

# Building Blocks for Expanding High-Quality Preschool

Federal investment in Head Start, a comprehensive child development program for low-income preschool-age children, has been a central component in the War on Poverty; the program has served more than 30 million children since its inception in 1965. Fifty years later, as of the 2014–2015 school year, 42 states and the District of Columbia allocate their own funds for targeted or universal preschool programs serving children one or two years before kindergarten entry. More recently, cities—such as Boston, Denver, New York City, San Antonio, San Francisco, and Seattle—have identified local funding streams to extend access to subsidized preschool programs beyond what federal and state programs provide. As these federal, state, and local investments in early learning programs have grown, stakeholders in the public and private sectors have been able to draw on an expanding research base demonstrating the importance of the early years for healthy child development, as well as an extensive body of evaluation research documenting what works.

As part of a recent study, researchers from the RAND Corporation—together with analysts at MetrixIQ and the University of Cincinnati’s Institute for Policy Research—worked with stakeholders in Cincinnati who were seeking to expand preschool access and quality in their city. Key study questions included: How many children already have access to high-quality preschool; should an expanded program be targeted or universal; and should the program cover children for one or two years of programming? Decisionmakers also wanted to know the cost of a high-quality program, how an expansion could leverage existing funding streams, and the possible return on investment. In answering these questions, stakeholders wanted to take a data-driven approach to preschool expansion, one that would be informed both by the broader research base but also by a deeper understanding of the current context of early learning programs in the city.

The study demonstrates the way that research and analysis can inform the design of a preschool expansion at a state or local level by

- integrating findings from studies of preschool program **effects** on short- and long-term outcomes for children
- collecting and analyzing information on the local preschool **landscape**
- conducting a financial analysis of the **cost** of alternative approaches to public-sector investments in preschool

## Key findings:

- High quality is a common element among preschool programs with the largest effects on school readiness and with sustained effects at older ages.
- The evidence points to favorable effects from part- and full-day preschool programs, as well as one- and two-year programs, but the research is not definitive about the comparative effectiveness of these options.
- If Cincinnati, Ohio, had enough slots to meet demand for high-quality preschool, annual costs in the first five years of expansion would range from about \$8 million to \$20 million, depending on the ages served and subsidies provided.
- The RAND Corporation’s modeling of preschool alternatives for Cincinnati found economic returns ranging from \$2.42 to \$3.40 per \$1 invested.

- analyzing the **economic returns** to those alternative investment strategies.

These same building blocks can form the foundation for efforts by other communities seeking to take an evidence-based approach to early childhood investments.

## 1ST Building Block

### Know the Evidence: What Does the Literature Say About Effective Preschool Programs?

There is an extensive body of evaluation research that has accompanied preschool expansion at the federal, state, and local levels that can assist communities seeking to expand their own investments in preschool. Our review of the research centered on full-scale national-, state-, or district-level publicly funded preschool programs currently operating in the United States. These programs have been the focus of rigorous evaluations to assess the effects of participating in the program on kindergarten readiness and/or subsequent educational outcomes. In total, the review included one national program (Head Start), 11 state-funded programs (Arkansas, Georgia, Michigan, New Jersey, New Mexico,

North Carolina, Oklahoma, South Carolina, Tennessee, West Virginia, and Washington), and three district-level programs (Boston, Chicago, and Tulsa, Oklahoma). These 15 full-scale programs share a common objective of delivering a high-quality preschool program to children in center-based settings, one or two years before entering kindergarten.

However, the programs varied in a number of ways, such as whether they were universal or targeted (and, if targeted, the specific target population); the duration (one or two years) and intensity of the program (i.e., hours per day and weeks per year); structural features, such as group sizes and ratios, the education and training requirements of the classroom staff, the nature of the curriculum employed in the classroom, and the professional development support for staff; and the provision of other supports to children and families beyond early learning services. Despite these differences, a number of important lessons emerge from well-designed evaluations that can inform further preschool investments.

**Numerous evaluations of full-scale preschool programs show improvements in school readiness for participating children.** Evaluations of the preschool programs reviewed provided evidence that high-quality programs generated significant gains in school readiness. The size of the effects from these real-world programs are typically smaller than those found in small-scale demonstration programs (such as the Perry Preschool Project in Michigan), but they represent meaningful gains in children's readiness for school.

**High quality is a common element among the preschool programs with the largest effects on school readiness and with sustained effects at older ages.** These effective programs include such features as well-trained classroom teachers who receive ongoing professional-development support through coaching and other mechanisms, a learning environment that supports teachers and children, a well-defined curriculum that is implemented with fidelity in the classroom and aligned with the early elementary grades, and ongoing monitoring of program quality and other metrics that support continuous quality improvement.

**The evidence points to favorable effects from part- and full-day preschool programs, as well as one- and two-year programs, but the research is not definitive about the comparative effectiveness of these options.** Preschool programs proven to be effective at improving school readiness and subsequent school performance include those operating with either part- or full-day schedules, as well as those that begin with either three- or four-year-olds. Although the research suggests that children benefit additionally from a program with more hours or from a second year of attendance, the available evidence does not definitively demonstrate that the benefits increase in proportion with an increased dosage. This could be because existing

programs are not structured to fully capitalize on the added time in preschool.

