



Photos: Ounce of Prevention Fund

Achieving Kindergarten Readiness for All Our Children

A Funder's Guide to Early Childhood Development from Birth to Five

By J.B. Pritzker, Jeffrey L. Bradach, and Katherine Kaufmann

About the Pritzker Children's Initiative

The Pritzker Children's Initiative (PCI) has been laser focused on a single, attainable goal: that all at-risk infants and toddlers in the United States will have access to high-quality early childhood development resources, increasing their likelihood of success in school and life. PCI is a project of the J.B. and M.K. Pritzker Family Foundation, which supports effective solutions to societal needs in four areas: early childhood, community healthcare and women's health, civil rights, and entrepreneurship. Our goal is to catalyze change that will fight poverty and promote equity and fairness nationally and in our immediate community of Chicago.

About The Bridgespan Group

The Bridgespan Group (www.bridgespan.org) is a nonprofit adviser and resource for mission-driven organizations and philanthropists. Bridgespan collaborates with social sector leaders to help scale impact, build leadership, advance philanthropic effectiveness, and accelerate learning. Through its work, Bridgespan focuses on issues related to society's most important challenges and breaking cycles of intergenerational poverty. Bridgespan's services include strategy consulting, leadership development, philanthropy advising, and developing and sharing practical insights.

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Foreword

Smart investments in early childhood produce social benefits, cost savings, and economic returns for children, families, and society.

Economists such as Nobel Laureate James Heckman have demonstrated that investing in high-quality early childhood programs for disadvantaged children delivers a higher return on investment than social programs or education aimed at any other stage of life, through better education, health, social, and economic outcomes, increased productivity, and the reduced need for social spending. Scientific and educational research also demonstrates that the foundation for success in life begins during pregnancy and is built through age five. In sum, there is overwhelming evidence that high-quality early childhood interventions lead to measurable lifelong social and economic improvement.

In recent decades, pioneer investors and communities have seeded the field with experiments that have proven to have significant impact on child outcomes. Yet, although we know what works, we vastly underinvest in early childhood education. Annual philanthropic funding for birth to five is only a fifth of what is spent on K-12 education, and annual per capita government spending on early care and education is only a quarter of K-12 levels. As a result, very young children—particularly disadvantaged children—miss out on quality development opportunities, and the nation misses the opportunity to reap the strongest possible economic benefits from investing in children and families. These missed opportunities result in larger taxpayer burdens for the education, health, and criminal justice systems throughout these children's lives. As a nation, we must change how we think about and fund the early years—it's a matter of economic, fiscal, and common sense.

More than a decade ago, the J.B. and M.K. Pritzker Family Foundation began working to create substantial early learning opportunities for our nation's youngest children. Inspired and guided by mentors—especially Irving Harris and Barbara Bowman—and building on the work of national and local philanthropies that have been investing in early childhood development for decades, we invested in evidence-based programs, effective advocacy, and original research. Our research and experience, bolstered by emerging brain science, has deepened our belief in the importance of investing in our nation's youngest children, especially low-income children, who have the fewest resources and opportunities but who have equal potential for success.

We have made a long-term commitment to help ensure that all infants and toddlers in the United States, especially those most at risk, have access to high-quality development opportunities in early childhood, significantly increasing their likelihood of success in kindergarten and beyond.

In order to identify the greatest areas of need and points of leverage on which to focus our next phase of investment, we recently spent 18 months working to deepen our understanding of the early childhood field and either confirm or reject our assumptions. We asked questions that have been asked in decades past, but so much has been discovered in the last few years, we felt it was important to ask them again. We wanted to rely on the most recent data and the most modern and advanced research in the field.

Specifically, we asked four questions:

- What does the research tell us about the importance of early childhood development? What do we know about what works?
- What outcomes matter most for very young children, and to what extent are children in low-income families reaching these outcomes today?
- What are the immediate barriers to achieving better outcomes for low-income children?
- What are the most effective investments philanthropy can make to create meaningful impact for individual children and to achieve step-change improvements in the quality of the systems that surround them in their earliest years?

We embarked on this effort fully aware that private capital alone cannot achieve the outcomes we seek for our nation’s youngest children. The need is too great for private philanthropy alone to meet. Much of the most effective work will be collaborative work that engages public and private stakeholders across a city, a state, or the nation. At the same time, philanthropic and business-led investments can play a critical role in demonstrating what works and encouraging government at all levels to make smarter and more cost-effective investments in early childhood.

Most fundamentally, our 18 months of work have highlighted *numerous* high-impact opportunities for investors to pursue *today* that can meaningfully increase kindergarten readiness beginning at birth. The “concept” has 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.

This paper, prepared in partnership with The Bridgespan Group, summarizes what we have learned. We are sharing it broadly in hopes that it helps our colleagues in the donor community—particularly those new to the early childhood field—identify specific investments that they can make to ensure that young children reach their K-12 years ready to learn and thrive. While we do not expect or intend for this paper to change the priorities of funders who have worked tirelessly in this sector for years, we do hope the data and research presented here can help to inform our collective understanding of the issues facing our youngest children.

Our work has drawn on and builds upon the work of others to inform investments in early childhood, including: the White House; the Brookings Center on Children and Families (including key research on school readiness by Julia Isaacs and Katherine Magnuson); Child Trends; the Center for the Economics of Human Development at the University of Chicago; the Annie E. Casey Foundation and its KIDS COUNT project; the W.K. Kellogg Foundation; NIEER; the National Center for Children in Poverty; the New America Foundation; RAND; the Center for the Study of Social Policy; and the Center for High Impact Philanthropy at the University of Pennsylvania. This paper is neither an investment blueprint nor an exhaustive catalogue of public policy recommendations, but rather a menu of especially promising options for philanthropic investment to help prepare all of our nation's children for kindergarten. It is also very much a work in progress—there is so much more to learn about the most effective ways to influence early childhood outcomes, whether our focus is a single community, a state or region, or the nation as a whole.

We are at an exciting moment in time: while underinvestment persists, public and private momentum to invest is building. We hope that this report, in tandem with the continuing efforts of so many across the country, will contribute to conversation, spark new ideas and research, and convert the growing enthusiasm into actual investments that will significantly improve outcomes for very young children, ultimately strengthening the social and economic fabric of our nation.

J.B. and M.K. Pritzker

Highlighted Support for Early Childhood Investments

“Quality early childhood programs for disadvantaged children are not entitlements or bottomless wells of social spending. They are not government boondoggles. The early childhood investments we make today in disadvantaged young children promote social mobility, create opportunity, and foster a vibrant, healthy and inclusive society and economy.”

JAMES J. HECKMAN, NOBEL LAUREATE IN ECONOMICS, HENRY SCHULTZ DISTINGUISHED SERVICE PROFESSOR OF ECONOMICS, UNIVERSITY OF CHICAGO

“Early childhood education is critical to a child’s success in school and throughout life. Alabama’s Voluntary Pre-K Program has been voted best in quality in the nation. We have prioritized funding for pre-K in Alabama and continue to expand access for all Alabama children whose parents want them to attend. Pre-K funding is an important investment that will benefit generations of children in the future.”

GOV. ROBERT BENTLEY (R), ALABAMA

“This paper is an important catalyst for philanthropy in the early childhood field, offering a road map of areas for effective investments.”

DIANA MENDLEY RAUNER, PH.D., PRESIDENT, OUNCE OF PREVENTION FUND (DEVELOPS INNOVATIVE PROGRAMS TO INCREASE HIGH-QUALITY EARLY CHILDHOOD EXPERIENCES) AND FIRST LADY OF ILLINOIS

“This well-researched guide shines a spotlight on the incredible importance of early childhood development and kindergarten readiness, the bright spots of effective efforts across the country, and a road map to high-impact opportunities that are ready for investment today. We need to pull together—across philanthropy, private and public sectors—to build on the momentum that exists to ensure that all of our country’s children have the basic building blocks for a strong start in life.”

CAROL LARSON, PRESIDENT AND CEO, THE DAVID AND LUCILE PACKARD FOUNDATION

“If indeed we are a nation at risk with our growing achievement and opportunity gap, this paper serves to raise awareness and inspire the commitment of public and private dollars where they can make the greatest difference—in our children’s early years. Now we can only hope our leaders will read and respond.”

MARGUERITE KONDRACKE, FORMER PRESIDENT AND CEO, AMERICA’S PROMISE ALLIANCE, CO-FOUNDER, BRIGHT HORIZONS FAMILY SOLUTIONS

“In recent years, extraordinary talent and resources have been allocated to improving America’s K-12 educational system, but this study suggests that those efforts need to start much earlier to be successful. Giving all children equal opportunity, irrespective of the economic circumstances of their birth, is a profound moral obligation and the fundamental promise of America. This analysis provides useful guidance to government and philanthropy of the most effective interventions to help fulfill that promise.”

GEORGE KAISER, PRESIDENT AND CEO, GBK CORPORATION, DONOR TO GEORGE KAISER FAMILY FOUNDATION

Please see [page 47](#) for additional commentary.

Summary of Philanthropic Opportunities

We need to invest more money in early childhood, and we need to invest that money wisely. Thanks to decades of work by researchers, program developers and providers, foundations, and pioneering leaders, philanthropic investors today have many promising options. We can invest to expand approaches that have been proven effective (while recognizing the importance of continuous improvement) and also support ongoing research and innovation in targeted areas. The following list constitutes neither an investment blueprint nor an exhaustive catalogue of public policy recommendations, but rather a menu of high-impact options.

Strengthen public systems of early care and education at state and local levels to ensure continuous quality improvements.

Opportunity 1: Provide technical assistance for states to accelerate quality-improvement efforts.

Opportunity 2: Fund training for providers pursuing quality improvements.

Scale health and developmental screenings to connect parents and families with resources to optimize their children's holistic development.

Opportunity 3: Develop and propagate comprehensive screening and referral systems at the community level.

Opportunity 4: Support pediatric practices to integrate screenings and referrals into well-child visits.

Opportunity 5: Disseminate promising screening and assessment questionnaires and tools.

Improve the training, continuing education, professional development, and compensation of early childhood educators.

Opportunity 6: Increase the availability of on-the-job coaching and development for early childhood educators.

Opportunity 7: Fund research and technical assistance to promote fair compensation of early childhood educators.

Support greater access to high-quality evidence-based programs that help parents and families to foster their children's development.

Opportunity 8: Build the capacity of organizations implementing evidence-based programs to serve more children and families.

Opportunity 9: Invest in innovative public-private financing mechanisms for evidence-based programs.

Opportunity 10: Expand evidence-based programs for parents by advocating for increased state, local, and federal funding.

Opportunity 11: Simplify and disseminate information to assist parents in choosing high-quality care and education opportunities for their children.

Promote and share ongoing program innovation and improvement, especially for those programs supporting parents and informal caregivers.

Opportunity 12: Promote quality-improvement efforts for family, friend, and neighbor care.

Opportunity 13: Foster innovation to achieve repeatable results.

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.

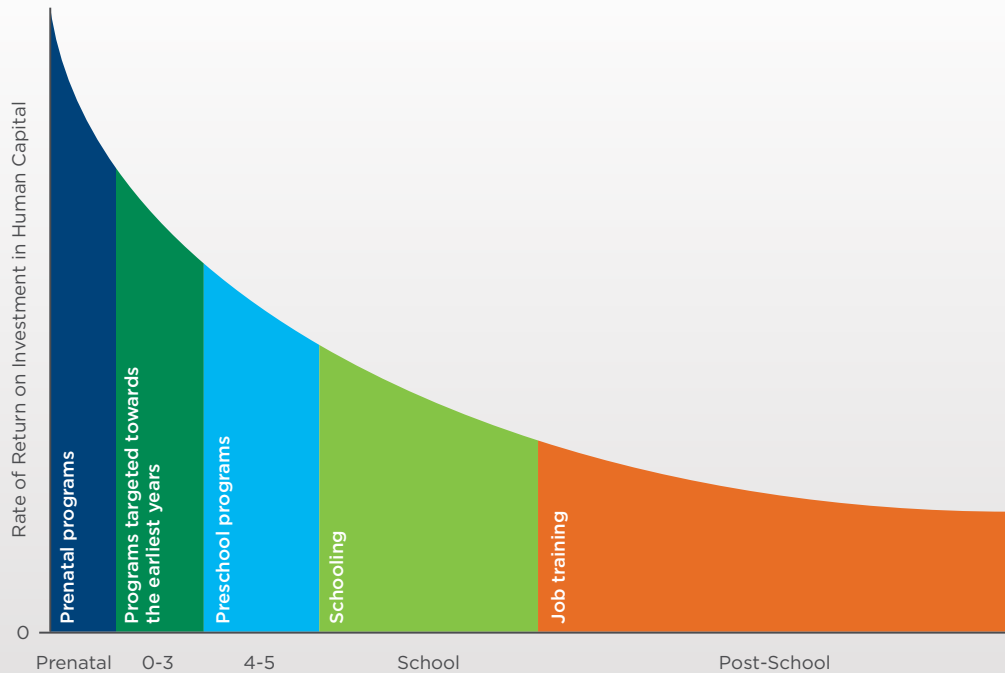
Early childhood sets the course for what will happen in the first years of formal K-12 education and well beyond. When a young child enters kindergarten ready for school, there is an 82 percent chance that child will master basic skills by age 11, compared with a 45 percent chance for children who are 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.

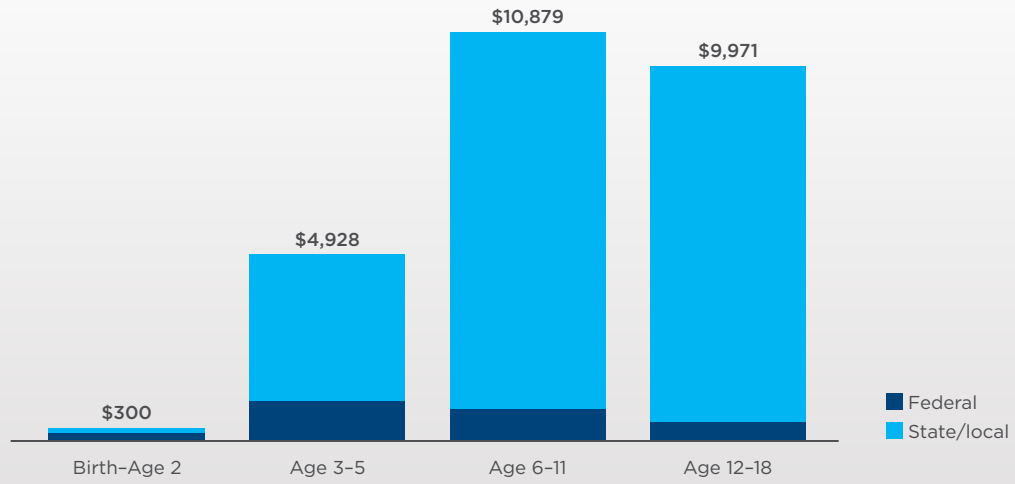
We are not investing enough in early childhood.

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.

Part II: What outcomes matter most for very young children?

Understanding a child's early development.

There is increasing consensus about the critical areas of development and the outcomes that matter most in the early years. Healthy development is commonly understood to include five dimensions:²⁰ (1) physical well-being and motor development; (2) social and emotional development (positive social behaviors when interacting with peers);²¹ (3) cognitive skills (including numbers, patterns, and shapes); (4) language and emergent literacy; and (5) approaches to learning (the ability to concentrate and follow directions). These domains are, of course, interconnected: for example, children's ability to regulate emotions, thoughts, and behaviors can help them manage stress and control their impulses so that they learn more easily in school.²²

These five domains simultaneously define healthy development of infants and toddlers and also comprise the key elements of "kindergarten readiness." Said another way, preparing a child for kindergarten—and, in turn, for success later in life—requires focusing on five areas of development that begin at birth. We have come to use kindergarten readiness as the single whole-child outcome towards which we direct our investments and attention. It is important to note that kindergarten readiness is not a simple yes/no switch. Rather, children may be more developed in some domains than in others. And their level of development can and does change over time, especially with the right kind of support.²³

Kindergarten readiness could be a unifying goal for the early childhood field.

Today, multiple adults—parents, grandparents, physicians, child-care providers, and teachers—work to ensure that a young child has the supports he or she needs for healthy development. And multiple systems (health care, social services, education, child care) touch children and their families, and could potentially deliver those needed supports. However, without a shared focus on the same outcomes and developmental milestones, the efforts of these individuals and systems will remain disconnected and limited in effectiveness. We believe that kindergarten readiness

20 *Getting Ready: Findings from the National School Readiness Indicators Initiative* (Rhode Island KIDS COUNT, February 2005), 13.

21 The social and emotional development component of kindergarten readiness is a similar to but separate concept from social and emotional learning, which is defined by the Collaborative for Academic, Social, and Emotional Learning as "the process through which children and adults acquire the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions."

22 Collaborative for Academic, Social, and Emotional Learning, 2014.

23 Susan H. Landry, *Effective Early Childhood Programs: Turning Knowledge into Action*, Houston, TX: University of Texas Health Science Center (2005).

could be the unifying goal toward which all those who work to promote whole-child development of young children could align their efforts.

