

Brief primer on behavioral economics
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To put behavioral economics in perspective, it is useful to begin with traditional economic models. These models are often built around the rational-actor theory and result in powerful hypotheses which have helped inform the design of a plethora of programs (e.g., by addressing the range of cost and price (through financial subsidies) and related structural and possible informational impediments (e.g. housing, transportation and information pamphlets). These same models have informed predictions of who will enroll, participate, and complete programs. Rational actor models operate on the assumption that individuals respond to their environment in an optimal way (Becker, 1993). In rational actor models, people are assumed to affirmatively choose what they want and actively reject what they do not want. Further, individuals are believed to be able to objectively evaluate their options, largely independent from the context of that evaluation. Revealed preference theory further suggests that intentions can be inferred—nearly perfectly—by observing behavior. It is thought that if someone does not sign up for a program it is because they are not interested (or are not aware of it). To increase take up, therefore, a policy maker might look to make the program more attractive, or expand outreach and increase knowledge. In fact, according to the predominant traditional economic theories, such behavior is predicted to contribute to efficiency in delivering program services: The screening and sorting under existing hurdles will allow those who can perform these cost-benefit analyses to be served.

In contrast to standard economics, behavioral economics operates on the principle that individuals are boundedly rational, and do not perfectly respond to their environment. This view emerged out of a recognition that the human mind does not have limitless processing power and thus softens the assumptions underlying pure rationality (or, making decisions agnostic to the actual process of making decisions, Simon, 1969). The “behavioral” in “behavioral economics” also has a different meaning than the “behavioral” in “behavioral psychology”. A behavioral psychologist (in contrast to a cognitive psychologist) primarily studies behavior, with limited consideration of mental processes. In this respect, a behavioral psychologist is most similar to a traditional (or neoclassical) economist, while a behavioral economist is most similar to a cognitive scientist. Several behavioral economists have reflected that the field was misnamed (Angner & Loewenstein, 2007). Much of behavioral economics has been about applying insights from psychology in the context of economic decision making (Kahneman & Tversky, 1984). It may appear that this knowledge transfer is one way, and psychologists have little to learn from behavioral economists. However, adding psychological insights to the economic framework can yield insights that are new to both fields.

By not addressing *how* and *why* people make decisions, economics has been able to specialize in describing the ways in which institutions (considered broadly to also encompass families or households) can affect the behavior of simple agents or individuals. For example, one branch of economics, game theory, describes how optimizing agents would make strategic decisions. Small changes in the structure of the game (such as which player moves first) can have large effects on the game outcomes (Gintis, 2009). Similarly, how businesses decide to set prices depends on the institutional structure of the market – a monopolist will set higher prices than a business in a perfectly competitive environment (Mas-Colell, Whinston, & Green, 1995). In these scenarios, the decisions people make are altered by the context in which they are made. Historically, economists typically have made little attempt to represent internal states, or to deal

with variation in individuals. Psychology, on the other hand, has generated a rich set of findings about what motivates individual behavior, but has spent relatively less effort systematically examining the institutional contexts in which decisions are made. Several complementary social sciences present a spectrum of blended and related lenses for analysis (e.g. sociology particularly focuses on social norms and behaviors that are embedded in a social context, whereas anthropology focuses on the diversity, internal logic and variance of cultures).

Behavioral economics integrates the economic and psychological frameworks, incorporating concepts about individual decision making behavior from psychology, while maintaining a focus on context and institutions. It presents an effective approach to thinking about how institutions and small institutional changes can affect the behavior of psychologically complex agents (Darling, Datta, & Mullainathan, 2013).

Examples of behaviorally informed design features and their applications to programs, policies or services in other domains are described below. This is not a comprehensive list. There may be a variety of other cognitive processes and behavioral mechanisms in addition to those described below that prove valuable for analysis and application in the early childhood domain including the use of framing (Tversky & Kahneman, 1981), or commitment devices (Bryan, Karlan, & Nelson, 2010). Successful examples shown in other domains include: (a) the use of text reminders to re-focus attention that have been shown to increase exercise and savings, and reduce smoking (Cadena & Schoar, 2011; Karlan, McConnell, Mullainathan, & Zinman, 2010; Newton, Wiltshire, & Elley, 2009; Rodgers et al., 2005); (b) social norm messaging that makes explicit the behaviors of like-minded peers to reduce energy use (Allcott, 2011; Allcott & Mullainathan, 2010); and (c) the use of defaults like opting-out of employee benefit plans to overcome procrastination and which increased enrollment by 40 percentage points as compared to opting-in (Choi, Laibson, Madrian, & Metrick, 2004).

