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Findings From the First-Grade Rounds of the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011)

First Look

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Institute of Education Sciences

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Introduction

The Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), is collecting information about the early educational experiences of a nationally representative sample of children who were in kindergarten or who were of kindergarten age in ungraded classrooms or schools in the 2010-11 school year. The data collection began in the 2010–11 school year, when the children in the sample were in kindergarten, and will continue through the spring of 2016, when most of the children in the sample are expected to be in fifth grade. This brief report provides information from data collections conducted in the 2011–12 school year, when the majority of the students were in first grade.

The ECLS-K:2011 provides information on students' status at entry to school, their transition into school, and their progression through the elementary grades. The longitudinal nature of the ECLS-K:2011 data enables researchers to study how a wide range of family, school, community, and individual factors are associated with educational, socioemotional, and physical development over time. Information is being collected from the students, their parents and guardians, their teachers, and their school administrators. Information was also collected from their before- and after-school care providers in the kindergarten year.

The ECLS-K:2011 is the third in a series of longitudinal studies of young children conducted by the National Center for Education Statistics (NCES), within the U.S. Department of Education's Institute of Education Sciences. The other studies in the Early Childhood Longitudinal Study (ECLS) program are the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) and the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B).

This report is intended to provide a snapshot of the children in the ECLS-K:2011 cohort who were in kindergarten for the first time in the 2010–11 school year and advanced to first grade in the following year.[1] Information is presented on selected child and family characteristics, such as poverty status and parental education (table 1), obtained when the children were in kindergarten. Information is also provided on the children's achievement in reading (table 2), math (table 3), and science (table 4) in the fall and spring of first grade, both overall and by the selected kindergarten-year child and family characteristics. For brevity, the Selected Findings focus on achievement in the spring of the children's first-grade year.

Readers are cautioned not to draw causal inferences based on the results presented in this report. Although many of the characteristics examined may be related to one another, the complex interactions and relationships among them were not explored. It should also be noted that the variables examined here are just a few of the several thousand that can be examined in the ECLS-K:2011 data. The Selected Findings present examples of the estimates that can be obtained from the data and are not designed to emphasize any particular issue. All comparisons made in the text were tested for statistical significance to ensure that differences are larger than might be expected due to sampling variation. All differences reported are statistically significant at the $p < .05$ level and are at least one-fifth of a standard deviation in size. Adjustments were not made for multiple comparisons. Appendix A provides technical documentation for the estimates presented in this report, a glossary describing the variables, and general information about the study. Appendix B reports the standard errors for the estimates. Additional information about the study can be found online at http://nces.ed.gov/ecls/kindergarten2011.asp.

[1] About 90 percent of children enrolled in kindergarten in 2010–11 were in kindergarten for the first time and advanced to first grade in 2011–12. The remaining 10 percent includes children who were repeating kindergarten in 2010–11 or who did not progress to first grade in 2011–12, or both, as well as children who were advanced to a grade higher than first or who were in an ungraded classroom or setting in 2011–12.

Selected Findings

Below are selected findings for children who were first-time kindergartners during the 2010–11 school year and who advanced to first grade for the 2011–12 school year:

Child and Family Characteristics (table 1)

- Approximately 87 percent were 5 years old (60 to 71 months) when they entered kindergarten for the first time, about 10 percent were age 6 or older, and approximately 3 percent were younger than age 5.
- Approximately 22 percent lived in households with incomes below the federal poverty level in their kindergarten year.
- About 8 percent had parents whose highest level of education was less than a high school diploma; about 19 percent had parents with a high school diploma or equivalent; about 36 percent had parents whose highest level of education was some college, an associate's degree, or career/technical education; and about 37 percent had parents whose highest level of education was a bachelor's degree or higher.

Reading, Math, and Science Knowledge and Skills in the Spring of First Grade (tables 2, 3, and 4)

- Assessment scores varied by age of entry into kindergarten. For example, the two older groups of children (those who were 66 months or older when they entered kindergarten) both had higher average scores on the spring first-grade reading assessment than did the group of children who were younger than 60 months (table 2). The two older groups of children also both had higher average scores on the spring first-grade math (table 3) and science (table 4) assessments than did either of the two younger groups children (those who were 65 months or younger).
- In reading, math, and science, both White students and Asian students had higher average scores than either Black students or Hispanic students.[2] In science, White students also had higher average scores than Asian students.
- Scores in reading, math, and science all differed across the three income groups examined. Scores were lowest for students in households with incomes below the federal poverty level and highest for students in households with incomes at or above 200 percent of the federal poverty level.
- In reading, math, and science, assessment scores increased with parental education.
- Assessment scores varied by family type, with students in two-parent households scoring higher in reading, math, and science than students in single-parent and other parent type households.
- Students with a primary home language of English scored higher in reading, math, and science than students with a non-English primary home language and students with multiple home languages.

[2] For ease of presentation within this report, the race/ethnicity categories are referenced as White, Black, Hispanic, and Asian. Persons of Hispanic or Latino background are included in the Hispanic category, regardless of their race; the other race/ethnicity categories exclude persons of Hispanic or Latino background.

Table 1. Percentage distribution of children who were in kindergarten for the first time in the 2010–11 school year and in first grade in the 2011–12 school year, by child and family characteristics: School year 2011–12

Characteristics	Percent
Total	100.0
Sex	
Male	50.6
Female	49.4
Age at kindergarten entry	
Less than 60 months	3.4
60 months to 65 months	41.5
66 months to 71 months	45.5
72 months or older	9.7
Child's race/ethnicity[1]	
White, non-Hispanic	53.3
Black, non-Hispanic	13.1
Hispanic	24.0
Asian, non-Hispanic	3.8
Native Hawaiian or Pacific Islander, non-Hispanic	0.7
American Indian or Alaska Native, non-Hispanic	1.2
Two or more races, non-Hispanic	4.1
Poverty status, spring 2011[2]	
Income below 100 percent of the federal poverty level	22.0
Income between 100 and 199 percent of the federal poverty level	23.8
Income at or above 200 percent	54.2
Parents' highest level of education, 2010–11 kindergarten year	
Less than high school diploma or equivalent	7.6
High school diploma or equivalent	19.0
Some college, associate's degree, or career/technical education	35.8
Bachelor's degree	20.3
Graduate/professional school	17.2
Family type, fall 2010[3]	
Two parents	77.3
One parent	20.9
Other	1.8
Primary home language, 2010–11 kindergarten year	
Not English	14.9
English	84.0
Multiple home languages, no primary language specified	1.2

[1] Black, non-Hispanic includes African American. Hispanic includes Latino.