**Children across the income spectrum can benefit from high-quality preschool, but the effects tend to be larger for more-disadvantaged children.** Because of funding constraints, most large-scale publicly funded preschool programs serve children in low-income families or those who face other risks to healthy development. Where programs have been made universally available, such as Oklahoma's universal preschool program, children across the income spectrum benefit, although the effects are largest for the most-disadvantaged children.

**Although differences in achievement scores between preschool program participants and nonparticipants tend to "fade out" (i.e., narrow) as children advance through the elementary grades, high-quality preschool programs show sustained effects on other aspects of school performance.** Rigorous evaluations of a number of high-quality full-scale preschool programs have shown sustained favorable effects on student achievement in reading or mathematics through at least the third grade. However, even when those who did not attend preschool eventually catch up to their preschool counterparts in terms of achievement, the evaluations often find that preschool participants have experienced favorable effects on other aspects of educational performance, such as special education use, grade retention, and high school completion.

**Improving the alignment between preschool and the early elementary grades might help sustain the initial boost in cognitive and noncognitive skills from preschool participation.** Although research is ongoing to identify the factors that could contribute to the fade-out or catch-up phenomenon, initial studies suggest that a well-aligned preschool-to-elementary school system offers a promising strategy to ensure that children who experience high-quality preschool programs can continue to build on their early success.

## **2ND Building Block**

### **Know the Local Landscape: What Is the Need for and Supply of High-Quality Preschool?**

Preschool investments had been underway in Cincinnati for more than a decade through several local initiatives. However, an analysis of various data sources demonstrated that there was scope to increase access to high-quality programs, especially for economically disadvantaged children. The assembled evidence demonstrated the following:

- More than four in ten entering kindergarteners in Cincinnati Public Schools were not on track for school readiness in terms of language and literacy skills. This shortfall was even more pronounced for low-income children and children with no preschool experience.
- Although there is sufficient capacity for preschool-age children in school- and center-based programs to meet

the likely demand, there is a significant shortfall in program quality. Just 45 percent of the estimated 3,300 slots for preschool-age children were known to be in high-quality programs, defined as those rated Star 3 to Star 5, according to Ohio's quality rating and improvement system, Step Up to Quality (SUTQ).

- With one of the highest child poverty rates in the country, about two in three preschool-age children in Cincinnati would qualify for one or more subsidized preschool programs. However, existing funding is not sufficient to serve all eligible children and ensure they are served in high-quality programs. For example, Head Start and funding through Ohio's Early Childhood Education program, both of which focus on quality programming, could reach only about 34 percent of the children who qualify for them (i.e., those children in families with income below 200 percent of the federal poverty threshold).
- A geographic analysis showed that the shortfalls in the quality of programs serving three- and four-year-olds were most pronounced in low-income neighborhoods.

### **3RD Building Block**

#### **Know the Alternatives: What Is the Cost to Implement Alternative Approaches to Public Sector Investment in High-Quality Preschool?**

Drawing on the research evidence, as well as models from other city-funded preschool initiatives, our research team modeled the cost to expand high-quality publicly funded preschool programs under several scenarios based on inputs from community stakeholders. The scenarios ranged from a targeted one-year preschool program fully subsidized for four-year-olds with family income below 200 percent of the federal poverty thresholds to a universal program available for three- and four-year-olds based on a sliding-scale subsidy (with a full subsidy for children in families with income below 200 percent of the federal poverty threshold and a declining subsidy at higher income levels). Intermediate cases included a targeted, fully subsidized program for both three- and four-year-olds and a universal program for four-year-olds combined with a targeted program for three-year-olds. All scenarios assumed subsidies would only be used for high-quality programs.

In total, five alternative preschool expansion scenarios were costed using a ten-year horizon. In each case, subsidies were modeled as tuition credits that could be used in public or private programs with Star 3 to Star 5 SUTQ rating, where the size of the tuition credit increased with program quality. The model accounted for the costs of tuition credits net of current public subsidies from Head Start, federal child care subsidies, and Ohio's Early Childhood Education program. Other costs include those required for improving

the quality of existing providers, maintaining high-quality programs over time, administering the program of public subsidies, and marketing the program to families.

The modeling exercise demonstrated that, assuming the supply of quality preschool program slots was available to meet the expected demand, annual costs in the first five years of expansion would range from about \$8 million for the program targeted for four-year-olds to \$20 million for a universal program with sliding-scale subsidies for three- and four-year-olds. Accounting for the existing gap in preschool program quality, the modeling exercise showed that the program would not be able to serve all eligible children in the early years, unless quality could expand more rapidly than assumed. The analysis also documented that the majority of tuition credits would accrue to the lowest-income children even in a universal program, given the assumption of declining subsidies with higher family income.

