

# Research BRIEF

Nikki Aikens, Lizabeth Malone, Ashley Kopack Klein, Jerry West, and Louisa Tarullo

## Head Start Children's Developmental Progress and Kindergarten Experiences

### INTRODUCTION

This brief focuses on Head Start children's developmental progress and kindergarten experiences, drawing on data from the 2009 cohort of the Head Start Family and Child Experiences Survey (FACES 2009). In a related report, we explore in depth the home and classroom supports available to children in kindergarten (Malone et al. 2017). Measuring children's outcomes and experiences throughout the program and following up at the end of kindergarten yields a deeper understanding of Head Start's efforts to prepare children for the school experience, and provides context for where children go after they leave Head Start.

In 2008, the Office of Planning, Research and Evaluation (OPRE) in the U.S. Department of Health and Human Services, Administration for Children and Families, funded FACES 2009. Mathematica Policy Research and its partners—Educational Testing Service and Juárez and Associates—designed and conducted FACES 2009. It is the fifth in a series of nationally representative studies of Head Start, based on cohorts of children, their families, and the programs they attend. Earlier cohorts of children entered the program in 1997, 2000, 2003, and 2006. The FACES 2009 sample of children was selected to represent 3- and 4-year-old children as they entered their first year of the program, and it drew on participants from 60 selected programs across the country. FACES includes a battery of child assessments across many developmental domains; interviews with children's parents, teachers, and program managers; and observations of classroom quality.

In this brief we focus on the population of children who entered Head Start for the first time in fall 2009, completed one or two years of the program, and were attending kindergarten in spring 2011 or 2012.<sup>1</sup> Head Start children still participating in the study during kindergarten are a diverse group. At program entry, 39 percent of the children are Hispanic/Latino, 32 percent are African American, and 21 percent are white. Thirty percent of them live in households where a language other than English is the primary language spoken to them. Spanish is by far the most prevalent non-English language, spoken as the primary home language to 27 percent of the children.

Families of many Head Start children face a number of socioeconomic risks. At program entry, 47 percent of children live in single-parent households, 37 percent live with mothers who have less than a high school education, and 64 percent live in households whose total income is below the federal poverty threshold.

This brief addresses two central research questions:

1. What are Head Start children's cognitive, social-emotional, and health and physical outcomes from Head Start entry to the spring of kindergarten?
2. What are the characteristics of the schools and classrooms Head Start children attend during kindergarten?

Relevant methodological information is summarized at the end of this brief. Additional information on the study design, instruments, and measures is presented in the FACES 2009 data file user's manual (Malone et al. 2013) and in the data tables accompanying this brief (Kopack Klein et al. 2017). The data tables also include other findings on children's outcomes and kindergarten experiences, including change by key subgroups, which are not presented in the brief.

## WHAT ARE HEAD START CHILDREN'S COGNITIVE, SOCIAL-EMOTIONAL, AND HEALTH AND PHYSICAL OUTCOMES, FROM HEAD START ENTRY TO THE SPRING OF KINDERGARTEN?

In this section we describe children's cognitive, social-emotional, and health and physical development from Head Start entry to the spring of kindergarten. We report on children's skills on norm- and criterion-referenced measures using raw scores, item response theory (IRT) based scores, and standard scores. Standard scores are used to report children's performance relative to others of the same age (or grade) in the general population. Standard scores have a mean of 100 and a standard deviation of 15. An increase in a standard score signifies the child is making progress relative to children of the same age (or grade) in the general population. Raw and IRT scores allow measurement of change or growth in performance over time. They are, however, an indicator of absolute, rather than relative, performance.

Changes in children's skills and development during Head Start and in the year after they leave the program reflect a range of influences, including maturation; program, school, and family influences; and other factors in children's lives.