The Maryland Model for School Readiness is a case study in the power of unified focus on a set of common outcomes. While limited to pre-K and kindergarten, Maryland's universal assessment approach, the Work Sampling System, allows teachers to track children's knowledge and skills in seven areas of development at school entry and exit, as well as over the course of the year. This approach enables teachers to target resources to children in a way that could help them the most.²⁴ Maryland's experience demonstrates that implementing a unified and universal approach to assessing child outcomes is not without its challenges. For example, teachers were unable to assess children's progress and target resources earlier than school entry, and many expressed caution about using the results to evaluate children, rather than for the intended purpose of measuring progress.²⁵ However, this example illustrates the potential benefits of a shared focus on outcomes. In the 2013–2014 school year, 83 percent of the state's children entered kindergarten ready to learn, up from 49 percent in 2001.²⁶

To what extent are children from low-income families reaching positive outcomes today?

As discussed above, there are limited data measuring how children are doing nationwide against developmental milestones. However, an analysis conducted by Julia Isaacs and Katherine Magnuson on a nationally representative, longitudinal data set collected by the National Center for Education Statistics (the Early Childhood Longitudinal Study–Birth Cohort, or ECLS-B) provides the basis for us to make some informed estimates.²⁷ The ECLS-B data set and the methods we used to analyze it have important limitations.²⁸ Because it is an observational data set, it cannot be used to establish causality between any childhood characteristics (e.g., demographic status, place of care, etc.) and outcomes. However, ECLS-B is the most comprehensive data set that allows us to understand the nature and magnitude of children's developmental needs. This data therefore is a useful complement to the observations and experience of practitioners and experts.

24 National Conference of State Legislatures, "A Look at Maryland's Early Childhood Data System," Washington, DC, 2010.

25 Catherine Gewertz, "Kindergarten-Readiness Tests Gain Ground," *Education Week*, October 7, 2014.

26 Maryland State Department of Education, "Children Entering School Ready to Learn," http://www.marylandpublicschools.org/MSDE/divisions/child_care/early_learning/docs/2014MMSRTechnicalReport.pdf.

27 Responsibility for this analysis lies solely with The Bridgespan Group and the Foundation, and any conclusions drawn or errors made are entirely our own.

28 While it is the most recent study that tracks children from birth to kindergarten, ECLS-B tracks children born in 2001 who entered kindergarten in 2006 or 2007. See [Appendix C](#) for methods used to calibrate this data to reflect the 2012 population profile using the American Community Survey. Further limitations are discussed in [Appendix C](#).

The ECLS-B data provides a picture of how a representative sample of American children performed in five areas relative to their peers. These areas roughly align with the kindergarten-readiness domains: math (cognitive skills), reading (language development), learning behaviors (approaches to learning), externalizing behaviors (social and emotional development), and health (physical well-being). ECLS-B measures age-appropriate development indicators in each of these five areas at ages nine months, two years, and four years, and at kindergarten entry.

Like most other national school-readiness assessments, the measure of school readiness we developed from ECLS-B does not measure children’s performance against an absolute standard.²⁹ However, it does help us make a directional estimate that a significant number of children may not reach positive outcomes. We estimate that about half of the approximately 12 million low-income³⁰ children from birth to age five—5.8 million in all—are at risk of not being fully ready for kindergarten when they enter.³¹ While there are children at all income levels who are also not ready, our analyses—and the opportunities in this paper—focus on low-income children.

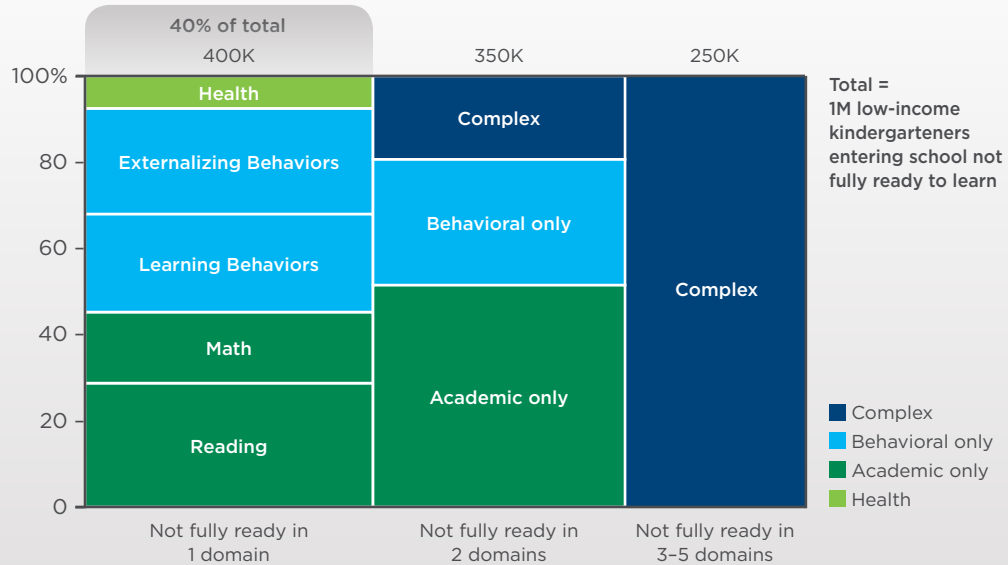
ECLS-B also tells us that children have a wide variety of needs and no one profile of need dominates. Some children are at risk of not keeping pace in cognitive and language domains, while others may not be developing positive social and emotional behaviors. As Figure 3 on the next page shows, a significant number of low-income children will likely struggle primarily in a single domain (e.g., learning behaviors). Almost the same number of children will likely need support in two related domains (e.g., both behavioral domains). And roughly a third of children will need support with both academic and behavioral development—labeled as “complex” gaps in Figure 3.

29 See [Appendix C, Figure A-3](#) for comparison of ECLS-B to other national school-readiness assessments.

30 Throughout this paper, “low-income” refers to children living under 200 percent of the federal poverty line.

31 “Ready for kindergarten” is measured relative to peer performance and is not an absolute measure. The number of low-income children in 2012 is based on the American Community Survey (2012). According to ECLS-B data, The Bridgespan Group has estimated that close to half (49 percent) of low-income children are at risk of not being fully ready for kindergarten when they enter.

Figure 3: Low-income kindergarteners entering school not fully ready to learn, by domain of need³²



Source: Analysis of ECLS-B (2006-7), American Community Survey (2012).

Why does it matter that there are diverse needs among this very large group of low-income children at risk for not being fully ready for kindergarten? We see four important implications. First, these data underscore the importance of equipping parents and caregivers with information about each child’s specific developmental strengths and needs. Second, this diversity suggests that some of the most effective interventions may be those that identify and address specific needs and assets, rather than a one-size-fits-all approach.³³ Third, it illustrates that preparing all children for kindergarten will require developing and scaling solutions for each profile of need and ensuring that the right mix of solutions is available in every community. Finally, it reinforces the need for tools especially suited for infants and toddlers, population-level screenings of children at multiple points prior to kindergarten entry, and data management systems that enable communities to assess and act on data about child outcomes and needs in real time.

Our research on “how we are doing” also surfaced the importance of understanding—and ultimately addressing—a child’s needs in the context of family

³² This chart is based on The Bridgespan Group’s estimate of the percent of low-income children not ready for kindergarten in ECLS-B (2006-7), following methods used in Julia B. Isaacs and Katherine Magnuson, *Income and Education as Predictors of Children’s School Readiness*, Washington, DC: Center on Children and Families at the Brookings Institution (December 14, 2011). The number of low-income children in 2012 is based on Bridgespan’s estimates from the American Community Survey (2012).

³³ National Association for the Education of Young Children, “Principles of child development and learning that inform developmentally appropriate practice,” July 1996, <https://oldweb.naeyc.org/about/positions/dap3.asp>.

circumstances. For example, experts and data surfaced the particular needs of Dual Language Learners (DLLs).³⁴ These children often struggle with language and then are misdiagnosed as having learning disabilities.³⁵ The ECLS-B data add to this picture, suggesting that Hispanic children who are DLLs (or live in families where English is rarely spoken) are particularly likely to need primarily academic support.³⁶ Hispanic parents are less likely to enroll their children in public pre-K, instead making use of informal care arrangements.³⁷ Yet, when provided with high-quality early care and education, Hispanic children make significant gains and often surpass peers from other backgrounds.³⁸ For example, Hispanic children who experienced high-quality early education in Oklahoma’s universal pre-K program increased their test scores by 54 percent.³⁹ These children and others, including immigrants from non-Hispanic countries, African Americans, and Native Americans, might benefit from culturally and linguistically tailored interventions.

Another group of children and families with unique circumstances are those facing multiple stressors, such as exposure to violence or maternal depression. Research has demonstrated that the negative effects of maternal depression on children’s health and development can start before birth⁴⁰ and can impair the early parent-child relationship that forms the foundation of a high-quality early learning environment.⁴¹ Research has also shown that long-lasting stress, which results from physical and emotional assault and exposure to violence, can disrupt healthy brain development and increase the risk of disease and cognitive impairment into the adult years.⁴² The evidence of violence against children

34 “Dual Language Learner” is used in this context to refer to students who are learning English as they continue to develop proficiency in their home language and who are generally eight years old or younger. Separately, “English Language Learner” refers to older students who have developed proficiency in another language and are learning English in school. Source: Conor P. Williams, *Better Policies for Dual Language Learners*, Washington, DC, New America Foundation (February 2015).

35 *Dual Language Learning: What Does It Take? Head Start Dual Language Report*, Washington, DC, Office of Head Start, Administration of Children and Families, US Department of Health and Human Services (February 2008), 22.

36 Please see [Appendix C, Figure A-1](#) for domains of need for Hispanic children.

37 Sean Chalk and Holly Yettick, “Hispanic Preschool Participation Varies by State,” *Education Week*, January 15, 2015.

38 Luis M. Laosa and Pat Ainsworth, *Is Public Pre-K Preparing Hispanic Children to Succeed in School?* New Brunswick, New Jersey, National Institute for Early Education Research (March 2007), 6-7.

39 William Gormley, Jr., Ted Gayer, Deborah Phillips, and Brittany Dawson, *The Effects of Oklahoma’s Universal Pre-K Program on School Readiness*, Washington, DC, Center for Research on Children in the US, Georgetown University (2004), 4.

40 L. Bonari, N. Pinto, E. Ahn, A. Einarson, M. Steiner, and G. Koren, “Perinatal Risks of Untreated Depression During Pregnancy,” *Canadian Journal of Psychiatry*, vol. 49 no. 11 (November 2004), 726-35.

41 Through ECLS-B and consistent with previous studies, Isaacs (2012) found that low-income mothers had a depression rate nearly twice that of more affluent mothers. Her analysis showed that depression has a significant impact on child development, as the likelihood of being school ready is 10 percentage points lower for children whose mothers score low in supportiveness during parent-child interactions.

42 Center on the Developing Child at Harvard University, “Key Concepts: Toxic Stress,” http://developingchild.harvard.edu/key_concepts/toxic_stress_response/.

is sobering: a recent national survey of 4,500 children indicated that close to 10 percent of two- to five-year-olds were victims of maltreatment by a caregiver in the last year, and 15 percent have been indirect witnesses to violence.⁴³ Recent national statistics show that 75.7 percent of children who died as a result of abuse were younger than four years old.⁴⁴ Children can also be profoundly affected by witnessing violence against others: exposure to violence, particularly within the family, can alter a child's sense of trust and inhibit his or her autonomy and curiosity as he or she grows older.⁴⁵ This paper is focused primarily on opportunities that can improve outcomes for at-risk children, regardless of these risk factors. However, to ensure that children from the highest-risk families realize the full benefit of these programs, these solutions may also need to be coupled with targeted interventions addressing maternal depression, domestic violence, homelessness, and transience, the environmental factors that can so strongly influence children's development.

43 David Finkelhor, Heather A. Turner, Anne Shattuck, and Sherry Hamby, "Violence, Crime, and Abuse Exposure in a National Sample of Children and Youth," *JAMA Pediatrics* vol. 167, no. 7 (July 2013), 614-21, Tables 3 and 5.

44 Ann T. Chu and Alicia F. Lieberman, "Clinical Implications of Traumatic Stress from Birth to Age Five," *Annual Review of Clinical Psychology*, vol. 6 (2010), 469-94.

45 Joy D. Osofsky, "The Impact of Violence on Children," *The Future of Children*, vol. 9, no. 3 (Winter 1999).

Part III: What are the immediate barriers to achieving better outcomes for low-income children?

Achieving positive child development outcomes requires improving the quality of children’s interactions with adults across the settings where they spend time from birth to age five. Our research shows that responsive, sensitive, and warm interactions between infants, toddlers, and preschoolers and the adults in their lives are among the most important preparations for kindergarten.⁴⁶

Experts widely agree that parents are the most influential adults in young children’s lives, and their earliest teachers. Parenting explains 40 percent of the income-related cognitive differences between children at age four.⁴⁷ Research by Hart and Risley (2003) found high disparities between the number of words children hear by age three in high-income families versus those in low-income families (since labeled the “30 Million Word Gap”). This disparity, in turn, has a large effect on the size of children’s vocabulary at age three, which influences school performance.⁴⁸ At the most basic level, overall well-being, including education and employment, also influence a parent’s ability to support his or her child’s development.⁴⁹ In sum, many parents—and especially those living in poverty—could benefit from extra support to ensure their children are achieving desired developmental milestones. Unfortunately, effective voluntary parenting programs are not reaching all those who need them.

The strongest parenting programs—including 16 federally approved home visitation programs⁵⁰—can help parents form a secure attachment with their children and foster linguistic, cognitive, and social and emotional development. But despite \$1.5 billion in federal funding over five years, these evidence-based home visitation programs reached only 115,000 children in 2014,⁵¹ an estimated 2.5 percent of

46 These interactions improve children’s social-emotional functioning and social competence skills. By kindergarten, these skills have been shown to be significantly associated with positive young adult outcomes across education, employment, criminal activity, substance use, and mental health. Source: Damon E. Jones, PhD, Mark Greenberg, PhD, and Max Crowley, PhD, “Early Social-Emotional Functioning and Public Health: The Relationship Between Kindergarten Social Competence and Future Wellness,” *American Journal of Public Health*, published online ahead of print July 16, 2015: e1-e8.

47 Richard V. Reeves and Kimberly Howard, *The Parenting Gap*, Washington, DC, Center on Children and Families at the Brookings Institution (September 8, 2013), 3.

48 Betty Hart and Todd R. Risley, “The Early Catastrophe: The 30 Million Word Gap by Age 3,” *American Educator* (Spring 2003), 8.

49 The Annie E. Casey Foundation, *Creating Opportunity for Families: A Two-Generation Approach*, 2014.

50 List available at Health Resources and Services Administration Maternal and Child Health, “Home Visiting Models,” <http://mchb.hrsa.gov/programs/homevisiting/models.html>.

51 US Department of Health and Human Services Press Office, “HHS awards \$386 million to support families through the home visiting program,” February 19, 2015.

the need.⁵² Early Head Start can reach parents through home-visiting or center-based models, or a combination of both. Early Head Start, however, was reaching only 4 percent of eligible infants and toddlers as of 2012.⁵³ Despite the variety of programs that have shown evidence of effectiveness, many are subscale and limited in geographic reach. As a result, many communities lack a full range of diverse and effective parenting programs and other supports for mental health, maternal depression, and domestic violence. Nor do many communities have a consistent way to match families to the supports that could help them most.

In addition to the critical time spent with parents in their earliest years, young children also spend time in the care of other adults. These adults are found in center-based care and education (e.g., private child-care centers, nurseries and preschools, state pre-K, Head Start centers), licensed family-based child-care centers, or informal family, friend, and neighbor (FFN) care provided in a home-based setting by a caregiver other than a child's parent. Care arrangements are dynamic, and young children move among these four settings. Generally speaking, most infants and toddlers spend the majority of their time with parents. As they get older, more children spend the majority of their time in a center-based setting, as illustrated on the following page in Figure 4 for the ECLS-B cohort that was in kindergarten when surveyed.⁵⁴ ECLS-B does not differentiate family or group child-care homes that care for groups of children in a home-based setting. Though this setting is different from FFN and center-based care in important ways described below, children in this setting may be included in either FFN care or center-based care in the ECLS-B analysis.

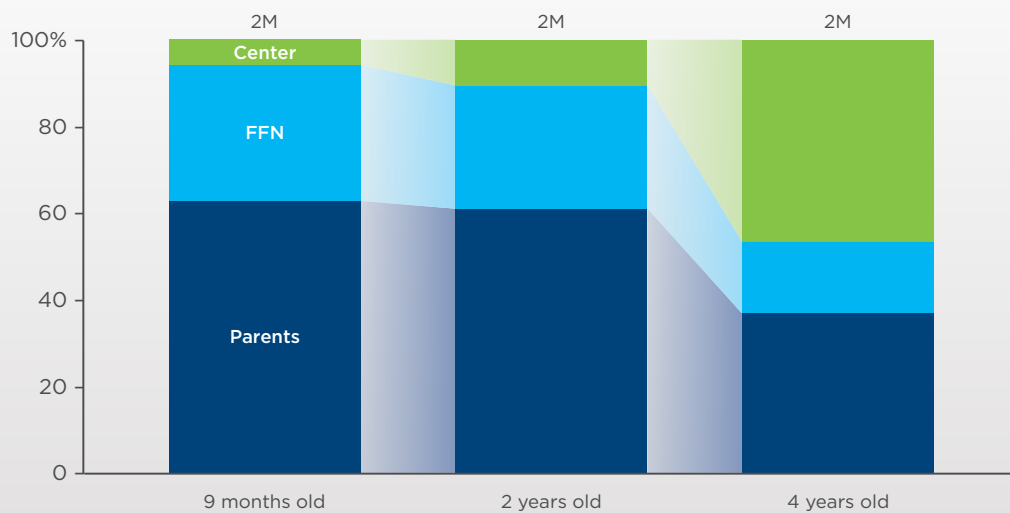
52 This proportion is based on Pew Center on the States's estimate of 4.5 million low-income infants and toddlers, in *States and the New Federal Home Visiting Initiative: An Assessment from the Starting Line*, Washington, DC: Pew Charitable Trusts (August 2011), 23.