### **4TH Building Block**

#### **Know the Potential Payoff: What Is the Likely Economic Return to Alternative Strategies for Investing in High-Quality Preschool?**

A review of previous research demonstrated that estimates of the economic returns to full-scale, high-quality preschool programs range from about \$2.50 per \$1 invested to \$4.20 per \$1 invested. To further guide decisionmakers in Cincinnati, our analysis generated an estimate of the potential economic returns under each of the five scenarios modeled. These estimates accounted for the cost of the preschool investment, based on the financial model, versus the potential benefits to society, specifically those associated with improved kindergarten readiness, reduced special education use, and reduced grade repetition.

Employing largely conservative assumptions, the preferred baseline estimates showed a return to society ranging from \$3.40 per \$1 invested to provide tuition credits to four-year-olds with family incomes below 200 percent of the federal poverty threshold (a targeted approach) to \$2.42 per \$1 invested when the tuition credits are made available, with a sliding-scale benefit, to all three- and four-year-olds in the city (a universal approach). Although the benefit-cost ratio was larger for the targeted scenarios than for the universal ones, the aggregate net-dollar benefits to society were largest in the universal program that would be available to all three- and four-year-olds with a sliding-scale benefit. Under even more-conservative assumptions about the benefits from preschool participation, the net benefits under each of the five scenarios modeled were always greater than zero. This indicates that a positive economic return would be expected from investing in preschool access and quality under a variety of scenarios, from a more-targeted approach to a more-universal one.

## Broader Lessons

Our study in Cincinnati demonstrates the value of bringing data, evidence, and analysis to bear on decisionmaking regarding preschool investments. Other lessons are likely to resonate with efforts in other communities to expand the public-sector investment in early learning programs.

**Focus on investing in quality.** The message from the research literature is clear: Investments in preschool programs are unlikely to produce the expected developmental or economic gains if programs are not high quality. Viewed in the local context, any expanded preschool investment in Cincinnati would need to address the shortfall in quality preschool options offered by public and private providers. Given evidence from other states and localities about the quality of early childhood programs, this lesson is likely to be relevant for other communities.

**Align funding expansions with the supply of quality.** Most other city-supported preschool programs, even when they aspired to universal coverage, rolled their programs out on a gradual basis so that the expanding eligibility was in alignment with the number of high-quality preschool spaces. The biggest challenge for Cincinnati is growing the number of high-quality preschool slots. One strategy, assumed in the financial model for Cincinnati, is to direct a higher share of the initial investment in preschool toward improving program quality, so that the supply of quality will rise to meet the demand.

**Address challenges of multiple funding streams.** The financial model for Cincinnati assumed that existing public funds (e.g., Head Start and child-care subsidies) would be leveraged as part of expanding access to high-quality preschool. Stakeholders in Cincinnati, as in other communities, will need to identify feasible and practical options for integrating any new funding stream with existing ones and facilitating access to the appropriate funding option for families with preschool-age children who qualify. Given the complexities, it might be most efficient to pilot test one or more approaches for integrating funding streams.

**Align preschool programs with the early elementary grades.** To fully benefit from preschool investments, there is a growing recognition of the need to align preschool programming with the kindergarten through third grade (K–3) system, the so-called P–3 system approach. This alignment can take place at multiple levels, including the continuity of learning standards, the alignment of the specific curricula and the pedagogical approach, and the integration of teacher professional development. The process of alignment can be more challenging in a mixed-delivery system—one in which preschool programs are delivered by both public schools, as well as by community-based providers—but these issues have been addressed in other state and local systems.

**Monitor and evaluate new preschool investments.** To ensure the optimal benefit from any new preschool investment, it is important to incorporate mechanisms in the system for monitoring implementation and evaluating outcomes, both at the macro or system level and at the micro or individual level (e.g., providers, classroom teachers). There is increasing recognition of the importance of building a culture of learning and improvement that permeates all levels of the early learning system, from the overall system design to the use of a particular curriculum in a classroom, through the use of data, analytics, evidence, and evaluation to provide a near-continuous feedback mechanism to assess the current landscape and anticipate what is next.

At the same time, it is also important to track the implications of preschool policy changes for the larger early-care and education system. For example, investing in high-quality preschool programs might have positive spillovers for infant and toddler care if providers that offer care for children ages four and younger can improve the quality of their programming at the same time as providers increase the quality of their programming for preschool-age children. Potential negative consequences would arise if providers that offer infant and toddler care were to shift their programming toward the preschool-age group in response to an increase in demand for high-quality preschool programming.

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This brief describes work done in RAND Education and RAND Labor and Population documented in *Informing Investments in Preschool Quality and Access in Cincinnati: Evidence of Impacts and Economic Returns from National, State, and Local Preschool Programs*, by Lynn A. Karoly and Anamarie Auger, RR-1461-CBC/UWGC, 2016 (available at [www.rand.org/t/RR1461](http://www.rand.org/t/RR1461)); and *Options for Investing in Access to High-Quality Preschool in Cincinnati*, by Lynn A. Karoly, Anamarie Auger, Courtney Ann Kase, Robert C. McDaniel, and Eric W. Rademacher, RR-1615-CBC/UWGC, 2016 (available at [www.rand.org/t/RR1615](http://www.rand.org/t/RR1615)). To view this brief online, visit [www.rand.org/t/RB9943](http://www.rand.org/t/RB9943). The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark. © RAND 2016

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