U.S. Government Accountability Office

K-12 Education: Data Show That Less than Half of Students Were Ready for Kindergarten in Selected States

GAO-27-108796
Q&A
Report to Congressional Requesters
November 12, 2026

Why This Matters

The early elementary school years are widely understood as critical to helping children create a strong foundation for future academic success—which in turn supports the nation's economic strength, national security, and civic health. Kindergarten is the main entry point to public school, but not all children enter with the foundational skills that enable them to be ready to learn. Kindergarten readiness refers to the skills and abilities needed to succeed in school, including social and emotional development, language acquisition, physical well-being, and motor skills. States have discretion regarding whether, and how, to assess students' kindergarten readiness.

This report follows our 2024 report on how states assess kindergarten readiness (GAO-24-106552). In that report, we examined which states required school districts to administer a kindergarten entry assessment (KEA) to assess students' readiness, and which skills they assessed.

For this report, we were asked to examine students' kindergarten readiness. This report describes findings from relevant research about the topic. It also provides information on kindergarten readiness in five selected states—Connecticut, Florida, Kentucky, Maryland, and Ohio.

Key Takeaways

- Our review of 11 research studies generally found that publicly funded preschool enrollment positively affected students' kindergarten readiness in literacy, math, or both.
- Less than half of students were ready for kindergarten in each of the five selected states, according to our analysis of each state's KEA data.
- In the selected states, kindergarten readiness rates varied by student demographic group, developmental area (such as language or motor skills), and urbanicity. In general, students who were Asian, White, or not economically disadvantaged had the highest rates of kindergarten readiness.
- School districts with a higher share of preschool enrollment were associated with higher rates of kindergarten readiness in three of five selected states. Districts with a lower poverty rate were associated with higher rates of kindergarten readiness in four of five selected states.

What do studies show about how publicly funded preschool programs may affect kindergarten readiness?

Ten of the 11 studies we reviewed suggest that publicly funded preschool programs positively affected kindergarten readiness in literacy, math, or both.[1] The remaining study did not find evidence of an effect in either area. See appendix I for a list of the studies we reviewed.

Specifically, 10 studies found positive associations between publicly funded preschool programs and kindergarten literacy scores, and seven of the studies that assessed math scores also found positive associations with these scores. One study found that students in a Connecticut preschool program for children from lower-income communities scored higher on math assessments, on average, compared to students who did not qualify for the program due to their birth date. Additionally, the program was associated with a larger effect on basic reading but found no associations between preschool and average scores on oral language or receptive vocabulary assessments.[2]

Higher public preschool enrollment may also benefit all students in a community, whether they are enrolled or not. One study found that when Virginia expanded a public preschool program for low-income families in certain high-need districts, kindergarten literacy skills increased on average for all students in those districts, compared to students in other districts.[3] The authors hypothesized that public preschool expansions may change community expectations regarding preschool or may increase the availability of private preschool, benefitting children not enrolled in the program.

Five of the 10 studies also examined the effects of preschool over time and found varying results. For example, one study found positive short-term and mixed long-term effects from Michigan's publicly funded transitional kindergarten program.[4] This program often targets students near the cutoff age for kindergarten. Specifically, the program improved students' reading and math scores at kindergarten entry compared with students who did not attend the program. The effect persisted on third grade math scores but not reading scores. Another study found that students who attended a Virginia preschool program had higher scores at the beginning of kindergarten compared with those who did not attend the program.[5] These effects decreased by about 75 percent by the end of first grade.

Research Shows That Many Factors Are Associated with Kindergarten Readiness

In addition to preschool enrollment, a study that conducted a structured literature review identified that the following factors are associated with kindergarten readiness.

