

## **Benefits and Outcomes of High-Quality Early Childhood Education**

*Investments in high-quality early childhood programs yield short- and long-term returns to businesses and the economy*

**The Problem:** Businesses need employees who are job-ready, team capable, and well-prepared – but we’re not getting them:

- The majority of fourth and eighth graders are not proficient in math and reading in all 50 U.S. states and Washington, D.C.<sup>i</sup>
- Fewer than one-third (32%) of students in all 65 participating countries and economies reached the baseline proficiency level on the 2012 Programme for International Student Assessment (PISA) mathematics assessment.<sup>ii</sup>
- Only 29% of young people ages 17 to 24 would qualify to serve in the U.S. military. The rest could not meet the physical, behavioral, or educational standards for service – standards similar to those many employers use.<sup>iii</sup>

**A Solution:** This failing workforce pipeline can be repaired, but we have to start early. The foundation of many skills needed for 21st-century jobs is established in the earliest years.

- Young children’s brains develop 700 synapses – neural connections that support learning and skills – every second.<sup>iv</sup> By age 3, a child’s brain has reached about 85% of its adult weight.<sup>v</sup>
- An overview of 56 studies across 23 countries in Europe, Asia, Africa, and Central/South America found impacts of early childhood programs on health, IQ, and emotional development.<sup>vi</sup>
- Children in the Chicago Child-Parent Centers (CPC) preschool were 29% more likely to graduate from high school, and the Perry Preschool Project children graduated 44% more often.<sup>vii</sup>
- By age 30, individuals served by the Abecedarian preschool program were four times more likely to graduate college (and 42% more likely to be consistently employed).<sup>viii</sup>
- Child care and preschool professionals generally spend most of their earnings locally. States realize roughly \$2 in local spending for each child care dollar spent.<sup>ix</sup>

**Building a STEM workforce:** The learning gap between advantaged and disadvantaged children shows up as early as 9 months of age. Disadvantaged children can start kindergarten as much as 18 months behind their peers. Many of these children never catch up, and are at an increased risk of dropping out of high school.<sup>x</sup>

- This gap is as pronounced for math skills as for literacy abilities.<sup>xi</sup> A 2010 Canadian study found that “[K]indergarten skills in math significantly predicted second grade math, reading, and general achievement.”<sup>xii</sup>
- Research has determined that early math skills are the most powerful predictors of later learning, predicting both later math and later reading achievement.<sup>xiii,xiv</sup>
- Children with “persistent” problems in math at ages 6, 8 and 10 were 13 percent less likely to graduate high school and 29 percent less likely to attend college.<sup>xv</sup>
- An article in Science concludes, “Preschool children’s knowledge of mathematics predicts their later school success into elementary and even high school. Further, it predicts later reading achievement even better than early reading skills.”<sup>xvi</sup>

**Quality early learning promotes later health:**

- A randomized trial found that boys who participated in *Abecedarian* were nearly four times more likely to exercise regularly as young adults, less likely to be substance abusers as young adults, and had significantly lower risk factors for heart disease, stroke and diabetes by their mid-30s.<sup>xvii</sup>
- Meanwhile, girls who participated in the program were less likely to start drinking as teenagers, more likely to exercise regularly as young adults and less likely to experience abdominal obesity as adults.<sup>xviii</sup>

- Boys who participated in the *Perry Preschool Project* were 29 percent less likely to be smokers and 65 percent more likely to report improving their diet for health reasons as adults, while girls in the program were eight times more likely to exercise regularly as adults.<sup>xix</sup>

#### **High-quality early learning helps prevent absenteeism and turnover:**

- The average working parent in America misses five to nine days of work, or one to two weeks per year, because of child care problems, costing U.S. businesses \$3 billion every year.<sup>xx</sup>
- Research confirms that if parents have quality early care and education available in their communities, not only will absenteeism and turnover go down, but retention and productivity will also go up.<sup>xxi</sup>
- Reduced absenteeism and turnover and increased retention and productivity translate into immediate savings and increased profits for businesses.

