during retirement, the increasing cost of college education, and so on. While successful to a degree, these methods have repeatedly failed to bring about the expected and desired magnitude of behavioral change. Low participation rates in 401(k) plans with matching contributions have been compared to passing up "\$100 bills on the sidewalk" (Choi, Laibson, Madrian 2005). Tax deductions for retirement plan contributions have appeared not to improve savings contributions among low- and moderate-income families very significantly (Duflo, Gale, Liebman, Orszag, Saez 2007). Moreover, such programs are often costly, both administratively and because they rely primarily on financial

incentives (e.g., matching contributions) to motivate savings. Even excluding the cost of matches, Individual Development Accounts (IDAs) cost about \$64 per participant per month (Boshara 2005).

By contrast, applied behavioral economics demonstrates that large impacts do not necessarily require either large administrative investments or large financial incentives. Significant improvements in participation, retention, and use can be achieved through slight tweaks in a program’s structure or communications. Historically, policymakers and program designers have paid little attention to the impact of design on behavior, and may thus have inadvertently *discouraged* participation and retention. For example, enrollment and participation procedures are often demanding, unpleasant, or opaque – all of which have been shown to dramatically decrease the take-up of programs. Conversely, integrating behavioral principles into policies and program design offers a range of low-cost solutions to improve savings behaviors, leveraging small “nudges” to achieve large impacts.

This paper outlines some key principles of behavioral economics, examples of interventions that have incorporated these insights, and future directions for the development of savings programs and policies. The behavioral principles underlying savings decisions are too numerous for an exhaustive description in this paper. Instead, we present what we believe to be the most important behavioral principles in four simplified categories useful for the design phase of a policy or program: suboptimal decision making, intention-action gaps, depletion, and scarcity. The discussion of recent behavioral interventions will reveal that some concepts and principles of decision-making overlap; a single intervention can improve savings by addressing multiple causes of low engagement levels in a program. However, because many distinct psychologies also contribute to similar behaviors, the effectiveness of interventions can vary between contexts and target populations. In the final section, we provide examples of new ways to increase savings through behavioral interventions, explain why rigorous testing is an important part of program development, and suggest that behavioral interventions in particular can help develop scalable and sustainable savings programs. As with the behavioral perspectives, our discussions of existing interventions and future recommendations are not intended to be exhaustive; rather, we will highlight a few, high-potential ideas to begin a dialogue on further developing policies and savings programs.

Principles of Behavioral Economics Underlying Savings (and Many Other) Behaviors

While the LMI face unique challenges to saving, many of the behaviors that can inform savings program design are common to all individuals. An individual’s decisions and actions in many aspects of life – from saving and spending to health-care and education – are driven by similar kinds of mental short-cuts, situational influences, and fatigue.

Behavioral economists have devised “dual-self” models to account both for “rational” behaviors aligned with standard economic models and for behaviors deviating from such

models' predictions. In Richard Thaler and Hersh Shefrin's account (1981), one half of this dual-self is the "Planner": deliberate, slow, logical, self-aware, and effortful. Psychologists use the umbrella term "executive functioning" to describe activities at which the planner excels, such as problem-solving, reasoning, planning, sustaining attention, and exerting self-control (Chan, Shum, Touloupoulou, Chen 2008). In contrast, the "Doer" is impulsive, fast, intuitive, and error-prone, and his actions involve neither effort nor much voluntary control.

Since humans could not possibly attend to and actively process all of the information they encounter, the Doer is quite useful for navigating a complex world. Automatic and intuitive thinking helps one complete hundreds of tasks without conscious effort (eating, grooming, skimming an article for key words, etc.). However, a foundational principle of behavioral economics is that people do not always engage these different modes of decision making at the appropriate times. For example, people tend to eat mindlessly, even to the point of eating more if their serving containers are large (Wansink and Park 2001; Wansink and Kim 2005; Wansink and Payne 2008). Conversely, the dinner companion who takes 30 minutes to choose an entrée might have enjoyed the evening more had he deliberated less.

Furthermore, one's capacity to act as the Planner is limited. Researchers have described our exhaustible capacity for executive functioning with metaphors, such as a muscle that can be fatigued with use (Muraven and Baumeister 2000; Baumeister 2002; Gailliot 2008; Schmeichel, Bohs, Baumeister 2003), or a "mental bandwidth" that is not only limited but also functions more poorly as it is more heavily used (Laury and Mullainathan 2010). As a consequence of such limits, making the right decisions about saving, following through with plans to save, and engaging *repeatedly* in behaviors necessary for saving are all more difficult than standard models—even those that incorporate transaction costs—would predict. Financial constraints compound these difficulties; because managing a tighter budget is intrinsically more mentally taxing, those who have the *least room* for error, indulgence, or fatigue have *the most depleted* capacity to manage their lives, financial and otherwise.

Suboptimal Decision Making

In some versions of standard economic theory, individuals who have properly aligned incentives and access to all relevant information will make optimal decisions. However, research shows that our decision-making can be biased, based on rules of thumb, swayed by social influences, or even self-undermining. While a number of decision-making tendencies contribute to saving behaviors, the following are particularly common.

Financial decisions are often influenced by *reference points*. One consequence of this is that losses tend to loom much larger than gains. Such *loss aversion* leads people to prefer the status quo and to value current possessions disproportionately (Tversky & Kahneman 1991; Kahneman, Knetsch, Thaler 1991). Saving, often felt as an immediate loss, may be significantly more unpleasant than the perceived benefit of gaining that same amount of

money. Another consequence of reference points is *anchoring*, or clustering decisions around a number that serves as a reference point. For example, the asking price for a house may influence how much one is willing to pay for it (Thaler and Sunstein 2009, pp. 23-24). This also affects saving and spending: employee savings in a 401(k) plan tend to be influenced by suggested contribution rates (Madrian and Shea 2011).

Violating standard assumptions of fungibility, people also tend to adjust spending within different budget categories (rent, food, shopping, etc.) and *mental accounts*. Current income, assets, and future income are treated differently, with the highest propensity to spend current income (Thaler 1985). Similarly, because paying with cash makes the “pain of payment” salient, one may spend less freely when paying with cash than when using a credit card, which offers immediate consumption and delays the “painful” moment of payment (Prelec and Loewenstein 1998). The opposite holds in the case of saving: the saver experiences the pain of paying in the moment, but the increased consumption that saving makes possible lies well in the future.

Furthermore, people often have inaccurate beliefs or preferences about probabilities. They may be *overconfident* about their ability to manage finances, just as the vast majority of people tend to think they have superior intelligence, health habits, driving habits, immunity to cognitive biases, and chances of succeeding in a start-up business (Hoorens & Harris 1998; Svenson 1981; Pronin, Lin, Ross 2002; Cooper, Woo, Dunkelberg 1988). People also tend to be risk-seeking for low-probability gains or high-probability losses (Tversky and Kahneman 1992). Both tendencies can explain behaviors that appear myopic or foolish, such as chasing ill-fated get-rich-quick schemes or purchasing lottery tickets, while neglecting the slow and steady accumulation of savings.