Factors that are positively associated with kindergarten readiness:

- Family structure and parenting (e.g., high levels of parent patience, high expectations for good grades, positive parent-child interactions)
- Home environment (e.g., exposure to books and newspapers, reading with children)
- Learning-related skills (e.g., children's ability to follow directions and stay on task)
- Social behavior (e.g., children's positive temperaments, self-regulation)
- Performance on mathematical and literacy-based tasks (e.g., playing board games, engaging in block building)

Factors that are negatively associated with kindergarten readiness:

- Health, socioeconomic status, gender, and race/ethnicity (e.g., low birth weight, low parental income, boys, Black or Hispanic/Latino race/ethnicities)

Source: GAO analysis of research study. | GAO-27-108796

Note: Sandra M. Linder, M. Deanna Ramey, and Serbay Zambak, "Predictors of School Readiness in Literacy and Mathematics: A Selective Review of the Literature," *Early Childhood Research & Practice*, vol. 15, no. 1 (2013). GAO selected this study based on a structured literature search because it synthesized the relevant literature in a clear and systematic way and GAO found the factors it identified to be enduring over time.

What do studies show about how publicly funded preschool programs affect kindergarten readiness for specific student groups?

Seven of the 11 studies we reviewed evaluated how publicly funded preschool programs affect kindergarten readiness in literacy or math by student group (e.g., family income or English learner status) and found varying effects, compared to students who did not attend the programs.[6] For example, one study found that children from lower-income families benefited more from attending Virginia's program at kindergarten entry than children from higher-income families.[7] Additionally, the effect was greater for English learners compared with students who were not English learners.

Similarly, a study of a publicly funded Georgia preschool program in one district found persistently positive effects associated with attendance for children from lower-income families.[8] The study compared students who had won a lottery to enroll in the program with similar students who did not win. It found that all students who attended the preschool program were more prepared at the start of kindergarten, on average, compared with students who did not attend the program. However, those effects persisted only for low-income students. Specifically, the study found that positive effects on reading and math scores persisted for low-income students through fourth grade, but those effects faded by the end of kindergarten for higher-income students.[9] The study authors hypothesized that higher-income students who did not receive a spot in the public preschool program were more likely able to attend private preschool than low-income students who did not receive a spot. In other words, the authors inferred that those low-income students were less likely to attend preschool at all. Therefore, attending the Georgia public preschool program had a more lasting effect for low-income students in the study.

How do KEAs vary across selected states?

States that administer KEAs vary in how they measure readiness, administer the assessment, and report the results.

Measuring readiness. States' KEAs assess students' readiness in different developmental areas. The five states we reviewed all assessed literacy and math and varied in the other developmental areas they assessed. For example, Connecticut's KEA assessed creative skills, such as playing pretend. Kentucky's KEA assessed self-help skills, such as putting on shoes.

The criteria for readiness also varied. For example, Connecticut's KEA assessed whether students could count to 10, and Maryland's assessed whether they could count to 20.

Administering KEAs. States administer KEAs in different ways. Connecticut used teachers' observations; Florida had students take a computer-based assessment; and Kentucky, Maryland, and Ohio used a mix of observational and question-based assessments.

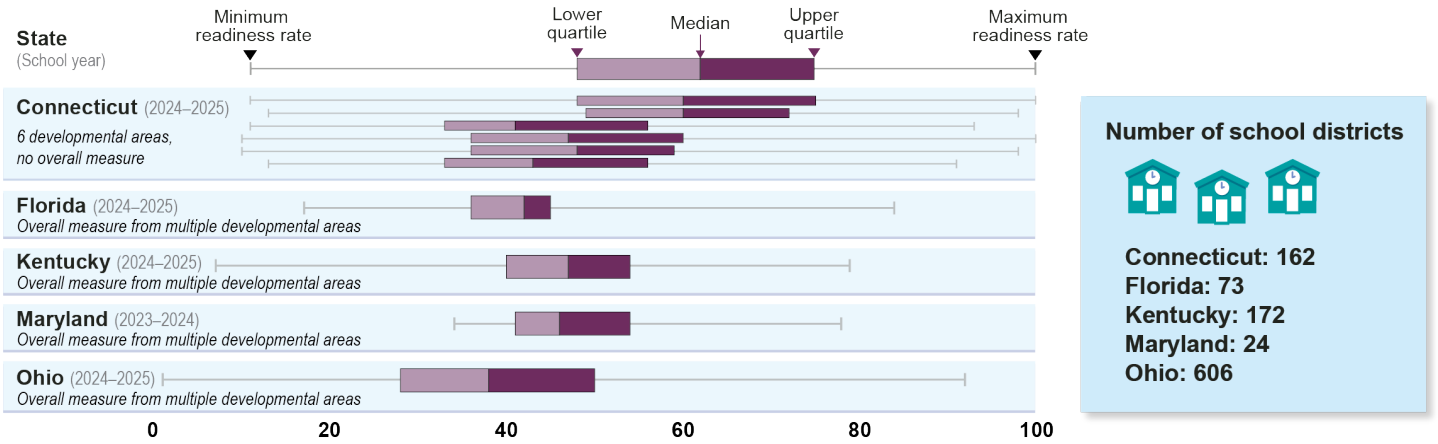
Reporting results. Four of the five selected states reported KEA results with an overall measure of kindergarten readiness, while Connecticut reported on readiness for each developmental area separately. Kentucky also reported readiness for developmental areas in addition to the overall measure.[10]