Defaults

Defaults are the selections that are made in the absence of a choice and can counteract the influence of procrastination or choice complexity. One example of its recent effective use is in the context of 401(k) contributions that policy makers have struggled to increase. Subsidies and financial education only showed limited success. Behavioral economists had a simple insight. Most employees are given a choice to either turn in a form to enroll or to not turn in the form and not enroll, but many employees do not make an active choice not to enroll. They simply fail to turn in the form. Simply changing the default such that employees needed to turn in a form declaring their intention to not enroll increased enrollment rates by 40 percentage points (Choi et al., 2004). Even a slightly different version of this intervention, where not turning in a form was simply not an option (a forced choice intervention), had similarly large effects on enrollment (Carroll, Choi, Laibson, Madrian, & Metrick, 2009).

Implementation intentions

Implementation intentions are prompts to develop a specific “if-then” plan. Rather than holding to unstructured intentions (“I should exercise more”), implementation intentions prompt an individual to link situational cues with a response (“I will run 3 miles every Tuesday after work”) (Gollwitzer, 1999). An implementation intention intervention in the voting domain had a caller ask potential voters when and where they were intending to vote. Simply asking this question increased the probability they would vote by 9.1 percentage points over voters who got

the standard call (Nickerson & Rogers, 2010). A prompt like this could be incorporated in multiple ways in pamphlets for parents to encourage show-up rates to learn or enroll in new programs, that prompt them to set aside a specific time to read or play with their child, or to set aside a time to meet with an interventionist at home.

Reminders

Simple regular text messages have been shown increase savings rates by 6% (Karlan et al., 2010), increase the probability of loan repayments by 7-9% (Cadena & Schoar, 2011), exercise levels by 8% (Newton et al., 2009), and smoking cessation rates by 15% (Rodgers et al., 2005). Reminders are most effective when they occur in the context in which one makes decision. A reminder to pick up the milk before coming home will not prompt action if delivered before lunch, but may prompt if it is delivered at the end of the workday. Varying the medium (text messages, phone calls, individualized refrigerator magnets), frequency (daily, every other day, or weekly), timing (morning, evening, every other day), and message (“When will you play with your child today?”) of the reminder can have differing magnitude of effects.

Positive affirmations

Because people derive their identity from the social groups to which they belong (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) shifting the salience of these identities can affect choices (LaBoeuf et al., 2010). When certain groups (e.g. race or gender groups) face a negative stereotype, making that identity salient, the action raises worries and this depletes working memory (Croizet & Claire, 1998; Schmader & Johns, 2003; Spencer, Steele, & Quinn, 1999; Steele & Aronson, 1995). Simple positive affirmations can be effective at reducing identity barriers linked with socioeconomic status. A very simple self-affirmation task performed at a soup kitchen—recalling a proud moment while exiting a soup kitchen and otherwise feeling poor—increased receipt of EITC literature from 36% to 79% (Hall, 2008).

Identity-based motivation (IBM) is a related though not entirely similar theory of human motivation and behavioral choice stemming from identity-congruence (Oyserman, 2009; Oyserman, Fryberg, & Yoder, 2007). Prior research has used the IBM model to demonstrate that small interventions can have large effects on school effort and attainment among low-income and minority school children. Field experiments and a randomized clinical trial utilizing IBM improved academic outcomes of low income and minority children by making school-focused identities salient and connected to other important identities and by framing experienced difficulty as meaning that the goal was important not impossible (Oyserman, 2009; Oyserman et al., 2007). IBM, like affirmation approaches, may be an active ingredient to incentivize parents, for example, by linking talking to their child or having a bedtime routine to their identity as potentially good parents.

Social norms

Other people’s choices can shape our own, sometimes unconsciously. One study found that hotel guests were much more likely to reuse their towels when told that “the majority of guests reuse their towels” than when asked to reuse towels to “help protect the environment” (Goldstein, Cialdini, & Greskevicius, 2008). Researchers collaborated with a utility company to send a simple letter to households. The newly designed energy statement that showed each household’s monthly utilization compared to their neighbors, and separately to their most efficient neighbors. This small design change reduced overall energy usage by 2 percent

(Allcott, 2011), translating to an annual savings of \$300 million, along with secondary environmental benefits.

Microincentives

Being busy and poor can also reduce future-minded behaviors, or lead to miscalculation of future rewards. Small incentives can bring rewards from the future to the present and may be especially useful for early childhood education, where the benefits of intervention are not realized for years or even decades. Financial rewards can also signal that the provider is confident in the positive effects of the rewarded action, especially powerful when coming from a trusted entity, such as a pediatrician (Deci & Ryan, 2008). Conditional cash transfers, in which recipients can receive money for meeting certain conditions, are nearly as effective when the monetary reward is small as when it is large (Glennester & Kremer, 2011). Carefully structured, even small financial incentives have been effectively used to increase vaccination rates, school attendance, and take up of clean water technology (Aber, 2009; Schultz, 2004).