A broad class of *social influences*, such as a tendency towards conformity and a fear of shame or reproach, can also impact savings behavior. For example, individuals’ participation in their employer’s retirement program, as well as their vendor selection, tended to conform to their peer group’s behavior (Duflo and Saez 2002). Personal relationships can affect whether or not borrowers remain current on their payments (Drexler and Schoar 2011), and groups built on mutual accountability have been used as integral components of savings commitments, as with ROSCAs (Basu 2008) and microcredit programs (Gine and Karlan 2008).

Without a status quo, anchor, or social norm to serve as a reference point or standard, making any decision at all can be difficult. In a set of studies on *choice overload*, subjects were more likely to make a selection when offered fewer options, such as a smaller assortment of jams, chocolates, or mutual funds in a retirement account (Iyengar and Lepper 2000; Iyengar, Huberman, Jiang 2004). Without a simple way to make a selection, the very process of making a choice, such as which bank to begin a relationship with if one is unbanked, can be daunting enough to delay or even prevent a person from making the decision at all.

Intention-Action Gaps

A failure to follow through on one's best intentions is a pervasive feature of our decision-making. People have a tendency to overestimate the significance of their intentions and underestimate the importance of situational or contextual factors when making predictions about their future behaviors (Koehler and Poon 2006). As a result, goals can be sabotaged by temptations or the chaos of daily life in spite of one's strongest convictions.

People display a tendency towards selecting *shoulds* when pay-offs are in the more distant future (like beginning a jogging routine tomorrow—and really sticking to it this time) and *wants* when pay-offs are in the near future (like watching *Mad Men* instead of jogging—but just for today). In one experiment, people were more willing to commit to a savings plan when they would be enrolled in the distant future instead of the near future (Rogers and Bazerman 2008). In fact, completely different neural systems are activated for choices that involve present pay-offs versus choices that involve only future pay-offs (Loewenstein and Prelec 1992; McClure, Laibson, Loewenstein, Cohen 2004). Choices about saving or spending *right now* are qualitatively different from—and inherently more susceptible to temptations than—choices about saving or spending in the future.

In addition to want/should conflicts, people face struggles to navigate unexpected hassles, to attend to and remember important details, and to cope with unexpected set-backs that contribute to a range of planning failures. A common example in time management is called the *planning fallacy*, or the tendency of individuals and organizations to take significantly longer to complete a task than planned, even when similar planning mistakes have been made before (Kahneman and Tversky 1979). A correlate can be seen in budgeting: giving up on a long line at the bank delays opening an IRA, failing to notice the fine print leads to an expensive mortgage, and so on. It is easy for savers and program designers alike to under-appreciate just how complex saving can be. It requires several small, repeated choices, some of which may involve an elaborate series of coordinated steps. Obstructions at any point could derail the whole plan to save.

Depletion

Even if individuals manage to avoid or overcome a host of proclivities, temptations, and hassles long enough to make difficult but prudent savings choices, their capacity for making such choices is subsequently diminished. Acting as a Planner today—for example, by attending to important information and acting appropriately on it—actually depletes one's ability to act as a Planner tomorrow.

When mental bandwidth is exhausted, people are less able to perform tasks and self-regulate in *all* aspects of life. One set of researchers observing air traffic controllers in their homes found that they were more likely to exhibit anger towards their spouses on

days that a different set of researchers marked as high-traffic days (Repetti 2006). Some theorize that self-regulation breaks down specifically when individuals are mentally exhausted (Baumeister and Heatherton 2009); for example, people tend to choose chocolate cake over fruit salad immediately after performing difficult cognitive tasks (Shiv and Fedorkhin 1999), suggesting that self-control and cognitive performance rely on the same mental resources. Saving money, or even trying to take steps to save money, can paradoxically undermine one's immediate ability to save.

Many of the interventions that address more specific behavioral problems are effective because they relieve the tax on mental bandwidth and prevent depletion. In one experiment, providing information about FAFSA forms had no effect on filing, while offering assistance and pre-populating the maze-like forms increased rates not only of filings but also of college attendance (Bettinger, Long, Oreopoulos, Sanbonmatsu 2009). Pre-commitment, such as cutting up credit cards, secures a “*should*” choice, reducing the effort needed to resist temptations in the present. Reminders outsource one's need to retain and recall information at appropriate times. Structuring some options to engage the Doer—such as providing an anchor or a social norm, quickly directing behavior that otherwise has no reference point—frees mental bandwidth for the Planner to attend to more difficult decisions and resist temptations. Interventions to relieve taxes on mental bandwidth may change behavior most dramatically among those who are already struggling to manage their lives.

Scarcity: How a Lack of Slack Creates Vicious Cycles

Savings behaviors (or lack thereof) have consequences as trivial or as dire as the constraints facing the individual in question. Traditionally, explanations of the behaviors of the poor have been driven, implicitly or explicitly, by two dominant views. Either the poor are thought to be making optimal choices under harsh constraints, or they are thought to be succumbing to a culture with deviant values. The poor are thus seen in one of two extreme situations: they are either calculating (though perhaps unlucky) individuals and need little or no help with their goals, or they are people whose principles are so flawed that they need heavy-handed assistance.

A third view paints a picture of dynamic interaction between person and environment: the poor have the same decision-making tendencies and imperfections as everyone else, but they have less room for error, rendering suboptimal choices and behaviors more consequential (Bertrand, Mullainathan, Shafir 2004; Mullainathan and Shafir 2009). For the poor, a lack of slack in their finances and a lack of slack in their mental bandwidth can easily snowball. Scarce financial resources require significant attention and energy to manage, but depleted attention and energy increases the propensity towards *mismanagement*. Not only do the relatively volatile and unstructured lives of the poor present logistical challenges to saving, but ever-present financial problems further diminish the capacity of low-income people to manage both their finances and other aspects of life.

The majority of expenses for lower-income households are very basic; indulgences, errors, or shocks can lead to more severe hardships that reverberate in every aspect of their lives. For example, a nationally representative survey found that food stamp recipients consume fewer calories towards the end of the month than the beginning of the month, when they receive food stamps (Shapiro 2004). A complementary study shows that the children of food stamp recipients in Chicago were more likely to have disciplinary problems in school towards the end of the month (Gennetian & Winn, forthcoming). A failure to smooth consumption did not, as it would for the wealthier classes, merely result in an irksome credit card balance or a resolution to avoid Starbucks for a year; rather, small indulgences or planning errors early in the month led to enough hardship that children were struggling in school. Financial shocks can have similar ripple effects: an emergency car repair may lead to work tardiness, an inability to pay for other bills, and skimping on important but unnecessary items such as school supplies. The financial problems of the poor are rarely confined to their finances.