### Children's cognitive development

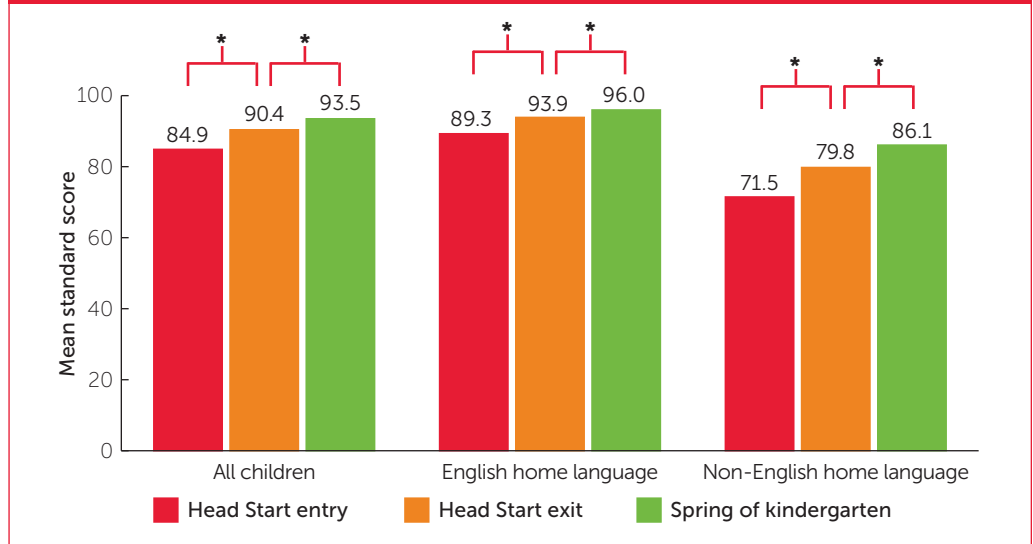
To assess children's skills and knowledge, norm- and criterion-referenced measures of language, literacy, and math development were directly administered to children. The direct child assessment began with a screening to determine whether children who primarily hear a language other than English at home should be assessed in English or in Spanish, or given only a short assessment of vocabulary followed by height and weight measurement.

To measure children's receptive and expressive vocabulary, we used the Peabody Picture Vocabulary Test, Fourth Edition (PPVT-4; Dunn and Dunn 2006) and the Expressive One-Word Picture Vocabulary Test (EOWPVT, EOWPVT-Spanish Bilingual Edition [SBE]; Brownell 2000).<sup>2</sup> For children assessed in English, the assessment battery also included measurement of letter-word knowledge and skills in math and early writing, using the Woodcock-Johnson Tests of Achievement, Third Edition (WJ III; Woodcock et al. 2004) Letter-Word Identification, Applied Problems, and Spelling subtests. A supplemental set of math items from the Early Childhood Longitudinal Study-Birth (ECLS-B) and ECLS-Kindergarten Class of 1998-99 (ECLS-K) math assessments was used to assess a broader set of skills than the Applied Problems subtask captures. Similarly, a supplemental set of letter-sound items from the ECLS-B was included to tap the skills of children who had progressed beyond letter knowledge but had not yet acquired sight words. In the spring of kindergarten, items from the Word Attack subtest of the WJ III were included in the assessment battery to measure children's phonetic skills.

We first describe the vocabulary skills of all children. We then report the literacy and math skills of children who were assessed in English at program entry, program exit, and the spring of kindergarten.<sup>3</sup>

**Children's vocabulary development.** Children score below norms in the areas of English receptive vocabulary skills (Figure 1) and expressive vocabulary (Figure 2) at Head Start entry, Head Start exit, and the spring of kindergarten. They make more progress than their same-age peers do, however, and move toward norms in both areas between Head Start entry and exit.

**Figure 1:**  
**Between Head Start entry and spring of kindergarten, non-English home language children make more progress in receptive language than English home language children**



Source: Fall 2009 and Spring 2010, 2011, and 2012 FACES Direct Child Assessment.

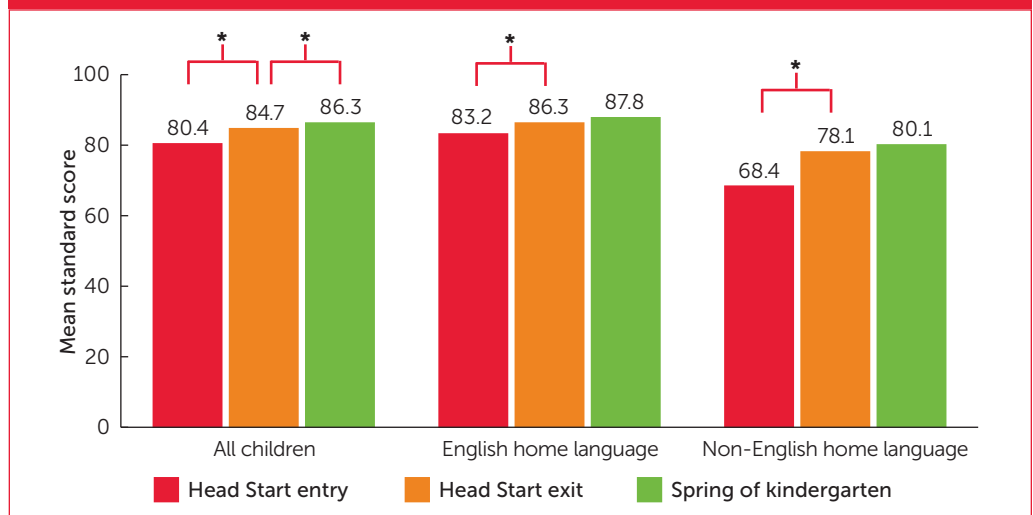
Notes: Statistics are weighted to represent children who entered Head Start in the fall of 2009, completed one or two years of the program, and were attending kindergarten in spring 2011 or spring 2012.