[2] Poverty status is based on preliminary U.S. Census thresholds for 2010, which identify incomes determined to meet household needs, given household size. For example, in 2010 a household with two people was below the poverty threshold if its income was lower than $14,220 per year.

[3] "Two parents" includes two biological parents, two adoptive parents, and one biological/adoptive parent and one other parent/partner. "One parent" refers to one biological or adoptive parent only. "Other" refers to related and/or unrelated guardians.

NOTE: Estimates pertain to those children who were in kindergarten for the first time in 2010–11 and advanced to first grade in 2011–12. Fall estimates weighted by W3CF3P_3. Spring estimates weighted by W4CS4P_2. Estimates in this table are weighted by W4CS4P_2.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) Kindergarten-First Grade Restricted-Use Data File (NCES 2015-070).

Table 2. Mean reading scale scores for children who were in kindergarten for the first time in the 2010–11 school year and in first grade in the 2011–12 school year, by child and family characteristics: School year 2011–12

Characteristics	Fall 2011	Spring 2012
Total	56.8	70.7
Sex		
Male	55.9	69.5
Female	57.7	71.9
Age at kindergarten entry		
Less than 60 months	56.0	67.9
60 months to 65 months	55.2	69.6
66 months to 71 months	58.2	71.4
72 months or older	57.3	73.1
Child's race/ethnicity[1]		
White, non-Hispanic	58.3	73.3
Black, non-Hispanic	55.0	67.9
Hispanic	53.0	65.8
Asian, non-Hispanic	64.7	74.9
Native Hawaiian or Pacific Islander, non-Hispanic	‡	69.9
American Indian or Alaska Native, non-Hispanic	52.7	68.3
Two or more races, non-Hispanic	59.0	72.8
Poverty status, spring 2011[2]		
Income below 100 percent of the federal poverty level	50.9	64.8
Income between 100 and 199 percent of the federal poverty level	55.4	69.7
Income at or above 200 percent	60.6	74.4
Parents' highest level of education, 2010–11 kindergarten year		
Less than high school diploma or equivalent	50.2	61.2
High school diploma or equivalent	52.5	66.0
Some college, associate's degree, or career/technical education	55.2	70.2
Bachelor's degree	60.5	74.3
Graduate/professional school	64.1	76.9
Family type, fall 2010[3]		
Two parents	58.2	72.0
One parent	53.0	67.6
Other	50.5	65.6
Primary home language, 2010–11 kindergarten year		
Not English	52.0	64.6
English	57.6	71.9
Multiple home languages, no primary language specified	56.1	66.0

‡ Reporting standards not met.

[1] Black, non-Hispanic includes African American. Hispanic includes Latino.

[2] Poverty status is based on preliminary U.S. Census thresholds for 2010, which identify incomes determined to meet household needs, given household size. For example, in 2010 a household with two people was below the poverty threshold if its income was lower than $14,220 per year.

[3] "Two parents" includes two biological parents, two adoptive parents, and one biological/adoptive parent and one other parent/partner. "One parent" refers to one biological or adoptive parent only. "Other" refers to related and/or unrelated guardians.

NOTE: The possible range of scores for the reading assessment was 0 to 100. The standard deviation for the fall reading score is 13.13, and the standard deviation for the spring reading score is 12.52. Estimates pertain to those children who were in kindergarten for the first time in 2010–11 and advanced to first grade in 2011–12. Fall estimates weighted by W3CF3P_3. Spring estimates weighted by W4CS4P_2.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) Kindergarten-First Grade Restricted-Use Data File (NCES 2015-070).

Table 3. Mean math scale scores for children who were in kindergarten for the first time in the 2010–11 school year and in first grade in the 2011–12 school year, by child and family characteristics: School year 2011–12

Characteristics	Fall 2011	Spring 2012
Total	51.5	64.0
Sex		
Male	51.6	64.6
Female	51.4	63.3
Age at kindergarten entry		
Less than 60 months	48.3	59.9
60 months to 65 months	49.3	62.1
66 months to 71 months	53.3	65.1
72 months or older	53.9	67.9
Child's race/ethnicity[1]		
White, non-Hispanic	54.4	67.5
Black, non-Hispanic	45.9	57.8
Hispanic	47.4	58.7
Asian, non-Hispanic	56.0	68.1
Native Hawaiian or Pacific Islander, non-Hispanic	‡	62.4
American Indian or Alaska Native, non-Hispanic	48.1	62.0
Two or more races, non-Hispanic	52.2	65.7
Poverty status, spring 2011[2]		
Income below 100 percent of the federal poverty level	45.5	58.1
Income between 100 and 199 percent of the federal poverty level	49.8	62.7
Income at or above 200 percent	55.6	67.9
Parents' highest level of education, 2010–11 kindergarten year		
Less than high school diploma or equivalent	44.3	54.7
High school diploma or equivalent	46.7	59.2
Some college, associate's degree, or career/technical education	50.3	63.2
Bachelor's degree	55.5	67.9
Graduate/professional school	58.7	70.3
Family type, fall 2010[3]		
Two parents	52.8	65.5
One parent	47.5	60.2
Other	45.6	56.1
Primary home language, 2010–11 kindergarten year		
Not English	46.3	58.0
English	52.4	65.1
Multiple home languages, no primary language specified	47.4	58.7

‡ Reporting standards not met.

[1] Black, non-Hispanic includes African American. Hispanic includes Latino.

[2] Poverty status is based on preliminary U.S. Census thresholds for 2010, which identify incomes determined to meet household needs, given household size. For example, in 2010 a household with two people was below the poverty threshold if its income was lower than $14,220 per year.

[3] "Two parents" includes two biological parents, two adoptive parents, and one biological/adoptive parent and one other parent/partner. "One parent" refers to one biological or adoptive parent only. "Other" refers to related and/or unrelated guardians.

