The Scale-Up Effect in Early Childhood and Public Policy

Why Interventions Lose Impact at Scale and What We Can Do About It

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Chapter 4

How a Behavioral Economic Framework Can Support Scaling of Early Childhood Interventions

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Worldwide, nearly 1 in 5 children live with economic deprivation or insufficient resources. The resulting socioeconomic disparities in children's development, including cognition, health, and socioemotional behavior, are widely documented in fields as diverse as developmental science, public health, neuroscience, and economics (Bassok et al., 2016; Duncan et al., 2011; Duncan & Magnuson, 2012; Executive Office of the President of the United States, 2015; Mytton et al., 2014). Studies of families of color and families living in poverty demonstrate the potential of early childhood and parenting programs—if implemented successfully at scale—to reduce socioeconomic and racial/ethnic disparities in children's health and development (e.g., Brotman et al., 2016; Executive Office of the President of the United States, 2015; Gross et al., 2009). While the ingredients for supporting children's development are well researched and often applied to the creation of programs, implementation and efficacy testing typically occur in controlled smaller-scale trials, and programs that prove effective often do not reach wide-scale implementation. In the United States, for example, high-quality early childhood and related parenting interventions demonstrate high returns on children's subsequent educational completion and earnings (Executive Office of the President of the United States, 2015; García et al., 2016; Heckman, 2006), yet the largest US early childhood program, Head Start, which serves nearly 1 million children annually (National Head Start Association, 2020), shows wide variability in quality and production of favorable outcomes for children (Duncan & Magnuson, 2013; Raikes et al., 2006).

As early childhood interventions endeavor to move from smaller-scale trials to broader outreach, questions of feasibility, cost, and the wider context of children's lives may interfere with the transition to a larger scale. As programs transition to scale there is all too often a rigid emphasis on fidelity when principles can be maintained even with small changes to design and fidelity to achieve scale. Further, principles of scale typically take second stage during the initial development and testing phases of program curricula, content, or overall design. This chapter describes how the interdisciplinary framework of behavioral economics (BE)—combining the theories of conventional economics with social psychology and cognitive decision making—can help support

the transition and translation of programs to scale, addressing the dimensions of feasibility, cost, and fidelity while meeting the objectives of providing safe, nurturing, and stimulating environments for children. By recognizing the ways in which cognitive processing, cognitive biases, and the decision-making context can affect parents' in-the-moment decision making beyond traditional cost–benefit trade-offs, the BE framework motivates the creation of light-touch early childhood interventions that are easily scalable and offers insights and strategies to enhance successful scaling of more intensive programming and services. While the BE framework applies to the spectrum of decision makers, from policy makers to program directors and early care providers, I particularly focus on family engagement and parenting as a key mechanism for achieving large-scale impact.

Behavioral Economics: An Interdisciplinary Framework for Designing interventions

Expanding beyond pure rational cost–benefit trade-off thinking that emerges from the tradition of economics, the BE lens offers a grounded starting point for early childhood intervention design that keeps the goal of scalability in mind from the outset (as advocated by Al-Ubaydli et al. in Chapter 6 of this volume). As the number of actors, institutions, and decision makers evolve from program development to wider reach, BE presumes that each of these actors and points of decision making are not likely to follow or behave in ways that take into account the conventional concepts of benefit (long-run returns on outcomes) and cost (e.g., labor, infrastructure, material, and leadership charisma). The BE lens contends that demands on human cognitive processing, which stretch resources such as attention, self-control, and self-concept, can interfere with rational cost–benefit calculations. This limitation is sometimes referred to as bounded rationality. Such attentional and related strains on mental resources can shape people's decisions, with potentially spiraling benefits or consequences on subsequent actions and behavior (Mischel & Ayduk, 2011; Valcke, 2002). This broader view of the architecture of decision making (also termed choice architecture; Thaler & Sunstein, 2008) offers a blueprint for how to reduce the time and labor costs for seeking and digesting information (sometimes called transaction costs) and facilitating follow-through on intentions for the variety of decision makers essential to interventions— policy makers, early care and education providers, and children's parents and caregivers—without impeding free will (Benartzi et al, 2017; Sunstein, 2017; Sunstein & Reisch, 2019; Thaler & Sunstein, 2008).

