

# Early childhood spending benefits don't fade away, study finds

November 17 2016

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Four- and five-year-olds participating in Smart Start-funded childcare programs in Raleigh, N.C., were found to gain benefits that lasted through fifth grade. Credit: Image courtesy of The North Carolina Partnership for Children

North Carolina's investment in early child care and education programs

resulted in higher test scores, less grade retention and fewer special education placements through fifth grade, research from the Duke Center for Child and Family Policy finds.

The research, published online Nov. 17 in *Child Development*, looked at more than 1 million North Carolina public school students born between 1988 and 2000. Researchers asked whether the state's Smart Start and More at Four programs provided long-lasting benefits for children, or if previously seen positive results diminished by the end of elementary school.

The researchers found the programs' benefits did not fade with time, as in some early childhood intervention programs. Instead, the positive effects grew or held steady over the years.

"The impacts of both Smart Start and More at Four on children persist across the entire elementary school period," said the study's lead author Kenneth A. Dodge, founding director of the center, William McDougall Professor of Public Policy and a professor of psychology and neuroscience at Duke.

Smart Start began in 1993 and expanded to all 100 N.C. counties beginning in the 1998-99 school year, with the goal of ensuring that children enter school healthy and ready to learn. It provides funding to counties for child care, health screenings and other services for all children from birth to age 5. Funding for the program peaked in 2000.

More at Four, now called NC Pre-K, is the state-funded pre-kindergarten program for high-risk 4-year-olds. The program launched in 2001 and had grown to reach about 25 percent of all North Carolina 4-year-olds by 2010. The authors, who also include center colleagues Yu Bai, Helen F. Ladd and Clara Muschkin, found the state's investment in both programs totaled an average of \$2,200 per child during the 13-year study period.

By the end of fifth grade, children living in counties with average levels of Smart Start and More at Four funding saw improved educational outcomes. These results were equivalent to a gain of more than six months of reading instruction and more than three months of math instruction. The children also had significantly higher mean math and reading scores in grades three, four and five.

Both programs also lowered the odds of children needing special education during elementary school. Average Smart Start funding was linked to a nearly 10 percent reduction in special education placements in grades three, four and five.

More at Four, meanwhile, also significantly reduced special education placements. Average More at Four funding reduced the odds of special education placements by 29 percent in third grade, by 43 percent in fourth grade and by 48 percent in fifth grade.

Additionally, both Smart Start and More at Four reduced the probability of students being held back during elementary school. In counties that received an average Smart Start funding allocation, a child's chance of being retained by fifth grade declined by 13 percent. Average More at Four funding reduced children's odds of being held back during elementary school by 29 percent.

The findings held regardless of poverty level, suggesting that the programs created an enhanced learning environment for all. One possible explanation for the overall improvement is that teachers did not need to attend to behavior problems or remediation, the researchers said.

Some studies have found the effects of early childhood programs on children's cognitive and educational development fade out by the end of elementary school. The new study shows no such fadeout for the North Carolina programs. Instead, the impact holds steady or significantly

increases through fifth grade.

"Fadeout is not inevitable," Dodge said. "When you look at what North Carolina is doing, it's a very high-quality [program](#)."

The new research builds on two previous studies that found the two programs benefitted [children](#) in early [elementary school](#), boosting third-grade reading and math-test scores and reducing third-grade [special education](#) placements.

The researchers will next look at middle school students to see if the beneficial effects of Smart Start and More at Four continue.

Researchers say the findings show the programs warrant additional government support, and that saturating a community with early childhood programs may be beneficial.

"These programs in North Carolina are having the impact they were intended to have," Dodge said. "These are investments worth making."

**More information:** Kenneth A. Dodge et al, Impact of North Carolina's Early Childhood Programs and Policies on Educational Outcomes in Elementary School, *Child Development* (2016). [DOI: 10.1111/cdev.12645](#)

Provided by Duke University

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