NOTE: The possible range of scores for the math assessment was 0 to 96. The standard deviation for the fall mathematics score is 12.99, and the standard deviation for the spring mathematics score is 12.52. Estimates pertain to those children who were in kindergarten for the first time in 2010–11 and advanced to first grade in 2011–12. Fall estimates weighted by W3CF3P_3. Spring estimates weighted by W4CS4P_2.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) Kindergarten-First Grade Restricted-Use Data File (NCES 2015-070).

Table 4. Mean science scale scores for children who were in kindergarten for the first time in the 2010–11 school year and in first grade in the 2011–12 school year, by child and family characteristics: School year 2011–12

Characteristics	Fall 2011	Spring 2012
Total	23.9	27.1
Sex		
Male	23.9	27.3
Female	23.9	26.8
Age at kindergarten entry		
Less than 60 months	21.9	24.7
60 months to 65 months	22.8	26.0
66 months to 71 months	24.8	27.8
72 months or older	25.2	29.0
Child's race/ethnicity[1]		
White, non-Hispanic	26.0	29.2
Black, non-Hispanic	21.0	23.9
Hispanic	20.5	23.9
Asian, non-Hispanic	23.4	26.9
Native Hawaiian or Pacific Islander, non-Hispanic	‡	24.8
American Indian or Alaska Native, non-Hispanic	24.7	27.2
Two or more races, non-Hispanic	25.6	28.8
Poverty status, spring 2011[2]		
Income below 100 percent of the federal poverty level	20.7	23.7
Income between 100 and 199 percent of the federal poverty level	23.1	26.5
Income at or above 200 percent	25.9	29.3
Parents' highest level of education, 2010–11 kindergarten year		
Less than high school diploma or equivalent	18.7	21.2
High school diploma or equivalent	21.9	24.6
Some college, associate's degree, or career/technical education	23.7	26.9
Bachelor's degree	25.8	29.0
Graduate/professional school	27.0	30.5
Family type, fall 2010[3]		
Two parents	24.6	27.8
One parent	22.2	25.4
Other	21.4	24.1
Primary home language, 2010–11 kindergarten year		
Not English	18.8	22.1
English	24.8	28.0
Multiple home languages, no primary language specified	20.8	23.6

‡ Reporting standards not met.

[1] Black, non-Hispanic includes African American. Hispanic includes Latino.

[2] Poverty status is based on preliminary U.S. Census thresholds for 2010, which identify incomes determined to meet household needs, given household size. For example, in 2010 a household with two people was below the poverty threshold if its income was lower than $14,220 per year.

[3] "Two parents" includes two biological parents, two adoptive parents, and one biological/adoptive parent and one other parent/partner. "One parent" refers to one biological or adoptive parent only. "Other" refers to related and/or unrelated guardians.

NOTE: The possible range of scores for the science assessment was 0 to 47. The standard deviation for the fall science score is 5.98, and the standard deviation for the spring science score is 6.36. Estimates pertain to those children who were in kindergarten for the first time in 2010–11 and advanced to first grade in 2011–12. Fall estimates weighted by W3CF3P_3. Spring estimates weighted by W4CS4P_2.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) Kindergarten-First Grade Restricted-Use Data File (NCES 2015-070).

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Tourangeau, K., Nord, C., Lê, T., Sorongon, A.G., Hagedorn, M.C., Daly, P., and Najarian, M. (2013). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook* (NCES 2013-061). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Tourangeau, K., Nord, C., Lê, T., Wallner-Allen, K., Hagedorn, M.C., Leggitt, J., and Najarian, M. (2014). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data File and Electronic Codebook* (NCES 2015-069). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Appendix A. Survey Methodology and Glossary

Survey Overview and Methodology

The Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), is sponsored by the National Center for Education Statistics (NCES), within the U.S. Department of Education's Institute of Education Sciences, to provide detailed information on the school achievement and experiences of students throughout their elementary school years. Westat, Inc., assisted with the design of the study and collected the data upon which this report is based. The students participating in the ECLS-K:2011 are being followed longitudinally from kindergarten (the 2010–11 school year) through the spring of 2016, when most of them are expected to be in fifth grade. This sample of students is designed to be nationally representative of all students who were enrolled in kindergarten or who were of kindergarten age and being educated in an ungraded classroom or school in the United States in the 2010–11 school year, including those in public and private schools,[1] those who attended full-day and part-day programs, those who were in kindergarten for the first time, and those who were kindergarten repeaters.

The ECLS-K:2011 places an emphasis on measuring students' experiences within multiple contexts and development in multiple domains. The study is designed to collect information from students as well as from their parents and guardians, teachers, schools, and before- and after-school care providers.

The estimates in this First Look report are based on the data collected from students, in the form of direct assessments in reading, mathematics, and science, and on information collected from the students' parents or guardians during the parent interview. The estimates pertain only to those children who attended kindergarten for the first time in the 2010–11 school year and advanced to first grade in the 2011–12 school year. About 90 percent of children enrolled in kindergarten in 2010–11 were in kindergarten for the first time and advanced to first grade in 2011–12. The remaining 10 percent includes children who were repeating kindergarten in 2010–11 or who did not progress to first grade in 2011–12, or both, as well as children who were advanced to a grade higher than first or who were in an ungraded classroom or setting in 2011–12.

Sample Design

A nationally representative sample of approximately 18,170 children from about 1,310 schools[2] participated in the base-year administration of the ECLS-K:2011 in the 2010–11 school year. The sample included children from different racial/ethnic and socioeconomic backgrounds.

The ECLS-K:2011 cohort was sampled using a multistage sampling design. In the first stage, 90 primary sampling units (PSUs) were selected from a national sample of PSUs. The PSUs were counties and county groups. In the second stage, public and private schools educating kindergartners (or ungraded schools educating children of kindergarten age) were selected within the PSUs. Finally, students were sampled from the selected schools. The schools were selected from a preliminary version of the frame developed for the 2010 National Assessment of Educational Progress (NAEP), which contained information about public schools that were included in the

[1] Students who attended early learning centers or institutions that offered education only through kindergarten are included in the study sample and represented in the cohort.
[2] This number includes both schools that were part of the original sample of schools selected for the study (approximately 970) and schools to which children transferred during the base year of the study (approximately 340).