In addition to reconceptualizing the factors that influence decision making beyond informed cost–benefit calculations, BE recognizes that human behavior is subject to learned and implicit biases that can shift in reaction to circumstances, lived experiences, and social norms. For example, when thinking about parents, biases that might affect parenting can illuminate trouble spots that could be addressed through early childhood outreach and intervention

that goes beyond conventional offerings of financial subsidies for child care, food, or transportation to encourage participation. One example is authority bias—for example, trusting a pastor more than a friend irrespective of that pastor's actual expertise in a topic. Another example is confirmation bias, when parents seek information that confirms pre-existing beliefs (see more examples of the ways that biases can affect parenting in the beELL parenting bias codex; beELL, n.d.) Parents respond differently to early childhood program offerings when the programs are designed in ways that address certain biases, as shown in evidence from early reading programs (Mayer et al., 2019) and efforts to improve children's school attendance (Robinson et al., 2018). More detailed discussion and examples are provided later in this chapter.

What constitutes an important decision also differs with a BE framework. BE moves beyond the focus from one big decision, such as whether a family attended a program, to an understanding of the sequence of an interrelated chain of decisions that may collectively contribute to observed behavior. This may begin, for example, with expressions of initial interest that transform into subsequent formulation of intentions to participate (or not), to follow-through on intentions to participate (or not), and external application or practice of new information or learning. In this way, the timing and presentation of choice-points become important for reinforcing or disrupting the pipeline of presumed or desired behavior.

Finally, because BE does not view decision-making agents as context free, it offers a framework for designing with context in mind, an oft-cited weakness of efforts to translate programs to a larger scale (as indicated in Chapter 6 by Al-Ubaydli et al.). The interdisciplinary framework of BE is particularly well suited to offer guidance about optimizing and expanding the reach and scale of early childhood investments in ways that consider the daily context of the financial and mental drain of poverty and, for many families, the systemic discrimination and isolation that accompany poverty and financial uncertainty (Gennetian et al., 2016; see also Gennetian & Shafir, 2015). The significance of context, and the strain of low resources, can also affect early care and education providers in their delivery of services to young children (Spiegel et al., 2020).

Promoting Family Engagement in Scaled Interventions

Family engagement is increasingly recognized as an essential mechanism of change in high-quality early childhood intervention programs in the United States and an active ingredient in the implementation and design of early childhood intervention globally (Aboud and Yousafzai, 2015; Mytton et al., 2014; U.S. Department of Health and Human Services & U.S. Department of Education, 2016). Trials of group-based parenting interventions aimed at preventing child behavioral problems and promoting healthy development show improvements in parenting warmth, nurturing parent-child interactions, and consistent discipline (Dawson-McClure et al., 2017; Gross et al., 2009;

Kaminski et al., 2008; Sanders et al., 2014; Sandler et al., 2011). Furthermore, participating parents report reductions in anxiety, stress, and depressive symptoms (De Graaf, 2008; Sanders et al., 2014). However, participation at scale is scant and discouraging (Axford et al., 2012; Baker et al., 2011; Barlow et al, 2002; Breitenstein et al., 2012; Dawson-McClure et al., 2017). For example, in two population-level trials of an evidence-based parenting programs targeting behavioral problems, only 1% and 5% of eligible parents participated (Fagan et al., 2009; Prinz et al., 2009). Another evidence-based parenting intervention delivered at scale in U.S. family courts found that although more than half of parents expressed their intent to participate, only about 10% actually attended one or more sessions (Wolchik et al., 2009).

Several theories have been used to frame the science of family engagement and inform strategies to optimize participation in interventions. These existing frameworks offer guidance but rely on strong assumptions. Conventional economic theory presumes that parents evaluate the financial and transactional costs and benefits of program participation; this theory provides a rationale for subsidizing child care and transportation, reducing informational costs, and providing cash, food, or related incentives to reduce the financial or opportunity costs of participation (Baker et al., 2011; Hindman et al., 2012; McWayne et al., 2013; Snell-Johns et al., 2004). Other predominant theories, including the Health Belief Model (HBM; Corso et al., 2010), the Theory of Planned Behavior (TPB; Ajzen, 1991; Rosenstock et al., 1988; Spoth & Redmond, 1995), and the Hoover-Dempsey and Sandler model (Hoover-Dempsey et al., 2005) focus on cognitive factors related to intention and motivation; these models point to the perceived susceptibility and severity of the problem, perceived benefits, self-efficacy, and subjective norms as drivers of parent behavior. Higher perceived benefits appear to be positively associated with attendance and positive attitudes toward help-seeking (Cortis et al., 2009; Morawska & Sanders, 2006). These latter theories point to strategies such as in-person motivational interviewing, peer face-to-face invitations, and individualized weekly reminders phone calls or home visits (Reidy et al., 2011; Shepard et al., 2012).

