

# Investments in Pennsylvania's early childhood programs pay off now and later

American children are struggling to achieve. The majority of fourth or eighth graders are not proficient in both math and reading in any state.<sup>1</sup> In 2009, U.S. 15-year-olds ranked 25th among 34 developed countries in math and 17th in science.<sup>2</sup> Pennsylvania is not immune to these challenges. Children living in 46 of the state's counties and 21 of its largest cities are at moderately high or high risk of school failure.<sup>3</sup> Early childhood investments are helping Pennsylvania close the achievement gap and produce the qualified workers the state and the nation need for a prosperous future.

Early childhood programs reach children at a critical point in brain development, and the impact is sustained long-term.<sup>4</sup> Young children's brains develop 700 synapses—neural connections that transmit information and support learning—every second.<sup>5</sup>

High-quality pre-kindergarten programs, especially for at-risk children, have been shown to significantly improve children's early literacy, language and math skills;<sup>6</sup> decrease the rate of special education

placements by nearly 50 percent through second grade;<sup>7</sup> reduce grade repetition by as much as 33 percent through eighth grade;<sup>8</sup> and lower the incidence of juvenile arrests by 32 percent.<sup>9</sup>

Pennsylvania's early childhood education continuum provides quality early learning opportunities at home and in center- and school-based settings for children from birth to kindergarten entry. These programs are built upon research, quality standards and comprehensive accountability systems that document positive outcomes for children.<sup>10</sup>



## Pennsylvania Pursues Efficiency and Effectiveness

Continued improvements in access, quality and accountability are needed to ensure that Pennsylvania's children and taxpayers reap the benefits promised by the research on high-quality programs.

**Access:** When at-risk young children have access to quality early education, they are far more likely to enter kindergarten on par with their more well-to-do peers.<sup>11</sup>

- Over the last decade, Pennsylvania has gone from being one of twelve states to offer no publicly funded pre-k<sup>12</sup> to having 16 percent of four year olds and 5 percent of three year olds enrolled in a state-funded program<sup>13</sup> and more than one-third of children under five participating in state and/or federally funded quality early childhood education.<sup>14</sup>

**Quality:** One of the most important factors in predicting the effectiveness of a pre-k program is quality. Only programs with highly qualified and well-educated teachers, small class sizes, low adult-child ratios and developmentally appropriate curricula are linked to positive effects on children's development, academic success and other outcomes that yield economic benefits to society.<sup>15</sup>

- The number of Pennsylvania's early childhood teachers with a Child Development Associate credential,

one of the National Institute for Early Education Research's 10 quality benchmarks,<sup>16</sup> has nearly doubled since 2006-07.<sup>17</sup>

- Over the past six years, Pennsylvania has seen increasing quality in early childhood classrooms across a variety of settings—Head Start, center-based programs earning a three- or four-star rating in Keystone STARS, the state's quality rating and improvement system, and Pennsylvania Pre-K Counts, the state's early learning program—based on Environmental Rating Scales assessments.<sup>18</sup>

**Accountability:** Program coordination, data gathering and information sharing help ensure the effectiveness of an early childhood system, improve efficiency and maximize the effective use of scarce public resources.

- In 2007, Pennsylvania became one of the first states to create a cohesive early childhood system, through the formation of the Office of Child Development and Early Learning (OCDEL). OCDEL brings together the early education resources and expertise from across the Departments of Education and Public Welfare. By combining these services in one department, the Commonwealth has been able to align quality and accountability for all programs serving children from birth through kindergarten.

- In 2009-10, approximately 10,000 early childhood programs, 24,000 professionals and 300,000 child records were included in Pennsylvania's Enterprise to Link Information Across Networks (PELICAN) data system. PELICAN is a single integrated information system that allows the state to monitor publicly funded programs and evaluate their effectiveness over time.<sup>19</sup>

## Payoffs from Early Childhood Investments

A growing body of research continues to demonstrate that high-quality, publicly funded pre-k yields positive short- and long-term benefits for participating children, taxpayers, the economy and state and local school reform efforts.<sup>20</sup> Pennsylvania has already begun to realize the returns on its investments in a quality early education system:



**Kindergarten readiness:** For the past three years, nearly every child (between 94-99 percent) showed age-appropriate or nearly age-appropriate literacy, numeracy and social skills after attending Pennsylvania Pre-K Counts. Officials from participating districts report that, in kindergarten and first grade, Pre-K Counts graduates continue to perform on par with or better than their peers who were not enrolled in the program.<sup>21</sup>