See appendix II for more information on the five selected states' KEAs.

What were students' KEA results in selected states?

In each of the five selected states, KEA results show that less than half of students were ready for kindergarten.[11] Because states vary in how they assess readiness, kindergarten readiness rates are not comparable across states.[12] Further, school district readiness rates varied more within some states than others (see fig. 1). It is not possible to determine from available data whether this variation reflects differences in the states' KEAs or in students' readiness. Appendix II further details each selected state's KEA and students' results.

Figure 1: Distributions of Kindergarten Readiness Rates Across School Districts in Selected States

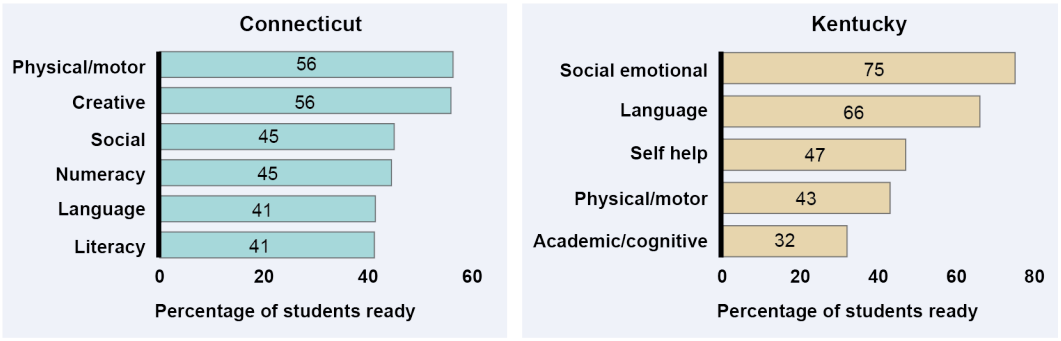


Source: GAO analysis of states' district-level kindergarten entry assessment (KEA) data. | GAO-27-108796

Note: Results are not comparable across states because KEAs vary based on how states measure readiness, administer the KEAs, and report KEA results. Maryland did not administer a KEA in school year 2024–2025.

We also found that kindergarten readiness rates varied by developmental area in the two selected states that report these data—Connecticut and Kentucky (see fig. 2).

Figure 2: Kindergarten Readiness by Developmental Area in Selected States, School Year 2024–2025