Not only are shocks more consequential, but they are also more common. The lives of the poor are relatively volatile. Working hours fluctuate, jobs are less stable, and home and auto repairs are needed more frequently. In one study, within a 12-month period, 90 percent of low- to moderate-income households in the Detroit-area experienced a major illness or medical expense, eviction, utility shutoff, or a bankruptcy filing, and 35 percent reported being unable to meet their living expenses during more than 6 months of the year (Barr 2009). Worse, many of the structures and institutions available to help smooth income and make savings easier are currently unavailable to, or underutilized by, poorer individuals. Moderate- and high-income individuals have relatively easy access to direct deposit, automatic bill payments, low-interest-rate loans, “no fee” accounts, advisers, flexible employers, and systems that send reminders of financial obligations to help manage and stabilize their finances (Mullainathan and Shafir 2009). Many of the lower-income individuals who do manage to save are unbanked or underbanked, leaving their savings more vulnerable to theft, impulse spending, or use by family members (Berry 2004; Bertrand et al. 2004). Hence, along with smaller budgets, the poor have more hassles, emergencies, and distractions that make managing needs—independent of mental bandwidth constraints—intrinsically both more difficult and more important.

Such struggles occupy mental bandwidth that could otherwise be used for other important tasks. In a telling study, researchers approached people in a mall and randomly asked some of them to imagine their car breaking down and incurring a few thousand dollars in expenses. Low-income subjects (but not high-income subjects) subsequently performed worse on cognitive tests, while there was no significant difference in test results between low-income and high-income individuals who had not been asked to imagine the financial shock (Mullainathan and Shafir 2010). When there is no slack to cover expenses, the problem becomes so intractable and so consuming of a low-income person’s mental energy that even a hypothetical scenario causes their observed cognitive levels to be lower.

The constant difficulty of managing needs, especially when one’s future may be uncertain or unclear, can cause the poor to focus too much on information relevant to present but not future needs (Mullainathan and Shafir 2009). A well-known correlate in time management literature is called “urgency addition,” or a compulsive attending to *urgent* but not necessarily *important* matters (Covey, Merrill, Merrill 1994; Koch and Kleinmann 2002). Without slack, such tunnel-vision impacts decision sets down the road. For example, taking out a payday loan for car repairs reduces cash flow even more in the next pay cycle, when later financial shocks may require still more creative cash flow solutions (Bertrand, Mullainathan, Shafir 2004). Because the financial and cognitive constraints faced by poor individuals produce such ripple effects, policies and interventions that are very successful for moderate- and high-income individuals may be ineffective (or even problematic) for lower-income individuals. Despite these groups’ shared behavioral tendencies, situational constraints add a layer of complexity to saving for lower-income individuals.

Innovations in Savings Programs

The last decade has seen many new behavioral applications to savings programs. The resources available to moderate- and higher-income individuals—such as direct deposit of paychecks and Vanguard’s tax refund splitting services—have often served as models. Program designers have not needed to reinvent the wheel or request exorbitantly large increases in their budget in order to see improvements. Two major types of savings programs – tax refund savings accounts and savings accounts designed for regular deposits – exhibit behavioral elements in both their structures and their outreach efforts. While a variety of behavioral interventions have been tested, a key component of most changes is a shifting of constraints: making enrollment and savings behaviors *easier* while simultaneously making withdrawals *harder*.

Below is a description and analysis of how specific savings programs have been informed by behavioral features. The challenges presented by recent savings programs offer useful lessons for refining program designs. Not all behavioral interventions will work as planned. An intervention to improve one behavior may exacerbate another. It may be necessary to balance different program goals in order to optimize overall savings behavior in target populations. While not every feature will fit all programs, the efforts and challenges of different programs can be mutually informative and inspire further policy developments and program design.

Defaults and Automating Processes

Just over a decade ago, Brigitte Madrian and Dennis Shea (2001) discovered one of the most powerful remedies for low participation and savings contribution rates: *defaults*. In their seminal study, 80 percent of employees remained in their company’s 401(k) plan when automatically enrolled, compared to only 13 percent of those who needed to opt in actively in order to participate. Furthermore, most participants stuck with the default

allocation and contribution rate. Default enrollment meant that the choice that most employees were too busy, unmotivated or distracted to make, even though they expressed interest when surveyed, was already made for them. A number of behavioral bottlenecks to saving were resolved using one sweeping intervention.

In another example, the SEED program in Oklahoma, a Child Development Account (CDA) program, had nearly 100 percent uptake with automatic enrollment; opting out was possible, but hardly anyone did (Sherraden and Stevens 2010). Like automatic enrollment, *direct deposit* bypasses the pain of lost income, the hassles of physically making deposits, and the mental tax of remembering to do so. Both IDAs and AutoSave, an employer-based savings account, offer this option. In one study, those who used direct deposit for IDAs saved more and were 22 percentage points less likely to drop out of the program compared to those who did not opt to use direct deposit (Grinstein-Weiss, Wagner, Ssewamala 2005; Schreiner, Clancy, Sherraden 2002). AutoSave, an employer-based savings account, has sought to entice participants to enroll in direct deposit with catchy slogans such as “Save it and forget it!” (Lopez-Fernandini and Schultz 2010).

To address both loss aversion and inertia, the Save More Tomorrow (SMarT) program uses a particularly effective automatic enrollment feature: paycheck deductions towards retirement plans are initially set at a comfortably low percentage of income but automatically increase with each pay raise. Employees are only signing up for lower future gains, rather than suffering a *loss* of current income. The pilot was remarkably successful: 98 percent of participants remained in the program after two pay raises, leading to average savings rates of 13.6 percent among those who joined SMarT (up from 3.5 percent) (Thaler and Benartzi 2004).

Unfortunately, defaults and automating processes—two of the most powerful interventions in the behavioral toolbox—are often not logistically possible, legal, popular, or even effective. For example, policies wherein a default is possible, such as automatically opening a college savings account for all school children, may face political resistance nationally. Even when there are no logistical or legal barriers, defaults simply may not work. In a recent study, tax refunds were automatically diverted to savings bonds. Those with an adjusted gross income of less than \$18,000 opted *out* of the savings program at such high rates that the default was found to produce no statistically significant increase in savings (Bronchetti, Dee, Huffman, Magenheim 2011). Participants in the savings bond study may have had plans for their tax credit already, whereas not every dollar necessarily has a specific purpose in the typical moderate-income budget. Other efforts to automate savings may have limited success because the LMI might fear being unable to manage volatile cash flows. A savings program called SEED (Save, Earn, Enjoy Deposits) in the Philippines had 202 participants, and only 2 opted for automatic transfers into their savings accounts (Ashraf, Karlan, Yin 2005). While defaults may bypass a range of issues that could hinder savings, they may not in themselves convince individuals to save money already earmarked for other purposes.