2006–07 Common Core of Data Public Elementary/Secondary School Universe Survey and private schools that were included in the 2007–08 Private School Universe Survey. The NAEP frame had not yet been updated and, therefore, was not final at the time it was obtained for use in the ECLS-K:2011. For this reason, a supplemental frame of newly opened schools and kindergarten programs was developed in the spring of 2010, and a supplemental sample of schools selected from that frame was added to the main sample of study schools. In the third stage of sampling, approximately 23 kindergartners were selected from a list of all enrolled kindergartners (or students of kindergarten age being educated in an ungraded classroom) in each of the sampled schools.

Data Collection

Two data collections were conducted in the 2011–12 school year, when the majority of the children were in first grade: one in the fall and one in the spring. The fall first-grade data collection was conducted within a subsample of 30 PSUs (out of the 90 PSUs selected for the base year of the study). This data collection included base-year respondents—those students in the base year who had a completed assessment or parent interview in at least one of the two rounds of kindergarten data collection—who attended the sample schools in those 30 PSUs during their kindergarten year. The spring first-grade data collection included base-year respondents in all 90 sampled PSUs. Due to the increased data collection costs associated with following students who transferred from their original sample school (referred to as movers), in each round of data collection only a subsample of movers were followed into their new schools. For more information on the sample design and sampling procedures, refer to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data Files and Electronic Codebook* (Tourangeau et al. 2013) and the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data Files and Electronic Codebook* (Tourangeau et al. 2014).

The fall first-grade direct child assessments were conducted from August through December 2011. About 70 percent of the assessments were completed by the end of October, with about 95 percent completed by the end of November. The spring first-grade direct child assessments were conducted from late March through June 2012. Approximately 65 percent of the assessments were completed by the end of April, with about 98 percent completed by the end of May.

During the kindergarten year data collection, information was collected on children's race/ethnicity; household poverty status; parents' highest level of education; family type; and primary home language. Most parent interviews were conducted by telephone; however, they were conducted in-person for parents who did not have telephones or who preferred an in-person interview. The respondent to the parent interview was usually a parent or guardian in the household who identified himself or herself as the person who knew the most about the child's care, education, and health. During the first-grade data collection rounds, interviewers attempted to complete the parent interview with the same respondent who completed the parent interview in the previous round; however, another parent or guardian in the household who knew about the child's care, education, and health was selected if the prior-round respondent was not available.

The parent interview was fully translated into Spanish before data collection began and could be administered by bilingual interviewers if parent respondents preferred to speak in Spanish. Because it was cost prohibitive to do so, the parent interview was not translated into other languages. However, interviews could be completed with parents who spoke other languages by using an interpreter who translated from the English during the interview.

Response Rates

The weighted child assessment unit response rates[3] were 87 percent for the fall kindergarten data collection, 85 percent for the spring kindergarten data collection, 89 percent for the fall first-grade data collection, and 88 percent for the spring first-grade data collection. The weighted parent unit response rates were 74 percent for the fall kindergarten data collection, 67 percent for the spring kindergarten data collection, 87 percent for the fall first-grade data collection, and 76 percent for the spring first-grade data collection. The overall response rates for the child assessment, which take into account the base-year school-level response rate (63 percent), were 55 percent for the fall kindergarten data collection, 53 percent for the spring kindergarten data collection, 56 percent for the fall first-grade data collection, and 55 percent for the spring first-grade data collection. The overall response rates for the parent interviews, which also take into account school-level response, were 47 percent for the fall kindergarten data collection, 42 percent for the spring kindergarten data collection, 54 percent for the fall first-grade data collection, and 48 percent for the spring first-grade data collection.

Nonresponse bias analyses were conducted to determine if substantial bias was introduced as a result of nonresponse in the kindergarten and first-grade rounds of data collection. Three methods were used to examine the potential for nonresponse bias in the kindergarten data: (1) a comparison of estimates from the ECLS-K:2011 schools to those produced using frame data (i.e., data from the Common Core of Data and the Private School Universe Survey); (2) a comparison of estimates from the ECLS-K:2011 to those from other data sources (for example, the National Household Education Surveys Program); and (3) a comparison of estimates produced using weights that include adjustments for nonresponse to estimates produced using weights without nonresponse adjustments. The nonresponse bias analysis for the first-grade data focused on the third method.

For more information on the nonresponse bias analyses, refer to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data Files and Electronic Codebook* (Tourangeau et al. 2013) and the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data Files and Electronic Codebook* (Tourangeau et al. 2014). Findings from these analyses suggest that there is not a substantial bias due to nonresponse after adjusting for that nonresponse.

The item missing rate for the variables in the analytic sample used in this report is generally low (less than 1 percent). The exceptions were poverty status in the spring of kindergarten, which has an item missing rate of 14 percent, and family type in the fall of kindergarten, which has an item missing rate of 8 percent. Parents' highest level of education was imputed using a hot-deck imputation method. More information on item-level missing data and hot-deck imputation can be found in the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data Files and Electronic Codebook* (Tourangeau et al. 2013) and the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data Files and Electronic Codebook* (Tourangeau et al. 2014).

[3] The weighted unit response rates for the child assessment and parent interview were calculated using the student base weight, which is the product of the school base weight and the within-school student weight.

Data Reliability

Estimates produced using data from the ECLS-K:2011 are subject to two types of error: nonsampling and sampling errors. Nonsampling errors are errors made in the collection and processing of data. Sampling errors occur because the data are collected from a sample rather than a census of the population.

Nonsampling Errors

Nonsampling error is the term used to describe variations in the estimates that may be caused by population coverage limitations as well as by data collection, processing, and reporting procedures. The sources of nonsampling errors are typically nonresponse, differences in respondents' interpretations of the meaning of the questions, response differences related to the particular time the survey was conducted, and mistakes in data preparation.

In general, it is difficult to identify and estimate either the amount of nonsampling error or the bias that it causes. In the ECLS-K:2011, efforts were made to prevent such errors from occurring and to compensate for them where possible (e.g., by field-testing items and assessments, using survey questions that had been tested and used in previous surveys, conducting multiday assessor/interviewer training, holding assessor certification sessions, and monitoring assessor/interviewer performance and field data quality throughout the collection period).