Estimates represent standard scores on the PPVT, which provides information on children’s receptive language skills relative to English-speaking peers nationally.

Non-English home language refers to children who primarily hear a language other than English in the home. English home language refers to children who primarily hear English in the home.

\* Asterisk indicates that the change over time is statistically significant at the  $p \leq .05$  level.

**Figure 2:**  
**Between Head Start entry and spring of kindergarten, non-English home language children make more progress in expressive vocabulary than English home language children**



Source: Fall 2009 and Spring 2010, 2011, and 2012 FACES Direct Child Assessment.

Notes: Statistics are weighted to represent children who entered Head Start in the fall of 2009, completed one or two years of the program, and were attending kindergarten in spring 2011 or spring 2012.

Estimates represent standard scores on the EOWPVT, which provides information on children’s expressive vocabulary relative to young children in the U.S.

Non-English home language refers to children who primarily hear a language other than English in the home. English home language refers to children who primarily hear English in the home.

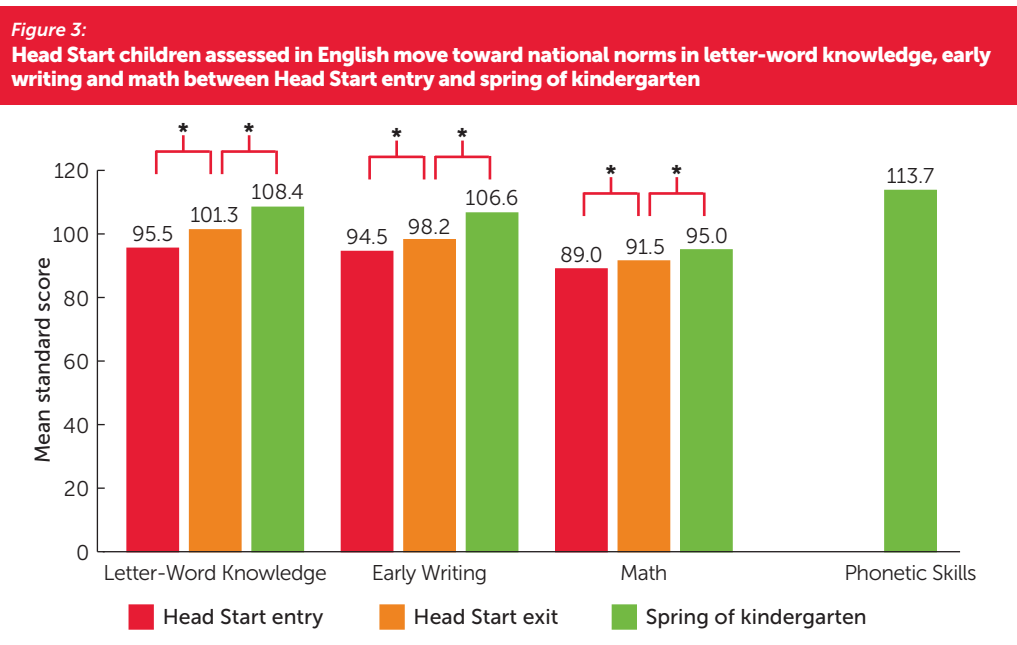
\* Asterisk indicates that the change over time is statistically significant at the  $p \leq .05$  level.

For example, they gain about 5 standard score points in English receptive vocabulary and 4 standard score points in expressive vocabulary during Head Start. They continue to make progress toward norms between Head Start exit and the spring of kindergarten, gaining about 3 standard score points in English receptive vocabulary and 2 standard score points in expressive vocabulary.