Convenience and Simplicity

While defaults and automating processes may not always be possible or even preferable, program designs can still bypass most causes of intention-action gaps and reduce choice overload by making enrollment convenient. Both R2A and another tax refund savings program called \$aveNYC had staff working at tax preparation sites to sign up clients *on-site* (Beverly, Schneider, Tufano 2006; Cramer 2011). The AutoSave program enrolls people while at work so that no trips to the bank are required; its designers also hope to make it part of the orientation process for new employees (Lopez-Fernandini and Guge 2010; Lopez-Fernandini and Schultz 2010). From the perspective of potential participants, having the enrollment process streamlined and options simplified also reduces hassles and the tax on mental bandwidth. AutoSave also attempts to increase uptake by minimizing paperwork and pre-populating form fields (Lopez-Fernandini and Guge 2010; Lopez-Fernandini and Schultz 2010). Both AutoSave and \$aveNYC are designed to prevent choice overload by keeping options, such as available financial institutions and account options, to a minimum (Schultz et al. 2010; Cramer 2011). H&R Block created a simple and transparent structure for their tax refund savings program, which they explained in a straightforward manner (Duflo, Gale, Liebman, Orszag, Saez 2006).

However, increasing convenience and simplicity can have two negative consequences. First, oversimplification may lead to attractive features of a program being removed. For example, program designers of AutoSave attempted to make the enrollment process easier by limiting options, such as offering only one available financial institution. While the simplified process may have made the program attractive to many participants, it was also listed as one of the top five reasons for *not* participating, as some individuals already had primary accounts at other institutions and did not want to juggle multiple relationships (Schultz 2010). Second, streamlining and simplifying processes requires a lot of effort upfront. These types of burdens may dampen support for a program if they require those implementing programs to invest a large amount of time and energy. In addition, an inability to implement a program as planned may reduce its effectiveness. For example, 62 percent of one site's employees enrolled in AutoSave, while only 2 percent of employees at another site did. Sites with the highest take-up rates tended to have managers very dedicated to ensuring participation through small group sessions and follow-up communications (Schultz 2010). Employers with lower uptake rates may not have been convinced of the value of the program or may have lacked the bandwidth to accept additional responsibilities. Where possible, reducing hassles and simplifying structures for the implementation staff could encourage participation both among participants and among partners.

Channeling Mental Accounting

The structures of some savings programs have also been designed to channel savers' natural mental accounting tendencies. AutoSave keeps savings segregated from participants' primary account (Lopez-Fernandini and Schultz 2010), from which participants would have a high propensity to spend. Participants listed this feature as a

primary reason for signing up, saying it helped in “hiding money from myself” (Schultz 2010). Earmarking and labeling savings accounts may also motivate savings. For example, the SEED program in the Philippines involved labeling the savings account for a specific purpose, such as saving for a wedding, so that the savings goal was concrete (Ashraf, Karlan, Yin 2005). The basic idea behind the tax refund savings programs is that people are more likely to put irregular income, such as the Earned Income Tax Credit (EITC), into savings than their regular income. In a moment of high liquidity after receiving a lump sum, people may feel more comfortable committing to saving in the future. In one study, the ability to use tax refunds as an opening deposit was cited as the second most important reason for opening an Extra Credit Savings Program (ECSP) account (Beverly, Tescher, Romich, Marzahl 2001). Receiving a refund or another similar windfall may even offer a brief mental “reset moment”(Gennetian, Mullainathan, Shafir, forthcoming), briefly clearing individuals’ minds of their financial struggles, freeing them to think of the future. A small but significant portion of surveyed R2A participants said that they opened an account to “try something new” (Beverly, Schneider, Tufano 2006), and it would be interesting to see if this openness is more prevalent among EITC recipients around tax time.

The issue with this strategy, however, is that most EITC recipients make plans to spend this “windfall” income long before tax time, often in a ritualistic manner. In one survey, families reported either elaborate plans to indulge (e.g., going out to dinner “to all the places they could never normally afford”) or regular plans to purchase goods (e.g., “I always buy furniture with my tax money”) (Romich and Weisner 2000). One of the top reasons individuals cited in surveys for not participating in the R2A program was that they already had plans for the refund (Beverly, Schneider, Tufano 2006). In contrast to moderate- and high-income individuals, who might not have immediate plans for windfall income, the lack of slack in low-income individuals’ budgets makes spending the EITC either more necessary or more tempting. After a year of careful planning and conscientious spending—perhaps even foregoing basic necessities to get by—the tax refund offers a moment of relief from regular financial struggles; giving up this luxury may be felt as a particularly painful loss.

Increasing Access to Institutions

As many lower-income individuals have had negative experiences with financial institutions, it is important to restore participants’ comfort level and trust by making the program as accessible as possible. Increasing accessibility appears to have encouraged uptake of savings programs: a lack of fees or minimum balances were cited as top reasons for opening an ECSP account and an R2A account (Beverly, Tescher, Romich, Marzahl 2001; Beverly, Schneider, Tufano 2006).

Easy access to the financial institution itself may influence uptake. One telephone survey respondent from the ECSP program said,

“Where I work at there is a [ShoreBank] on 31st and Kings Drive so I’m walking distance [of] that, so I go there basically all the time now”
(Beverly et al. 2001).

Furthermore, while rent-to-own stores, payday lenders, and other expensive alternative financial services advertise that they accept customers with bad credit, most banks would deny access to financial products to those with poor or no credit history. However, the AutoSave team and H&R Block piloted products that accepted clients with a history of bad credit management (Lopez-Fernadini and Schultz 2010; Duflo, Gale, Liebman, Orszag, Saez 2006), potentially helping to restore a sense of good rapport or reducing the fear of shame for past financial mismanagement. In contrast to the Saver’s Credit, which has extensive rules limiting the eligibility of a tax credit for savings contributions, H&R Block offered matching contributions for tax refund splitting to *all* tax filers at sites in low-income areas (Duflo, Gale, Liebman, Orszag, Saez 2006). Of course, the main complication with increasing accessibility is resistance from stakeholders and financial institutions, since supporting higher-risk individuals who maintain smaller account balances may not be profitable. To overcome behavioral risk problems, increased accessibility might be coupled with features that decrease risks and costs in other ways.

Decreasing Access to Funds

Decreasing access to funds can help participants maintain balances. While simply having money in a bank rather than in one’s pocket can curb temptations, extra restrictions on withdrawals can help prevent the depletion of savings for non-emergency purposes. Some R2A participants said that they opened an account specifically to avoid spending all of their refund (Beverly, Schneider, Tufano 2006). \$aveNYC goes a step further: account holders can withdraw funds only from a teller, not from an ATM. This strategic hassle was cited by 59 percent of surveyed participants as a reason for signing up for the program, in which 80 percent of 2,200 participants saved their refund for the full term of the study (Cramer 2011). In the SEED program in the Philippines, 82.7 percent of participants opted to use a simple “ganansiya” box, like a piggy bank, for which only the bank had a key, and this group was more successful in maintaining savings balances (Ashraf, Karlan, Yin 2005).