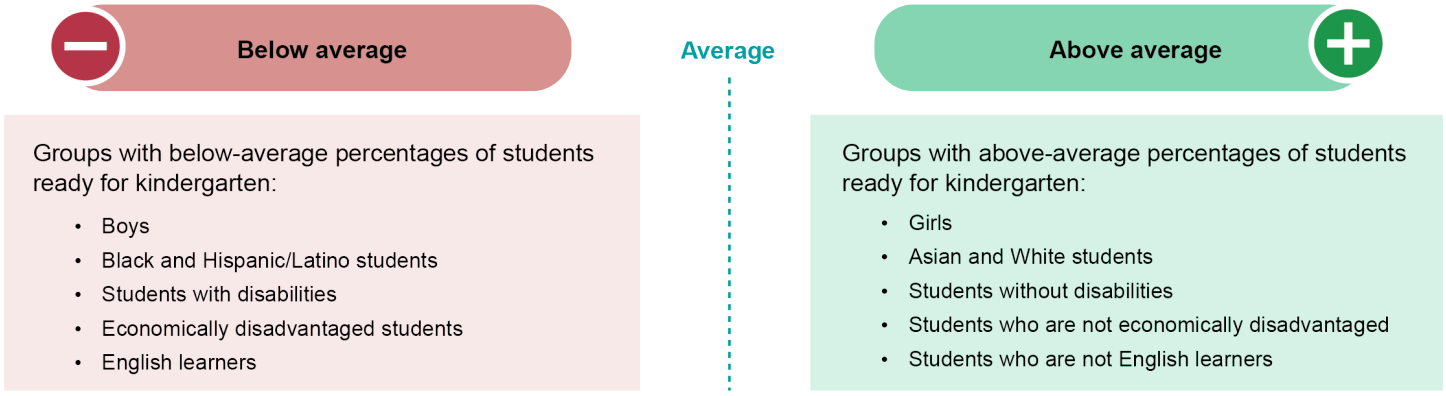
Source: GAO analysis of state-level kindergarten entry assessment (KEA) data. | GAO-27-108796

Note: Results are not comparable across states because KEAs vary based on how states measure readiness, administer the KEAs, and report KEA results.

How did kindergarten readiness rates compare across student demographic groups in selected states?

We found that generally, the same student demographic groups had above-average or below-average kindergarten readiness rates in our five selected states (see fig. 3). Across the five states, students who were Asian, White, or not economically disadvantaged generally had the highest readiness rates.[13] English learners and students with disabilities generally had the lowest rates.

Figure 3: Kindergarten Readiness of Student Demographic Groups Compared with All Students Within Connecticut, Florida, Kentucky, Maryland, and Ohio



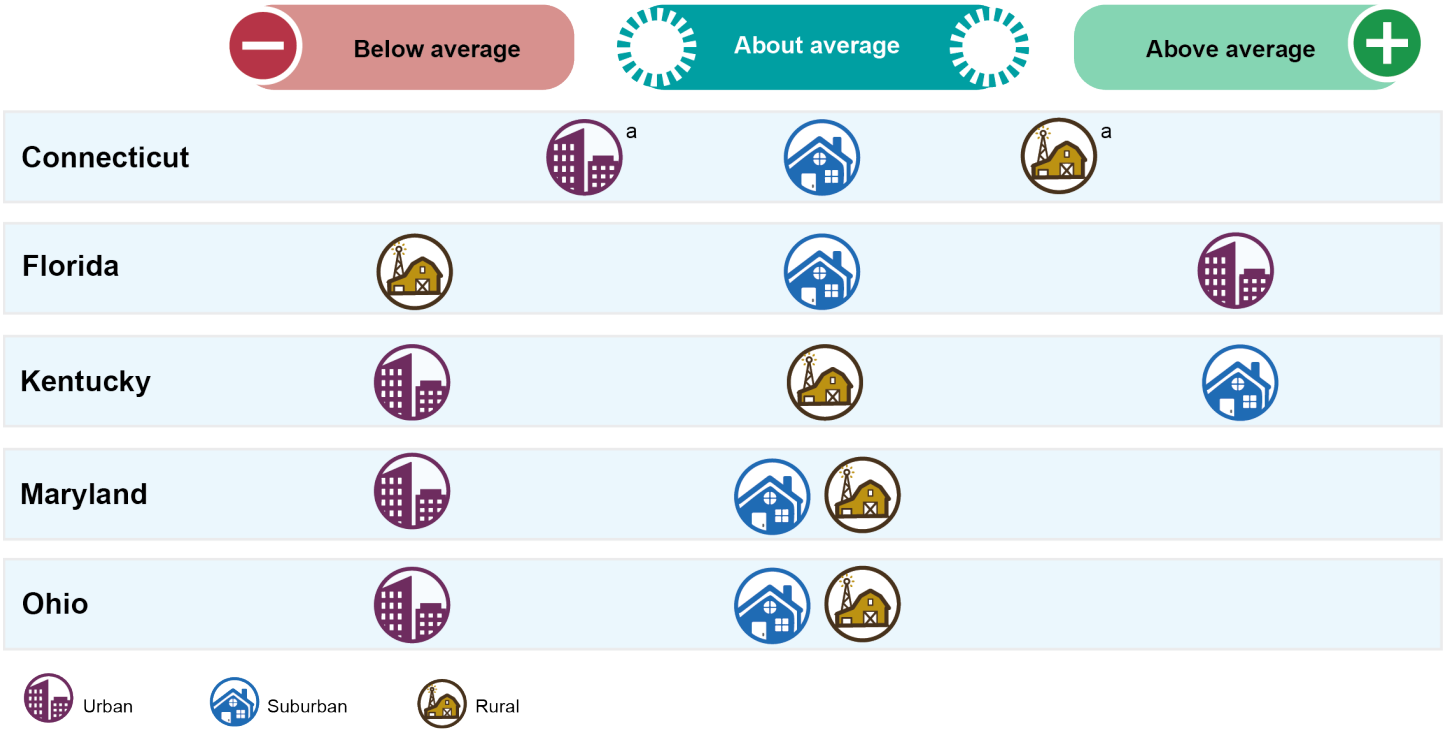
Source: GAO analysis of state-level kindergarten entry assessment (KEA) data. | GAO-27-108796