53 Stephanie Schmit and Danielle Ewen, *Supporting Our Youngest Children: Early Head Start Programs in 2010*, Washington, DC: Center for Law and Social Policy (March 2012), 11.

54 Children often spend time in multiple settings. For the purposes of this figure, children in the "parents" setting spend less than 10 hours a week in either FFN or center-based care. Children in FFN and center-based care spend more time in those settings than in any other setting. Please see [Appendix C](#) for detailed definition of settings.

Figure 4: Estimated primary care setting for low-income kindergarteners, by age⁵⁵

% Low-income (<200% Federal Poverty Line) children in kindergarten, at three ages



Source: Analysis of ECLS-B (2006-7) and American Community Survey (2012).

Given the fluidity of where children spend their time before age five, it is important to invest in programs that help improve the quality of adult-child interactions across all settings. There is value in building formal systems that give parents high-quality child-care and education options for all ages. In addition, parents and FFN caregivers will continue to play a major role in individual children’s development and should also receive evidence-based voluntary supports. This is particularly true of children in immigrant families, who have lower rates of participation in nonparental care of any type, due in part to language barriers and cultural preferences for child care at home.⁵⁶

55 Based on analysis performed by Bridgespan on the ECLS-B (2006-7). Please see Appendix C for detailed definition of settings. While place of care is not measured nationwide by systematic methods, several surveys confirm these estimates. Halle et al. (2009) findings from the 2005 National Household Education Survey indicate that approximately 40 percent of nine-month-old infants are in some form of nonparental care at least once a week, and that FFN is the most common arrangement for those infants who are living below 150 percent of the federal poverty line. The National Institute of Child Health and Human Development (NICHD) (2006) uses the Study of Early Child Care and Youth Development (SECCYD) to show that approximately 50 percent of all six-month-olds (not just low-income) are in parental care, 42 percent in FFN (relative or other home-based care), and 9 percent in centers, and 23 percent of four-and-one-half year-olds are in parental care, 23 percent in FFN, and 54 percent in centers.

56 Lynn A. Karoly and Gabriella C. Gonzalez, *Early Care and Education for Children in Immigrant Families*, (Princeton, NJ: The Future of Children, Spring 2011), vol. 21, no. 1, 71-101.

Family, friend, and neighbor (FFN) care

We estimate that approximately 25 percent of low-income children under the age of five are spending a significant portion of their time in FFN care.⁵⁷ In the years before age three, more children are in FFN care than in center-based care. The millions of FFN providers, many of them grandparents and other family members, are often unpaid, unregulated, and difficult to involve in quality-improvement efforts. Many care for fewer than five children, which may mean they are not subject to licensing and state child-care requirements in some states. Furthermore, approximately half of unlisted⁵⁸ home-based providers (1.7 million) have no more than a high school education.⁵⁹ Given that many of these providers operate outside of the licensing and regulatory system, identifying and reaching this population is very challenging. However, many experts we interviewed agreed that, given the number of children in FFN care, even a small average improvement in the quality of FFN care would better prepare many young children for kindergarten.

Family or group child-care homes

Families seeking nonparental arrangements choose among a variety of options. Some children are in the care of an adult other than their parent in the caregiver's home. These settings vary greatly from one to the next, including a mix of: regulated/licensed child care and regulation-exempt care, paid and unpaid providers, and care by both relatives and nonrelatives delivered in a home-based setting. These family or group child-care homes vary by level of regulation and licensing status, depending on their state's cutoff for the number of children that can be cared for before that home-based setting must be licensed/regulated. While quality data on this setting is limited, there is a general belief that it varies dramatically across family child-care providers.⁶⁰

Center-based care and education

By age four, about half of low-income children are estimated to be spending a significant amount of their time in some form of center-based care or education.⁶¹

57 This number is estimated from Bridgespan's analysis of ECLS-B (2006-7), based on where low-income kindergarteners spent more than 10 hours per week under the age of five. Please see [Appendix C](#) for detailed definition of settings.

58 "Unlisted" caregivers are those who have not taken steps to secure licensing, apply for exempt status, or participate in Head Start.

59 National Survey of Early Care and Education Project Team, *Number and Characteristics of Early Care and Education (ECE) Teachers and Caregivers: Initial Findings from the National Survey of Early Care and Education (NSECE)*, OPRE Report #2013-38, (Washington, DC: Office of Planning, Research and Evaluation, Administration of Children and Families, US Department of Health and Human Services, October 2013), 16.

60 Bruce Fuller, Sharon Lynn Kagan, Susanna Loeb, and Yueh-Wen Chang, "Child Care Quality: Centers and Home Settings that Serve Poor Families," *Early Childhood Research Quarterly*, vol. 19 (2004), 505-527.

61 This number is estimated from Bridgespan's analysis of ECLS-B (2006-7), based on where low-income kindergarteners spent more than 10 hours per week under the age of five. Please see [Appendix C](#) for detailed definitions of settings.

These centers include state-regulated child care, Head Start, state-funded pre-K, and other centers that may not be regulated by the federal government. Quality varies widely across each of these centers. Barriers to higher quality include: the lack of incentives and resources for improving quality; the challenges to hiring, training, and developing quality staff; and some of the lowest levels of compensation in the US economy.

Experts define “quality” care and education as including a set of conditions and practices that include: sufficient teacher qualifications, appropriate child-teacher ratios and overall number of children in a group, quality materials and/or curriculum, teacher attention to fostering development and learning, and supportive and nurturing teacher-child interactions.⁶² Research has also demonstrated the positive impact of quality child care and illustrated wide variation in quality across centers.⁶³ In addition, research suggests that many center-based programs, including child care, Head Start, and pre-K, are falling short of their potential to help get children ready for kindergarten. Simply finding recent national surveys that measure the quality of child care is a challenge. However, one national longitudinal study from the early 2000s showed that only 26 percent of the child-care centers observed met guidelines for child/staff ratios (at age two), and only 39 percent of children in observed child-care settings received “a fair amount” of positive caregiving (the rest were worse).⁶⁴ With well over one million children in 18,000 centers across the nation,⁶⁵ Head Start is by far the largest early education program. However, despite an average annual federal investment of \$8,000 per child,⁶⁶ studies indicate that the Head Start network’s quality and impact are not consistent across sites, and that there is potential to improve outcomes.⁶⁷ There are also publicly funded pre-K programs in many states, but their quality is also mixed and access is often limited. In the 2013-2014 school year, only 29 percent of four-year-olds were enrolled in a state-funded pre-K program, and only five states met all benchmarks for teacher quality, class size, and teacher/student ratios.⁶⁸

The experts we interviewed suggested that one barrier to increasing the quality of these centers is that there are few incentives or resources available to improve

62 National Institute of Child Health and Human Development, *The NICHD Study of Early Child Care and Youth Development: Findings for Children up to Age 4 ½ Years*, NIH Pub. No. 05-4318, Washington, DC: US Department of Health and Human Services National Institutes of Health (January 2006), 8-10.

63 *Ibid.*, 12.

64 *Ibid.*, 9, 11.

65 Administration for Children and Families, “FY 2014 Head Start Program Fact Sheet,” 2014, <http://eclkc.ohs.acf.hhs.gov/hslc/data/factsheets/2014-hs-program-factsheet.html>.

66 US Department of Health and Human Services, Administration for Children and Families, “Head Start Program Facts Fiscal Year 2013,” obtained by dividing total federal funding of \$7.28 billion by total enrollment of 903,000.

67 Sara Mead, *Renewing Head Start’s Promise: Invest in What Works for Disadvantaged Preschoolers*, Bellwether Education Partners (July 2014), iv.

68 W. Steven Barnett, Megan E. Carolan, James H. Squires, Kirsty Clarke Brown, and Michelle Horowitz, *The State of Preschool 2014: State Preschool Yearbook*. New Brunswick, NJ: National Institute for Early Education Research (2015).

the conditions and practices that result in positive child outcomes. In most states, child-care centers become eligible for funding from the Child Care and Development Block Grants just by meeting health and safety standards—basic training in child development is not required in many cases.⁶⁹ Clearly, high standards for health and safety are essential, but they are not sufficient on their own to promote child development. In many states, child-care centers are subject to even less regulation than beauty salons and tattoo parlors.⁷⁰ Research has suggested that centers should be held accountable for maintaining conditions for learning and upholding quality professional practices that are tied to quality child outcomes.⁷¹

To increase accountability for quality, many states have implemented Quality Rating and Improvement Systems (QRIS). However, our interviews revealed that these systems are not yet reaching their potential. QRIS today are typically voluntary (which results in low participation) and do not yet consistently evaluate the presence (or absence) of quality conditions and practices. Moreover, states are evaluating and assessing programs without consistently investing in resources to help them improve, and funding is not linked to quality standards (so there are few incentives to participate). In a similar vein, the federal Head Start funding stream does not consistently reward high performance. In the last few years, the lowest-performing Head Start providers have been required to re-compete for funding, which is an important step to increasing quality across the program.

Given the importance of positive adult-child interactions, experts agreed that another barrier to improving center quality is the difficulty of hiring and training qualified staff who can engage in stimulating and supportive interactions with children.⁷² Infants have been shown to have better expressive language skills when their caregivers are better educated,⁷³ and preschoolers' language comprehension skills are higher when their caregivers have at least an associate of arts degree in a child-related field.⁷⁴ However, the experts we interviewed agreed that a number of barriers—including lack of state regulation, low salaries, poor working conditions, and limited professional development opportunities—hinder the recruitment, training, and retention of a high-performing early childhood workforce.

69 *We Can Do Better: 2013 Update*, Arlington, Virginia: Child Care Aware of America (2013).

70 Maryam Adamu, "New Child Care Regulations Are a Step in the Right Direction," *Center for American Progress*, Sept. 17, 2014.

71 Elliot Regenstein and Rio Romero-Jurado, *A Framework for Rethinking State Education Accountability and Support from Birth Through High School*, Chicago, IL: The Ounce of Prevention Fund, June 3, 2014.

72 Hirokazu Yoshikawa et al., *Investing in Our Future: The Evidence Base on Preschool Education*, New York, NY: Foundation for Child Development (October 2013).

73 Margaret R. Burchinal, Joanne E. Roberts, Laura A. Nabors, and Donna M. Bryant, "Quality of Center Child Care and Infant Cognitive and Language Development," *Child Development*, vol. 67, no. 2 (April 1996), 606-620.

74 Carollee Howes, "Children's Experiences in Center-Based Child Care as a Function of Teacher Background and Adult : Child Ratio," *Merrill-Palmer Quarterly*, vol. 43, no. 3 (July 1997), 404-425.

Finally, a third related barrier to quality center-based care is poor compensation for teachers. While research has consistently demonstrated the link between teacher compensation and program quality,⁷⁵ we aren't paying early childhood teachers nearly enough to attract the right people with the right educational qualifications. In 2013, child-care workers (who were not pre-K or Head Start teachers) were in the third earnings percentile of occupations in terms of mean annual salary (along with parking lot attendants). Pre-K teachers earn more but are still paid only 60 percent of a kindergarten teacher's salary.⁷⁶ Early childhood salaries are not commensurate with education: teachers with a bachelor's degree or higher earn, on average, only 55 percent the wages of their peers with the same education level in other professions.⁷⁷ These low salaries lead to high turnover rates—as high as 27 percent in for-profit centers.⁷⁸ Professional development efforts may therefore achieve limited impact if salaries in the early childhood teaching profession cannot attract and retain qualified workers.

Across settings, we lack sufficient capital to invest in both existing programs and innovation, and we lack data that can tell us where to invest.

Federal and state spending on children is largely directed at school-age children. The United States ranks 31st in a group of 32 developed nations in the percentage of public education dollars allocated to early childhood.⁷⁹ According to experts we interviewed, we also are underinvesting in innovation to address several early childhood challenges, including engaging FFN caregivers, reaching early childhood teachers with effective professional development, developing curricula that increase learning in center-based care, and developing lower-cost parenting and family engagement models that might be the easiest to scale.

Across the sector, data and measurement are limited and are not consistently aligned with the same outcomes, so it is hard to know what is working, what is not, and where to best direct resources. In our research, the most promising approach involved implementing developmental screenings from birth to age five across the five kindergarten-readiness domains, which some communities are doing using tools like the Ages and Stages Questionnaire®. However, population-wide screenings before kindergarten are difficult to implement, given that children are in different settings and can be challenging to reach. An alternative approach would be to assess child development at age four in pre-K, with such tools as the Early Development Instrument (the EDI), to create a neighborhood-level snapshot of child needs and inform where interventions could help children at

75 Leone Huntsman, *Determinants of Quality in Child Care: A Review of the Research Evidence*, New South Wales, Australia: Centre for Parenting and Research, NSW Department of Community Services, April 2008.

76 Ibid., 16-17.

77 Ibid., 21.

78 Ibid., 30.

79 Eduardo Porter, "Investments in Education May Be Misdirected," *The New York Times*, Economic Scene, April 2, 2013.

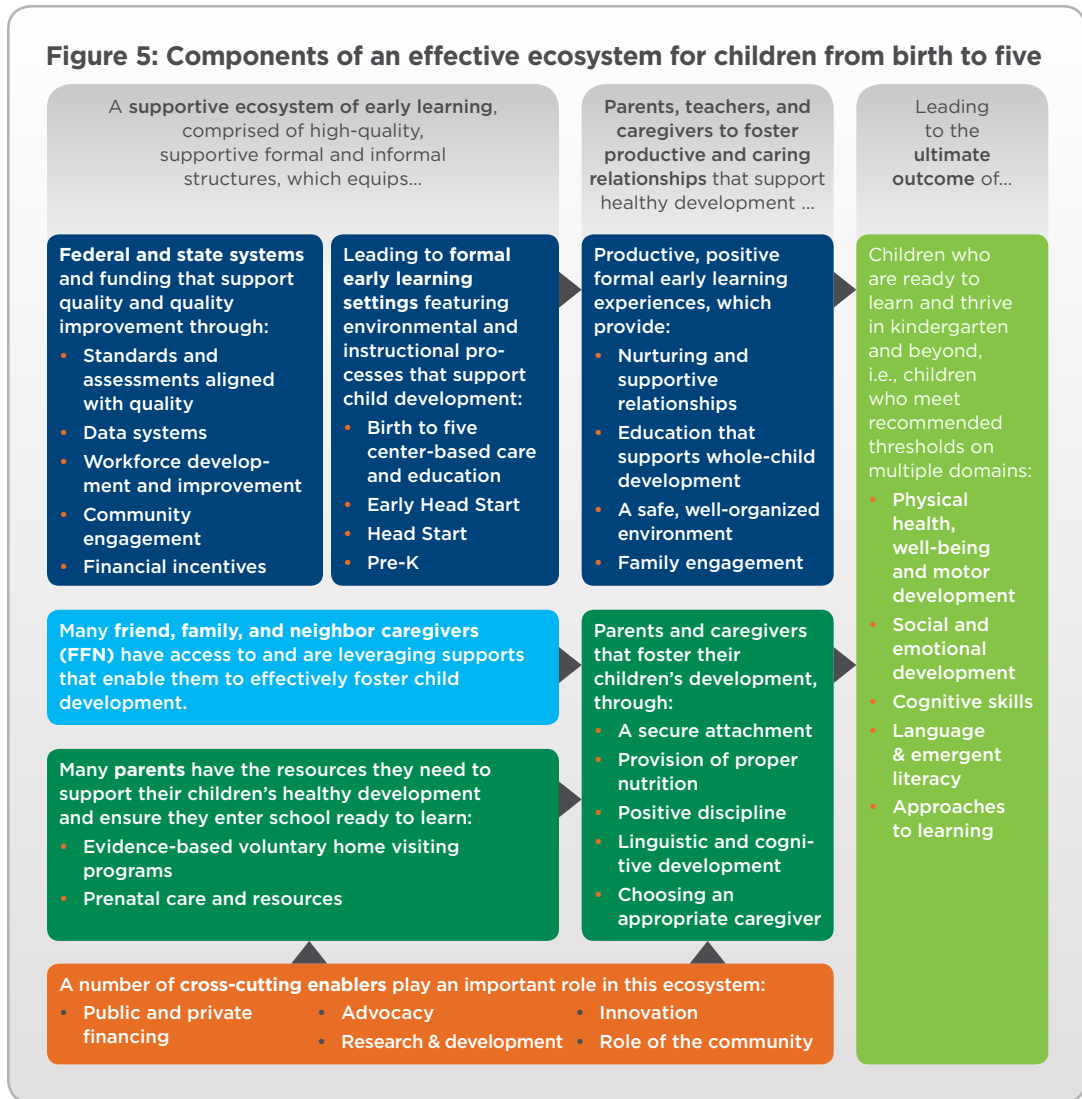
earlier ages. Some states, private funders (e.g., the Commonwealth Fund), and independent child-care providers (e.g., Head Start grantees) have undertaken initiatives to expand developmental screenings to more children.⁸⁰ However, we are not yet deploying these tools systematically to assess a child's development prior to entering the school system. While tools like the EDI are commonly used in other countries such as Australia and Canada, these metrics are not systematically assessed and collected across the United States for children before age five.