Different *types* of withdrawal restrictions have varying degrees of effectiveness and popularity, sometimes in ways that require balancing participation rates with savings rates. Lighter restrictions on withdrawals, such as allowing AutoSave participants to access funds from an ATM, might make the program more attractive while also making it easier to succumb to temptations; 27 percent of AutoSave participants made frequent withdrawals from their accounts (Schultz 2010). One-year retention was high in \$aveNYC, where withdrawals were more difficult, but only 30 percent of participants chose to use the program again the following year (OFE 2010). Similarly, decreased access to funds in a 401(k) plan is associated with decreased participation rates (Munnell, Sunden, Taylor 2001/2002).

Surveys and focus groups reveal significant demand among low-income populations for limits on the *number* of unrestricted withdrawals. Limiting withdrawals to a specific purpose or goal (perhaps with allowances for emergencies) or limiting the number of withdrawals per year (perhaps using payday lending behaviors and data on the frequency of emergencies as benchmarks) are two strategies that may curb temptations to tap into savings while allowing enough access to encourage participation (Chan 2011). The former type of limit in particular may both incentivize increased savings contributions and prevent depletion of savings from periodic indulgences each time withdrawal limits are renewed; however, it may also be less appealing than time-based limits. In the SEED savings account in the Philippines, which had the option to restrict withdrawals to a specific date in the future or to a specific financial goal, the former option was about twice as popular (Ashraf, Karlan, Yin 2005). While there is not necessarily a trade-off between the attractiveness and effectiveness of withdrawal restrictions, the potential of a restriction to improve one outcome while hampering another should be considered in the design phase.

Prize-Linked Savings

In 2009, the Doorways to Dreams Fund (D2D), the Filene Research Institute, and the Michigan Credit Union League began a pilot program called “Save to Win,” a prize-linked savings account that channels the natural tendency to overestimate the possibility of small gains, as well as the “thrill” of gambling, into a savings program. Participants earned a chance to win a \$100,000 grand prize at the end of the year for every \$25 deposited into the account. While those who were more able to save had a greater chance of earning the prize, demand for the product was highest among those with little to no savings (and, less surprisingly, those with a history of gambling and lottery participation)(Kearney, Tufano, Guryan, Hurst 2010). A full 40 percent of 2011 participants had incomes below \$40,000. The program was very popular and had quick success: by the end of 2010, almost 17,000 program participants had accumulated a total of over \$28 million in savings (Doorways to Dreams Fund, “Prize Linked Savings”). The regulation of lotteries is currently the largest obstacle to implementing the program in other states. However, the success of the D2D pilots has encouraged several states to pass savings promotion raffle bills (Doorways to Dreams Fund, “Legislative Success”). The mandate that state lotteries are meant to generate state revenue may lead to slow adoption from some states, as such programs would compete with state lotteries while generating significantly less revenue, but the idea is gaining momentum.

Future Directions

The potential of behavioral economics to revolutionize savings programs is still largely untapped. Simple but often overlooked techniques, as well as more nuanced intervention designs, offer significant room for improvement. Since program designs can involve trade-offs, such as weighing the cost of a program against its effectiveness, rigorous testing of different interventions is important for identifying the most significant levers in a design. By increasing the benefits of a program while only minimally increasing or

even reducing costs, behaviorally-informed program designs and policies can be particularly attractive to stakeholders and financial institutions whose partnerships offer opportunities for scale.

Underutilized Tools in the Box

There are still plenty of behavioral tools with potentially high returns that are not often incorporated into program designs. Interventions *embedded into communications*, such as framing decision sets and increasing the salience of motivating factors, are nearly costless but underutilized ways to improve savings. Only a few programs use loss aversion (e.g., “Don’t lose your matched deposit!”)(Ratcliffe, Grinstein-Weiss, Richardson, Key 2010), social norms (e.g., framing participation as a standard employee benefit)(Lopez-Fernandini and Schultz 2010), or clear anchors (e.g., explicitly suggested contribution rates) (Lopez 2010b; Schultz 2010).

Identity priming is another way simply to tweak existing materials in order to increase savings. In a recent study, mailers asking how important it is “to be a voter,” compared to asking how important it is “to vote,” significantly increased voter turnout (Bryan, Walton, Rogers, Dweck 2011). People have a plurality of identities—e.g., a female, a parent, a housecleaner, a Chinese immigrant, a chocolate-lover, a liberal, a continuing education student, and so on—even though those identities may be associated with opposing actions in some contexts. Increasing the salience of savings-oriented identities—such as conveying that one should save for one’s children “as a loving parent”—may be useful for improving savings behaviors.

Other interventions with particularly significant potential for high returns focus on closing intention-action gaps. Most programs have treated saving as a pre-meditated decision; however, people may also have *impulses* to save, just as they have impulses to spend. Today, it takes several mouse clicks along with a properly set-up mobile or online banking account, or even a trip to the bank, to act on an impulse to save. Mobile applications being developed for “*impulse saving*” reduce this delay between the decision to save and the act of saving to a few seconds, the time it takes to hit a button on one’s phone.

Saving could also be automated by linking accounts to debit or prepaid debit cards, such as with Bank of America’s Keep the Change program or Wells Fargo’s Ways2Save program, coupling each purchase with a barely noticeable transfer to savings. When direct transfers are not feasible or popular, automation could be replaced with text message reminders to save. Explicit *implementation intentions* can also be effective; having individuals write down the date and time of a planned action has increased both voter turnout (Nickerson and Rogers 2010) and vaccination rates for influenza (Milkman, Beshears, Choi, Laibson, & Madrian 2011). A savings program, or even tax return forms, could ask for a written commitment to a ritual deposit of \$10 every other Friday after work.

The *pre-commitment strategy* employed by SMarT might be particularly instructive both for tax-time and employer-based savings programs. People are less likely to save an imminent tax credit or current income because of loss aversion. As previously discussed, many EITC recipients have in mind how they will use their funds long before tax time. However, using the tax time “reset” moment to inspire savings contributions from *next year’s* return would allow individuals to select both the *should* choice of saving and the *want* choice of spending this year’s return. Similarly, employer-based savings accounts could increase contributions with each raise, and the tax return filing process itself could include an opportunity to divert a portion of each paycheck towards the purchase of savings bonds.

Finally, *linking overdraft fees to savings* can channel bad habits into good outcomes. Some populations have money management issues but may still have enough slack in their budget to absorb higher overdraft fees in the short-term. Diverting a portion of this overdraft fee to savings, and limiting access to this savings account either with time-based or reason-based withdrawal restrictions, can increase savings while also incentivizing better money management. Even if the withdrawal restrictions are light, such as allowing *any* reason to be sufficient for accessing funds, the hassle of having to go to the teller and provide a reason would limit access enough to change behavior.

Importance of Rigorous Testing

Behavioral economics has demonstrated that the drivers of behavior are often counter-intuitive. Without rigorous testing, common sense approaches would prevail, and the shortcomings of some savings programs would remain a mystery. An intervention’s effectiveness may even vary counter-intuitively with minor details in its structure. Testing different program designs, especially with randomization *techniques*, can help identify which interventions have the most significant impact.