Note: Because Connecticut does not report an overall measure of kindergarten readiness, GAO classified readiness based on the share of kindergarteners ready in the majority of the state's six developmental areas. Connecticut, Florida, Kentucky, and Ohio KEA data were from school year 2024–2025. GAO analyzed Maryland KEA data from 2023–2024 because Maryland did not administer a KEA in school year 2024–2025.

How did kindergarten readiness rates compare across urban, suburban, and rural areas within selected states?

The five selected states showed different patterns of kindergarten readiness across urban, suburban, and rural school districts (see fig. 4). Compared with their state average, suburban districts were generally near the average kindergarten readiness rate, and urban and rural districts showed more variation.

Figure 4: Kindergarten Readiness by School District Urbanicity Within Selected States, School Years 2023–2025



Source: GAO analysis of states' district-level kindergarten entry assessment (KEA) data and Department of Education data. | GAO-27-108796

Note: GAO calculated the average percentage of students deemed kindergarten ready across geographic areas and classified them as "about average" if they were within 0.25 standard deviations of the state average for all students. Connecticut, Florida, Kentucky, and Ohio KEA data were from school year 2024–2025. GAO analyzed Maryland KEA data from 2023–2024 because Maryland did not administer a KEA in school year 2024–2025.

[a]Because Connecticut does not report an overall measure of kindergarten readiness, GAO classified readiness based on overall patterns across the state's six developmental areas. Urban districts were below average in two areas, and rural districts were above average in three areas. All other developmental areas were about average for urban, suburban, and rural districts.

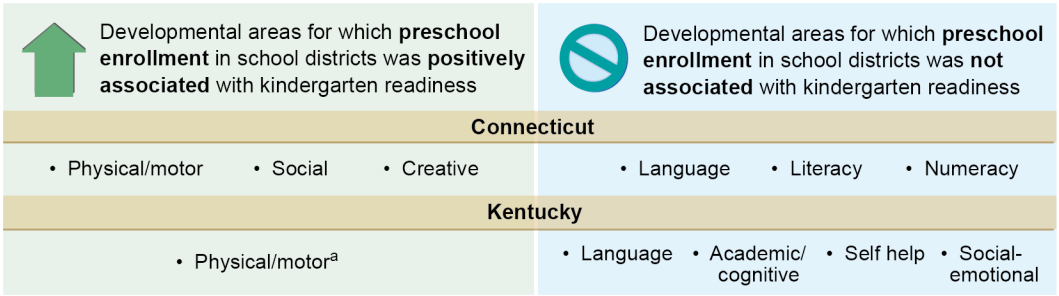
How were school districts' preschool enrollment rates associated with kindergarten readiness in selected states?