**Third grade scores:** Third-graders who had participated in the high-quality Harrisburg Preschool Program (HPP), the city's publicly funded pre-k system, scored significantly higher on Pennsylvania System of School Assessment tests than did a matched group of students who did not take part in HPP. (51 percent vs. 29 percent advanced/proficient in math, 45 percent vs. 23 percent advanced/proficient in reading).<sup>22</sup>

**Statewide reduction in Individualized Education Plans (IEPs):** Districts with the highest Pre-K Counts enrollment have populations of students with higher risk factors for school failure. Yet, in these districts, 25 percent fewer kindergarteners (6 percent vs. 8 percent in areas without Pre-K Counts) needed IEPs, signaling less long-term and costly interventions.<sup>23</sup>

**Grade retention and special education:** According to unpublished data provided by the Pittsburgh public school system, over the past five years, only 1 percent

of the students who participated in the Pittsburgh school district's early childhood program were held back in kindergarten, as compared to the district-wide retention rate of between 3 percent and 7 percent. Among children who received early intervention services in pre-k, 42 percent did not need special education in kindergarten. Providing special education services for those children would have cost the district an estimated \$570,000 over the 2010-11 school year.<sup>24</sup>

## Greater Investment Promises Greater Returns

A body of economic research indicates that expanding state investments in early childhood education can generate impressive returns for Pennsylvania in both the short and long terms.

According to an analysis by Professor Clive Belfield of Queens College,<sup>25</sup> Pennsylvania could save as much as \$100 million in special education costs.<sup>26</sup> This study showed that over participants' K-12 years:

- On average, a child placed in special education costs an additional \$67,500.
- A quality pre-k program available to 20 percent of Pennsylvania's four year olds would yield savings sufficient to offset 26 percent to 31 percent of the pre-k program costs, including \$68 million in reduced special education costs.<sup>27</sup>

- If Pennsylvania served half of its children in quality pre-k,<sup>28</sup> the state could save \$102 million in special education costs, offsetting between 16 percent and 19 percent of the costs of the pre-k program.<sup>29</sup>

A study from noted economist Robert Lynch indicates that a targeted pre-k program<sup>30</sup> costing \$298 million in 2008 would yield total benefits—savings and higher revenues to government budgets, increased earnings to participants' families and reduced costs to crime victims—sufficient to pay for itself within eight years. In nine years, it would pay for itself in government budget benefits alone.<sup>31</sup> By 2050, this program would:

- Generate total benefits of \$9.9 billion;
- Yield a benefit-cost ratio of 12.4 to 1; and
- Allow Pennsylvania to realize a total increase in worker compensation (wages and benefits) of \$4.7 billion and generate \$2.5 billion in savings to individuals from crime reduction.<sup>32</sup>

## Conclusion

Early childhood investments are vital to closing the achievement gap, producing qualified workers and providing short- and long-term economic returns to Pennsylvania taxpayers. The state has established a system that provides quality early learning programs to a growing number of Pennsylvania children.

It ensures accountability to improve efficiency and maximize public resources. Continued investment in this system will create more opportunities for children to succeed in school and become the highly skilled workers the state needs

to compete, while also generating substantial savings in education, criminal justice and other public services. By supporting greater access to high-quality early education, Pennsylvania can build a strong economy now and for the future.

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## Endnotes

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24 Unpublished data from Pittsburgh Public Schools researcher. Figures are based on calculations by Pittsburgh Public School researchers using data from the Pittsburgh Public Schools Real Time Information Database (2009-2010) and from a phone interview with Carol Barone-Martin, Executive Director, Early Childhood Education, Pittsburgh Public Schools.

25 Queens College is part of the City University of New York system and offers liberal arts, science and pre-professional programs. Dr. Belfield is assistant professor of economics specializing the economics of education.

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27 Based on a targeted program for all at-risk four year olds, equivalent to roughly 20 percent of all four year olds in the state.

28 Based on a program open to all Pennsylvania four year olds; it is assumed that 50 percent of children would likely enroll.

29 Because about 10 percent of the funding is federal, that much would be seen in federal, rather than state, savings.

30 A targeted program refers to pre-k programs that are made available only to children below a certain household income threshold. In Lynch's study a targeted program would be voluntary, and available to all three- and four-year-old children who live in families with incomes of up to 125 percent of the family poverty level.

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## Acknowledgements

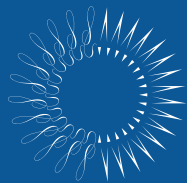
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