Experimentation can reveal findings that surveys and focus groups do not. When participants respond to survey questions, such as why they did or did not participate in a program, they are prone to the *confirmation bias*, or the tendency to fabricate rational (and often inaccurate) explanations of events that align with pre-existing beliefs (Oswald and Grosjean 2004), making survey data informative only to a limit. Furthermore, experimentation can reveal the ineffectiveness of designs that few would otherwise question. For example, messages meant to convey that littering is terrible and unfortunately common actually *increased* littering in high-litter areas. The message’s subtext, “lots of people do this,” established a norm that licensed people to litter (Cialdini 2003). Contrary to early expectations, increasing salience of the female identity in messages about breast cancer, such as using the color pink, appeared to trigger defensive behaviors, with participants minimizing their perceived risk and being less likely to donate to a breast cancer charity (Puntoni, Sweldens, Tavassoli 2010). Any intervention could affect a person in different ways, either beneficial or detrimental to savings goals, and testing is the only way to find out what those effects will be.

An intervention's effectiveness may even depend on slight variations in its structure. The results of the H&R Block experiment even suggest that, holding a policy's funds constant, offering a *match* for savings contributions would be significantly more effective than an equivalent tax credit (Duflo, Gale, Liebman, Orszag, Saez 2006). The mere presence of matches, and potentially the match rate, may increase *participation* rates in savings programs while having a small or negative impact on *contribution* rates, presumably because participants can more easily meet savings goals with higher matches (Huberman, Iyengar, Jiang 2007; Duflo, Gale, Liebman, Orszag, Saez 2006; Grinstein-Weiss, Wagner, Ssewamala 2005; Munnell, Sunden, Taylor 2001/2002). By comparison, a couple of studies have found that higher match *caps* are associated with increased participation and contribution rates, perhaps by turning the match cap into a goal, or an *anchor* for savings (Boshara 2010/2011; Schreiner, Clancy, Sherraden 2002). In yet another variation on incentive structure, offering a small bag of lentils to Indian villagers doubled vaccination rates (Banerjee, Duflo, Glennerster, Kothari 2010). A prize-linked savings program piloted by D2D and the Central Credit Union of Indiana uses the same idea, offering relatively frequent, small prizes, such as mp3 players, gift cards, and laptops (Doorways to Dreams Fund). Tangible, immediate rewards add a salient *want* component to an otherwise purely *should* choice, coupling the immediate loss of cash with immediate consumption. While there are insufficient data to declare definitively that one incentive structure is superior to the others, experiments that randomly offer different caps, rates, or non-financial incentives can help calibrate the relative effects of each.

How Behaviorally-Informed Programs can Create Pathways to Scale

The scalability and sustainability of a policy or program depend to an extent on the balance of its costs and benefits. Very often, scaling a program also depends on viable partnerships between financial institutions and program designers. By increasing participation and retention rates, behavioral interventions can help boost the benefits of policies and programs while decreasing or barely increasing costs, making policies more sustainable and programs more attractive to the partners who could bring them to scale.

Historically, policies have focused on incentives and penalties to influence behavior, which can be particularly costly if those are a policy's only tools. For example, the Saver's Credit, a tax credit for contributions to retirement plans, has had very little success in increasing participation by increasing the size of the incentives. A change in the effective match rate from 25 percent to 100 percent increased participation by only 1.3 percentage points (Duflo, Gale, Liebman, Orszag, Saez 2007). Instead of increasing the match rate, policymakers could achieve the same or a larger increase in participation with conscientiously designed communications materials, well-timed outreach efforts, or much cheaper prize incentives. An increase in cost effectiveness could also help otherwise small-scale, short-term, or local policies gain support and potentially be adopted on a larger scale.

In the case of savings programs, behavioral interventions can do more than improve the balance of costs and benefits; they can help inform a financial institution's long-term

development goals. Servicing mainstream accounts can cost between \$15 and \$70 per year, and since institutions often assume that poor individuals cannot save significantly more than that, small-dollar savings accounts can appear to be unsustainable (Chan 2011). However, the net benefit of savings programs to financial institutions may be low in part because they consider such savings accounts as stand-alone products. Instead, they could consider an LMI-friendly savings account as the gateway to longer-lasting relationships between otherwise unbanked individuals and the financial institution. Furthermore, testing products that incorporate insights about a new customer base can inform the design and development of other products for those customers. Project managers of AutoSave noted that the appeal of a new, broader customer base most strongly enticed financial institutions to sponsor the program (Schultz 2010). Presenting the value of additional business can encourage financial institutions to test a program pilot as a candidate for a scalable product.

This paper is not meant to be exhaustive in its analysis or to offer ideas that are entirely new. Rather, it is intended to be the beginning of a discussion about how best to facilitate saving among the LMI. The examples of real-world applications of behavioral insights applied to savings efforts that we cite here only begin to scratch the surface of all possible uses of behavioral science in this area. Policies and programs in all phases of development, sponsored by any source, can immediately start testing behavioral interventions on the pathway to scale. Program designers might rephrase marketing messages, experiment with different incentive structures, and consider different ways to channel natural behavioral tendencies while requiring few if any additional resources.

The incorporation of innovative ideas that traditional or straightforward approaches would overlook could make policies or programs much more effective. Rigorous testing of behavioral interventions, along with a thorough consideration for the unique challenges of the poor, can help move savings programs from modest beginnings to impact, scale, and sustainability.

References

- Ashraf N, Karlan D, & Yin W. (2005). Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines. New Haven, CT: Yale University.
- Banerjee, AV, Duflo E, Glennerster R, & Kothari D. (2010). Improving immunization coverage in rural India: Clustered randomized controlled evaluation of immunization campaigns with and without incentives. *British Medical Journal* 340 doi: 10.1136/bmj.c2220.
- Barr MS. (2009). Financial services, saving, and borrowing among low- and moderate-income households: Evidence from the Detroit Area Household Financial Services Survey. In Barr M, Blank R (Eds.), *Insufficient funds: Savings, assets, credit, and banking among low-income households*. (pp.66-96).
- Basu K. (2008). Hyperbolic discounting and the sustainability of rotational savings arrangements. *MPRA Paper 20440*. University of Munich.
- Baumeister RF. (2002). Yielding to temptation: Self-control failure, impulsive purchasing, and consumer behavior. *Journal of Consumer Research*, 28(4): 670-676.
- Baumeister RF & Heatherton TF. (2009). Self-regulation failure: An overview. *Psychological Inquiry*, 7(1): 1-15.
- Berry C. (2004). To bank or not to bank? A survey of low-income households. *Joint Center for Housing Studies Working Paper*. Cambridge, MA: Harvard University.
- Bertrand M, Mullainathan S, & Shafir E. (2004). A behavioral economics view of poverty. *American Economic Review*, 94(2): 419-423.
- Bettinger EP, Long BT, Oreopoulos P, & Sanbonmatsu L. (2011). The role of application assistance and information in college decisions: Results from the H&B Block FAFSA Experiment. *NCPER Working Paper*. New York: National Center for Postsecondary Research.
- Beverly S, Schneider D, & Tufano P. (2006). Splitting tax refunds and building savings: An empirical test. In Poterba JM (Ed.), *Tax Policy and the economy*, 20. Cambridge, MA: National Bureau of Economic Research and MIT Press, pp.111-162.
- Beverly SG, Tescher J, Romich JL, & Marzahl D. (2001, September). *Linking tax refunds and low-cost bank accounts: Findings from the extra credit savings program*. Evanston, IL: Northwestern University Institute for Policy Research.
- Boshara R. (2005). Individual Development Accounts: Policies to build savings and assets for the poor. *Policy Brief, Welfare Reform & Beyond #32*. Washington, DC: The Brookings Institution.
- Boshara R. (2010/2011, Winter). Seven surprising findings from the asset-building field. Federal Reserve Bank of St. Louis, *Bridges, Issue: Winter 2010-2011*.
- Bronchetti ET, Dee TS, Huffman DB, & Magenheimer E. (2011). When a nudge isn't enough: Defaults and saving among low-income tax filers. *NBER Working Paper Series, No. 16887*.