Assessment prior to kindergarten is critical, given that so much brain development occurs before age five. We must have data on individual children to help parents and caregivers intervene at the point in a child's life where these interventions can do the most good. In addition, population-level assessments can help communities decide when and how much to invest in child development. Those interviewed agreed that ideally tools like Kindergarten Entry Assessments would be consistent across the nation and measure all five domains of kindergarten readiness, and child development would be measured at regular intervals throughout children's early years.

To state the obvious, the early childhood field is a complex one. Figure 5 on the next page has helped us make sense of this field by illustrating the systems, organizations, and individuals operating at federal, state, and local levels that must join forces in order to promote healthy whole-child development, working towards a unifying goal of preparing children for kindergarten, school, and life. This unified picture has informed our choices about where to invest by illustrating the many potential areas of investment, how each might—and might not—contribute to the outcomes we seek, and where collaboration with other efforts will be needed.

⁸⁰ Christine Johnson-Staub, *First Steps for Early Success: State Strategies to Support Developmental Screening in Early Childhood Settings*, Washington, DC, CLASP (October 2014).

Figure 5: Components of an effective ecosystem for children from birth to five



Part IV: What are the most effective investments philanthropy can make?

In our search for investment opportunities, we asked: *Within a complex early childhood system in which many stakeholders play a role, and where a significant portion of funding will ultimately come from the public sector, where might philanthropic investments have the most impact? How can philanthropy catalyze efforts to tackle the barriers to kindergarten readiness?*

We went looking for opportunities that have the potential to improve kindergarten readiness for a significant number of at-risk children and offer a high return on investment. Given that our focus is primarily on philanthropy, the opportunities presented here are not a blueprint for public policy or funding, nor is this a comprehensive literature review. Instead, we have identified areas where there is a clear role for private investment in helping to improve the quality of largely public programs.

Our research surfaced 13 concrete opportunities within five broad categories.

In the discussion below, we describe each opportunity and name a number of specific organizations and initiatives that philanthropy could support. We do so not so much to suggest that these are the only organizations worthy of investment, but to offer concrete examples of how donors have invested for maximum impact to improve outcomes for America's young children. Some of these opportunities are earlier stage than others, but each offers a pathway for philanthropic investment.

Strengthen public systems of early care and education at state and local levels to ensure continuous quality improvements.

Often compared to market-based approaches like hotel star ratings, state Quality Rating and Improvement Systems (QRIS) summarize the quality of early child-care and education providers across categories such as child/staff ratios, teacher credentials, and teacher-child interactions.⁸¹ As of February 2015, nearly all states were planning or implementing some type of QRIS,⁸² but our research revealed three barriers to its intended impact on quality: participation is low, funding is not linked to QRIS ratings, and higher quality standards can actually be disincentives if the system doesn't give providers the financial resources they need to improve.

81 QRIS National Learning Network, "Glossary of Terms," 2013-15, <http://qrisnetwork.org/glossary>.

82 BUILD Initiative, "Quality Rating and Improvement Systems (QRIS)," <http://www.buildinitiative.org/TheIssues/EarlyLearning/QualityQRIS.aspx>.

Most experts we interviewed agreed that every state should have a QRIS that not only assesses child-care and education programs (including Head Start and publicly-funded pre-K), but that also provides clear financial incentives to improve quality, as well as a pathway and resources for moving from one level of quality to the next. Some states offer models worth emulating. For example, Pennsylvania’s QRIS, Keystone STARS, requires all state pre-K providers to achieve at least a two-star rating and ties reimbursement levels to higher ratings. As a result, Keystone STARS covered nearly 70 percent of centers, which serve 170,000 children across the state, as of March 2012.⁸³ Over the 2011-12 school year, the proportion of children in three- and four-star centers with age-appropriate skills increased from 33 percent to nearly 66 percent.⁸⁴

In states where a QRIS does not yet exist, such systems should be developed. In states where there is a “first generation” QRIS in place (particularly those that have received Race to the Top—Early Learning Challenge funding for QRIS), experts agreed that systems should be improved to measure learning outcomes, better disseminate ratings information to parents, and offer incentives for meeting quality standards. Philanthropic investment in state quality-improvement systems can help to drive efficiency, accountability, and transparency for parents in choosing quality child-care and education options for their children. There are two opportunities for philanthropy to support such state-level quality-improvement efforts.

Opportunity 1: Provide technical assistance for states to accelerate quality-improvement efforts.

One example of an intermediary providing technical assistance for statewide systems is the BUILD Initiative, created in 2002 by the Early Childhood Funders Collaborative.⁸⁵ BUILD provides support to reform statewide systems, strengthen local programs, and test new models, with a strong focus on QRIS. Other intermediaries might also be in a position to contribute to expanded and enhanced QRIS. For example, the Alliance for Early Childhood Finance helps states design QRIS that include incentives for provider participation.⁸⁶ The Administration for Children and Families recently produced a research brief to guide states in implementation of “next generation” QRIS models that may be of use to states in building their systems.⁸⁷ The organization also has created a

83 Pennsylvania Early Learning, “Children’s Progress Update: Keystone STAR 3 and 4 Programs, 2011-12,” 2012, https://www.pakeys.org/uploadedContent/Docs/Early%20Learning%20Programs/Keystone%20STARS/Keystone_STARS_progress_11-12.pdf.

84 Ibid.

85 BUILD Initiative, “BUILD’s Mission and History,” 2015, <http://www.buildinitiative.org/AboutUs/MissionHistory.aspx>.

86 Alliance for Early Childhood Finance, “Aligning Finance with Common Standards,” 2010, <http://www.earlychildhoodfinance.org/downloads/2010/Aligning%20Finance%20with%20Common%20Standards.pptx>.

87 Martha Zaslow and Kathryn Tout, *Reviewing and Clarifying Goals, Outcomes and Levels of Implementation: Toward the Next Generation of Quality Rating and Improvement Systems (QRIS)*, OPRE Research Brief #2014-75, Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, US Department of Health and Human Services (October 2014).

guide for helping states validate that their QRIS are measuring quality effectively and leading to meaningful quality improvements.⁸⁸

Philanthropists can also directly fund capacity within state agencies to implement plans for quality improvement, thereby catalyzing action and spurring collaboration. The Bill & Melinda Gates Foundation, through its direct support of Washington State's Department of Early Learning (DEL) and Thrive Washington, is doing just that. Thrive and DEL will manage Washington State's 10-year Early Learning Plan, which includes implementing QRIS and child-care licensing policies, in addition to many other strategies to expand access to quality programs.⁸⁹ In this case, the Gates' support also has enabled a formal partnership between DEL, Thrive, and the state departments of education and health to share accountability for the plan. Thrive Washington and DEL are long-term partners of the Gates Foundation in helping to create Washington's high-quality early learning system and forming public-private partnerships.

Opportunity 2: Fund training for providers pursuing quality improvements.

As mentioned, providers face challenges in getting the training, technical assistance, and funding they need to improve quality and achieve higher QRIS ratings. Funders can work with policy makers to provide and disseminate these resources. For example, in North Carolina, the W.K. Kellogg Foundation and others helped the state's Smart Start initiative to improve the quality of early care and education—including supporting child-care programs in achieving higher QRIS ratings. Over the years, Smart Start helped achieve outstanding results: in fiscal year 2012-13, 84 percent of children receiving subsidies for care and education attended four- and five-star centers (compared to only 30 percent in 2001).⁹⁰

Scale health and developmental screenings to connect parents and families with resources to optimize their children's holistic development.

As described above, many communities do not have the infrastructure or tools to universally and regularly screen children from birth to five years old across the five kindergarten-readiness domains. Further investment is needed to ensure that children are screened from birth to five and directly linked to appropriate high-quality services. Philanthropy can help catalyze this investment.

88 Kathryn Tout and Rebecca Starr, *Key Elements of a QRIS Validation Plan: Guidance and Planning Template*, OPRE 2013-11, Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, US Department of Health and Human Services.

89 Washington State Department of Early Learning, "Washington State Early Learning Plan: Executive Summary," September 2010.

90 Smart Start, "Why Smart Start Works: The North Carolina Partnership for Children and Local Smart Start Partnerships," January 2015, <http://ivdesignhouse.com/smartstart/wp-content/uploads/2015/01/Why-Smart-Start-Works-2013.pdf>.

Through our conversations with experts, we realized that an ideal coordinated local solution would provide universal screening and intake, invest in expanding the menu of parenting interventions, and help parents understand their choices and connect to the program that is right for them. It also would help communities understand how much of the need for quality programs is being met, and what additional investment is warranted.

A great example is the Healthy Beginnings program run by the Children's Services Council (CSC) of Palm Beach County,⁹¹ which screened close to 90 percent of newborns in 2012.⁹² It also screens children throughout the early years for developmental, social, and behavioral issues using tools like the Ages and Stages Questionnaire. Healthy Beginnings helps connect parents to one or more of a wide array of interventions through its strong network of organizational partners. Available interventions include Triple P, Incredible Years, Parent-Child Home Program, Nurse-Family Partnership, Centering Pregnancy, and Healthy Steps, as well as some promising local programs. Healthy Beginnings includes an integrated data system that tracks individual children as they move between providers in the Healthy Beginnings network. Between 2007 and 2012, Palm Beach County's rates for infant mortality, low-weight births, and prematurity improved, and are now better than Florida's as a whole.⁹³

Though there would be great benefit to using a consistent developmental screening (ideally based on the five kindergarten-readiness domains) across the country, there is no obvious role for philanthropy to help this happen at the national level. However, here are three promising opportunities for philanthropy to support expanded screening and referral tools at the community level. Two of these involve building the infrastructure for screening and referrals, and one involves further developing existing tools. These opportunities are particularly relevant in the states that have received Race to the Top—Early Learning Challenge funding and Enhanced Assessment Grants.⁹⁴

91 The Children's Services Council of Palm Beach County, a special district of government that is primarily supported with public funding through taxing authority, has developed a system of care for children and families with four goals: healthy births, keeping children free from child abuse and neglect, getting children ready to start school, and providing access to quality after-school programs. The system of care features three strategic components: individual child and family services through the *Healthy Beginnings* System; quality child-care and after-school programs through the *Strong Minds Network*; and targeted place-based programs in ten low-income communities through *Bridges*.

92 Interview with Lisa Williams Taylor, Children's Services Council of Palm Beach County, October 16, 2013.

93 *Healthy Babies 2014 Palm Beach County*, Boynton Beach, Florida, Children's Services Council of Palm Beach County (2014).

94 The Enhanced Assessment Grants program is a federal initiative focused more tightly on assessments than Race to the Top. It has awarded \$15 million to 17 states. Source: Catherine Gewertz, "Kindergarten-Readiness Tests Gain Ground," *Education Week*, October 7, 2014.

Opportunity 3: Develop and propagate comprehensive screening and referral systems at the community level.

Philanthropy can play a role in creating and supporting local agencies and staff needed to conduct universal screenings and referrals, ensuring access to an array of quality programs, data systems, screening tools, and more.

For example, philanthropy has provided key strategic support to the CSC of Palm Beach County (described on the previous page) in the early development of the critical components of its system of care. The Quantum Foundation partnered with CSC to provide local private-public funding to attract and match a Robert Wood Johnson Foundation (RWJF) grant, through RWJF's Local Initiative Funding Partners Program. This funding supported development of CSC's Maternal Child Health Network (which ultimately evolved into Healthy Beginnings). The Picower Foundation was also an important private strategic funding partner on a number of other initiatives at CSC, including funding the initial design, start-up, and early implementation of a quality child-care initiative that, ultimately, became a model for other communities in Florida.⁹⁵

The CSC is a special district of government that is primarily supported with public funding through taxing authority. When a referendum on CSC funding was recently up for a vote in Florida, it passed with 85 percent of the vote. Private funding (not philanthropy) supported a successful campaign to renew its funding authority.

In other communities across the nation, philanthropies and public agencies are working in long-term partnerships to provide access to high-quality birth-to-five programs and infrastructure for connecting families to those resources. Exemplars include Greater Cleveland (supported by the George Gund Foundation, the Cleveland Foundation, and others), Detroit (supported by the Kresge Foundation and the W.K. Kellogg Foundation), and Pittsburgh (supported by the Heinz Endowments). The Duke Endowment has worked for years in partnership with Durham County, NC, to fund Durham Connects, a universal newborn screening and referral system that has demonstrated a \$3 return on every \$1 invested in the program.⁹⁶

There are also technical assistance organizations that help states identify at-risk children and connect families to community-based programs. The Help Me Grow National Center is active in over 20 states performing that specific function and is funded in part by the Kellogg Foundation.⁹⁷ Local funders, such as the Health Foundation of Western and Central New York and the Community Foundation of Greater Birmingham, have funded Help Me Grow affiliates to spread developmental screenings in their communities.

95 Correspondence with Tana Ebbale and Michael Levine, March 5, 2015.

96 Durham Connects, "Results," 2015, <http://www.durhamconnects.org/results/>.

97 Help Me Grow National Center, "What is the *Help Me Grow* National Center?"

<http://www.helpmegrwnational.org/pages/hmg-national/what-is-hmg-national.php>.

Opportunity 4: Support pediatric practices to integrate screenings and referrals into well-child visits.

The great majority of low-income children from birth through age three see pediatricians and other health providers regularly.⁹⁸ Pediatric practices could be excellent places to engage the parents and caregivers of young children, identify parenting challenges, and help parents develop skills and strategies to overcome those challenges. In this setting, parents are attuned to the healthy development of their young children and may be most open to getting support. For these reasons, it seems that pairing early screening with integrated behavioral and mental health services, along with referrals to parenting supports, may be a powerful combination for promoting child development.

There are signs that pediatric practice is shifting towards such a holistic approach. Under the Affordable Care Act, insurance companies now must cover the cost of developmental screenings.⁹⁹ Other trends in healthcare payment structures may also be moving the system toward greater financial reward for such preventative measures. In concert with these changes, there is an opportunity for philanthropy to help further demonstrate the value of developmental screenings for very young children.

Philanthropists can act on this opportunity either by funding programs that work with pediatric providers, or by funding pediatric providers directly. For example, the Montefiore Children's Hospital in the Bronx screens infants and toddlers every six months for signs of stress and maladaptive social and emotional development, providing the Healthy Steps intervention to those who need it. The Altman Foundation provided funding for Healthy Steps Specialists¹⁰⁰ (psychologists, social workers, or nurses), who screen children to identify developmental or behavioral problems, coach parents, and provide referral services. Montefiore also has integrated Healthy Steps into its residency training program, helping the next generation of physicians understand the importance of child and family development as an essential element in good pediatric care.¹⁰¹ Philanthropy could support the expansion of Healthy Steps or similar programs (like Project DULCE in Boston, which pairs family specialists with access to legal services), either by funding programs directly or by supporting a provider like Montefiore in implementing the program.

98 David Murphey, Mae Cooper, and Nicole Forry, *The Youngest Americans: A Statistical Portrait of Infants and Toddlers in the United States*, Chicago, IL: The McCormick Foundation and Child Trends (2013), 100.

99 Help Me Grow Orange County, "Developmental Screening and Monitoring," http://www.helpmegrowoc.org/healthcare_screening.html.

100 Laurie Tarkan, "For Mother and Child at Risk, Care that Includes a Psychologist," *The New York Times* Health section, February 14, 2009.

101 Healthy Steps for Young Children, "Residency Training," <http://healthysteps.org/about/healthy-steps-sites/residency-training>.

Opportunity 5: Disseminate promising screening and assessment questionnaires and tools.

Several holistic development measures exist, but they are not in sufficiently wide use across the country. Philanthropy can help spread the use of these valuable tools. For example, the Center for Healthier Children, Families, and Communities in Los Angeles is expanding implementation of the Early Development Instrument (EDI) in cities and communities across Los Angeles County.¹⁰² It is producing citywide data and maps showing children’s health and development across multiple domains and fostering collaboration to test local strategies for addressing variations in developmental outcomes. As discussed before, though the EDI can be administered in school as early as pre-K, its use can help direct resources to children in higher-needs neighborhoods at earlier ages. The EDI is also easy for teachers and other administrators to use. While it measures across five domains, it only takes 10–15 minutes to implement.¹⁰³ Philanthropy could support communities in pursuing such initiatives elsewhere in the country, with particular attention to screening children at a number of points from birth to five, not solely at preschool or kindergarten entry.

Improve the training, continuing education, professional development, and compensation of early childhood educators.

A resounding theme of our research was the critical importance of improving the effectiveness of early childhood educators, including child-care providers, FFN providers, pre-K teachers, Head Start, and Early Head Start providers. There are multiple efforts underway, including the recent \$500 million federal appropriation for Early Head Start-Child Care Partnerships.¹⁰⁴ These are promising steps towards promoting high quality. But these efforts remain at a fairly early stage, with more progress needed to identify scalable, effective solutions that can be implemented by each type of provider. A study from the National Academies, which supports these efforts, details the knowledge, skills, and abilities that educators need to support children’s health and development.¹⁰⁵ Two critical barriers facing the early childhood workforce today are limited professional development opportunities and low compensation, both of which are opportunities that philanthropy can address.