Another potential source of nonsampling error is respondent bias, which occurs when respondents systematically misreport (intentionally or unintentionally) information in a study. One potential source of respondent bias is social desirability bias, which can result when respondents provide information they believe is socially desirable or acceptable but that does not accurately reflect the respondents' characteristics or experiences. An associated error occurs when respondents give unduly positive reports about those close to them. For example, parents may give a better assessment of their children's reading ability than might be obtained from a direct assessment. If there are no systematic differences among specific groups under study in their tendency to give socially desirable or unduly positive responses, then comparisons of the different groups will provide reasonable measures of relative differences among the groups.

The information in this First Look report is based on items from the parent interviews and child assessments. Analysis of potential bias due to item nonresponse is typically conducted for those items with a response rate less than 85 percent. Most of the information presented in this report is derived from items in the parent interview with a missing data rate of less than 1 percent. The exceptions are information on poverty status in the spring of kindergarten, which was missing for 14 percent of the analytic sample, and information on family type in the fall of kindergarten, which was missing for 8 percent of the analytic sample. The child assessment data are not reported out at the item level, so it is not appropriate to discuss item-level nonresponse rates in this regard. However, the child assessments can be evaluated by the unit response rate, which, as noted above, was 89 percent for the fall of 2011 and 88 percent for the spring of 2012.

Sampling Errors and Weighting

The ECLS-K:2011 data are weighted to compensate for unequal probabilities of selection at each sampling stage and to adjust for the effects of school, teacher, before- and after-school care provider, child, and parent nonresponse. The sample weights used in the ECLS-K:2011 analyses

were developed in several stages.[4] The first stage of the weighting process assigned weights to the sampled primary sampling units that are equal to the inverse of the PSU probability of selection. The second stage of the weighting process assigned weights to the schools sampled within selected PSUs. The base weight for each sampled school is the PSU weight multiplied by the inverse of the probability of the school being selected from the PSU. The base weights of responding schools were adjusted to compensate for nonresponse among the set of eligible schools. These adjustments were made separately for public and private schools.

To compute the base weight for each student in the sample, the school nonresponse-adjusted weight for the school the student attended was multiplied by the within-school student weight. The within-school student weight was calculated separately for Asian/Pacific Islander (API) students and non-Asian/Pacific Islander students to account for oversampling of API students.[5] For API students, the within-school student weight is the total number of API kindergarten students in the school divided by the number of API kindergarten students sampled in the school. For non-API students, the within-school student weight is the total number of non-API kindergarten students in the school divided by the number of non-API kindergarten students sampled in the school. The student-level base weight was then adjusted for nonresponse for different components of the study.

Fall 2011 estimates were weighted by W3CF3P_3 and Spring 2012 estimates were weighted by W4CS4P_2. The weights are computed from the child base weight adjusted for nonresponse to the data collection instruments that are the sources of information featured in this report to minimize bias in the estimates. Both of these weights are adjusted for nonresponse to the parent interview in the fall or spring of kindergarten. W3CF3P_3 is also adjusted for nonresponse to the fall first-grade child assessment, while W4CS4P_2 is adjusted for nonresponse to the spring first-grade child assessment. Both of these weights are also adjusted for nonresponse to survey components that are not sources of data featured in the report. W3CF3P_3 is adjusted for nonresponse to the spring kindergarten child assessment and the fall first-grade parent interview, while W4CS4P_2 is adjusted for nonresponse to the spring kindergarten child assessment. These different nonresponse adjustments, along with the fact that the fall first-grade data collection was conducted with just a subsample, result in the fall and spring estimates being based on different analytic samples. However, weighted estimates are representative of the target population regardless of the specific composition of the analytic sample.

In addition to properly weighting the data in this report, special procedures for estimating the statistical significance of the estimates were employed, because the data were collected using a complex sample design. A complex sample design, like that used in the ECLS-K:2011, results in data that violate the assumptions that are normally required to assess the statistical significance of results. The standard errors of the estimates from complex surveys may vary from those that would be expected if the sample were a simple random sample and the observations were independent and identically distributed random variables. Using the statistical software Stata, the jackknife

[4] The approach used to develop weights for the ECLS-K:2011 is described in the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data Files and Electronic Codebook* (Tourangeau et al. 2013) and the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data Files and Electronic Codebook* (Tourangeau et al. 2014).

[5] Asians, Native Hawaiians, and Other Pacific Islanders were sampled at a higher rate so as to achieve a minimum required sample size in order to generate reliable estimates for them. Although they were oversampled as one group, the numbers of completed interviews for children in the Asian group and children in the Native Hawaiian and Other Pacific Islander group were large enough to produce estimates for each of these two groups separately.

replication variance estimation method was used to compute approximately unbiased estimates of the standard errors of the estimates in the report.[6]

Statistical Procedures

Comparisons made in the text were tested for statistical significance at the $p < .05$ level to ensure that the differences were larger than might be expected due to sampling variation. When comparing estimates within categorical groups (e.g., sex, race/ethnicity), *t* statistics were calculated. The formula used to compute the *t* statistic is

$$t = \frac{x_2 - x_1}{\sqrt{(SE_2{}^2 + SE_1{}^2)}}$$

where x_1 and x_2 are the estimates being compared and SE_1 and SE_2 are their corresponding standard errors. Due to the large sample size, many differences (no matter how substantively minor) are statistically significant. All differences reported are statistically significant at the $p <. 05$ level and are at least one-fifth of a standard deviation in size. No adjustments were made for multiple comparisons.

Direct Cognitive Assessments: Reading, Math, and Science

In the first-grade data collections, children were assessed in reading, math, and science in both the fall and the spring.[7] The assessment was administered directly to the sampled children on an individual basis by trained and certified child assessors.

The longitudinal design of the ECLS-K:2011 requires that the cognitive assessments be developed to support the measurement of change in knowledge and skills demonstrated by children from kindergarten entry through the spring of fifth grade. To that end, the majority of the items included in the first-grade assessments had been included in the kindergarten assessments. However, to ensure that the assessments adequately measured the knowledge and skills of the children as they progress through school, new, more difficult items were added to the assessments in first grade and the easiest items, reflecting lower level kindergarten skills, were omitted.