- Bryan C, Walton G, Rogers T, & Dweck C. (2011). Motivating voter turnout by invoking the self. *Proceedings of the National Academy of Sciences*, 108(31): 12653-12657.
- Chan P. (2011). Beyond barriers: Designing attractive savings accounts for lower-income consumers. *New America Foundation Asset Building Program Working Paper*.
- Chan RCK, Shum D, Touloupoulou T, & Chen EYH. (2008). Assessment of executive functions: Review of instruments and identification of critical issues. *Archives of Clinical Neuropsychology*, 23(2): 201-216.
- Choi JJ, Laibson D, & Madrian BC. (2005, August). \$100 bills on the sidewalk: Suboptimal investment in 401(k) plans. *NBER Working Paper No. 11554*.
- Cialdini RB. (2003). Crafting normative messages to protect the environment. *Current Directions in Psychological Science*, 12(4): 105-109.
- Cooper AC, Woo CY, & Dunkelberg WC. (1988). Entrepreneurs' perceived chances of success. *Journal of Business Venturing*, 3(2): 97-108.
- Covey SR, Merrill AR, & Merrill RR. (1994). *First things first*. New York, NY: Simon & Schuster.
- Cramer, R. (2011) *Homeownership and individual development accounts: An assessment of recent research*. Washington, DC: New America Foundation.
- Doorways to Dreams Fund. (n.d.) Prize Linked Savings. Retrieved April 15th, 2012, from http://www.d2dfund.org/our_work/building_savings/prize_linked_savings
- Doorways to Dreams Fund. (n.d.) Legislative Success. Retrieved April 15th, 2012, from http://www.d2dfund.org/Legislative_Success
- Drexler A & Schoar A. (2011). Does soft information matter? Evidence from loan officer absenteeism. *MIT Working Paper*.
- Duflo E, Gale W, Liebman J, Orszag P, & Saez E. (2006). Savings incentives for low- and middle-income families: Evidence from a field experiment with H&R Block. *Quarterly Journal of Economics*, 121(4): 1311-1346.
- Duflo E, Gale W, Liebman J, Orszag P, & Saez E. (2007). Savings incentives for low- and moderate-income families in the United States: Why is the Saver's Credit not more effective? *Journal of the European Economic Association*, 5(2-3), 647-661.
- Duflo E & Saez E. (2002). Participation and investment decisions in a retirement plan: The influence of colleagues' choices. *Journal of Public Economics*, LXXXV: 121-148.
- Gailliot, MT. (2008). Unlocking the energy dynamics of executive functioning: Linking executive functioning to brain glycogen. *Perspectives on Psychological Science*, 3(4): 245-263.
- Gennetian L & Winn A. Running out and acting out: Food stamp benefit cycles and school disciplinary events among Chicago public school students. ideas42 Working paper.
- Gennetian L, Mullainathan S, Shafir E. (forthcoming). Economic instability, mental resources and poverty traps. In Shafir E. (Ed.) *The Behavioral Foundations of Policy*. New Jersey: Princeton University, & New York: Russell Sage.
- Gine X & Karlan D. (2008). Peer monitoring and enforcement: Long term evidence from microcredit lending groups with and without group liability. Working paper.

- Retrieved April 15th, 2012, from Yale University Department of Economics website: <http://karlan.yale.edu/p/bulak.pdf>
- Grinstein-Weiss M, Wagner, K., & Ssewamala FM. (2005). *Saving and asset accumulation among low-income families with children in IDAs*. Center for Social Development Working Paper No. 05-09. Retrieved April 15th, 2012, from Center for Social Development website: <http://csd.wustl.edu/Publications/Documents/WP05-09.pdf>
- Hoorens V & Harris P. (1998). Distortions in reports of health behaviors: The time span effect and illusory superiority. *Psychology and Health, 13*: 451-466.
- Huberman G, Iyengar SS, & Jiang W. (2007). Defined contribution pension plans: Determinants of participation and contribution rates. *Journal of Financial Services Research, 31(1)*: 1-32.
- Iyengar SS, Huberman G, & Jiang W. (2004). How much choice is too much? Contributions to 401(k) retirement plans. In Mitchell OS & Utkus S (Eds.) *Pension design and structure: New lessons from behavioral finance*. Oxford: Oxford University.
- Iyengar SS & Lepper MR. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology, 79*: 995-1006.
- Kahneman D, Knetsch JL, & Thaler RH. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *The Journal of Economic Perspectives, 5(1)*: 193-206.
- Kahneman D & Tversky A. (1979). Intuitive prediction: Biases and corrective procedures. *TIMS Studies in Management Sciences, 12*: 313-327.
- Kearney MS, Tufano P, Guryan J, & Hurst E. (2010). Making savers winners: An overview of prize-linked savings products. *NBER Working Paper No. 16433*.
- Koch CJ & Kleinmann M. (2002). A stitch in time saves nine: Behavioural decision-making explanations for time management problems. *European Journal of Work and Organizational Psychology, 11(2)*: 199-217.
- Koehler DJ & Poon CSK. (2006). Self-predictions overweight strength of current intentions. *Journal of Experimental Social Psychology, 42*: 517-524.
- Laury G. (Interviewer) Mullainathan S. (Interviewee). (2010). *Bloggheads: Mental Bandwidth Scarcity* [Interview Video File]. Retrieved April 15th, 2012, from *New York Times* site: <http://video.nytimes.com/video/2010/03/22/opinion/1247467422908/bloggheads-mental-bandwidth-scarcity.html?ref=opinion>
- Loewenstein G & Prelec D. (1992). Anomalies in intertemporal choice: Evidence and interpretation. *The Quarterly Journal of Economics, 107(2)*: 573-597.
- Lopez-Fernandini A & Guge L. (2010). *AutoSave Pilot Convening, March 2010: Observations, Findings, and Future Directions*. Washington, DC: New America Foundation. Retrieved April 15th, 2012, from the New America Foundation website: <http://www.newamerica.net/sites/newamerica.net/files/profiles/attachments/AutoSave%20Convening%20Summary.pdf>

