



# Effects of Participation in the North Carolina Pre-Kindergarten Program at the End of Kindergarten 2015–2016 Statewide Evaluation

## EXECUTIVE SUMMARY

### Purpose of the NC Pre-Kindergarten Evaluation Study

The purpose of the 2015–2016 NC Pre-Kindergarten (NC Pre-K) Evaluation study was to examine the long-term effects of participation in NC Pre-K at the end of kindergarten. Two groups of children were compared— those who attended NC Pre-K (treatment) and those who had not attended NC Pre-K (comparison). Propensity score matching (PSM) was used to select a matched sample of children with similar characteristics across the two groups.

The study included a total sample of 512 children (NC Pre-K=255, non NC Pre-K=257) who attended 135 kindergarten classrooms during the 2015–2016 academic year, including a subsample of 119 children (NC Pre-K=58, non-NC Pre-K=61) who were Spanish-speaking dual language learners (DLLs). Researchers gathered assessment data in the late spring of kindergarten to examine the effects of participation in NC Pre-K on children’s language, literacy, math, executive function, and behavior skills at the end of kindergarten. For the DLL subsample, skills were measured in both English and Spanish using parallel measures. Parent surveys provided demographic information about the children and families, and teacher surveys provided information about demographic characteristics and classroom characteristics.

In addition, key characteristics of the NC Pre-K Program during the 2015–2016 year, along with trends over time (2003–2004 to 2015–2016), were examined based on statewide administrative data (NC Pre-K Kids

and NC Pre-K Plan). Information examined included characteristics of the local NC Pre-K settings, the children served, the qualifications of teachers, and the distributions and counts of program participants and service providers.

### Results

#### Treatment Effects

***Children who attended NC Pre-K performed significantly better on math skills at the end of kindergarten compared to a matched group of children who did not attend NC Pre-K.*** Children in the NC Pre-K group had higher scores on calculation skills and the math composite, and marginally higher scores on math problem-solving. These results were based on a propensity-score matched sample of over 500 NC Pre-K and non-NC Pre-K children, with effect sizes in the small range (.16–.22).

***There was little difference between a matched sample of NC Pre-K and non-NC Pre-K children on language and literacy skills at the end of kindergarten.*** In contrast to the findings for math skills, there were almost no differences in language and literacy skills, with the exception of one marginally significant finding for phonological awareness skills (effect size=.15). These results are consistent with data from national assessments such as NAEP showing relatively stronger performance in math than reading for NC students in later grades.

***Participation in NC Pre-K had positive effects on children’s executive function at the end of kindergarten.***

*ten for both the full sample and the DLL subsample.* Children who attended NC Pre-K performed better on a measure of executive function related to working memory compared to their peers who did not attend NC Pre-K. The effect sizes for these results were in the small range (.17) for the full matched sample of over 500 children and in the medium range (.39) for the subsample of over 100 Spanish-speaking DLLs. These results are important, because executive function is predictive of children's later academic performance.

### Program Characteristics

**Many of the characteristics of the NC Pre-K Program were consistent with good quality standards, as well as with program guidelines.** In 2015–2016, the average NC Pre-K class included a total of 16 children, with 13 (85%) funded by NC Pre-K. This number is actually below the program guidelines which specify a maximum class size of 18. The majority of the programs (78%) were at the highest, five-star licensing level, with another 17% at the four-star level. The average days of child attendance was 140 days (81% of the average days of operation).

**In general, most program characteristics have been fairly stable over time.** In 2015–2016, the NC Pre-K Program served nearly 29,000 children in over 1,900 classrooms located in more than 1,100 sites. The majority of children were from low-income families (90% qualified for free or reduced-price lunch). There were no changes over time in setting types, with about half in public schools, about one-third in private settings, and 16% in Head Start. Children's prior placement also has remained consistent over time; over 70% of the children had never been served or were currently unserved in a preschool setting.

**One continuing trend in the NC Pre-K Program has been improvement in the levels of teacher education and credentials.** There have been significant trends toward increasing teacher education and licensure levels, and a significant decreasing trend in those with no credential over the past 13 years, since NC Pre-K became a statewide program. In 2015–2016, almost all NC Pre-K lead teachers had at least a bachelor's degree in both public school and private settings (>99%). Nearly all lead teachers in public schools and over three-quarters in private settings had a B-K license, while relatively few teachers had no credential.

## Overview of the NC Pre-Kindergarten Program

NC Pre-K is a state-funded educational program for eligible 4-year-olds, designed to enhance their school readiness skills. Initiated in 2001–2002, the statewide pre-k program has served over 350,000 children, with an average annual cost per child of approximately \$5,000. Children are eligible for NC Pre-K primarily based on age (4 years old) and family income (up to 75% of state median income), although children with higher family incomes may be enrolled with at least one of the following risk factors: limited English proficiency, identified disability, chronic health condition, or educational need; or a parent actively serving in the military. NC Pre-K provides funding for serving eligible children in classroom-based educational programs in a variety of setting types, including public schools, Head Start, and private child care centers (both for-profit and nonprofit). NC Pre-K operates on a school schedule for 6½ hours/day and 180 days/year. Local sites are expected to meet a variety of program standards around curriculum, screening and assessment, training and education levels for teachers and administrators, class size, adult:child ratios, North Carolina child care licensing levels, and provision of other program services. ●



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This report is available at <http://www.fpg.unc.edu/projects/evaluation-nc-pre-kindergarten-program>