The ECLS-K:2011 reading, math, and science specifications were based on the frameworks developed for the National Assessment of Educational Progress. Although the NAEP assessments are administered starting in fourth grade, the specifications were extrapolated down to kindergarten based on current curriculum standards from several states and, for math, the National Council of Teachers of Mathematics *Principles and Standards for School Mathematics*. The frameworks necessarily cover content strands applicable to a range of content at different grade levels, for example from number sense (i.e., basic knowledge of numbers) to algebra in mathematics. Content appropriate for most first-graders was included in the assessments used in the fall of 2011 and the spring of 2012. For example, in the math assessment, the "algebra" content strand was assessed through children's recognition of patterns involving numbers and patterns

[6] More detail about the jackknife replication variance estimation method is provided in the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data Files and Electronic Codebook* (Tourangeau et al. 2013) and the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data Files and Electronic Codebook* (Tourangeau et al. 2014).

[7] During the kindergarten year, children were assessed in science only in the spring.

involving shapes. While the assessments were designed to contain mostly items that assessed knowledge and skills at a first-grade level, easier and more difficult items were included to measure the abilities of students performing below or above grade level.

The reading assessment included questions measuring basic skills (print familiarity, letter recognition, beginning and ending sounds, rhyming words, and word recognition), vocabulary knowledge, and reading comprehension. The reading comprehension questions asked the child to identify information specifically stated in the text (e.g., definitions, facts, supporting details) and to make inferences about the text. The math assessment was designed to measure skills in conceptual knowledge, procedural knowledge, and problem solving. The assessment consisted of questions on number sense, properties, and operations; measurement; geometry and spatial sense; data analysis, statistics, and probability; and patterns, algebra, and functions. The science assessment included questions about physical science, life science, environmental science, and scientific inquiry.

Most sampled students participated in the cognitive assessments regardless of disability status or home language; however, there were some exceptions. Students whose Individualized Education Program (IEP) indicated that they should not participate in standardized assessments were excluded from the assessments. Also, students who required an assessment in Braille, students who required a sign language interpreter, and students whose IEP required them to be assessed using large-print materials were excluded from the assessments because the study did not provide these accommodations. Although these exclusions do result in the assessment data not being generalizable to students with these particular needs, this accounts for less than 1 percent of all students. To the greatest extent possible, other necessary accommodations were allowed (for example, allowing a health care aide to be present during the assessment).

The components of the ECLS-K:2011 assessments administered to children who spoke a language other than English at home depended on the children's performance on a language screener. The screener consisted of two tasks from the Preschool Language Assessment Scale (*pre*LAS 2000). In the first-grade administrations, the two *pre*LAS 2000 tasks were administered only to children who spoke a language other than English at home and had not passed the screener in the most recent prior round in which they were assessed. Children who were administered the screener in first grade and did not achieve at least the minimum score were administered 18 basic skills items from the reading assessment (referred to as the English Basic Reading Skills or EBRS) after the screener. Once the EBRS items were administered, the cognitive assessments in English ended for those children whose home language was not English and did not pass the screener. Spanish-speaking children who did not achieve at least the minimum score on the screener were then administered a short reading assessment in Spanish that measured Spanish early reading skills (SERS), as well as the mathematics assessment that had been translated into Spanish. Children whose home language was one other than English or Spanish and did not achieve at least the minimum score on the screener were not administered any of the remaining cognitive assessments, although all children had their height and weight measured.

Broad-based scores using the full set of items administered in the kindergarten and first-grade assessments in reading, math, and science were calculated using item response theory (IRT) procedures. IRT is a method for modeling assessment data that makes it possible to calculate an overall score for each domain measured. This method was used to calculate scores for the ECLS-K:2011 because the study employed a two-stage assessment in which children were administered a set of items appropriate to their demonstrated ability level rather than all of the items in the assessment. Although this procedure resulted in children being administered different sets of items, there was a subset of items that all children received (the items in the routing tests, plus a set of

items common across the different second-stage forms). These common items were used to calculate scores for all children on the same scale.

IRT has several advantages over raw number-right scoring. By using the overall pattern of right and wrong responses and the characteristics of each item to estimate ability, IRT can adjust for the possibility of a low-ability child guessing several difficult items correctly. If answers on several easy items are wrong, the probability of a correct answer on a difficult item would be quite low. Omitted items are also less likely to cause distortion of scores, as long as enough items have been answered to establish a consistent pattern of right and wrong answers.

This First Look report presents information on children's IRT-based overall scale scores in reading, math, and science from the first-grade data collection rounds. The IRT-based overall scale score for each content domain is an estimate of the number of items a child would have answered correctly in each data collection round if he or she had been administered all of the questions for that domain in all of the kindergarten and first-grade rounds. To calculate the IRT-based overall scale score for each domain, a child's IRT ability estimate (theta) is used to predict a probability for each assessment item that the child would have gotten that item correct. Then, the probabilities for all the items fielded as part of the domain in every round are summed to create the overall scale score. Because the computed scale scores are sums of probabilities, the scores are not integers.

Glossary: Constructs and Variables Used in the Analyses

Reading, Math, and Science Scores

Reading [X3RSCALK1, X4RSCALK1]. The possible range of scores was 0 to 100. For this report, estimates pertain to children who entered kindergarten for the first time in the 2010–11 school year and advanced to first grade in the 2011–12 school year. The actual range of scores for these children in fall 2011–12 (X3RSCALK1) was 27.3 to 94.5; when weighted by W3CF3P_3, the scores have a mean of 56.8 and a standard deviation of 13.13. The actual range of scores for these children in spring 2011–12 (X4RSCALK1) was 25.2 to 95.1; when weighted by W4CS4P_2, the scores have a mean of 70.7 and a standard deviation of 12.52.

Math [X3MSCALK1, X4MSCALK1]. The possible range of scores was 0 to 96. For this report, estimates pertain to children who entered kindergarten for the first time in the 2010–11 school year and advanced to first grade in the 2011–12 school year. The actual range of scores for these children in fall 2011–12 (X3MSCALK1) was 16.5 to 92.3; when weighted by W3CF3P_3, the scores have a mean of 51.5 and a standard deviation of 12.99. The actual range of scores for these children in spring 2011–12 (X4MSCALK1) was 15.5 to 93.7; when weighted by W4CS4P_2, the scores have a mean of 64.0 and a standard deviation of 12.52.