In both English receptive and expressive vocabulary, all children make progress toward norms between Head Start entry and exit. Although all children also continue to make progress toward norms between Head Start exit and the spring of kindergarten in their English receptive vocabulary skills, not all of them make the same progress in expressive vocabulary during this period. Between Head Start entry and the spring of kindergarten, children who primarily hear a language other than English at home make greater gains toward norms in English receptive vocabulary than do children with English as their home language (increasing by 14.6 versus 6.7 standard score points, respectively). Children who primarily hear a language other than English at home also make more progress in expressive vocabulary than children in homes where English is the primary home language (increasing by 11.7 versus 4.6 standard score points, respectively) between Head Start entry and the spring of kindergarten.<sup>4</sup>

**Children’s literacy and math development.** Looking next at literacy and math development, children assessed in English<sup>5</sup> make progress toward norms during Head Start and the following year (Figure 3). For example, they gain about 2 standard score points in math during Head Start. They also gain about 4 points in early writing and 5 points in letter-word knowledge, scoring at or near norms at the end of Head Start in both areas (98.2 and 101.3, respectively). In math, although they make progress during the program year, children assessed in English remain below norms in this area when they leave Head Start.

On all measures, children continue to make progress toward and beyond norms between Head Start exit and the spring of kindergarten. In fact, they score above norms in letter-word knowledge and early writing in the spring of kindergarten (108.4 and 106.6, respectively). They also score nearly a standard deviation above norms on phonetic skills, as measured by the word attack task at the end of kindergarten (113.7).<sup>6</sup>



Source: Fall 2009 and Spring 2010, 2011, and 2012 FACES Direct Child Assessment.  
 Notes: Statistics are weighted to represent children who entered Head Start in the fall of 2009, completed one or two years of the program, and were attending kindergarten in spring 2011 or spring 2012.  
 Estimates represent WJ III Letter-Word Identification, Spelling, Applied Problems and Word Attack subtasks, respectively.  
 \* Asterisk indicates that the change over time is statistically significant at the  $p \leq .05$  level.

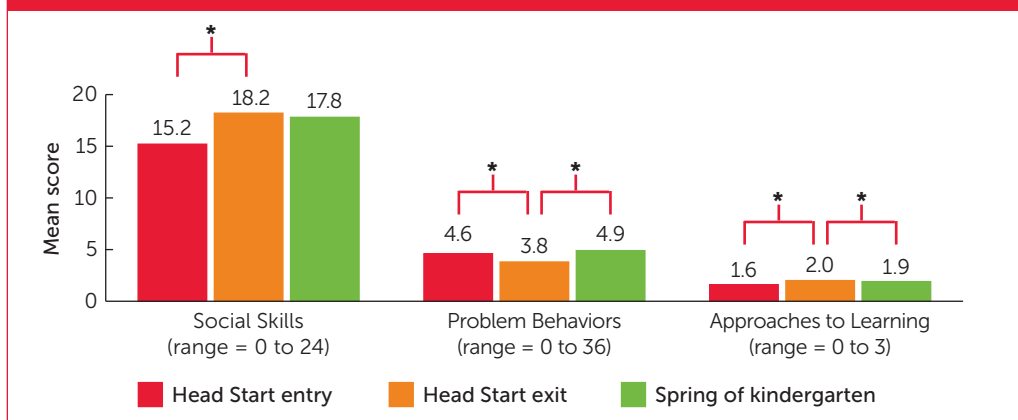
In terms of absolute performance, children assessed in English make progress across developmental areas during Head Start and the following year. For example, only 27 percent of children are able to identify numbers and shapes on the ECLS–B math items at the beginning of Head Start, but by the time they leave the program 71 percent are able to do so, and 97 percent can do so by the spring of kindergarten. Children also know more letter sounds by the end of Head Start than they do at program entry and know more letter sounds by the spring of kindergarten than they did when they finished Head Start (program entry mean = 0.9, program exit mean = 3.2, kindergarten mean = 8.1). Mean scores on this assessment suggest children have not fully developed letter-sound skills by the end of Head Start.<sup>7</sup>