These existing frameworks do not consider families' immediate circumstances and characteristics as a core factor in developing hypotheses as the economic model presented by Al-Ubaydli in Chapter 6 recommends. In particular, they do not fully account for the inevitable ways that families' busy lives, distractions, and crises redirect attention to some behaviors (e.g., responding to a hostile landlord or dealing with an unreliable bus schedule) instead of others (e.g., attending the first program session). The prevailing frameworks also do not broadly conceive of family engagement as a series of multiple small decisions and decision-making junctures that sequentially or simultaneously affect parent engagement with ripple effects on parenting and family life. This challenge is magnified for parents living in poverty, who are juggling limited financial and time resources and often are treated as

inadequate, and for parents of color, who experience racism in daily interactions and acquire learned behaviors to avoid stigmatizing situations. All of these factors further stress the cognitive resources needed to engage with children (Gennetian et al., 2016; Mullainathan & Shafir, 2013; Quint et al., 2018).

The BE lens, in contrast, views parents as active agents or decision makers, rooted in the optimizing theory of household well-being from conventional economics. The BE framework considers time and monetary resources and constraints, as well as the role of belief systems, psychological biases, and available cognitive bandwidth (Barberis, 2018; Besharis et al., 2018), as influencing parents at *each* decision-making juncture. These junctures range from parents' initial expression of interest to their actual enrollment and subsequent participation in early childhood intervention programs and finally to their daily practice of warm and stimulating parenting. At each juncture, parents' decisions are crucial and contingent on follow through of the former decision.

Supporting Parent Decision Making in Real-Life Context

Parenting decisions unfold in the context of families' circumstances. The BE approach aims to design this environment in ways that elicit and guide parent decision making, acknowledging the influences of how choices are presented and how fear of judgment, calibration of benefits, and perception of social norms interact with parents' good intentions to enroll in programs or services and engage in warm and stimulating daily parenting. Each of those four elements of parent decision making is explored in detail below.

Structure of Choices

The structure of choices is potentially the most underexplored influence on parent decision-making behavior. The default enrollment option may have important implications for parental involvement in a program: Are parents required to *make* an active choice to enroll (i.e., opt in) or is their automatic enrollment the default option, with opting out as the active choice on the parents' part? *Defaults*, or pre-set courses of action that take effect without relying on parents to make active decisions (Jachimowicz et al., 2019; Thaler & Sunstein, 2008), may overcome procrastination and inertia and the overwhelming nature of complex choices. Influential across many domains, defaults are found to be particularly effective in consumer domains (versus other domains, such as conservation efforts for protecting the environment) and when they reflect the status quo (Jachimowicz et al., 2019). The ways in which the implication of not enrolling is presented can also matter: An active choice conveying the consequences or loss of benefits of not participating (e.g., "I wish to not receive the informational pamphlets about my children's development" compared with a more passive "I do not want to receive these materials") can also influence parents' choice (Eriksson & Simpson, 2010).

Fear of Judgment

Parents' reluctance to signal deficiency and general fear of judgment from others for seeking parenting support have been shown to be barriers to participation in parenting programs (Keller & McDade, 2000; Kim & Bianco, 2014; Mytton et al., 2014; Taylor et al., 2013). Such fear of judgment for seeking support may represent a rational response to daily lived experiences of racism and discrimination, and may help explain why minority and low-income parents participate in parenting programs at lower rates (Keller & McDade, 2000; Sirey et al., 2014). Parents convey how the stresses of poverty can undermine positive self-concept: "I got caught up in thinking that if I can't bring the income in, then I am not really a great parent" (Russell et al., 2008). Unlike the aforementioned theoretical frameworks (e.g., TPB and HBM), which are likely to result in a focus on motivational techniques, BE offers guidance on how and when such fear of judgment may intersect with parent decisions at the times that it can matter the most for engagement, even among motivated parents.

