

Part I: What does the research tell us about the importance of early childhood development? What do we know about what works?

The largest opportunities to improve the trajectory of a child's life happen during pregnancy and the earliest years of life, and continue through age five. Much of the critical development occurs before children enter the formal education system at kindergarten.

From the time of conception to the first day of kindergarten, a person's brain development proceeds at a faster pace than it will at any other stage of life.¹ Ninety percent of physical brain development occurs in the first three years of life, when a baby forms 700 new neural connections per second.^{2,3} This building process is dramatically influenced by life experiences.⁴ In particular, the quality of adult/child interaction strongly affects brain development and the cognitive and social-emotional skills that shape life outcomes.

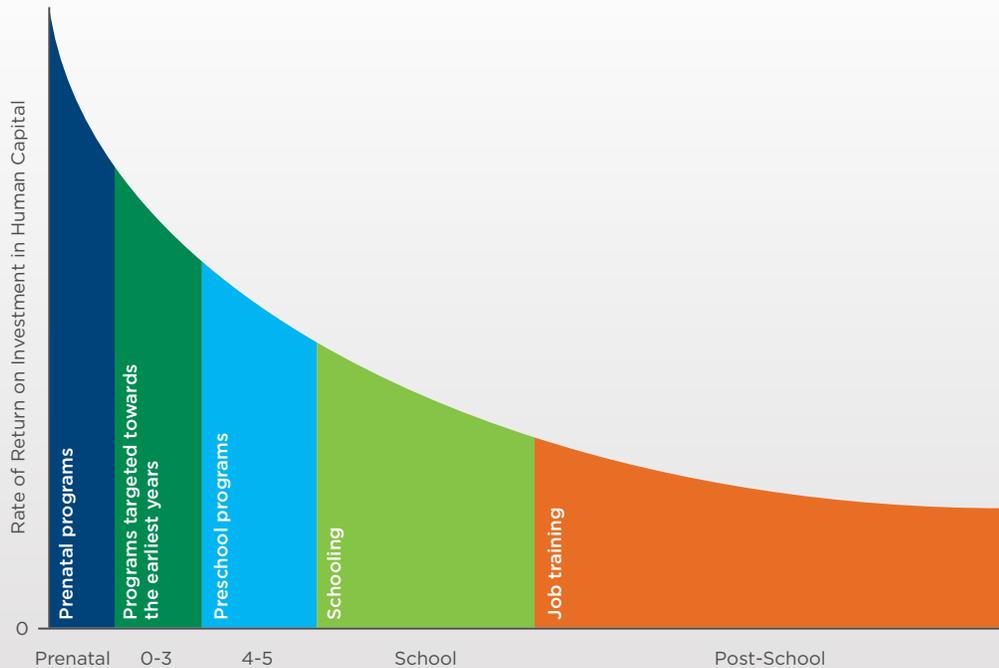
Early childhood sets the course for what will happen in the first years of formal K-12 education and well beyond. When a young child enters kindergarten ready for school, there is an 82 percent chance that child will master basic skills by age 11, compared with a 45 percent chance for children who are not school ready.⁵ Later in life, at-risk children who do not get high-quality early childhood experiences are 25 percent more likely to drop out of school, 40 percent more likely to become teen parents, and 60 percent less likely to attend college.⁶ Further, early childhood development affects health and mental health. Comprehensive early interventions that combine health, nutrition, and learning have the potential to reduce risk factors associated with chronic diseases, such as hypertension and high blood sugar, well into adulthood.⁷

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- 1 Jack Shonkoff, and Deborah A. Phillips, eds., *From Neurons to Neighborhoods: The Science of Early Childhood Development* (Washington, D.C.: National Research Council and Institute of Medicine, National Academy Press, 2000), 386.
 - 2 *Understanding the Effects of Maltreatment on Brain Development* Issue Brief (Washington, DC: Child Welfare Information Gateway, November 2009), 3.
 - 3 Center on the Developing Child at Harvard University, "Five Numbers to Remember About Early Childhood Development," http://developingchild.harvard.edu/resources/multimedia/interactive_features/five-numbers/.
 - 4 Jennifer Guerra, "Five Things to Know About Early Childhood Development," *State of Opportunity*, November 14, 2012.
 - 5 Isabel V. Sawhill, Scott Winship, and Kerry Searle Grannis, *Pathways to the Middle Class: Balancing Personal and Public Responsibilities*, Washington, DC: Center on Children and Families at the Brookings Institution (September 20, 2012), 8.
 - 6 The Ounce of Prevention Fund, "Why Investments in Early Childhood Work," available at <http://www.theounce.org/who-we-are/why-investments-in-early-childhood-work>.
 - 7 James J. Heckman, Francis Campbell, Gabriella Conte, Seong Hyeok Moon, Rodrigo Printo, Elizabeth Pungello, and Yi Pan, "Early Childhood Investments Substantially Boost Adult Health," *Science* 28, Vol. 343, No. 6178 (March 2014): 1478-1485.