### Children’s social-emotional development

FACES 2009 uses measures from a variety of sources—teacher, parent, assessor, and direct assessment—to provide multiple perspectives on children’s positive or challenging behaviors that may affect their ability to learn and interact with peers and adults. Teachers used items from the Behavior Problems Index (Peterson and Zill 1986), Personal Maturity Scale (Entwisle et al. 1997), and Social Skills Rating System (Gresham and Elliott 1990), to rate cooperative classroom behavior—such as making friends easily and waiting their turn in games or other activities—as well as problem behaviors, such as being very restless and unable to sit still or disrupting ongoing activities. Teachers also used the ECLS–K Approaches to Learning scale to rate children’s approaches to learning (for example, paying attention well, persisting in completing tasks) (U.S. Department of Education 2002).<sup>8</sup> A pencil tapping task (Blair 2002; Diamond and Taylor 1996; Smith-Donald et al. 2007) captures 4-year-old children’s executive functioning. As with cognitive measures, we describe children’s skills and behaviors in the spring of kindergarten and changes from Head Start entry to exit and from Head Start exit to the spring of kindergarten.

On the pencil-tapping task, which was administered to children ages 4 and older, children are better able to inhibit their initial impulse and respond correctly across more trials by the end of Head Start than when they first entered the program. They show similar improvement between the end of Head Start and the spring of kindergarten. In fact, on average, children respond correctly on the task less than half the time at the beginning of Head Start, but by Head Start exit they respond correctly 62 percent of the time, and by the end of kindergarten they answer correctly 87 percent of the time. Head Start teachers report that children demonstrate more social skills, fewer problem behaviors overall, and more positive approaches to learning, on average, when they finish Head Start compared to when they entered it (Figure 4). When

**Figure 4:**  
Head Start teachers report children’s social-emotional development improves between Head Start entry and Head Start exit



Source: Fall 2009 and Spring 2010, 2011, and 2012 FACES Direct Child Assessment.

Notes: Statistics are weighted to represent children who entered Head Start in the fall of 2009, completed one or two years of the program, and were attending kindergarten in spring 2011 or spring 2012.

Reports at Head Start entry and exit are from Head Start teachers, whereas those in the spring of kindergarten are from kindergarten teachers.

\* Asterisk indicates that the change over time is statistically significant at the  $p \leq .05$  level.

we break down the overall score for behavior, we find that teachers report children demonstrate fewer aggressive, hyperactive, and withdrawn behaviors in particular. But the children's kindergarten teachers do not report similar patterns at the end of kindergarten. Instead, they report higher overall rates of problem behaviors and fewer positive approaches to learning, as well as more aggressive, hyperactive, and withdrawn behaviors than Head Start teachers did. Kindergarten teachers' reports of children's social skills, however, do not differ from the reports of Head Start teachers at program exit.

## **Children's health and physical development**

Parents and teachers reported on several aspects of children's health and physical development, including disability status and health and developmental conditions or concerns. Each child's height and weight were measured to determine whether children were obese, overweight, or underweight.

About one in 10 (11 percent) of FACES children are reported by their kindergarten teachers to have a diagnosed disability in the spring of kindergarten. The majority of children with disabilities are reported to have either a speech/language impairment (72 percent) or a cognitive impairment (23 percent). Seventy-five percent of the children whose teachers reported they have disabilities have an Individualized Education Plan (IEP) or Individual Family Service Plan (IFSP). Twenty-four percent have more than one disability or impairment.

On average, the majority of children are reported by their parents as being in excellent or very good health in the spring of kindergarten (80 percent), but children's average body mass index (BMI) is above average for their age range (that is, higher than the 50th percentile). According to criteria set by the Centers for Disease Control and Prevention (CDC),<sup>9</sup> about one-third of the Head Start children are overweight or obese in the spring of kindergarten (35 percent).

## **WHAT ARE THE CHARACTERISTICS OF THE SCHOOLS AND CLASSROOMS HEAD START CHILDREN ATTEND DURING KINDERGARTEN?**

In this section, we briefly describe Head Start children's kindergarten experience, based on kindergarten teacher reports and school administrative records collected and disseminated by the U.S. Department of Education's National Center for Education Statistics. More information about children's kindergarten experiences is available in the accompanying set of data tables (Kopack Klein et al. 2017).