Misperceptions of the Situation and Future Benefits

Parent involvement decisions (and any related engagement) may also be swayed by biases and beliefs about their children that could be misaligned with objective assessments and future benefits. Parents exhibit upwardly biased beliefs about their children's effort in school (Bergman, 2015, 2016; Bergman & Chan, 2017) and underestimate the implications of their children's absences (Robinson, Lee, et al., 2018; Robinson, Pons, et al., 2018; Rogers & Feller, 2016). Parents, like all individuals, may (rationally) miscalculate future benefits when such benefits are abstract or appear unreachable (Mayer et al., 2019). Such biases and beliefs about a child's performance or behavior can contribute to parents' disengagement from programs due to a general sense that more effort is unnecessary because the child is already doing well or the future is either too uncertain or already predetermined.

Social Norms

Social norms—that is, unwritten codes of conduct that are understood through social interaction (Chung & Rimal, 2014) or more widely accepted as expectations and rules of behavior in communities—can spill over to affect parent engagement in programs as well as in their parenting practices. Parents, like all people, are influenced by their perception of and desire to preserve their self-image and social image and thus can be affected by *social norms* (Aboud & Yousafzai, 2015). Social identity is closely related to social image, and thus parents' actions may be influenced by a sense of social belonging (Austen-Smith & Fryer, 2005) and can be responsive to social pressure, for example, witnessing actions from parent peers at their children's community

school (DellaVigna, 2009). Explicit and visible markers of social identity (e.g., buttons, T-shirts, gadgets that signal or communicate connection with a group) can support social and group identity. Social norms (Allcott, 2011) can also be conveyed through descriptive normative information (for example, video testimonials can represent majority behavior) or for purposes of comparison. They may be further amplified via injunctive information (e.g., perceived norms) or by information implicitly conveying social approval or disapproval of certain actions or behavior (e.g., a smiley face or a frown; Cialdini, 2008).

Behavioral Economics-Influenced Strategies to Support Scaling of Early Childhood Interventions

The application of a BE framework has inspired the creation of new light-touch interventions, many of which rely on technology as a format for reaching parents. These are built with scaling as the primary goal, and indeed have shown success (for a review, see Bergman, 2019). The Ready4K text-based intervention, which shares fun facts and tips with parents via text on how to support their children's development through existing family routines (Doss et al., 2019), and the Parents and Children Together intervention, which gives parents tablets with digital libraries supported by reminders and goal-setting, are two examples (Mayer et al., 2019).

Insights from BE can play another important role in scaling of early child-hood interventions: BE can be used to enhance or boost existing programs in ways that are adaptable and can optimize the transition to scale, and can do so with adding little additional program cost. Several examples follow.

Social Belonging and Group-Based Parenting Support Initiatives

Group-based parenting initiatives—whether they meet in neutral locations or within established community settings—harness the influence of social support and peer-to-peer relationships. Successful programs that incorporate a group-based session or meeting include Care for Child Development, Reach Out and Learn, Triple P, and ParentCorps (Britto et al., 2017; Brotman et al., 2016; Caldwell et al., 2005). In addition to information and education, such programs offer media, tips, and opportunities to converse with other parents and practice parenting skills. However, a variety of challenges can derail these types of parenting support programs from achieving attendance at full capacity. While group sessions may extract benefits of peer-to-peer engagement and learning, they may also heighten feelings of judgment and discomfort, or make it easier for parents to dismiss what they can learn from such settings. Private and social norms for help-seeking may interfere with perceptions of and actual interest and uptake. BE approaches can be used to harness the benefits of such norms or dilute the misconceptions fostered by such norms. For example, myth busters communicated via visual and written material and provided to parents through trusted outlets (including their peers), can be

coupled with visible items that convey group belonging to encourage parents' sense of connection with the group.