102 UCLA Center for Healthier Children, Families and Communities, “Systems Innovation and Improvement,” <http://www.healthychild.ucla.edu/ourwork/edi>.

103 Dr. Lisa Stanley, “A Community Level Index of Children’s Health, Developmental, and School Readiness,” UCLA.

104 Administration for Children and Families, “Early Head Start-Child Care Partnerships,” December 2014, <http://www.acf.hhs.gov/programs/eecd/early-learning/ehs-cc-partnerships>.

105 Institute of Medicine of the National Academies, “Transforming the Workforce for Children Birth through Age 8: A Unifying Foundation,” April 2015, <http://iom.nationalacademies.org/Reports/2015/Birth-To-Eight.aspx>.

Opportunity 6: Increase the availability of on-the-job coaching and development for early childhood educators.

Philanthropists have helped to create and support institutes for formal early childhood certification and training (e.g., the Buffett Early Childhood Institute at the University of Nebraska, the Erikson Institute in Chicago, and the Early Childhood Education Institute at the University of Oklahoma). These institutes have a clear role to play in promoting educator excellence and supporting research. However, research has demonstrated the importance of ongoing coaching and professional development that occurs in the classroom and that can meet teachers, caregivers, and program leaders where they are. We see a role for philanthropy in helping to reach educators with these solutions.

Philanthropists could support coaching and development efforts in two ways: at the individual provider level and at the program level. At the individual level, philanthropy can help scale coaching and development programs to reach more teachers. For example, MyTeachingPartner offers on-site training and remote video coaching based on CLASS (Classroom Learning and Assessment Scoring System), a tool designed to measure the quality of teacher-child interactions. The McCormick Foundation has provided longtime support for the Erikson Institute's Early Math Collaborative, which provides a year-long professional development program in early mathematics instruction. Students of pre-K teachers who received this program advanced their math skills by three months, compared with similar students whose teachers did not receive the program.¹⁰⁶

At the school level, philanthropy can support technical assistance providers that work with the directors of individual programs (including Head Start and Early Head Start) to help raise the effectiveness of the program's entire workforce. Two examples are the Ounce of Prevention Fund's Lead. Learn. Excel. program, which provides training, technical assistance, and peer learning resources to program directors to help them embed professional development opportunities for their teaching workforce, and Acelero Learning, a for-profit company that works specifically with Head Start providers. The \$500 million federal appropriation for Early Head Start-Child Care Partnerships¹⁰⁷ can be leveraged to fund this type of technical assistance. This funding seeks to raise the quality of non-Early Head Start providers by pairing them with Early Head Start programs for training and professional development. Recipients must meet Early Head Start standards in order to receive funding.¹⁰⁸ Philanthropy can augment the resources available by providing matching funds to local agencies who receive Early Head Start-Child Care Partnerships grants, as the Heising-Simons Foundation is doing in California.

106 Robert R. McCormick Foundation, "Early Math," <http://mccormickfoundation.org/page.aspx?pid=611>.

107 Administration for Children and Families, "Early Head Start-Child Care Partnerships," December 2014, <http://www.acf.hhs.gov/programs/ece/early-learning/ehs-cc-partnerships>.

108 Maria V. Mayoral, "Fact Sheet: Building Partnerships Between Early Head Start Grantees and Child Care Providers," Zero to Three National Center for Infants, Toddlers, and Families (March 2014).

Opportunity 7: Fund research and technical assistance to promote fair compensation of early childhood educators.

Every expert we spoke with agreed that a major barrier to attracting talented individuals to the early childhood field is low compensation (which leads to high turnover). Without addressing compensation, investments in professional development may have limited impact if qualified individuals are leaving the workforce. Though opportunities for philanthropy to help address this barrier may not be as obvious, philanthropy has a critical role to play in setting public policy priorities around compensation. It can help do this at the national and local levels.

At the national level, philanthropy can fund research to document the existing wages, education, and turnover in the early childhood care and education workforce. This research can be used to advocate for sustainable, dedicated sources of funding for early childhood programs. For example, the Foundation for Child Development is funding the Center for the Study of Child Care Employment (CSCCE) at UC-Berkeley to collect state-by-state data on early childhood compensation and policy initiatives to address wages. This project, the State of the Early Childhood Workforce Biennial Report, can help policy makers identify best practices in improving compensation.¹⁰⁹ Funders can also support organizations like the CSCCE to directly advise local, state, and federal advocates and policy makers on how to address compensation issues.

At the local level, philanthropy can fund technical assistance for state agencies to improve workers' wages. For example, the W. Clement & Jessie V. Stone Foundation, the Kresge Foundation, and many others support the T.E.A.C.H. Early Childhood National Center. T.E.A.C.H., which is implemented through local early childhood agencies, provides scholarships to early childhood educators so they can graduate debt-free from college and certificate courses. It also improves compensation through bonuses or raises for scholarship recipients who complete their education on time. These programs are being implemented in 24 states and have helped program participants achieve 8 percent wage increases, on average.¹¹⁰

109 Correspondence with Marcy Whitebook, March 2015.

110 Child Care Services Association, "T.E.A.C.H. Early Childhood National," http://www.childcare.org/ps/teach_ta_qac/teac-early-childhood-national/.

Support greater access to high-quality evidence-based programs that help parents and families to foster their children’s development.

There are a range of effective programs for parents, but they touch only a fraction of those who could benefit from them. Examples include:

- Home-visiting and center-based parent education programs: The 16 programs approved by the federal home visiting initiative (MIECHV) include Nurse-Family Partnership¹¹¹ and Early Head Start.
- Pregnancy-focused programs: Centering Pregnancy provides prenatal care to groups of 8-12 women in physician settings; HealthConnect One places community-based doulas with women from pregnancy through the early months of parenting.
- Mental health-related programs: Child First is a home visitation program that pairs a mental health clinician with a care coordinator to visit high-needs families; the New Haven MOMS Partnership coordinates multiple agencies in reaching and helping mothers experiencing poverty, high levels of maternal stress, and social isolation; the Fussy Baby Network at the Erikson Institute offers home visiting, support groups, and a hotline to parents under stress.
- Programs that work through the pediatric system: Reach Out and Read is a low-cost intervention that helps pediatricians provide information to parents about the importance of reading aloud and encourages parents to read to their children more often by providing a book at each regular checkup. Healthy Steps, mentioned above, is another example.
- Programs with particular focus on Hispanic families: AVANCE, Abriendo Puertas (Opening Doors), and HIPPIY are family engagement programs that help Spanish-speaking children develop language skills and improve parental confidence.

Some of these programs, including Child First, New Haven MOMS Partnership, and Abriendo Puertas, also incorporate “two-generation” elements that work to provide benefits directly to parents as well as to children (e.g., adult literacy education, stress management, mental health treatment). In order to ensure that evidence-based programs have the resources they need to collectively reach all families who would benefit from their services, there are four ways in which philanthropists can help.

Opportunity 8: Build the capacity of organizations implementing evidence-based programs to serve more children and families.

Investments in core organizations can help these programs scale much faster. For example, RWJF has supported Child First with capacity-building grants.

¹¹¹ List available at Health Resources and Services Administration Maternal and Child Health, “Home Visiting Models,” <http://mchb.hrsa.gov/programs/homevisiting/models.html>.

These grants have helped it develop a web-based data and measurement system, a quality-improvement and certification process, a funding-sustainability plan, and randomized controlled trials to build their evidence base.¹¹² The program has been expanded throughout Connecticut by the state's Department of Children and Families and plans to expand to two new states in 2015.¹¹³

Philanthropists can also aggregate pools of growth capital to help increase the scale of proven interventions. The Edna McConnell Clark Foundation (EMCF) has done just that with the Nurse-Family Partnership (NFP) home visiting program. Since 2002, EMCF has awarded \$23.3 million to NFP and helped aggregate an additional \$38 million in growth capital through its Growth Capital Aggregation Pilot.¹¹⁴ Five coinvestors¹¹⁵ and the NFP Board of Directors committed these growth capital funds to help NFP grow from reaching 13,484 mothers in 2007 to a goal of reaching 60,000 mothers by 2018. As of 2013, NFP had nearly doubled its reach to 26,350 mothers.¹¹⁶ EMCF's investment has shown that infusions of growth capital can help propel interventions with strong evidence bases and business cases for obtaining public funding.¹¹⁷

Opportunity 9: Invest in innovative public-private financing mechanisms for expanding evidence-based programs.

As a tool to encourage federal investments in evidence-based interventions, pay-for-success models such as social impact bonds (SIBs) are gaining traction. These models harness private and philanthropic capital to invest in social programs with long-term benefits. The government repays private investors as those benefits are realized. If no benefits are realized, private investors assume the risk of non-performance, which could result in the loss of principal. We believe that the real potential of pay-for-success in early childhood is not to substitute for public money, but to demonstrate what works to increase kindergarten readiness, and perhaps even change the way government invests in these programs.

Such innovative funding models will likely require a pool of philanthropic funds with the goal of establishing successful proof points to attract private capital and expand pressure for public investment in improving access to and quality of early childhood programs. As an example, private capital from the Goldman Sachs Social

112 Grants listed on Robert Wood Johnson Foundation website, <http://www.rwjf.org>.

113 Child First, "Replication," <http://www.childfirst.com/our-network/replication>.

114 Edna McConnell Clark Foundation, "Nurse-Family Partnership: Overview," 2012-15, <http://www.emcf.org/our-grantees/our-grantee-portfolio/nurse-family-partnership/overview/>.

115 Coinvestors are Bill and Melinda Gates Foundation, Robert Wood Johnson Foundation, W.K. Kellogg Foundation, The Kresge Foundation, The Picower Foundation. Source: EMCF, "An Experiment in Coordinated Investment," October 2008, http://www.emcf.org/fileadmin/media/PDFs/gcap_progressreportOct08.pdf.

116 Edna McConnell Clark Foundation, "Nurse-Family Partnership: Performance," <http://www.emcf.org/our-grantees/our-grantee-portfolio/nurse-family-partnership/performance/#families-enrolled>.

117 Edna McConnell Clark Foundation, "Nurse-Family Partnership: Overview," <http://www.emcf.org/our-grantees/our-grantee-portfolio/nurse-family-partnership/overview/>.

Impact Fund, Northern Trust Financial Services, and a program-related investment from the J.B. & M.K. Pritzker Family Foundation will finance an expansion of the evidence-based Child-Parent Center preschool program to 2,600 children over four years in Chicago. Although the programs would be run by Chicago Public Schools, three nonprofit groups will coordinate, fund, and evaluate the program. Payments to investors will come from savings for each student who avoids placement in special education as a result of attending the program.¹¹⁸

Pay-for-success models also hold promise for expanding parenting support programs that reach younger children. Nurse-Family Partnership's national office is exploring potential SIBs in several states in partnership with commercial investors, philanthropy, and third-party intermediaries. Payments to investors could be tied to public savings resulting from a number of outcomes that NFP has demonstrated through randomized controlled trials, such as reductions in preterm births, child maltreatment, and need for remedial language services.¹¹⁹

In addition to investing directly in pay-for-success contracts, philanthropy can fund technical assistance for the nonprofits and public agencies that are implementing these models. The Rockefeller Foundation helped to establish the Harvard Kennedy School's Social Impact Bond Technical Assistance Lab, which provides pro bono assistance to state and local governments pursuing such bonds.¹²⁰ Social Finance, Nonprofit Finance Fund, Third Sector Capital Partners, the Institute for Child Success in South Carolina, and the James Lee Sorenson Global Impact Investing Center at the David Eccles School of Business at the University of Utah provide similar technical assistance to governments and nonprofits, helping to conduct feasibility studies, structure complicated pay-for-success contracts, and advise implementing agencies. All of these organizations have been funded by philanthropy in the past. For example, the Laura and John Arnold Foundation has leveraged public funding from the federal Social Innovation Fund to support the Nonprofit Finance Fund in providing technical assistance to governments and nonprofits.¹²¹

Opportunity 10: Expand evidence-based programs for parents by advocating for increased state, local, and federal funding.

Continued and expanded funding for high-quality initiatives at the federal and state levels is essential if we are to prepare all at-risk children for kindergarten. Advocacy organizations play an important role in this effort. Two examples are the Alliance for Early Success and the First Five Years Fund, both of which

118 City of Chicago Mayor's Press Office, "Mayor Emanuel Announces Expansion of Pre-K to More than 2,600 Chicago Public School Children," October 7, 2014.

119 Nurse-Family Partnership, "Social Impact Bonds," 2014, <http://www.nursefamilypartnership.org/assets/PDF/Policy/NSO-SIBS-Overview.aspx>.

120 Harvard Kennedy School, "The SIB Lab," <http://siblab.hks.harvard.edu/sib-lab>.

121 Nonprofit Finance Fund, "Nonprofit Finance Fund Receives \$3.6 million from Social Innovation Fund to Accelerate 'Pay for Success' Projects," October 1, 2014.

are supported by coalitions of funders.¹²² There are also numerous state-based advocacy organizations that philanthropists can support in their own communities, such as Early Edge California and Pennsylvania Partnerships for Children, among many others. California's Strong Families, Strong Children Act (SB 1123) is an example of the type of policy that can result from such advocacy. The bill proposes \$350 million in funding to raise quality standards for child care, scale parenting resources, and develop new standards for Early Head Start.¹²³ This bill was supported by community advocacy organizations and philanthropy, including Next Generation and Californians Together.¹²⁴

At the municipal level, philanthropy also can play a role in advocating for communities to commit to making quality early childhood experiences a priority. The Bezos Family Foundation catalyzed the unanimous adoption at the 2014 US Conference of Mayors annual meeting of a resolution to support building an Early Learning Nation by 2025.¹²⁵ This resolution already has helped build on existing community-level momentum. Since the resolution, communities such as Kent County, MI, and Seattle, WA, are designing and implementing universal pre-K, training early learning providers, and building gateways for families to access early childhood services in their communities.¹²⁶ In addition, new cities and counties are stepping up to create action plans, which the Bezos Family Foundation will support through technical assistance grants in order to spur adoption of what works in communities across the nation.

Supporting flagship models for achieving quality outcomes is another way to apply pressure for increased funding for early care and education. The George Kaiser Family Foundation, the Buffett Early Childhood Fund, the Irving Harris Foundation, the Bill & Melinda Gates Foundation, the Kellogg Foundation, and the J.B. & M.K. Pritzker Family Foundation (among others) all support local efforts across the United States to replicate Educare schools, which provide high-quality care and education for children from six weeks to five years old, as well as wraparound services for parents. The schools achieve impressive outcomes: higher rates of school readiness, better vocabulary development, and better

122 Funders of both organizations include the Buffett Early Childhood Fund, the Bill and Melinda Gates Foundation, the Irving Harris Foundation, Heising-Simons Foundation, the George Kaiser Family Foundation, the W.K. Kellogg Foundation, the J.B. and M.K. Pritzker Family Foundation, and the David and Lucile Packard Foundation. The Richard W. Goldman Foundation and the Annie E. Casey Foundation also support the Alliance for Early Success. Source: Alliance for Early Success, "Funding Partners," <http://earlysuccess.org/partnerships/funding-partners> and First Five Years Fund, "Leaders and Partnerships," <http://ffyf.org/who-we-are/leaders-and-partnerships/>.

123 Alliance for Early Success, "Success Stories," retrieved January 23, 2015, from <http://earlysuccess.org/partnerships/success-stories>.

124 *SB 1123: Early Learning: The Strong Families, Strong Children Act*, Early Edge California, April 3, 2014.

125 Paul Nyhan, "Mayors Endorse New Movement to Create an Early Learning Nation by 2025," Thrive by Five Washington, June 26, 2014.

126 Early Learning Nation 2025, "Steps to Building an Early Learning Nation," <http://eln2025.org/steps-to-building-an-early-learning-nation>.

classroom quality scores than their peers.¹²⁷ However, Educare’s value is not only in scaling best practices—its schools also serve as a platform for demonstrating the value of early childhood investment, especially to public policy makers. For example, Educare of Tulsa helped inspire a \$25 million public-private pilot program for children from birth to three throughout Oklahoma, and Educare of Omaha helped spur a Nebraska State Constitution amendment creating a \$60 million endowment for birth-to-three services for low-income children.¹²⁸

At the national level, philanthropy can support research on the costs and benefits of high-quality early childhood programs. The Center for the Economics of Human Development (CEHD) at the University of Chicago, directed by Professor James Heckman, conducts such research. CEHD’s research on the long-term impact of programs like the Perry Preschool Project and the Carolina Abecedarian Project can be used to quantify the economic impacts of investing in many of the high-quality programs and approaches mentioned throughout this paper. CEHD has also helped determine the specific components of these programs that lead to high quality, which can help fuel investment in the right supports for children at the right time.

Opportunity 11: Simplify and disseminate information to assist parents in choosing high-quality care and education opportunities for their children.