Investing in early childhood development pays big dividends to society.

Investing in a full range of high-quality early childhood programs from birth to age five is one of the most economically efficient ways to create upward mobility, a capable and valued workforce, and a strong economy. Nobel Laureate Economist James Heckman has shown that investment in high-quality early childhood programs for at-risk children from birth to age five delivers a 7-10 percent return on investment through better education, health, social and economic outcomes, increased productivity, and the reduced need for social spending (Figure 1).⁸ Investing in quality early childhood programs is a cost-efficient strategy for reducing deficits, improving K-12 achievement, creating jobs, and promoting economic growth.

Figure 1: Estimated rate of return on human capital investment⁹



Source: Heckman (2008) <http://www.heckmanequation.org>.

8 James J. Heckman, Seong Hyeok Moon, Rodrigo Pinto, Peter A. Savelyev, and Adam Yavitz, "The Rate of Return to the High/Scope Perry Preschool Program," NBER Working Paper No. 15471 (November 2009).

9 James J. Heckman, "Schools, Skills, and Synapses," *Economic Inquiry* (2008), vol. 46, no. 3, 289-324. Chart presented as modified in James J. Heckman, "Invest in early childhood development: Reduce deficits, strengthen the economy," Chicago, IL: Heckman Equation, 2014.

A 2014 report from the White House Council of Economic Advisers¹⁰ builds on the work of Heckman and others in finding that:

- expanding early learning initiatives could provide benefits to society worth roughly \$8.60 for every \$1 spent; and
- lifetime earnings gains from increased enrollment in early childhood education would outweigh the costs of these programs (the estimated gain in lifetime income per participant is \$9,166 to \$30,851 after subtracting the cost of the programs).

As Heckman has noted, “The longer society waits to intervene in the life cycle of a disadvantaged child, the more costly it is to remediate disadvantage.”¹¹

A vast body of research shows that disadvantaged children who receive quality early childhood education do better in school and have significantly better social and economic outcomes in life. However, a recent critique of investments in high-quality early childhood education programs is that the positive effects are believed to “fade out” by third grade.

While the Head Start Impact Study¹² is cited as proof of this purported “fade out,” more current findings point to pollution in the study’s treatment and control groups, resulting in an inaccurate assessment of the program’s effectiveness. Two independent analyses by separate research teams controlled for this by dividing the children into three distinct groups according to their experience: Head Start attendees; other preschool attendees; and those who did not attend preschool. Both studies found that Head Start was as effective as other preschool programs and significantly more effective than no preschool at all.^{13,14}

Moreover, the Impact Study provides no data for outcomes past third grade, while other rigorous studies of the long-term outcomes of Head Start have shown impacts on high school graduation, crime reduction, health outcomes, and wages.¹⁵ Long-term randomized control trials of other early childhood programs such as Perry Preschool and Abecedarian track positive impacts on school, economic, and social outcomes well into adulthood (age 35).^{16,17} Abecedarian’s permanent gains

10 The White House Office of the Press Secretary, “Fact Sheet: Invest in US: The White House Summit on Early Childhood Education,” December 10, 2014, <https://www.whitehouse.gov/the-press-office/2014/12/10/fact-sheet-invest-us-white-house-summit-early-childhood-education>.

11 James J. Heckman, “The Case for Investing in Disadvantaged Young Children,” in *Big Ideas for Children: Investing in Our Nation’s Future*, 49-58. Washington, DC: First Focus, 2009.

12 M. Puma, S. Bell, R. Cook, C. Heid, G. Shapiro, P. Broene, F. Jenkins, P. Fletcher, L. Quinn, J. Friedman, et al., *Head Start Impact Study: Final Report*, Administration for Children & Families (2010).

13 A. Feller, T. Grindal, L. Miratrix, and L. Page, “Compared to What? Variation in Impacts of Early Childhood Education by Alternative Care-Type Settings,” (December 30, 2014). Available at SSRN: <http://ssrn.com/abstract=2534811>.

14 P. Kline and C. Walters, “Evaluating Public Programs with Close Substitutes: The Case of Head Start,” UC-Berkeley Institute for Research and Labor Employment Working Paper #123-14 (December 2014).