Identity Affirmation to Reduce Fear of Judgment

When asked, parents report a variety of preconceived beliefs about who can benefit most from parenting programs, with most deflecting its benefits to those with children who have behavior problems or those who have strong convictions about the privacy of parenting styles. Thus, fear of judgment by others might interfere with their engagement in parenting programs. Self-affirmations, developed from the field of psychology and well tested in the domains of schooling and health (Cohen et al., 2000; Cohen et al., 2009; Cohen & Sherman, 2014; Ehret & Sherman, 2014), may elicit positive self-concept during moments when fear of judgment might otherwise hinder engagement. One study that tested two types of self-affirmation showed that a pride-based affirmation increased parents' positive self-concept and interest in parenting programs and resources, particularly among parents with high baseline fear of judgment associated with seeking help (Hill et al., 2020).

These insights were translated into practice in two ways for a scaled preschool-based intervention in New York City called ParentCorps. First, a "Real Talk" brochure was created as the first outreach communication to all families to reduce parent perception of being singled out as *needing* parenting support. This strategy was informed by research indicating that parents may construe the invitation to attend a parenting program as a signal that they are a bad or underperforming parent (White & Wellington, 2009). Second, a pride-based self-affirmation similar to the one previously tested was incorporated into a written post card format and reinforced in person during one of the first five parenting support meetings (Hill et al., in press).

Presentation of Choices and Default Options for Accessing Early Learning and Literacy Content

How choices are presented matters. Conventional approaches to information and education sharing often require parents to sign up or fill out forms to receive content. This step can often get neglected despite parents' good intentions. Understanding inertia and procrastination, as well as how parents' attention may be directed elsewhere during certain periods of a child's life, can reveal certain points at which the design of a default or status quo option might matter. Altering enrollment options from the burden of signing up to automatic enrollment with the option to no longer receive information could substantially counter the influence of inertia. Presenting choices in an active versus passive format can elevate the salience of not enrolling. Reducing or staggering the number of choices can foster easier digestion and encourage enrollment and follow-through.

Parents of newborns are often overwhelmed yet receptive, making this period a particular window of opportunity for BE-enhanced interventions

(Kim & Bianco, 2014; Kim & Watamura, 2015) that promote early brain and language development (e.g., Galinsky et al., 2017). Technology-assisted interventions are increasingly viewed as an accessible way to directly reach parents (Hall & Bierman, 2015), and initiatives that provide free parenting tips and curriculum by text message are a particular area of growth.

In collaboration with a large urban health and human services agency's newborn home-visiting program, behavioral economic scholars tested via randomized control design whether automatically enrolling mothers in a citywide text-based early learning program—with the option to voluntarily decline after enrollment—increased mothers' program uptake compared with giving them an opportunity to voluntarily enroll (Gennetian et al., 2020). In this test of choice structure, only 11.3% of low-income mothers of newborns who were automatically enrolled subsequently chose to opt out; 88.7% continued to receive the text-based content. In contrast, in the neutral control "opt-in" condition, only 1% of mothers voluntarily enrolled in the text-based program when it was publicized with conventional forms of community marketing and informational flyers. Opt-out and opt-in patterns did not differ by candidate characteristics typically associated with risk of nonparticipation: first-time motherhood status, total number of children, flagging for depressive symptoms, English language proficiency, receipt of public benefits, or household residential stability. Data from a subsample of these mothers further suggest that mothers in the treatment group more frequently read and sang to children, compared with the control group. Mothers in the BE-enhanced group also received positive self-affirmations and a gift at the child's five-month birthday that included, among other items, a prepopulated library card application to encourage participation in social settings offering free books and storytelling to further support children's early language development.

Calibrating Parents' Beliefs, Expectations, and Perceptions of Their Children's Learning

Parents' decisions to devote time to educational activities with their children, including reading, may be swayed by a variety of factors, including schedules, fear or anxiety, low literacy, and beliefs about their children's development that are misaligned with the presumed benefits of the activity.

Parents may have inaccurate accounting of the time they do spend on educational activities. Such inaccurate beliefs about either the benefits to children or the actual time spent can contribute to a general sense that more effort is unnecessary because the child is already doing well. These biases can be recalibrated by providing visual or written feedback to parents that includes concrete metrics of their actual engagement. One intervention, for example, tracked minutes spent reading with children, via recording of tablet use (Mayer et al., 2019). Another tracked the quantity of words spoken by parents, through charts generated by audio-recording devices that were subsequently shared with the parent (Wong et al., 2018).