### **School characteristics**

Nearly all Head Start children attend kindergarten in public schools (98 percent). Among those who do, a small percentage attend charter or magnet schools (3 percent and 2 percent, respectively). Almost all Head Start children attend schools that are eligible to receive Title I funds (94 percent). Across the nation, 70 percent of elementary schools are eligible for Title I funds (Bitterman et al. 2013), so Head Start children are more concentrated in such schools. In addition, more than three-quarters (82 percent) of Head Start children attend public schools<sup>10</sup> where at least half of the student body is eligible for free or reduced-price lunch; half of the children are in public schools where 75 percent or more of the student body is eligible. Nationally, an average of 50 percent of all children in public elementary schools are approved for free or reduced-price lunch (Bitterman et al. 2013). Almost half (46 percent) of the Head Start children attend kindergarten in schools whose student bodies include at least 75 percent minority students, whereas 18 percent attend schools with less than 25 percent minority enrollment. Nationally, on average, 48 percent of all children in public elementary schools are considered members of racial/ethnic minority groups (Bitterman et al. 2013).

### **Classroom composition**

FACES gathered information from kindergarten teachers on whether the children in their classrooms attended full-day or part-day kindergarten and on the composition of the classrooms in

terms of numbers of children and languages spoken. Based on the teachers' reports, 89 percent of Head Start children attend a full-day kindergarten program. Children's kindergarten classrooms have about 21 children on average, with a child:staff ratio of about 13:1. About one in five (20 percent) children who completed Head Start attend kindergarten classrooms with class sizes greater than 24. These estimates slightly exceed professional standards, which suggest a ratio of 11:1 for groups of 22 and an upper limit of 24 children for this age group (National Association for the Education of Young Children 2013). On average, children are in classrooms where 23 percent of their classmates have limited English proficiency, as reported by the teachers. Children whose primary home language is not English are in classrooms where six times more classmates have limited English proficiency (55 percent) compared with children whose primary home language is English (9 percent of classmates).

### **Educational environment**

Kindergarten teachers also reported on the educational environment of their classrooms in terms of instruction, activities, and behavior. One in five (20 percent) of the children who completed Head Start went on to attend kindergarten classrooms where English is not the only language of instruction, with 16 percent receiving instruction in both English and Spanish. The most common reading and language activities, reported by at least 90 percent of children's kindergarten teachers as taking place daily or almost daily, are working on letter naming, practicing writing letters, discussing new words, working on phonics, listening to the teacher read stories where children see the print, learning about conventions of print, and writing their own names. In terms of math, almost all children are in classrooms where counting out loud and calendar-related activities take place on a daily or almost daily basis (97 percent and 98 percent, respectively). Other math activities commonly reported as happening daily or almost daily include working with counting manipulatives (78 percent) and playing math-related games (65 percent). Forty-three percent of the children attend kindergarten classrooms where teachers report that the group behaves well or exceptionally well (36 percent and 7 percent, respectively). Thirteen percent attend classrooms where student misbehavior is a frequent or very frequent problem.

### **Teacher characteristics**

Virtually all Head Start graduates have kindergarten teachers who report having at least a bachelor's degree, and the teachers of 52 percent report having graduate or professional degrees. Most of the children's kindergarten teachers (54 percent) identify elementary education as their field of study, and another 25 percent report a concentration in early childhood education. The number of years they have been teaching varies. Seven percent of the children have teachers with fewer than 3 years of teaching experience in general, and 23 percent have teachers with fewer than 3 years' experience teaching kindergarten. Sixty-one percent of children have teachers with 10 or more years of teaching experience, and 33 percent have teachers with 10 or more years' experience teaching kindergarten.

## **SUMMARY**

### **Head Start children's cognitive, social-emotional, and health and physical development outcomes**

With the exception of letter-word knowledge and early writing ability, children assessed in English score below norms on vocabulary and math skills at Head Start entry, Head Start exit, and the spring of kindergarten. In all these areas, however, children make progress toward norms during Head Start and their kindergarten year. Compared to when they began Head Start, at the end of the program children are better able to inhibit their initial impulses and respond correctly in more trials on the pencil tapping task, suggesting their executive functioning skills improved. They show similar changes between the end of Head Start and the spring of kindergarten. Head Start teachers report that children demonstrate more social skills, fewer behavioral problems, and more positive

approaches to learning by the end of the program. Kindergarten teachers, however, report higher rates of problem behaviors overall, and observe fewer positive approaches to learning in the spring of kindergarten than Head Start teachers report at program exit. About 11 percent of kindergarten children have identified disabilities, and most of these are reported to be speech or language impairments. In addition, about one-third are overweight or obese. Finally, nearly all parents report children to be in excellent or very good physical health.