All families benefit from good, easily accessible information on high-quality programs, yet our research showed that this information is more often than not hard to come by. Compiling this information and disseminating it widely to parents and caregivers is one way to increase the demand for higher-quality programs, which could in turn strengthen efforts to expand them. One such example is the Chicago Early Learning Portal, launched by Mayor Rahm Emanuel in 2012 and funded by the J.B. and M.K. Pritzker Family Foundation. The portal allows parents to search for and compare quality programs by zip code while also providing them with information about enrollment deadlines and requirements. It will eventually link programs to the ratings they receive from Illinois’s QRIS.¹²⁹

Providing parents with information on high-quality education and care providers is especially important for Hispanic families. High-quality pre-K has particularly positive effects on Hispanic children’s cognitive and language skills, but Hispanic children have the lowest preschool participation rates of any major ethnicity or race in the United States.¹³⁰ Experts suggest that there are four ways to improve participation by immigrant children, including Hispanics: outreach, enrollment

127 UNC Frank Porter Graham Child Development Institute, “Educare Implementation Study Findings,” August 2012, <http://www.educareschools.org/about/pdfs/Demonstrating-Results.pdf>.

128 Tulsa Educare, “Platform,” <http://www.tulsaeducare.org/platform/>.

129 City of Chicago Mayor’s Press Office, “Mayor Emanuel Unveils Online Early Learning Portal to Help Parents and Families Find Quality Programs for Children in Their Neighborhoods,” November 29, 2012.

130 Luis M. Laosa and Pat Ainsworth, “Is Public Pre-K Preparing Hispanic Children to Succeed in School?” New Brunswick, New Jersey: National Institute for Early Education Research (March 2007).

assistance, building relationships with parents, and building immigrant-friendly pre-K programs.¹³¹ Voter registration and health insurance enrollment campaigns might serve as models for an enrollment campaign targeting Hispanic parents. The National Council of La Raza and other Hispanic organizations have helped lead successful campaigns to register voters and enroll people in health plans. Philanthropy could support the application of these approaches to enrollment in pre-K and other high-quality programs.

Promote ongoing program innovation and improvement, especially for those programs supporting parents and informal caregivers.

Finally, there are barriers mentioned in this paper that do not align with immediate investment opportunities, but for which research and development might provide scalable solutions. Given that philanthropy is the primary engine of research and development in the social sector, there is a role for philanthropy in finding these new solutions, particularly in the challenging area of effectively supporting informal caregivers.

Opportunity 12: Promote quality improvement efforts for family, friend, and neighbor child care.

Philanthropists can fund the capacity of organizations that reach family, friend, and neighbor (FFN) caregivers, specifically for program experimentation and impact measurement, to better understand what features of their programs work in each context and how they can be scaled effectively. Funders like the David and Lucile Packard Foundation have acknowledged that, while informal care is not a system, very little is known about how children are cared for in these settings, and an experimental strategy is needed. Therefore, Packard's main objective is to research FFN communities and networks to better understand their demographics, the motivations of individual providers, and the resources and community institutions they may already be accessing. Packard expects this experimentation phase to last from 2-3 years, with a higher percentage of smaller grants. The ultimate goal of this research is to gain a better understanding of the needs of these communities and to test ways to provide them with resources and support that can be scaled over time.¹³²

Organizations like All Our Kin provide training and business consultation to all types of community child-care providers, including unlicensed caregivers, licensed family caregivers, and Early Head Start providers. Providers who graduate from these programs report higher earnings and a greater knowledge and understanding of child development.¹³³

131 Julia Gelatt, Gina Adams, and Sandra Huerta, *Supporting Immigrant Families' Access to Prekindergarten*, Washington, DC: The Urban Institute (March 2014).

132 Correspondence with Meera Mani of the David and Lucile Packard Foundation, March 2015.

133 All Our Kin, "Our Impact," <http://www.allourkin.org/our-impact>.

Another promising program called Tutu and Me has been developed in Hawaii, and a similar approach was developed and piloted by the YMCA in cities like Oklahoma City, Chicago, and Austin.¹³⁴ Tutu and Me is a traveling pre-K program that engages grandparents in meeting the developmental needs of young children in their care. Teaching teams conduct the program, which is organized around values specific to the culture and community.

Opportunity 13: Foster innovation to achieve repeatable results.

Overall, the early childhood sector lacks the processes that enable the kind of continuous research and development found in many parts of the for-profit sector. Such a research and development effort could advance the science of child development, develop promising early childhood interventions that have yet to be scaled, and fund well-established interventions that might benefit from continued innovation. Given our rapidly evolving understanding of brain development, we believe it is imperative that we fuel experiments to apply these learnings and develop more effective interventions and approaches.

One immediate opportunity is for philanthropists to fund research and development through existing early childhood-focused research institutes, such as the Center on the Developing Child at Harvard University and the Center for Child & Family Policy at Duke University. The Center for the Economics of Human Development produces research that helps identify components of quality that could be scaled across different types of programs. In addition to funding research institutes, we have identified three ways for philanthropy to lead innovation through investments to create new initiatives—while also recognizing that these opportunities are less “shovel-ready” than others we have surfaced. First, funders could create a consortium to set a common research agenda and carry out rapid cycle experimentation across a number of communities. Second, funders could create an “accelerator” that identifies and attracts high-potential ideas and supports their creators with mentoring, seed funding, and connections to a strong network. Finally, funders could support strong organizations with R&D “line items” to encourage them to set aside internal capacity for testing and evaluating new ideas and applications of existing models.

134 Campaign for Grade-Level Reading, “Bright Spots: YMCA of the USA, Chicago, Illinois,” July 2011, <http://www.gradelevelreading.net/wp-content/uploads/2011/07/Bright-Spot-Programs-YMCA-July-11.pdf>; YMCA of Austin, “Early Learning Readiness,” <http://www.austinyymca.org/sites/default/files/Adopt%20A%20Program%20-%20Early%20Learning%20Readiness%20FINAL.pdf>.

Postscript

We believe that increased private and public investment in helping low-income young children prepare for kindergarten is one of the smartest investments that we can make. These investments should support the outcomes that matter most—those that allow children to enter kindergarten ready to learn.

This paper has not been intended as a road map either for our own investments or those of others. As the range and diversity of the opportunities described here make clear, there is no single path toward the outcomes we all seek. Rather, we have tried to highlight both the importance of promoting kindergarten readiness for our nation's children and the variety of opportunities available to donors who want to invest wisely towards this end. It is our hope that this paper will help reverse the pattern of systematic underinvestment by surfacing tangible high-impact opportunities that private philanthropists and their public-sector partners can pursue today.

Philanthropy will never have the resources to invest in early childhood that government does. But what we in philanthropy can and must do is to highlight and demonstrate what works to improve kindergarten readiness for low-income children in a way that will encourage local, state, and federal policy change—and smarter public investments in early childhood.

In sharing this paper, we hope to stimulate increased investment in early childhood in states and communities, targeted toward the interventions and efforts with the very best chance of moving the needle on kindergarten readiness.

Acknowledgments

This has been a truly collaborative project. We had the chance to learn and share experience with some of the leading funders in the early childhood field, including the Buffett Early Childhood Fund, the David and Lucile Packard Foundation, the Edna McConnell Clark Foundation, the Bill & Melinda Gates Foundation, the George Kaiser Family Foundation, the Irving Harris Foundation, the Robert R. McCormick Foundation, and the W.K. Kellogg Foundation.

We are indebted to Professor James Heckman at the University of Chicago, whose work has inspired and guided our own. Julia Isaacs at the Urban Institute and Katherine Magnuson at the University of Wisconsin–Madison, through their research at the Brookings Center on Children and Families, helped us better understand the existing data on kindergarten readiness and its socioeconomic determinants. Experienced policy makers and analysts—Libby Doggett, Shannon Rudisill, and Sara Mead, among many others—helped us identify promising local, state, and national intervention models. Elise Tosun, Christina Triantaphyllis, Chris Addy, Mike Levine, and Bradley Seeman at The Bridgespan Group provided invaluable help as thought partners, data analysts, and editors. We owe very special thanks to Joan Lombardi, Diana Rauner, and Phyllis Glink, who have lent their expertise, wisdom, and deep experience in the field throughout this project. A full list of individuals who contributed to this work is provided in [Appendix A](#). Finally, Jeff Schoenberg helped to guide and shape this research from its earliest days. We are grateful for his expertise throughout and for helping us to see this work to its fullest potential.

At the same time, the paper itself, especially the conclusions that it draws about investment opportunities, are ours alone and do not necessarily reflect the views of any of the individuals or organizations that we consulted in our research.

Additional Commentary

“Knowing that we need more investments in early childhood development does not necessarily tell us how to invest. This paper is based on the best research and best practices in the early development field, and it helps to illuminate what works and where funding can be most effective. It is a blueprint for potential investors, public as well as private, and is a must-read for both.”

ARTHUR ROLNICK, PH.D., SENIOR FELLOW, UNIVERSITY OF MINNESOTA; FORMER SENIOR VICE PRESIDENT AND DIRECTOR OF RESEARCH, FEDERAL RESERVE BANK OF MINNEAPOLIS; AUTHOR OF LANDMARK STUDY DEMONSTRATING RATE OF RETURN FOR HIGH-QUALITY EARLY CHILDHOOD PROGRAMS

“Science, economics, and common sense tell us that investing in the earliest years of life is critical to the well-being of children, families, communities, and countries. This report sends an important message about the role the private sector can play in supporting expanded public investments.”

JOAN LOMBARDI, PH.D., FORMER DEPUTY ASSISTANT SECRETARY AND INTERAGENCY LIAISON FOR EARLY CHILDHOOD DEVELOPMENT, US DEPARTMENT OF HEALTH AND HUMAN SERVICES

“When hard-headed economists and businessmen endorse early education, we can be sure it is not only right, but right for our economy. This paper makes the case for supporting early care and education abundantly clear.”

BARBARA T. BOWMAN, M.A., CO-FOUNDER, THE ERIKSON INSTITUTE GRADUATE SCHOOL IN CHILD DEVELOPMENT; FORMER CHIEF EARLY CHILDHOOD EDUCATION OFFICER FOR CHICAGO PUBLIC SCHOOLS

“We at the Edna McConnell Clark Foundation believe that our nation can change the life trajectories of disadvantaged children and youth by developing a deeper understanding of ‘what works’ and expanding programs that have demonstrated their effectiveness. This report is an example of the tools philanthropists need to identify opportunities for greater impact and make smarter investments in early childhood.”

NANCY ROOB, PRESIDENT, THE EDNA MCCONNELL CLARK FOUNDATION

“We are at a pivotal moment in the growing Early Childhood Movement. The wisdom of investing wisely in the early years is gaining traction. More people ‘get it,’ but they’re wondering what to do. This paper is a valuable tool, especially if you are a philanthropist looking to make smart investments in this highly under-invested field.”

SUSAN A. BUFFETT, BUFFETT EARLY CHILDHOOD FUND

“Impact investors and philanthropists should look to this paper for smart ideas on how to invest in social programs, like early childhood development, that have long-term benefits to those in need and to society at large. Supporting the expansion of early childhood programs, especially through innovative funding models like Pay for Success, can have a high social impact while also being a worthwhile investment.”

JAMES LEE SORENSON, CHAIRMAN, SORENSON MEDIA, INC., AND FOUNDER, JAMES LEE SORENSON GLOBAL IMPACT INVESTING CENTER AT THE ECCLES SCHOOL OF BUSINESS AT THE UNIVERSITY OF UTAH

“As demonstrated page after page, when we provide children with access to high-quality early learning opportunities, we ensure that children start out on an equal playing field. Our country’s ability to address systemic social and economic problems starts with early childhood education, and I hope philanthropists and policy makers use the report to make progress for all children.”

NEERA TANDEN, PRESIDENT, CENTER FOR AMERICAN PROGRESS

“This paper is a powerful tool for generating greater investments in children zero to five. This will accelerate the work of garnering permanent, sustainable solutions for funding early childhood education to prepare children for competition as early as kindergarten. This guide works not only with investors but with advocates, parents, and [care] providers of young children who want to make an impact at the local, state, and national level.”

KRIS PERRY, EXECUTIVE DIRECTOR, THE FIRST FIVE YEARS FUND (WORKS WITH POLICY MAKERS, BUSINESS LEADERS, EXPERTS, AND ADVOCATES TO ADVANCE INVESTMENT IN QUALITY EARLY CHILDHOOD EDUCATION FROM BIRTH TO FIVE)

“Every child is full of potential and deserves to realize it. The best way to tap into this potential is to invest during the first five years of life, when brain development is the most rapid. This paper makes it abundantly clear that we all have an opportunity to change lives and transform our collective future for the better.”

JACKIE BEZOS, PRESIDENT, BEZOS FAMILY FOUNDATION

“This paper provides a road map for philanthropists who want to maximize their grants to high-quality early childhood services and to the development of leadership in the field. J.B. and M.K. clearly understand the value of investing in the earliest years of life.”

JOAN HARRIS, PAST CHAIRMAN, THE IRVING HARRIS FOUNDATION

“Indianapolis just launched our first ever Preschool Scholarship Program utilizing a public-private partnership because high-quality early learning opportunities are beneficial for children’s lives and neighborhood health. These children are more likely to graduate and get a job, which is imperative for the economic vitality of our city.”

GREGORY A. BALLARD (R), MAYOR, INDIANAPOLIS, IN

Appendix A: List of Interviewees

W. Steven Barnett, National Institute for Early Education Research (NIEER)

David Bley, Bill & Melinda Gates Foundation

Eva Tansky Blum, formerly of PNC Foundation

Jeanne Brooks-Gunn, National Center for Children & Families at Columbia University

Laurie Miller Brotman, ParentCorps and NYU School of Medicine

Roger Brown, Bright Horizons

Miriam Calderon, BUILD Initiative

Sarah Clabby, Little Sprouts

Harriet Dichter, formerly of the Delaware Office of Early Learning

Libby Doggett, US Department of Education

David Fleming, formerly of Seattle King County Public Health Department

Phyllis Glink, Irving Harris Foundation

Sandra Gutierrez, Abriendo Puertas

Tamara Halle, Child Trends

James Heckman, University of Chicago

Julia Isaacs, Urban Institute

Jane Isaacs Lowe, Robert Wood Johnson Foundation

Wendy Lewis Jackson, Kresge Foundation

Jeffrey Liebman, Harvard Kennedy School

Joan Lombardi, Early Opportunities LLC

Rhett Mabry, Duke Endowment

Meera Mani, The David and Lucile Packard Foundation

Virginia Mann, UC Irvine

Sara Mead, Bellwether Education Partners

Anne Mitchell, Early Childhood Policy Research and Alliance for Early Childhood Finance

Molly O'Connor, Thrive Washington

Kris Perry, First Five Years Fund

Toni Porter, Bank Street College of Education

Sylvia Puente, Latino Policy Forum

Jessie Rasmussen, Buffett Early Childhood Fund

Diana Rauner, Ounce of Prevention Fund

Elliot Regenstein, Ounce of Prevention Fund

Arthur Reynolds, University of Minnesota

Shannon Rudisill, Administration for Children and Families, Department of Health and Human Services

David Sciarra, Education Law Center

Jill Stamm, New Directions Institute for Infant Brain Development

Carla Thompson, W.K. Kellogg Foundation

Kathryn Tout, Child Trends

Annie Van Hanen, George Kaiser Family Foundation

Sara Watson, ReadyNation

Sarah Weber, Bill & Melinda Gates Foundation

Gerrit Westervelt, WestEd (formerly of BUILD Initiative)

Lisa Williams Taylor, Children's Services Council of Palm Beach County

David Willis, Division of Home Visiting and Early Childhood Systems, Health Resources and Services Administration

Marcy Whitebook, Director of the Center for the Study of Child Care Employment at the University of California-Berkeley

Megan Wyatt, Bezos Family Foundation

Appendix B: Sources

101: *Early Head Start-Child Care Partnerships*, Washington, DC: Administration for Children and Families, US Department of Health and Human Services (2014).

Adamu, Maryam, "New Child Care Regulations Are a Step in the Right Direction," *Center for American Progress*, Sept. 17, 2014.

Administration for Children and Families, "Early Head Start-Child Care Partnerships," December 2014, <http://www.acf.hhs.gov/programs/eecd/early-learning/ehs-cc-partnerships>.

Administration for Children and Families, "FY 2014 Head Start Program Fact Sheet," <http://eclkc.ohs.acf.hhs.gov/hslc/data/factsheets/2014-hs-program-factsheet.html>.

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

All Our Kin, "Our Impact," <http://www.allourkin.org/our-impact>.

Alliance for Early Success, "Success Stories," retrieved January 23, 2015, from <http://earlysuccess.org/partnerships/success-stories>.

Barnett, W. Steven, Megan E. Carolan, James H. Squires, Kirsty Clarke Brown, and Michelle Horowitz. *The State of Preschool 2014: State Preschool Yearbook*. New Brunswick, NJ: National Institute for Early Education Research (2014).

Bonari, L., N. Pinto, E. Ahn, A. Einarson, M. Steiner, and G. Koren, "Perinatal Risks of Untreated Depression During Pregnancy," *Canadian Journal of Psychiatry*, vol. 49, no. 11 (November 2004): 726-35.

Bornfreund, Laura, Clare McCann, Conor Williams, and Lisa Guernsey, *Beyond Subprime Learning: Accelerating Progress in Early Education*, Washington, DC: New America Foundation (July 2014). Retrieved from https://static.newamerica.org/attachments/743-beyond-subprime-learning/Beyond_Subprime_Learning_by_Bornfreund-et-al_New_America_Jul2014.pdf.