In a collaboration with Head Start centers, behavioral economic scholars designed BE-enhanced strategies to redirect parents' attention, reduce choice anxiety, and recalibrate parents' expectations about the benefits of engagement in a school readiness intervention called Getting Ready for School (GRS). Parents and children received personalized invitations, child-friendly activity planners, text-message reminders, and commitment reinforcement to attend GRS events. Compared with families that received the typical curriculum, those that received BE-enhanced strategies had higher parent attendance and follow-through for GRS activities, spent more time with children on educational activities outside of the classroom (Gennetian et al., 2019), and showed favorable impacts on children's math and literacy developmental outcomes. For the one cohort in which it was tested, additional BE strategies that addressed math-related fear and anxiety by providing friendly visuals and language about everyday math, as well as personalized invitations, increased parents' subsequent participation in GRS math workshops (Kurchiko et al., in press).

BE and Scaling: Benefits and Considerations

Because the BE framework takes into account parents' characteristics and circumstances that influence their decision-making process in real life, this framework supports successful scaling of early childhood interventions beyond the careful controls and resources of efficacy trials. By taking into account the four aspects of parent decision making highlighted in this chapter—choice structure, fear of judgment, miscalibration, and social norms—practitioners can harness the BE framework to create easily scaled, light-touch interventions that help parents access and digest information and follow through on intentions. This chapter offers examples of easily scaled enhancements, such as educational or motivational text messages, alteration of choice structures, and revision of default advertising messages. These and other BE-enhanced strategies can be combined in many ways to improve the effectiveness or reach of existing programs—without jeopardizing fidelity or substantially increasing cost—and can be implemented in the design of new programs.

The BE lens also broadens the notion of scale by expanding the range of targeted recipients. Conventional early intervention and related programs have long been immersed in mostly Westernized stereotypes and assumptions of mothers as primary nurturers of children (Folbre, 2012). The rise in women's labor force participation and continued reliance on mothers as engines of economic support domestically (International Monetary Fund, 2018; Pew Research Center, 2015) and globally, coupled with the increasing evidence base on the role of fathers and grandparents in supporting children's positive development (Cabrera & Tamis-LeMonda, 2013; Dunifon et al., 2018), call for a rethinking of conventional doctrines of whom interventions should aim to target. The BE lens provides a neutral perspective that accommodates the individual caregiver context and allows for a range of social-psychological factors that may influence one caregiver differently from others.

The extent to which BE insights, such as those regarding choice structure and social norms, are readily accepted and scaled may vary by the broader social, political, economic, and cultural context. For example, general perceptions toward the role of BE-motivated "nudges" by government (Sunstein & Reisch, 2019) are favorable in some countries but not in others (e.g., Japan) in ways that correlate with people's trust in the role of government. Citizens' views on the role of government in the lives of families—particularly in cases when a child's health or safety is not clearly in jeopardy—is an especially relevant context for scaled early childhood interventions. While voluntary enrollment may resolve ethical issues regarding human agency and free will, it also presumes that parents are not flawed decision makers and, further, that parents can (unencumbered) act on their intentions (Sunstein, 2017). Another example of the ways in which context is likely to impact the success of BE is the application of BE insights through digital platforms. While BE insights regarding reminders and affirmations may boost text messaging as an increasingly popularized, effective, and low-cost medium for reaching out to families and delivering parenting information, education, and support, communication with parent recipients is typically unidirectional and automated rather than interactive. This may undermine intentions of building trusted relationships and personalized attention, which, in certain contexts is critical. Relationship-based approaches through digital outlets are, of course, possible but require more manual labor and thus cost to scaling. Finally, as another example, which social norms are conveyed also can come with risks, as some evidence points to its effectiveness depending on people's beliefs. Making certain negative behaviors explicit or public (for example, harsh discipline in the realm of parenting) may backfire by normalizing or making the behavior permissible depending on how much the prevailing norm aligns with parents' beliefs (Bichierri & Dimant, 2019).

Framed in these different ways, and carefully designed to be mindful of context, BE-influenced approaches are likely to appeal to a wide range of practitioners, policy makers, and funders because their focus on parents' characteristics and context, coupled with their simplicity of application, makes them well suited to large-scale implementation.

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