**Studies Show Success of State Early Learning Programs:** Children who have access to high-quality early care and education programs are better prepared to succeed in school than those who do not have access to such programs. Recent evaluations of state-funded pre-kindergarten programs have found significant gains in academic performance for children participating in high-quality early learning programs compared to those not in the program. Averaged results from 123 different studies across four decades of early education research found that by third grade, about one-third of the achievement gap can be closed by early education.<sup>xxii</sup>

- **Arkansas:** An evaluation of the Arkansas Better Chance program found that children who attended pre-K developed an extra four months worth of vocabulary knowledge, beyond the gains that would be expected as a child naturally ages. Pre-K attendance also resulted in 23 percent more correct answers on a literacy test and improved math scores. Benefits persisted through 2<sup>nd</sup> grade for literacy, language and math, and through 3<sup>rd</sup> grade for literacy. In addition, children who attended the program were less likely to be held back in school by the end of 3<sup>rd</sup> grade than those who didn't attend any pre-K.<sup>xxiii</sup>
- **California:** A study of disadvantaged children in the San Francisco Bay Area who received high-quality preschool for two years showed that the children actually outperformed more well-off children in reading by second grade: 61 percent of those attending the program were proficient in reading, compared to 55 percent of students who did not attend (most of whom attended private preschool programs.)<sup>xxiv</sup>
- **Georgia:** The Georgia Pre-K program had positive effects on children's early literacy skills, math skills and general knowledge. Poor children also had sustained benefits through elementary school in reading and English language arts, were less likely to be held back in school, and outperformed children who did not attend pre-K on some measures on 9<sup>th</sup> grade achievement tests.<sup>xxv</sup>
- **Kentucky:** Studies of early education and care programs under Kentucky's KIDS NOW reforms found that children served in these programs make significant gains within the year on one or more subtests of the Woodcock Johnson test of cognitive abilities.<sup>xxvi</sup>
- **Massachusetts:** Boston's universal pre-K program improved mathematics, literacy, and language skills among participating children equivalent to seven months of additional learning, compared to children who did not attend.<sup>xxvii</sup>
- **Michigan:** While most state pre-K evaluations do not yet have results on children's school performance beyond the early elementary school years, an evaluation of Michigan's state pre-K program shows longer-term results. While the study did not find significant effects on test scores by the 7<sup>th</sup> grade, it did find that pre-K participation had a dramatic impact on reducing grade repetition. Children who attended Michigan's pre-K program were 51 percent less likely to be held back a grade by 8<sup>th</sup> grade when compared to a similar group of children who did not attend the program.<sup>xxviii</sup> And children who attended Michigan's pre-k program were 35 percent more likely to graduate from high school on time than a comparison group of children not in the program.<sup>xxix</sup>
- **Mississippi:** Children who attended Mississippi's Title I-funded preschools were 1.5 times more likely to be reading proficiently in 3<sup>rd</sup> grade.<sup>xxx</sup>
- **New Mexico:** New Mexico launched a pre-K program in 2005. Across the first three years of the initiative, participating children answered an average of 24 percent more questions correctly on a literacy test. Significant impacts were found in math for all three years and in vocabulary for two of the three initial years.<sup>xxxi</sup>

- **North Carolina:** North Carolina’s More at Four and Smart Start programs improved young children’s reading and math skills.<sup>xxxii</sup> The programs increased third grade reading scores by an amount equivalent to five months of extra instruction and improved math scores by three to five months of extra instruction. More at Four also resulted in a 10 percent reduction in special education placement by grade three.<sup>xxxiii</sup>
- **New Jersey:** An evaluation of New Jersey’s pre-K program found that children who attended the program significantly outperformed similar children who did not attend and that these differences persist at least through 4<sup>th</sup> or 5<sup>th</sup> grade.<sup>xxxiv</sup> In 4<sup>th</sup> or 5<sup>th</sup> grade children who had attended New Jersey pre-K for two years were three-quarters of an academic year ahead of their peers who did not attend in math and two-thirds of an academic year ahead in literacy. Pre-K also reduced the likelihood of being held back in school by 40 percent and the likelihood of receiving special education services by 31 percent.
- **Oklahoma:** Studies of the Tulsa pre-K program have repeatedly shown substantial short-term gains in school readiness, including big gains in pre-reading, pre-writing, and pre-math effects. A study of 3rd grade students found some persistence of these gains over time, for boys in math.<sup>xxxv</sup>
- **Pennsylvania:** An evaluation of Pennsylvania’s Pre-K Counts (PKC) program showed especially strong results for children who might otherwise be in special education during their K-12 years. For example, 21 percent of children were classified as developmentally delayed and qualified for early intervention services as they began PKC. By the end of PKC, only 8 percent of children were classified as delayed. Similarly, the portion of 3-year-old children at risk for problematic social and self-control behavior fell from 21.5 percent at the start of the program to 3.6 percent at the end of PKC.
- **West Virginia:** Over half of West Virginia’s 4-year-olds are enrolled in the voluntary West Virginia Universal Pre-K System. An evaluation of the program found that children made an extra three months of progress on their vocabulary development, answered 23 percent more items correctly on an early literacy test, and increased their average math scores when compared to the progress that would normally be expected over the course of year.<sup>xxxvi</sup>

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## Endnotes

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