Science [X3SSCALK1, X4SSCALK1]. The possible range of scores was 0 to 47. For this report, estimates pertain to children who entered kindergarten for the first time in the 2010–11 school year and advanced to first grade in the 2011–12 school year. The actual range of scores for these children in fall 2011–12 (X3SSCALK1) was 9.6 to 42.4; when weighted by W3CF3P_3, the scores have a mean of 23.9 and a standard deviation of 5.98. The actual range of scores for these children in spring 2011–12 (X4SSCALK1) was 9.5 to 43.4; when weighted by W4CS4P_2, the scores have a mean of 27.1 and a standard deviation of 6.36.

Child and Family Characteristics

A number of variables used in this report were derived by combining information from one or more questions in the ECLS-K:2011 study instruments. More information on the derivation of key variables is provided in Chapter 7 of the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data Files and Electronic Codebook* (Tourangeau et al. 2013) and the *Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data Files and Electronic Codebook* (Tourangeau et al. 2014).

Student's sex [X_CHSEX_R]. Information about child's sex was collected from schools at the time of sampling and stored in the study's administrative database (called the field management system, or FMS), collected from parents in the fall kindergarten parent interview, confirmed by parents in the spring kindergarten parent interview, and asked again in the fall 2011 and spring 2012 interviews if the data were either missing or had never been confirmed by the parent.

Child's age at kindergarten entry [X1AGEENT]. A composite for the child's age at kindergarten entry was created using the child's date of birth and parent reports in the fall of 2010 about whether it was the child's first, second, or third (or more) year of kindergarten. The child's age in months was calculated as of September 1, 2010, if the parent reported that it was the child's first year of kindergarten; as of September 1, 2009, if the parent reported that it was the child's second year of kindergarten; and as of September 1, 2008, if the parent reported that it was the child's third or more year of kindergarten. If data were missing for the parent report of the year of kindergarten, the teacher's report of whether it was the child's first or second year of kindergarten was used.

Student's race/ethnicity [X_RACETH_R]. This composite variable, which takes into account both ethnicity and race, is derived from information collected from parents in the parent interview or, if parent-reported information was missing, from the school. Parents provided information during the kindergarten year (2010–11). In the spring of 2012, parents were asked to provide information on child's ethnicity and race if these data were missing or had not been confirmed by a parent in a prior round.

Parent respondents were asked to indicate whether their child belonged to one or more of the following races: White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or other Pacific Islander. In addition, each parent respondent was asked to identify whether his or her child was Hispanic or Latino. Hispanicity and race were used to create eight mutually exclusive categories: White, not Hispanic; Black or African American, not Hispanic; Hispanic, race specified; Hispanic, no race specified; Asian, not Hispanic; Native Hawaiian or other Pacific Islander, not Hispanic; American Indian or Alaska Native, not Hispanic; and two or more races, not Hispanic.

The data file includes the categories "Hispanic, race specified" and "Hispanic, no race specified" because some parents reported a race for their Hispanic children, while others did not. For this report, these two categories are collapsed into one category indicating that a child is Hispanic. A student is classified as Hispanic if a parent indicated the child's ethnicity was Hispanic regardless of whether a race was identified and what that race was. When race/ethnicity differences are presented in this report, White refers to White, non-Hispanic; Black refers to Black, non-Hispanic; Asian refers to Asian, non-Hispanic; Native Hawaiian or other Pacific Islander refers to Native Hawaiian or other Pacific Islander, non-Hispanic; American Indian or Alaska Native refers to

American Indian or Alaska Native, non-Hispanic; and two or more races refers to two or more races, non-Hispanic.

Poverty status [X2POVTY]. The federal poverty-level status composite variable is derived from household income and the total number of household members. Parent respondents first were asked to report their household income using a standard list of income categories. If a respondent reported a household income that indicated that the household was close to or lower than 200 percent of the U.S. Census Bureau poverty threshold for a household of its size, the respondent was asked to report household income to the nearest $1,000 (referred to as exact income). Poverty classification was determined using the reported income category; exact income, when necessary; and household size.

Preliminary weighted 2010 Census poverty thresholds were used to define household poverty status. Households with a total annual income below the appropriate threshold were classified as being below the federal poverty level. Households with a total income at or above 100 percent, but below 200 percent, of the poverty threshold were classified in a middle category (100 to 199 percent of the federal poverty level). Households with a total income at or above 200 percent of the poverty threshold were categorized as being at or above 200 percent of the federal poverty level. For example, if a household with two members had an income lower than $14,220, the household was classified as below the federal poverty level. If a household with two members had an income of $14,220 or more, but less than $28,440 (200 percent of the poverty threshold for a household of two), the household was classified at 100 to 199 percent of the federal poverty level. If a household with two members had an income of $28,440 or more, the household was classified at or above 200 percent of the federal poverty level.

Parents' highest level of education [X12PAR1ED_I, X12PAR2ED_I]. Parents' highest level of education is the highest level of education achieved by either of the parents or guardians in a two-parent household or by the only parent or guardian in a single-parent household. This composite variable is derived from parent interview information about parents' educational attainment. Data were imputed using a hot-deck procedure if they were not obtained during the parent interview but a parent had completed at least a portion of the parent interview in either the fall or spring kindergarten data collection.

For this report, the parent education composite variable available in the data file was collapsed into five categories: less than high school diploma or the equivalent; high school diploma or the equivalent; some college, associate's degree, or career/technical education; bachelor's degree; and graduate/professional school.

Family type [X1HPARNT]. This composite variable is derived from information collected during the fall 2010 parent interview about the number and type of parents in the home. For this report, the composite was collapsed into a three-category variable: two parents, single parent, and other. "Two parents" includes two biological parents, two adoptive parents, and one biological/adoptive parent and one other parent/partner. "One parent" refers to one biological or adoptive parent only. "Other" refers to related and/or unrelated guardians.