- Lopez-Fernandini A & Schultz C. (2010). *Automating Savings in the Workplace: Insights from the AutoSave Pilot*. Washington, DC: New America Foundation. Retrieved April 15th, 2012, from the New America Foundation website: http://newamerica.net/sites/newamerica.net/files/policydocs/AutoSave%20Insights%20Paper%20Final%201-15-10_0.pdf
- Lusardi A, Schneider D, & Tufano P. (2010). Households at risk: U.S. households' capacity to cope with risk. Working paper. New York: TNS Global.
- Madrian B & Shea D. (2001) The power of suggestion: Inertia in 401(K) participation and savings behavior. *Quarterly Journal of Economics*, 116(4): 1149-87.
- McClure SM, Laibson D, Loewenstein G, & Cohen JD. (2004). Separate neural systems value immediate and delayed monetary rewards. *Science*, 306 (5695): 503-507.
- Milkman KL, Beshears JL, Choi JJ, Laibson D, & Madrian BC. (2011). Using implementation intentions prompts to enhance influenza vaccination rates. *NBER Working Paper No. w17183*.
- Mullainathan S & Shafir E. (2009). Savings policy and decision making in low-income households. In Barr M, Blank R (Eds.), *Insufficient funds: Savings, assets, credit, and banking among low-income households*. New York: Russell Sage Foundation, pp. 121-145.
- Mullainathan S, Shafir E. (2010). Decisions under Scarcity. presentation, RSF Summer Institute for Behavioral Economics.
- Munnell AH, Sunden A, & Taylor C. (2001/2002) What determines 401(k) participation and contributions? *Social Security Bulletin* 64(3): 64-76.
- Muraven M & Baumeister RF. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, 126(2): 246-259.
- Nickerson DW & Rogers T. (2010). Do you have a voting plan? Implementation intentions, voter turnout, and organic plan making. *Psychological Science*, 21(2): 194-199.
- OFE. (2010). *The SaveNYC Account: Innovation in Asset Building*. New York, NY: New York City Department of Consumer Affairs Office of Financial Empowerment.
- Oswald ME & Grosjean S. (2004). Confirmation bias. In Pohl RF (Ed.). *Cognitive illusions: A handbook of fallacies and biases in thinking, judgment and memory*. Hove, UK: Psychology Press.
- Prelec D & Loewenstein G. (1998). The red and the black: Mental accounting of savings and debt. *Marketing Science*, 17(1): 4-28.
- Pronin E, Lin DY, & Ross L. (2002). The bias blind spot: perceptions of bias in self versus others. *Personality and Social Psychology Bulletin*, 28: 369-381.
- Puntoni S, Sweldens S, & Tavassoli NT. (2010). Gender identity salience and perceived vulnerability to breast cancer. *Journal of Marketing Research*, 48(3): 413-424.
- Ratcliffe J, Grinstein-Weiss M, Richardson J, & Key C. (2010). Save NYC: Applying behavioral economics principles to encourage savings. Presentation, Association for Public Policy Analysis and Management conference, session: *Innovations in Savings: Policy Implications from Experiments in the Field*. Chapel Hill, NC: Center for Community Capital.

- Repetti RL. (1989). Effects of daily workload on subsequent behavior during marital interaction: The roles of social withdrawal and spouse support. *Journal of Personality and Social Psychology*, 57(94): 651-659.
- Rogers T & Bazerman MH. (2008). Future lock-in: Future implementation increases selection of 'should' choices. *Organizational Behavior and Human Decision Processes*, 106(1): 1-20.
- Romich JL & Weisner T. (2000). How families view and use the EITC: Advance payment versus lump sum delivery. *National Tax Journal*, 53(4, Part 2): 1245-1265.
- Schmeichel BJ, Vohs KD & Baumeister RF. (2003). Intellectual performance and ego depletion: Role of the self in logical reasoning and other information processing. *Journal of Personality and Social Psychology*, 85(1): 33-46.
- Schreiner M, Clancy M, & Sherraden M. (2002). Saving performance in the American Dream Demonstration: A national demonstration of Individual Development Accounts. *CSD Report 02-15*. St. Louis, MO: Washington University Center for Social Development.
- Schultz, C. (2010). Building non-retirement savings through the workplace: Findings from the AutoSave pilot. *Conference on Savings Strategies & Innovations for Low-Income Households*, December 12, 2010. Retrieved on April 15th, 2012, from New America Foundation website:
[http://fsep.newamerica.net/sites/newamerica.net/files/profiles/attachments/Building%20Non-Retirement%20Savings%20through%20the%20Workplace%20\(December%202010\).pdf](http://fsep.newamerica.net/sites/newamerica.net/files/profiles/attachments/Building%20Non-Retirement%20Savings%20through%20the%20Workplace%20(December%202010).pdf)
- Shapiro JM. (2004). Is there a daily discount rate? Evidence from the food stamp nutrition cycle. *Journal of Public Economics*, 89(2-3): 303-325.
- Sherraden, M. & Stevens, J. (Eds.). (2010). *Lessons from SEED, a National Demonstration of Child Development Accounts*. Available at <http://cfed.org/assets/pdfs/SEEDSynthesis.pdf>.
- Shiv B & Fedorkhin A. (1999). Heart and mind in conflict: The interplay of affect and cognition in consumer decision making. *Journal of Consumer Research*, 26(3): 278-292.
- Svenson O. (1981). Are we all less risky and more skillful than our fellow drivers? *Acta Psychologica*, 47: 143-148.
- Thaler RH. (1985). Mental accounting and consumer choice. *Marketing Science*, 4(3): 199-214.
- Thaler RH & Benartzi S. (2004). Save More Tomorrow: Using behavioral economics to increase employee saving. *Journal of Political Economy*, S164-87.
- Thaler RH & Shefrin HM. (1981). An economic theory of self-control. *Journal of Political Economy*, 89(2): 392-406.
- Thaler RH & Sunstein CR. (2009). *Nudge: Improving decisions about health, wealth, and happiness*. New York, NY: Knopf.
- Tversky A & Kahneman D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics*, 106(4): 1039-1061.

- Tversky A & Kahneman D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, 5: 297-323.
- Wansink B & Kim J. (2005). Bad popcorn in big buckets: Portion size can influence intake as much as taste. *Journal of Nutrition Education and Behavior*, 37(5): 242-245.
- Wansink B & Park SB. (2001). At the movies: How external cues and perceived taste impact consumption volume. *Food Quality and Preference*, 12(1): 69-74.
- Wansink B & Payne CR. (2008). Eating behavior and obesity at Chinese buffets. *Obesity*, 16(8): 1957-1960.