In Connecticut, Kentucky, and Ohio, school districts with a higher rate of students enrolled in public or private preschool were associated with higher kindergarten readiness rates, according to our regression analyses.[14] We found no statistically significant association in Florida and Maryland.[15]

In addition, we examined this association by developmental area and for different student demographic groups.

Developmental area. In the two of our five selected states that report on kindergarten readiness by developmental area—Connecticut and Kentucky—we found either a positive or statistically insignificant association between preschool enrollment and readiness by developmental area (see fig. 5).

Figure 5: Associations Between Preschool Enrollment and Kindergarten Readiness, by Developmental Area, in Selected States, School Year 2024–2025



Source: GAO analysis of states' district-level kindergarten entry assessment data, and Department of Education and U.S. Census Bureau data. | GAO-27-108796

Note: GAO performed separate regression analyses for each state and developmental area. Preschool is the estimated percentage of students enrolled in public or private preschool. Each regression included the same independent variables, and the outcome variable was the kindergarten readiness rate in a particular developmental area. For more information, including all variables contained in the regression analyses, see the "How GAO Did This Study" section in GAO-27-108796.

[a]The regression estimate for preschool from the physical/motor developmental area in Kentucky was statistically significant at the .1 level. The other associations were statistically significant at the .05 level

Student demographic groups. In the four selected states with sufficient kindergarten readiness data by student demographic group—Florida, Kentucky, Maryland, and Ohio—we found that the associations for all students were generally consistent in direction with those for different demographic groups.[16] For example, the association between preschool and kindergarten readiness for boys in Ohio was also positive and similar in magnitude to the association for all Ohio students.

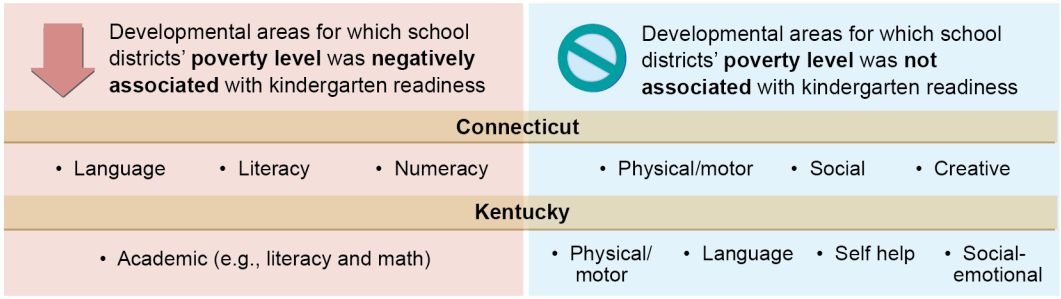
How were school districts' poverty levels associated with kindergarten readiness in selected states?

Generally, higher-poverty school districts were associated with lower kindergarten readiness in Connecticut, Florida, Kentucky, and Ohio, according to our regression analyses (see fig. 6).[17] In Maryland, we found no statistically significant association between district poverty level and kindergarten readiness.[18]

In addition, we examined this association by developmental area and for different student demographic groups.

Developmental area. In the two of our five selected states that report on kindergarten readiness by developmental area—Connecticut and Kentucky—we found either a negative or statistically insignificant association between poverty and readiness by developmental area (see fig. 6).

Figure 6: Associations Between Poverty and Kindergarten Readiness by Developmental Area in Selected States, School Year 2024–2025



Source: GAO analysis of states' district-level kindergarten entry assessment data, and Department of Education and U.S. Census Bureau data. | GAO-27-108796

Note: GAO performed separate regression analyses for each state and developmental area. Each regression included the same independent variables, and the outcome variable was the kindergarten readiness rate in a particular developmental area. For more information, including all variables contained in the regression analyses, see the "How GAO Did This Study" section in GAO-27-108796.