### **Characteristics of the schools and classrooms that Head Start children attend during kindergarten**

Nearly all Head Start children attend kindergarten in public schools, and most of those schools are eligible to receive Title I funds. Head Start children tend to attend schools with more students who are eligible for free or reduced-price lunch than the national average.

Nearly all Head Start children attend full-day kindergarten programs in classrooms with about 21 children on average, with a child:staff ratio of about 13:1. One in five (20 percent), however, attend classrooms with class sizes greater than 24, which is higher than the number recommended by the National Association for the Education of Young Children. The number of years teachers have been teaching varies, with over half having 10 or more years of teaching experience.

Children whose primary home language is not English are in classrooms where six times more classmates have limited English proficiency compared with children whose primary home language is English. In addition, almost one-quarter of children go on to attend kindergarten classrooms where English is not the only language of instruction. Nearly all the children participate in a variety of reading and language activities daily or almost daily (such as working on letter naming or discussing new words). Math activities in general take place daily or almost daily for more than half of children; almost all children count out loud daily or almost daily. Almost half the children attend kindergarten classrooms in which the group is reported as behaving well or exceptionally well.

## **METHODS**

The FACES 2009 sample provides nationally representative information about Head Start programs, centers, and classrooms and the children and families they serve. In all, 60 programs, 129 centers, 486 classrooms, 439 teachers, and 3,349 children participated in the study in fall 2009.<sup>11</sup>

FACES 2009 drew samples of 3- and 4-year-old children who were entering Head Start for the first time in fall 2009 and were expected to attend the program for one or two years before kindergarten. Hence, in this brief, “Head Start exit” refers to data collected in either spring 2010 (for most children sampled as 4-year-olds) or spring 2011 (for most children sampled as 3-year-olds), and “the spring of kindergarten” refers to data collected in either spring 2011 (for most children sampled as 4-year-olds) or spring 2012 (for most children sampled as 3-year-olds).

In each wave of data collection, children in the study were administered a battery of direct assessments, their parents and teachers were interviewed or surveyed, and their teachers were asked to complete a set of ratings about the children in their classrooms. In this brief, we draw on data from the direct child assessments, parent interviews, interviews and surveys of Head Start and kindergarten teachers, and teachers’ ratings of children. We supplement the data from these sources with data from two national school universe surveys.<sup>12</sup>



## Direct child assessments

The battery of direct child assessments included a set of standardized assessments designed to measure children’s cognitive (language, literacy, and math) and physical (height and weight) outcomes in an untimed, one-on-one assessment of each child. Except for a few differences, the procedures used to administer the direct child assessments were the same in each wave.

## Parent interviews

FACES 2009 used computer-assisted personal interviewing (CAPI) to collect a variety of information from Head Start parents, including characteristics of households and household members.

## Teacher surveys, interviews, and teachers’ reports on children

Using CAPI, FACES 2009 collected information from Head Start children’s lead teachers about their backgrounds and classroom activities. Head Start lead teachers were asked to use a web-based Teacher Child Report (TCR) form to rate each FACES child in their classroom on a set of items designed to assess the child’s accomplishments, cooperative classroom behavior, problem behaviors, and approaches to learning. Teachers also reported on children’s health and developmental conditions.

Children’s kindergarten teachers were asked to complete a web survey, including questions about the schools where the FACES children were enrolled, specific information about their kindergarten classrooms (such as languages used for instruction) and frequency of various language, literacy, and math activities. Teachers were also asked about their backgrounds, credentials, and teaching experience. Teachers completed a TCR to rate each FACES child in their classroom.

## School universe data

The data we used to describe the schools where children attend kindergarten come from school administrative records. Using information that parents provided during interviews, we identified the schools attended by the children in the study and retrieved data about them from administrative records collected and disseminated by the U.S. Department of Education’s National Center for Education Statistics (NCES). Information about the public schools attended by FACES children comes from the 2010–2011 Common Core of Data (CCD); information on private schools comes from the 2009–2010 Private School Universe Survey (PSS).<sup>13</sup>

## Population Estimates

In the brief, we provide estimates of key characteristics of the population of children who entered Head Start for the first time in fall 2009, completed one or two years of the program, and were attending kindergarten in spring 2011 or spring 2012; we also describe the characteristics of their Head Start and kindergarten teachers and classrooms. The data on child, family, school, and classroom/teacher characteristics and children’s outcomes are reported at the child level and weighted to represent the population of children who participated in the study through kindergarten. Unless otherwise noted, all differences and coefficients cited are statistically significant at the  $p \leq .05$  level.<sup>14</sup> Data tables accompanying this brief include the full set of findings on children’s outcomes and kindergarten experiences (Kopack Klein et al. 2017).