Bornfreund, Laura, Clare McCann, Conor Williams, and Lisa Guernsey, *Subprime Learning: Early Education in America Since the Great Recession*, Washington, DC: New America Foundation (January 2014). Retrieved from http://www.newamerica.org/downloads/NewAmerica_SubprimeLearning_Release.pdf.

BUILD Initiative, "BUILD's Mission and History," <http://www.buildinitiative.org/AboutUs/MissionHistory.aspx>.

BUILD Initiative, "Quality Rating and Improvement Systems (QRIS)," <http://www.buildinitiative.org/TheIssues/EarlyLearning/QualityQRIS.aspx>.

Burchinal, Margaret R., Joanne E. Roberts, Laura A. Nabors, and Donna M. Bryant, "Quality of Center Child Care and Infant Cognitive and Language Development," *Child Development*, vol. 67, no. 2 (April 1996): 606–620.

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/.

Center for High Impact Philanthropy at the University of Pennsylvania, "Invest in a Strong Start for Children: A Toolkit for Donors," 2014, <http://www.impact.upenn.edu/toolkits/early-childhood-toolkit/>.

Chalk, Sean and Holly Yettick, "Hispanic Preschool Participation Varies by State," *Education Week*, January 15, 2015.

Child Care Aware of America, *We Can Do Better: 2013 Update*, Arlington, VA, 2013.

Chu, Ann T. and Alicia F. Lieberman, "Clinical Implications of Traumatic Stress from Birth to Age Five," *Annual Review of Clinical Psychology*, vol. 6 (2010): 469–94.

City of Chicago Mayor's Press Office, "Mayor Emanuel Announces Expansion of Pre-K to More than 2,600 Chicago Public School Children," October 7, 2014.

City of Chicago Mayor's Press Office, "Mayor Emanuel Unveils Online Early Learning Portal to Help Parents and Families Find Quality Programs for Children in Their Neighborhoods," November 29, 2012.

Collaborative for Academic, Social, and Emotional Learning (CASEL), "What is Social and Emotional Learning?" <http://www.casel.org/social-and-emotional-learning/>.

Dual Language Learning: What Does It Take? Head Start Dual Language Report, Washington, DC: Office of Head Start, Administration of Children and Families, US Department of Health and Human Services (February 2008).

Edelstein, Sara, 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*, Washington, DC: The Urban Institute (October 2012).

Feller, A, 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>.

Finkelhor, David, Heather A. Turner, Anne Shattuck, and Sherry Hamby, "Violence, Crime, and Abuse Exposure in a National Sample of Children and Youth," *JAMA Pediatrics*, vol. 167, no. 7 (July 2013): 614–21.

Fuller, Bruce, Sharon Lynn Kagan, Susanna Loeb, and Yueh-Wen Chang, "Child Care Quality: Centers and Home Settings that Serve Poor Families," *Early Childhood Research Quarterly*, vol. 19 (2004): 505–527.

Gelatt, Julia, Gina Adams, and Sandra Huerta, *Supporting Immigrant Families' Access to Prekindergarten*, Washington, DC: The Urban Institute (March 2014).

Getting Ready: Findings from the National School Readiness Indicators Initiative (Rhode Island KIDS COUNT, February 2005). Retrieved from <http://www.rikidscount.org>.

Gewertz, Catherine, "Kindergarten-Readiness Tests Gain Ground," *Education Week*, October 7, 2014.

Gormley, William, Jr., Ted Gayer, Deborah Phillips, and Brittany Dawson, *The Effects of Oklahoma's Universal Pre-K Program on School Readiness*, Washington, DC: Center for Research on Children in the US, Georgetown University (2004).

Guerra, Jennifer, "Five Things to Know About Early Childhood Development," *State of Opportunity*, Nov. 14, 2012.

Halle, Tamara G., Elizabeth C. Hair, Margaret Burchinal, Rachel Anderson, and Martha Zaslow, *In the Running for Successful Outcomes: Exploring the Evidence for Thresholds of School Readiness*, Washington, DC: US Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation (2012).

Halle, Tamara, Elizabeth Hair, Mirjam Nuenning, Debra Weinstein, Jessica Vick, Nicole Forry, and Akemi Kinukawa, *Primary Child Care Arrangements of US Infants: Patterns of Utilization by Poverty Status, Family Structure, Maternal Work Status, Maternal Work Schedule, and Child Care Assistance*, Washington, DC: US Department of Health and Human Services, Office of Planning, Research, and Evaluation (June 2009).

Hart, Betty and Todd R. Risley, "The Early Catastrophe: The 30 Million Word Gap by Age 3," *American Educator* (Spring 2003): 4-9.

Health Resources and Services Administration Maternal and Child Health, "Home Visiting Models," <http://mchb.hrsa.gov/programs/homevisiting/models.html>.

Healthy Babies 2014 Palm Beach County, Boynton Beach, FL: Children's Services Council of Palm Beach County (2011).

Heckman, James J., "The Case for Investing in Disadvantaged Young Children," *Big Ideas for Children: Investing in Our Nation's Future*, 49-58. Washington, DC: First Focus (2009). Retrieved January 23, 2015, from <http://www.heckmanequation.org>.

Heckman, James J., "Schools, Skills, and Synapses," *Economic Inquiry*, vol. 46, no. 3 (2008): 289-324.

Heckman, James J., 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.

Heckman, James J., 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).

Help Me Grow National Center, "What is the *Help Me Grow* National Center?" <http://www.helpmegrownational.org/pages/hmg-national/what-is-hmg-national.php>.

Howes, Carollee, "Children's Experiences in Center-Based Child Care as a Function of Teacher Background and Adult : Child Ratio," *Merrill-Palmer Quarterly*, vol. 43, no. 3 (July 1997): 404-425.

Huntsman, Leone, *Determinants of Quality in Child Care: A Review of the Research Evidence*, New South Wales, Australia: Centre for Parenting & Research, NSW Department of Community Services, April 2008.

Institute of Medicine of the National Academies, edited by LaRue Allen and Bridget B. Kelly, *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation*, April 1, 2015, <http://www.iom.edu/Reports/2015/Birth-To-Eight.aspx>.

Isaacs, Julia B., *Starting School at a Disadvantage: The School Readiness of Poor Children*, Washington, DC: Center on Children and Families at the Brookings Institution (March 19, 2012). Retrieved from <http://www.brookings.edu>.

Isaacs, Julia B. and Katherine Magnuson, *Income and Education as Predictors of Children's School Readiness*, Washington, DC: Center on Children and Families at the Brookings Institution (December 14, 2011). Retrieved from <http://www.brookings.edu>.

Johnson-Staub, Christine, *First Steps for Early Success: State Strategies to Support Developmental Screening in Early Childhood Settings*, Washington, DC: CLASP (October 2014). Retrieved from <http://www.clasp.org>.

Kagan, Sharon Lynn and Elizabeth Rigby, *Improving the Readiness of Children for School*, Washington, DC: Center for the Study of Social Policy (February 2003). Retrieved from <http://www.policyforchildren.org>.

Karoly, Lynn A. and Gabriella C. Gonzalez, "Early Care and Education for Children in Immigrant Families," Princeton, NJ: *The Future of Children*, v. 21, no. 1 (Spring 2011): 71-101.

Karoly, Lynn A., M. Rebecca Kilburn, and Jill S. Cannon, *Early Childhood Interventions: Proven Results, Future Promise*, Santa Monica, CA: RAND Corporation (2005). Retrieved from <http://www.rand.org>.

Kitzman, H., D.L. Olds, et al. Enduring effects of prenatal and infancy home visiting by nurses on children: follow-up of a randomized trial among children at age 12 years, *Arch Pediatr Adolesc Med* 2010: vol. 164, no. 5, 412-18.

Klein, Lisa G. and Jane Knitzer, *Promoting Effective Early Learning: What Every Policymaker and Educator Should Know*, New York, NY: National Center for Children in Poverty at the Mailman School of Public Health, Columbia University (January 2007).

Kline, P. 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).

Landry, Susan H., *Effective Early Childhood Programs: Turning Knowledge into Action*, Houston, TX: University of Texas Health Science Center (2005). Retrieved from <http://www.childrenslearninginstitute.org>.

Laosa, Luis M. and Pat Ainsworth, *Is Public Pre-K Preparing Hispanic Children to Succeed in School?* New Brunswick, NJ: National Institute for Early Education Research (March 2007).

Lowell, D.I., A.S. Carter, L. Godoy, B. Paulicin, M.J. Briggs-Gowan, "A Randomized Controlled Trial of Child First: A Comprehensive, Home-Based Intervention Translating Research into Early Childhood Practice," *Child Development*: vol. 82, no. 1 (2011): 193-208.

Maryland State Department of Education, "2012-2013 Maryland School Readiness Report," 2013, http://marylandpublicschools.org/NR/rdonlyres/BCFFOF0E-33E5-48DA-8F11-28CF333816C2/35515/MMSR_ExecutiveSummaryReport20122013_.pdf.

Mayoral, Maria V., "Fact Sheet: Building Partnerships between Early Head Start Grantees and Child Care Providers," Zero to Three National Center for Infants, Toddlers, and Families (March 2014).

Mead, Sara, *Renewing Head Start's Promise: Invest in What Works for Disadvantaged Preschoolers*, Bellwether Education Partners (July 2014). Retrieved from <http://bellwethereducation.org/publication/RenewingHeadStartsPromise>.

Merzer, Martin, *The Billion-Dollar Bet on a Community's Future*, Miami, FL: The Children's Trust. Retrieved January 2015 from <http://www.thechildrenstrust.org>.

Murphey, David, Mae Cooper, and Nicole Forry, *The Youngest Americans: A Statistical Portrait of Infants and Toddlers in the United States*, Chicago, IL: The McCormick Foundation and Child Trends (November 2013). Retrieved from <http://www.mccormickfoundation.org>.

National Association for the Education of Young Children (NAEYC), "Principles of child development and learning that inform developmentally appropriate practice," July 1996, <https://oldweb.naeyc.org/about/positions/dap3.asp>.

National Institute of Child Health and Human Development, *The NICHD Study of Early Child Care and Youth Development: Findings for Children up to Age 4½ Years*, NIH Pub. No. 05-4318, Washington, DC: US Department of Health and Human Services National Institutes of Health (January 2006).

National Survey of Early Care and Education Project Team, *Number and Characteristics of Early Care and Education (ECE) Teachers and Caregivers: Initial Findings from the National Survey of Early Care and Education (NSECE)*. OPRE Report #2013-38, Washington, DC: Office of Planning, Research and Evaluation, Administration of Children and Families, US Department of Health and Human Services (October 2013).

Nonprofit Quarterly, "Edna McConnell Clark Foundation's Growth Capital Aggregation Pilot: A Bold Philanthropic Innovation," August 17, 2013.

Osofsky, Joy D., "The Impact of Violence on Children," *The Future of Children*, vol. 9, no. 3 (Winter 1999).

Pennsylvania Early Learning, "Children's Progress Update: Keystone STAR 3 and 4 Programs, 2011-12," 2012, https://www.pakeys.org/uploadedContent/Docs/Early%20Learning%20Programs/Keystone%20STARS/Keystone_STARS_progress_11-12.pdf.

Pew Center on the States, *States and New Federal Home Visiting Initiative: An Assessment from the Starting Line*, Washington, DC: Pew Charitable Trusts (August 2011).

Playbook for Becoming an Early Learning Community, Washington: DC, Executive Office of the President of the United States (December 2014). Retrieved from <http://www.whitehouse.gov>.

Porter, Eduardo, "Investments in Education May Be Misdirected," *The New York Times*, Economic Scene, April 2, 2013.

Preskill, Hallie, Nathalie Jones, and Afi Tengue, *Markers That Matter: Success Indicators in Early Learning and Education*, FSG, July 17, 2013. Retrieved from <http://www.fsg.org>.

Puma, M., 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).

Quinton, Sophie, "The Accountability Revolution Comes to Head Start," *National Journal*, April 23, 2014.

Reeves, Richard V., and Kimberly Howard, *The Parenting Gap*, Washington, DC: Center on Children and Families at the Brookings Institution (September 8, 2013).

Regenstein, Elliot and Rio Romero-Jurado, *A Framework for Rethinking State Education Accountability and Support from Birth Through High School*, Chicago, IL: The Ounce of Prevention Fund (June 3, 2014).

Reynolds, Arthur J., "One Year of Preschool Intervention or Two: Does It Matter?" *Early Childhood Quarterly* 10, no. 1 (January 1995): 1-31.

Sawhill, Isabel V., 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). Retrieved from <http://www.brookings.edu>.

SB 1123: Early Learning: The Strong Families, Strong Children Act, Early Edge California, April 3, 2014. Retrieved from <http://www.earlyedgecalifornia.org>.

Schmit, Stephanie and Danielle Ewen, *Supporting Our Youngest Children: Early Head Start Programs in 2010*, Washington DC: CLASP (March 2012).

Schmit, Stephanie, Hannah Matthews, Sheila Smith, and Taylor Robbins, *Investing in Young Children: A Fact Sheet on Early Care and Education Participation, Access, and Quality*, New York, NY: National Center for Children in Poverty at the Mailman School of Public Health, Columbia University (November 2013).

Schweinhart, Lawrence J., Jeanne Montie, Zongping Xiang, W. Steven Barnett, Clive R. Belfield, and Milagros Nores, *Lifetime Effects: The High/Scope Perry Preschool Study Through Age 40*. Ypsilanti, MI: High/Scope Press (2005). Retrieved from <http://www.highscope.org>.

Shonkoff, Jack P. 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).

Smart Start, "Why Smart Start Works," January 2015, <http://ivdesignhouse.com/smartstart/wp-content/uploads/2015/01/Why-Smart-Start-Works-2013.pdf>.

Stebbins, Helene and Jane Knitzer, *State Early Childhood Policies*, New York, NY: National Center for Children in Poverty at the Mailman School of Public Health, Columbia University (June 2007).

Tarkan, Laurie, "For Mother and Child at Risk, Care that Includes a Psychologist," *The New York Times* Health section, February 14, 2009.

The Annie E. Casey Foundation, *Creating Opportunity for Families: A Two-Generation Approach*, 2014.

The Annie E. Casey Foundation, *The First Eight Years: Giving Kids a Foundation for a Lifetime of Success*, 2013, <http://www.aecf.org/resources/the-first-eight-years-giving-kids-a-foundation-for-lifetime-success/>.

The Economic Promise of Investing in High-Quality Preschool: Using Early Education to Improve Economic Growth and the Fiscal Sustainability of States and the Nation, Washington, DC: Committee for Economic Development (June 26, 2006). Retrieved from <http://www.ced.org>.

The Economics of Early Childhood Investments, Washington, DC: Executive Office of the President of the United States (December 2014). Retrieved from <http://www.whitehouse.gov>.

The Rockefeller Foundation, "State and Local Governments Receive Assistance to Launch Social Impact Bond Projects Across the Country," June 10, 2013, <http://www.rockefellerfoundation.org/about-us/news-media/state-and-local-governments-receive-assistance-to-launch-social-impact-bond-projects-across-the-country/>.

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

Tout, Kathryn and Rebecca Starr, *Key Elements of a QRIS Validation Plan: Guidance and Planning Template*, OPRE 2013-11, Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, US Department of Health and Human Services.

Understanding the Effects of Maltreatment on Brain Development, Issue Brief, Washington, DC: Child Welfare Information Gateway (November 2009). Retrieved from <http://www.childwelfare.gov>.

Whitebook, Marcy, Deborah Phillips, and Carollee Howes, *Worthy Work, STILL Unlivable Wages: The Early Childhood Workforce 25 Years After the National Child Care Staffing Study*, Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley, 2014.

Williams, Conor P., *Better Policies for Dual Language Learners*, Washington, DC: New America Foundation, February 2015.

Yoshikawa, Hirokazu, Christina Weiland, Jeanne Brooks-Gunn, Margaret R. Burchinal, Linda M. Espinosa, William T. Gormley, Jens Ludwig, Katherine A. Magnuson, Deborah Phillips, and Martha J. Zaslow, *Investing in Our Future: The Evidence Base on Preschool Education*, Foundation for Child Development, New York, NY: October 2013.

Zaslow, Martha, and Kathryn Tout, *Reviewing and Clarifying Goals, Outcomes and Levels of Implementation: Toward the Next Generation of Quality Rating and Improvement Systems (QRIS)*, OPRE Research Brief #2014-75, Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, US Department of Health and Human Services (October 2014).

Appendix C: ECLS-B Technical Appendix

Technical Appendix for the Pritzker-Bridgespan Analysis of the Early Childhood Longitudinal Study–Birth Cohort (ECLS-B)

In an effort to provide philanthropists with rough estimates of the number of children who are at risk of entering kindergarten not ready to learn and the types of barriers they face to achieving kindergarten readiness, we built directly off of the work of Julia Isaacs and Katherine Magnuson as published in a series of papers from the Brookings Institution.¹³⁵ We drew extensively on appendix materials from their work as well as personal communication with Julia Isaacs. We are grateful for Isaacs’s helpful comments; her assistance implies no responsibility for the final product, which rests solely with Bridgespan and the Pritzker Children’s Initiative.