15 “Advisory Committee on Head Start Research and Evaluation: Final Report,” submitted to the US Department of Health and Human Services, August 2012.

16 J.J. Heckman et. al., “Early Childhood Investments Substantially Boost Adult Health.”

17 J.J. Heckman et. al., “The Rate of Return to the High/Scope Perry Preschool Program.”

are attributed to the program starting from birth and incorporating all the elements of effective early childhood development: parental education, early health, nutrition, early learning, and preschool. Therefore, we would not conclude there is “fade out,” but rather a strong “fade up” into better and more productive lives as children develop into adults.

Over the past few decades, we have gained a deep understanding of what works to improve child outcomes.

As this paper will describe in the sections that follow, research has identified the outcomes that matter most for young children. Research has also demonstrated the critical ingredient to achieving these outcomes: responsive, sensitive, and warm interactions between infants, toddlers, and preschoolers and the adults in their lives in all of the settings in which they learn and grow. Research and practice also have identified the barriers that make it difficult to realize those outcomes and the programmatic and systemic solutions to addressing these.

It became clear to us through our research that while research is still needed in many areas, there are numerous high-impact opportunities for investors to pursue today that can meaningfully improve child outcomes beginning at birth. The concepts have been proven—decades of research, program development, and evaluation have demonstrated strategies that work. While we will continue to learn more and refine these strategies, now is the time for philanthropy, business, and government to invest in expansion so that all our children arrive at school ready to learn.

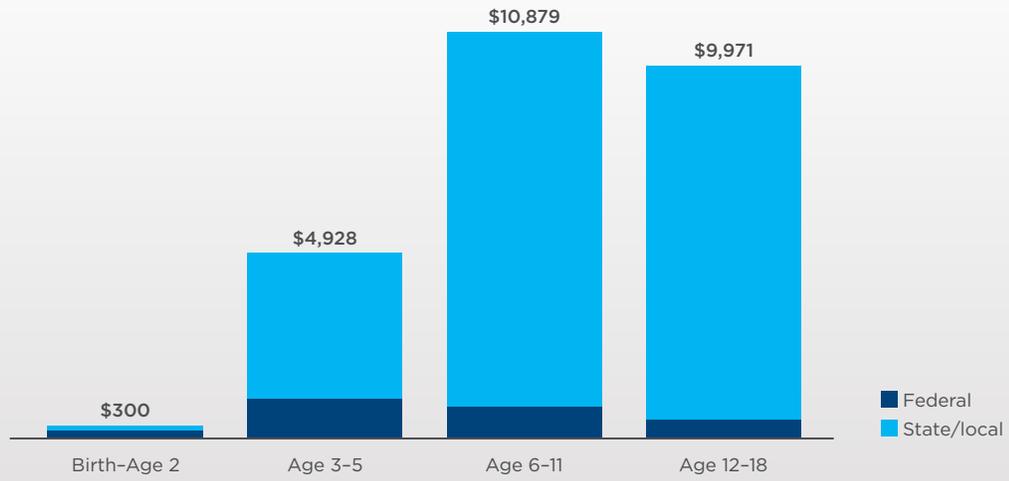
We are not investing enough in early childhood.

Despite the evidence that investing in the early years is critically important and the existence of proven approaches, the United States severely underinvests in the development of children before they reach age five. Combined annual per capita public spending at the state and federal level on education for six- to eighteen-year-olds is nearly four times as high as spending on children from birth to five (Figure 2).¹⁸ Philanthropic funding for K-12 education totals more than five times what is donated to early childhood causes.¹⁹ While efforts to improve K-12 learning are much needed, they will have greater impact when we ensure that children enter the K-12 system ready to learn. Thus, we must work together, as philanthropists and local communities, to direct more spending towards the years before kindergarten—scaling what we know works and building more knowledge in areas where we know less.

18 Sara Edelstein, Julia Isaacs, Heather Hahn, and Katherine Toran, “How Do Public Investments in Children Vary with Age? A Kid’s Share Analysis of Expenditures in 2008 and 2011 by Age Group,” The Urban Institute (October 2012), 11-12.

19 Based on analysis performed by The Bridgespan Group on data collected by The Foundation Center, 2009–2012. “Early childhood” includes all grants more than \$50,000 tagged as early childhood education/child development, infant and prenatal health care, and parent education. “K-12” includes all grants more than \$200,000 tagged elementary/secondary education, education services, and education technical assistance. Smaller grants were estimated by assuming the same distribution of grants below the cutoffs.

Figure 2: Estimated annual per child federal and state/local spending on education and early care, by age



Source: Edelman et al. (2012); data is based on 2008 and 2011 expenditures.