Student demographic groups. In the four selected states with sufficient kindergarten readiness data by student demographic group—Florida, Kentucky, Maryland, and Ohio—we found the associations between the district poverty level and kindergarten readiness rate were either consistent in direction with that of all students, or not statistically significant.[19] For example, the association between poverty and readiness for Florida students with disabilities was also positive and similar in magnitude to the association for all Florida students.

Agency Comments

We provided a draft of this report to the Department of Education for review and comment. Education did not have any comments on the report.

How GAO Did This Study

Literature Review

We reviewed 11 research studies that examined how U.S. kindergartners' enrollment in publicly funded preschools may affect their readiness in literacy or math.

Search and initial screening. Our initial search identified 156 potentially relevant studies that were published in peer-reviewed journals in the last 10 years (2017–2026). We chose these dates to focus on the most recent effects of preschool, as effects may have changed over time. We identified these studies through systematic searches of scholarly databases, such as Scopus and the ProQuest Education Collection, conducted between March and May 2026. Two analysts independently reviewed the 156 studies' abstracts to identify studies (1) that measured the effect of preschool on kindergarten students' readiness in literacy or math, (2) in which the majority of students in the treatment group attended a U.S. preschool in school year 2015–2016 or later, and (3) that used experimental or quasi-experimental methods. We excluded 85 studies because they were out of scope, leaving 71 studies for the full-text review.

Full-text review. Two analysts sequentially reviewed the 71 studies' full texts and excluded 45 studies because they were out of scope based on the three inclusion conditions described above. At least two GAO specialists assessed the key findings, methodology, data, assumptions, and limitations of the remaining 26 studies. Fifteen of these 26 studies had sufficient methodological rigor for the purpose of providing information on preschool and kindergarten readiness. Six of the 15 studies relied on the same data about the same population of students. To avoid overcounting evidence from the same underlying data, we included only

the most recent study from each group of studies using the same data. This resulted in 11 studies that met our scoping criteria and methodological standards.

Limitations. We did not report the magnitude of the effects because the studies did not always present complete information on the preschool enrollment of students in the comparison groups. Absent this information, the ability to compare the magnitude of the effects across studies is limited. For example, if comparison group students attended similar preschools as the treatment group, the effect on kindergarten readiness may be smaller than if they attended dissimilar preschools or no preschool.

Differences in the preschool programs in the studies also make it difficult to compare across the studies. Programs varied by characteristics including student eligibility requirements, length of school day, the duration of the program, and potentially the quality of instruction.

Analysis of KEA Data from Selected States

To provide information on kindergarten readiness, we analyzed KEA data from five selected states: Connecticut, Florida, Kentucky, Maryland, and Ohio. We selected these states because they had publicly available and reliable KEA data, and required a statewide KEA that assessed early literacy and math, according to a state survey we administered in school year 2023–2024.[20] We use the term "KEA" in this report to refer to these assessments, but states may use different names including kindergarten readiness assessments, kindergarten entrance inventories, or kindergarten screeners. We analyzed the following:

- School year 2024–2025 KEA data from Connecticut, Florida, Kentucky, and Ohio
- School year 2023–2024 KEA data from Maryland as Maryland did not administer a KEA in school year 2024–2025

School year 2024–2025 was the most recent year with available federal data on poverty and school district characteristics at the time of our review.

To assess the reliability of the states' KEA data, we reviewed relevant documentation and written responses from knowledgeable officials and performed electronic testing, which included investigating missing data and obvious errors. We determined the data were sufficiently reliable for the purpose of our analyses.

Descriptive analyses. To describe kindergarten readiness in our selected states, we used state- and district-level KEA data on the percentages of students who met or exceeded their state's readiness benchmark. To explore kindergarten readiness by student demographic group and developmental area, we used state-level KEA data. Because each state has its own KEA testing standards and readiness benchmark, students' KEA results should not be compared across states.