Data

In this paper, we use the Early Childhood Longitudinal Study–Birth Cohort (ECLS-B), released by the National Center for Education Statistics (NCES). ECLS-B began with 10,688 unique births in 2001. Children’s parents were interviewed in a series of four waves, corresponding with ages of nine months, two years, four years, and kindergarten.¹³⁶ Our final study sample includes roughly 4,600 children whose families remained in the survey and whose readiness for kindergarten was assessed. We use NCES-derived weights that correct for attrition bias that occurred over the course of the study.¹³⁷ Nonetheless, if sample attrition was systematically associated with the likelihood that a child was ready for kindergarten, our estimates of kindergarten readiness will be biased.

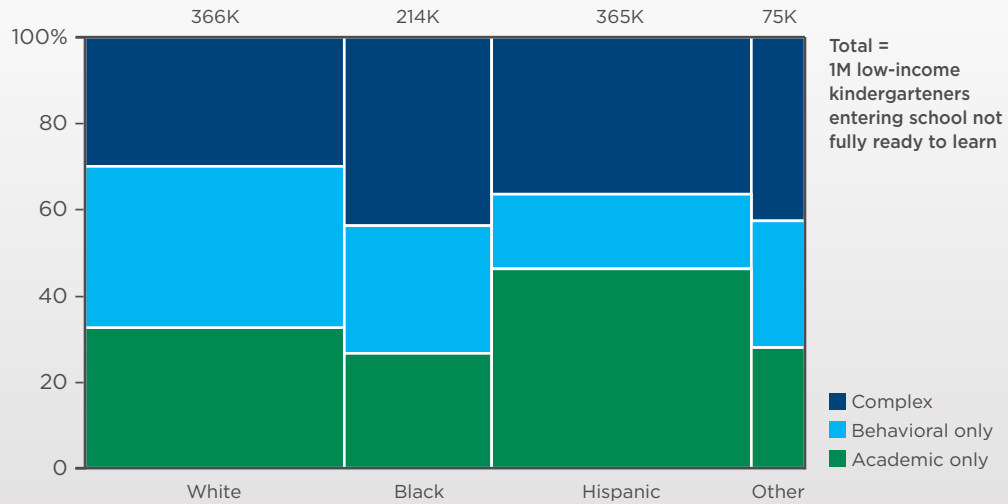
135 See Julia Isaacs and Katherine Magnuson, “Income and Education as Predictors of Children’s School Readiness,” Brookings Center on Children and Families at the Brookings Institution, December 2011, and Julia Isaacs, “Starting School at a Disadvantage: The School Readiness of Poor Children,” Brookings Center on Children and Families at the Brookings Institution, March 2012.

136 Some children who attended kindergarten in 2007 were interviewed in a fifth wave.

137 Specifically, we use WK45T0 to calculate summary measures related to kindergarten readiness.

Additional analytical findings

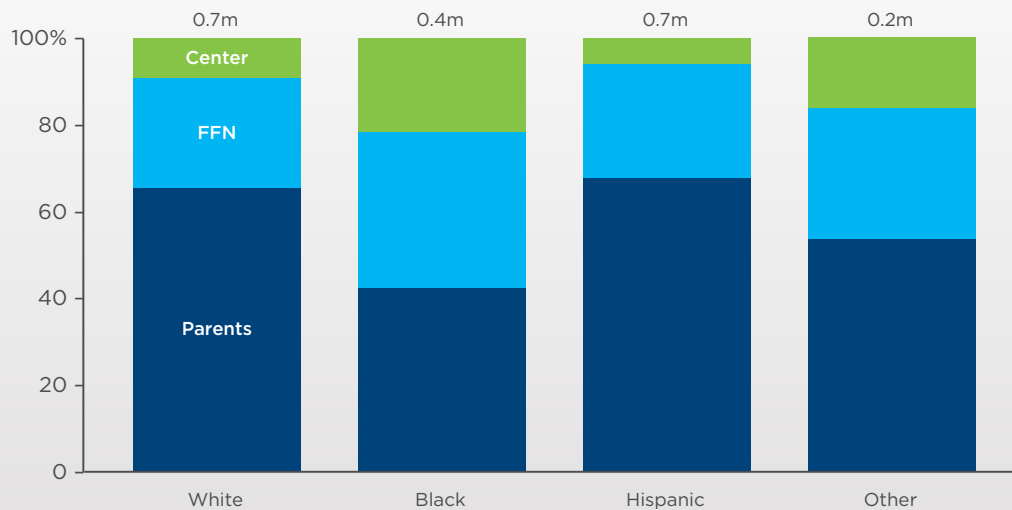
Figure A-1: Low-income kindergarteners entering school not fully ready to learn, by ethnicity



Source: Analysis of ECLS-B (2006-7) and American Community Survey (2012).

Figure A-2: Estimated primary care setting for low-income kindergarteners at age 2, by ethnicity

Low-income (<200% federal poverty line) children in kindergarten, by place of care at age 2



Source: Analysis of ECLS-B (2006-7) and American Community Survey (2012).

Creating the measure of kindergarten readiness

We measure each child’s readiness for kindergarten based on the results from assessments of his or her abilities relative to those of peers, consistent with the approach in Isaacs and Magnuson (2011). In the domains of math, reading, learning-related behaviors, and externalizing problem behaviors, we followed three steps:

1. Create a continuous measure of each child’s readiness.
2. Normalize that measure across all kindergarteners.
3. Identify children who were more than one standard deviation below the mean in at least one category, labeling them “not ready.”

Table A-1 summarizes the variables and methods used to construct the continuous measure of readiness within each domain:

Table A-1. Variables and methods used to create continuous measure of child’s readiness within domains			
Domain	Variable(s)	Description	Method
Math	X*MSCR2	IRT composite score	Excluded missing values
Reading	X*RSCR2	IRT composite score	Excluded missing values
Learning-related behaviors	T*PAYATT, T*CONCEN, T*FIDGET, T*SHWIMG, T*EAGER, T*NDEPND, T*FINISH	Teacher-rated behavioral characteristics (on a 1-5 scale)	Sum values of variables after reverse-coding T*CONCEN and T*FIDGET
Externalizing problem behaviors	T*TEMPER, T*AGRESS, T*ANNOYS, T*ACTIVE, T*MPULSV, T*DISRPT	Teacher-rated behavioral characteristics (on a 1-5 scale)	Sum values of variables after reverse-coding all variables

* Refers to the wave in which the child first entered kindergarten (either four or five)

For the fifth domain, the child’s health, we used the parents’ report of the child’s health. Children who were reported to be in “excellent,” “very good,” or “good” health were ready for kindergarten (if they were proficient in each of the other four domains) and those reported as being in “fair” or “poor” health were not ready for kindergarten. Only 2 percent of kindergarteners were judged to be in “fair” or “poor” health by their parents.

Reflections on our measure of kindergarten readiness

As the focus on kindergarten readiness has grown among both researchers and policy makers, measures of readiness have proliferated. There are two broad parameters that differentiate measures of readiness:

1. The “domains” of readiness, or skills, in which a child must achieve “proficiency” in order to be kindergarten ready.
 - a. Domains cover academic as well as physical, social, and emotional readiness.
2. The metric by which “proficiency” is defined.
 - a. Measures are *criterion-based* if children are judged against an absolute threshold of ability.
 - b. Measures are *norm-based* if children’s abilities are judged relative to those of other children.

The domains we use to assess kindergarten readiness among subjects in ECLS-B are conceptually similar to those identified by the National Education Goals Panel (NEGP), a working group whose findings have been validated by others since their publication in 1995.¹³⁸ The NEGP identified 1) physical well-being and motor development, 2) language development, 3) cognition and general knowledge, 4) social-emotional development, and 5) approaches to learning. In an effort to estimate children’s abilities in these domains using information available in ECLS-B, our measure incorporates children’s assessed abilities to perform math and reading tasks (relevant to NEGP domains 2 and 3), learning-related behaviors (domain 5), externalizing problem behaviors (domain 4), and parent-reported physical health (domain 1). Of the five domains used in our measure of readiness, the parent-reported physical health of the child probably approximates the NEGP domains with the least fidelity; parents of ECLS-B subjects appear to have highly optimistic views of their children’s health.

Like most measures of readiness that are based on nationally representative surveys of young children, our measure is norm-based; children are deemed not ready for kindergarten if they fall one standard deviation or more below the mean in any one of the four non-health domains. This cutoff point is widely used by researchers, and there is some evidence that being more than one standard deviation below mean performance carries statistically meaningful implications for a child’s subsequent achievement in school.¹³⁹ However, this norm-based approach has three important limitations:

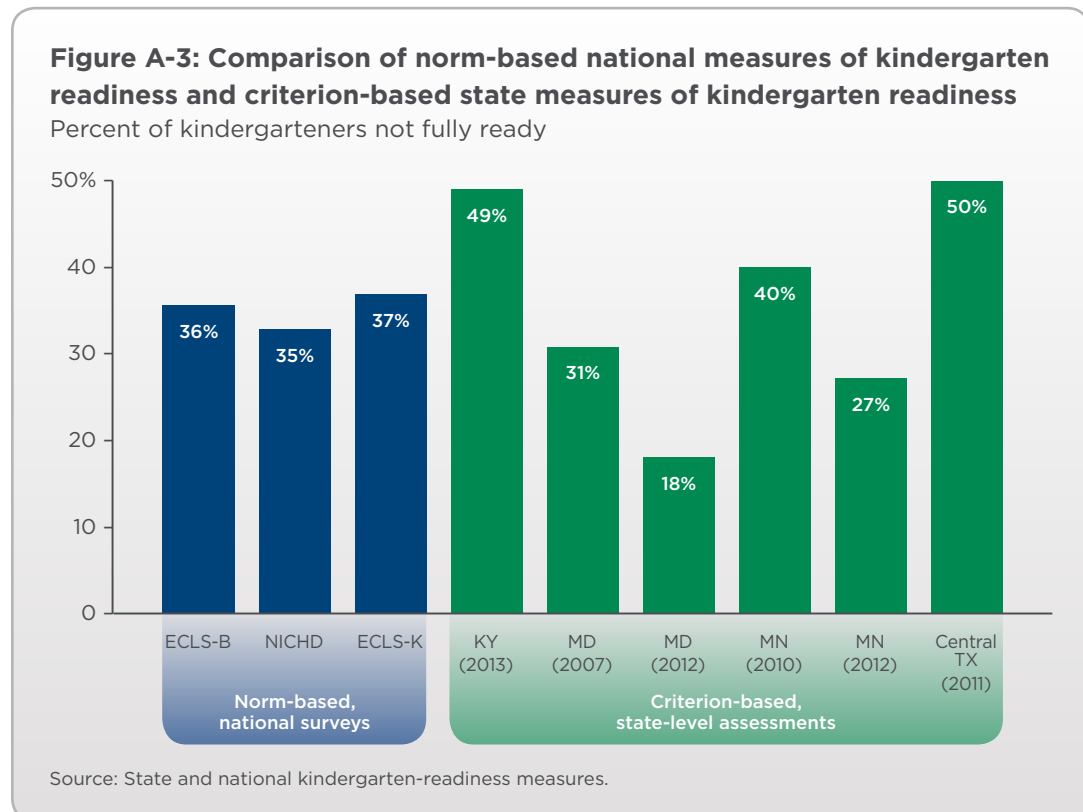
138 S.L. Kagan, E. Moore, and S. Bradekamp, *Reconsidering children’s early development and learning: Toward common views and vocabulary*, Washington, DC: National Education Goals Panel Goal 1 Technical Planning Group, (1995).

139 See Tamara Halle, Elizabeth Hair, Margaret Burchinal, Rachel Anderson, and Martha Zaslow, “In the Running for Successful Outcomes: Exploring the evidence for thresholds of school readiness,” December 2012. Prepared for Laura Radel, Office of the Assistant Secretary for Planning and Evaluation, HHS.

1. The resulting estimate of the rate of kindergarten readiness among American children is sensitive to the somewhat arbitrary assignment of one standard deviation as the key threshold; though there may not be an important difference between two children who are 0.9 and 1.1 standard deviations below the mean in a given domain of readiness, our decision to assign one of those children as ready and the other as unready affects our count of children who are not ready.
2. This measure could not be relied upon to track improvements in kindergarten readiness over time, as it reports the share of children in a certain portion of the distribution of all children's skills. That is, if all children improved incrementally (i.e. the mean of the distribution shifted) but the shape of the distribution of skills remained the same, then the number of children estimated to be ready for kindergarten would not change.
3. Most states that assess kindergarteners' readiness use criterion-based measures, increasing the need to benchmark our findings in ECLS-B to reported rates of readiness in states.

Keeping these limitations in mind, the lack of well-evidenced, widely agreed-upon criterion-based thresholds for kindergarten readiness suggests that the measure presented here is appropriate for presenting rough estimates of the number of American children at risk of entering kindergarten not ready to learn.

Figure A-3 compares several norm-based and criterion-based measures, with the consensus that about one in three kindergarteners do not enter school ready to learn (across all income levels).



Coding observable characteristics of children and their families in ECLS-B

Some of the characteristics by which we categorize children are time invariant, such as race/ethnicity and mother’s birth age. When assigning kindergarteners to categories on the basis of an observable characteristic that could change over time (poverty status, mother’s marital status, mother’s educational attainment, and mother’s employment status), we reported the modal value of the variable across the four waves in which the child’s family was interviewed. In instances where there was no mode, we used the value from the child’s first interview (at nine months).

Table A-2 summarizes the variables and methods used to construct each variable.

Table A-2. Variables and methods used to categorize children based on observable characteristics		
Domain	Variable(s)	Notes
Poverty status	X*HTOTAL, X*INCOME, P*HHINCY	Imputed exact dollar income assuming random uniform distribution within income band in X*INCOME (except for low-income families with exact income provided in P*HHINCY). Compared to poverty thresholds corresponding with number of family members (in X*HTOTAL).
Race/ethnicity	Y1CHRACE	Categories “White,” “Black,” and “Other” include only non-Hispanic children.
Maternal education	Y1MOMED	
Primary place of care	X*PRIMNW, P*PRTYPE, P*CHRS, P*CHROTH, P*RHRS, P*RHROTH, P*NHRS, P*NHROTH, P*HSHRS	Begin with ECLS coding of child’s “primary” place of care (X*PRIMNW). Recategorize as “parental” care if the total number of hours/week in center-based care (P*CHRS + P*CHROTH + P*HSHRS) is less than 10 and if the total number of hours in FFN care (P*RHRS + P*RHROTH + P*NHRS + P*NHROTH) is less than 10. Recategorize as FFN care if the total number of hours/week in FFN care is greater than 10 and greater than the total number of hours/week in center-based care. Recategorize as center-based care if the total number of hours/week in center-based care is greater than 10 and is greater than or equal to the number of hours spent in FFN care.
Mother’s marital status	Y1MARSTA	Only distinguish between married and not married.
Mother’s age at birth	BCMOMAGE	

* Refers to the wave in which place of care is being observed

Estimating the number of children currently not ready for kindergarten

In order to arrive at estimates of the *number* of kindergarteners who are not ready for kindergarten today, we applied the percentage likelihoods that any given type of child would be ready for kindergarten (estimated in the Early Childhood Longitudinal Study) to the number of kindergarteners matching that description in the 2012 American Community Survey (ACS).¹⁴⁰ For instance, 82 percent of non-Hispanic White kindergarteners whose families had incomes above 350 percent of the federal poverty line (FPL) in the Early Childhood Longitudinal Study—Birth Cohort (ECLS-B) were ready for kindergarten—we assumed that this within-segment rate has not changed since 2006–7. In order to estimate the number of non-Hispanic White kindergarteners who are today ready for kindergarten, we applied that 82 percent rate to the number of non-Hispanic White kindergarteners with family incomes above 350 percent FPL (estimated to be about 825,000) living in the United States from the ACS.

In order to estimate the number of children ages birth to five who are at risk of entering kindergarten not ready to learn, we used a similar approach as described above, applying rates calculated in ECLS-B for a given type of child (e.g., child of a single mother in poverty) to the number of children ages birth to five estimated to have those traits in 2012. The assumption underlying these estimates is that children with certain observable characteristics will, in the absence of intervention, be ready for kindergarten at the same rate as kindergarteners with those same characteristics.

In general, we only rescaled the segments of population of children by poverty status and race/ethnicity. For instance, we assumed that the percent of children in poverty who received primarily parental care at two years remained at 61 percent; however, the share of all children who were both in poverty and receiving primarily parental care grew because we scaled up the share of all children in poverty. Therefore, if parents' educational attainment, child-care choices, marital statuses, or other variables of interest systematically changed within income or racial categories between 2007 and 2012, our estimates may be biased.

Finally, in calibrating our estimate of the likelihood that the average American kindergartener is ready, we applied the readiness rates for each poverty/race cell from ECLS-B to the population estimates from the ACS. Summing across the cells, we calculated the number of kindergarteners who would not have been ready in 2012 (roughly 1.5 million) and divided that number by the number of kindergarteners in the ACS in 2012 (roughly 4.2 million) to estimate the likelihood that the average American kindergartener was ready in 2012 (36 percent).

140 This approach is especially important because it incorporates two important trends that have changed the profile of infants and toddlers in the US since the end of the ECLS-B data collection period: the rise of childhood poverty and the increased share of children who are Hispanic. The share of children ages birth to five in poverty was 21 percent in 2007 and 26 percent in 2012. Similarly, the share of children birth to five who were Hispanic was 26 percent in 2012.

Note on the precision of estimates

When calculating standard errors for estimates of kindergarten-readiness rates for a particular group, we account for complex survey design by calculating jackknife standard errors.

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