Primary home language [X12LANGST]. This composite variable indicates whether English was the primary language spoken in a student's home or whether a non-English language was the primary language spoken, according to information collected in the parent interview. If English was the only language spoken in the home, or if a language other than English was spoken in the home but the primary language of the household was English, a student was classified as coming from a

home in which the primary language was English. If a language other than English was the primary language spoken in the home, a student was classified as coming from a home in which the primary language was not English, even if English was also spoken. In some instances, children lived in a home where more than one language, including English, was spoken, and the parent respondent could not choose a primary language. These children are coded in a third category indicating that a primary language was not identified. Children whose parents indicated they spoke more than one language equally are also categorized in the third category.

Appendix B. Standard Error Tables

Table B-1. Standard errors for Table 2: Mean reading scale scores for children who were in kindergarten for the first time in the 2010–11 school year and in first grade in the 2011–12 school year, by child and family characteristics: School year 2011–12

Characteristics	Fall 2011	Spring 2012
Total	0.79	0.29
Sex		
Male	0.79	0.33
Female	0.87	0.30
Age at kindergarten entry		
Less than 60 months	1.21	0.92
60 months to 65 months	0.95	0.33
66 months to 71 months	1.08	0.34
72 months or older	0.90	0.50
Child's race/ethnicity		
White, non-Hispanic	0.93	0.32
Black, non-Hispanic	1.25	0.62
Hispanic	0.67	0.41
Asian, non-Hispanic	1.62	0.62
Native Hawaiian or Pacific Islander, non-Hispanic	†	2.00
American Indian or Alaska Native, non-Hispanic	1.01	1.22
Two or more races, non-Hispanic	1.42	0.70
Poverty status, spring 2011		
Income below 100 percent of the federal poverty level	0.89	0.45
Income between 100 and 199 percent of the federal poverty level	1.04	0.43
Income at or above 200 percent	0.73	0.29
Parents' highest level of education, 2010–11 kindergarten year		
Less than high school diploma or equivalent	1.00	0.48
High school diploma or equivalent	0.67	0.36
Some college, associate's degree, or career/technical education	0.81	0.28
Bachelor's degree	0.60	0.36
Graduate/professional school	0.93	0.35
Family type, fall 2010		
Two parents	0.86	0.30
One parent	0.58	0.46
Other	1.13	1.21
Primary home language, 2010–11 kindergarten year		
Not English	1.15	0.68
English	0.74	0.28
Multiple home languages, no primary language specified	2.45	1.46

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) Kindergarten-First Grade Restricted-Use Data File (NCES 2015-070).

Table B-2. Standard errors for Table 3: Mean math scale scores for children who were in kindergarten for the first time in the 2010–11 school year and in first grade in the 2011–12 school year, by child and family characteristics: School year 2011–12

Characteristics	Fall 2011	Spring 2012
Total	0.61	0.28
Sex		
Male	0.57	0.32
Female	0.86	0.30
Age at kindergarten entry		
Less than 60 months	1.26	0.78
60 months to 65 months	0.71	0.34
66 months to 71 months	0.77	0.30
72 months or older	0.88	0.52
Child's race/ethnicity		
White, non-Hispanic	0.89	0.28
Black, non-Hispanic	1.09	0.41
Hispanic	0.46	0.45
Asian, non-Hispanic	1.47	0.50
Native Hawaiian or Pacific Islander, non-Hispanic	†	2.30
American Indian or Alaska Native, non-Hispanic	0.57	1.56
Two or more races, non-Hispanic	0.85	0.67
Poverty status, spring 2011		
Income below 100 percent of the federal poverty level	0.64	0.42
Income between 100 and 199 percent of the federal poverty level	0.80	0.42
Income at or above 200 percent	0.63	0.29
Parents' highest level of education, 2010–11 kindergarten year		
Less than high school diploma or equivalent	0.78	0.46
High school diploma or equivalent	0.58	0.30
Some college, associate's degree, or career/technical education	0.59	0.33
Bachelor's degree	0.78	0.31
Graduate/professional school	0.72	0.36
Family type, fall 2010		
Two parents	0.72	0.27
One parent	0.57	0.40
Other	1.69	1.32
Primary home language, 2010–11 kindergarten year		
Not English	0.80	0.59
English	0.52	0.28
Multiple home languages, no primary language specified	1.69	1.30

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) Kindergarten-First Grade Restricted-Use Data File (NCES 2015-070).

Table B-3. Standard errors for Table 4: Mean science scale scores for children who were in kindergarten for the first time in the 2010–11 school year and in first grade in the 2011–12 school year, by child and family characteristics: School year 2011–12

Characteristics	Fall 2011	Spring 2012
Total	0.46	0.17
Sex		
Male	0.51	0.18
Female	0.45	0.18
Age at kindergarten entry		
Less than 60 months	1.03	0.36
60 months to 65 months	0.46	0.20
66 months to 71 months	0.55	0.19
72 months or older	0.66	0.27
Child's race/ethnicity		
White, non-Hispanic	0.34	0.15
Black, non-Hispanic	0.60	0.32
Hispanic	0.41	0.23
Asian, non-Hispanic	0.69	0.28
Native Hawaiian or Pacific Islander, non-Hispanic	†	0.99
American Indian or Alaska Native, non-Hispanic	1.07	1.26
Two or more races, non-Hispanic	0.47	0.35
Poverty status, spring 2011		
Income below 100 percent of the federal poverty level	0.67	0.28
Income between 100 and 199 percent of the federal poverty level	0.50	0.21
Income at or above 200 percent	0.36	0.14
Parents' highest level of education, 2010–11 kindergarten year		
Less than high school diploma or equivalent	0.57	0.24
High school diploma or equivalent	0.36	0.19
Some college, associate's degree, or career/technical education	0.40	0.15
Bachelor's degree	0.42	0.20
Graduate/professional school	0.47	0.22
Family type, fall 2010		
Two parents	0.48	0.15
One parent	0.55	0.28
Other	0.80	0.58
Primary home language, 2010–11 kindergarten year		
Not English	0.62	0.27
English	0.35	0.17
Multiple home languages, no primary language specified	0.78	0.39

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) Kindergarten-First Grade Restricted-Use Data File (NCES 2015-070).