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## ENDNOTES

- <sup>1</sup> Two cohorts of children are included in FACES 2009—those who entered Head Start at age 3 and those who entered at age 4. Children entering at age 3 completed the program in spring 2011, and those entering at age 4 completed it in spring 2010.
- <sup>2</sup> The EOWPVT and EOWPVT-SBE include the same items in the same order, but the EOWPVT-SBE allows for conceptual scoring (that is, it prompts for both English and Spanish and accepts responses in either language, including responses in various Spanish dialects). FACES uses the EOWPVT-SBE and conceptual scoring with children whose primary home language is Spanish. FACES reports standard scores based on the EOWPVT norms for all children, regardless of home language. The study only reports standard scores based on the SBE norms for children whose home language is Spanish.
- <sup>3</sup> With the exception of vocabulary measures, we are unable to report changes in the skills of children who changed their language of assessment between waves, because they received different assessment measures at each wave. In addition, because those who were assessed in Spanish at program exit and in the spring of kindergarten were few, we do not report their skills on the Spanish assessments.
- <sup>4</sup> FACES 2009 assessed the expressive vocabulary and English receptive vocabulary of all children regardless of their home language and screener performance, making it possible to understand the language development of all children.
- <sup>5</sup> Some children were administered large sections of (or the majority of) the cognitive assessments in Spanish (or were not assessed at all) in fall 2009, and were assessed in English in later waves. Data in this section of the report reflect the performance of children assessed in English at Head Start entry (fall 2009), Head Start exit (spring 2010 or 2011, depending on age at program entry), and the spring of kindergarten (spring 2011 or 2012, depending on age at program entry).
- <sup>6</sup> FACES 2009 administers the third edition of the Woodcock Johnson to children. The Woodcock Johnson III norms were developed using U.S. Census population projections for 2000. Thus, standard scores on the assessment compare children to same-age peers in 2000, which predates the time when most children in the United States were attending preschool.
- <sup>7</sup> As noted, because this measure requires a higher skill set for children and was administered to those passing a threshold on the WJ III Letter-Word Identification, only a subset of children received it. Six percent were administered this measure in fall 2009, whereas 20 percent, 62 percent, and 91 percent received the measure in spring 2010, 2011, and 2012, respectively. In addition, it is only available in English. Scores were calibrated based on the subsample of children who were administered the full set of items.
- <sup>8</sup> Teachers in FACES 2009 rated each child on the six items that make up the Approaches to Learning scale from the ECLS-K. In earlier FACES cohorts, the Preschool Learning Behavior Scale (PLBS; McDermott et al. 2000) was used to assess children's approaches to learning.
- <sup>9</sup> According to the CDC, a child is considered overweight if his or her BMI score is at or above the 85th percentile and below the 95th percentile for his or her age and gender, and obese if his or her BMI is at or above the 95th percentile.
- <sup>10</sup> Information on eligibility for free or reduced-price lunch is not available on the Private School Universe Survey, and therefore is unavailable for the 2 percent of children attending private schools during kindergarten.
- <sup>11</sup> Migrant and Seasonal Head Start (MSHS) programs, American Indian and Alaska Native (AI/AN) programs, programs in Puerto Rico and other U.S. territories, and programs not directly serving 3-, 4-, and 5-year-olds (such as Early Head Start) were excluded from the sample frame. The Office of Head Start provided information about any defunded (or soon-to-be defunded) programs before sampling, and these were deleted from the sample frame.
- <sup>12</sup> Direct child assessments were completed for 86 percent of the 2,324 children who were enrolled in kindergarten in spring 2011 or spring 2012, and 80 percent of their parents were interviewed. Teacher child report forms were completed by kindergarten teachers for 74 percent of the children in spring 2011 or 2012.

<sup>13</sup> More information about these two sources is available from the NCES (<http://nces.ed.gov/ccd> and <http://nces.ed.gov/survey/pss>).

<sup>14</sup> We do not describe all all statistically significant differences in this brief or in the accompanying set of data tables (Kopack Klein et al. 2017). Some differences and coefficients, although statistically significant, are very small and may not always be practically meaningful (for example, those with a difference smaller than 5 percentage points or an effect size smaller than .25).