To explore kindergarten readiness by geographic area, we used district-level KEA data and Education's Common Core of Data (CCD). We calculated the average percentage of kindergarten-ready students for urban, suburban, and rural districts in each of our selected states.[21] We then compared them to the average percentage of kindergarten-ready students across all geographic areas in each state. We classified districts as "about average" if they were within 0.25 standard deviations of the state average.

Our descriptive analyses are nongeneralizable.

Regression analyses. To determine whether school district characteristics were associated with kindergarten readiness, we conducted regression analyses of each selected state's KEA data and additional data on the following:

- Preschool enrollment estimates (public and private combined) from the U.S. Census Bureau's American Community Survey 5-year estimates (2019–2023)[22]
- Poverty level from Census's Small Area Income and Poverty Estimates (SAIPE)
- School district characteristics, including student demographics (e.g., race, sex), geographic area (e.g., rural, urban, suburban), and district size from the CCD[23]

To appropriately match KEA data with other data sources, we used SAIPE and CCD data from 2024–2025 for Connecticut, Florida, Kentucky, and Ohio and 2023–2024 for Maryland.

Our regression analyses explored the association between two school district characteristics—preschool enrollment and poverty level—and kindergarten readiness for each selected state. We performed separate regressions for each state because KEA data are not comparable across states. The primary dependent variable was the percentage of students ready for kindergarten.

In addition, we performed separate regressions exploring the association between those school district characteristics and kindergarten readiness by developmental area and for different student demographic groups. We performed these regressions for each selected state with sufficient data. For these regressions, our dependent variable was the percentage of students ready for kindergarten in either a particular developmental area or a particular student demographic group.[24]

All regression analyses included the same independent variables. Specifically, each regression controlled for school district size (total enrollment), urbanicity, and student demographic composition. Additionally, all regression analyses excluded school districts without geographic boundaries, such as charter districts.

The results of our regression analyses are limited by several factors and thus should be interpreted with caution. First, the regression analyses are not causal. The regression results do not imply that differences in kindergarten readiness are the result of district characteristics or the effect of other variables. Moreover, the data we analyzed were at the district level, rather than the student level. As such, our regression results do not describe associations between our independent variables and an individual student's kindergarten readiness. Rather, the results describe positive, negative, or statistically insignificant associations between kindergarten readiness for districts with a given characteristic, while controlling for other district characteristics, such as geographic area.

We conducted this performance audit from November 2025 to November 2026 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

List of Addressees

The Honorable Tom Cole
Chairman
Committee on Appropriations
House of Representatives

The Honorable Blake Moore
House of Representatives

We are sending copies of this report to the appropriate congressional committees, the Secretary of Education, and other interested parties. In addition, the report is available at no charge on the GAO website at https://www.gao.gov.

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Appendix I: Studies Included in Literature Review

Table 1: Description of Selected Studies on Effects of Preschool Enrollment on Kindergarten Readiness

Citation	Intervention	Effect on kindergarten readiness	
		Literacy	Math
Karyn A. Allee, M. H. Clark, Haiyan Bai, and Sherron Killingsworth Roberts, "Direct and Indirect Impacts of Voluntary Pre-Kindergarten on Kindergarten Readiness and Achievement," *Early Childhood Education Journal*, vol. 52 (2024).	Voluntary Pre-Kindergarten (Florida)	No association found	No association found
Arya Ansari, Robert C. Pianta, Jessica V. Whittaker, Virginia E. Vitiello, and Erik A. Ruzek, "Persistence and Convergence: The End of Kindergarten Outcomes of Pre-K Graduates and Their Nonattending Peers," *Developmental Psychology*, vol. 56, no. 11 (2020).[a]	Virginia's programs (public pre-kindergarten, Head Start, or subsidized private)	Positive	Positive
Arya Ansari, Robert C. Pianta, Jessica E. Whittaker, Virginia Vitiello, and Erik Ruzek, "Enrollment in Public-Prekindergarten and School Readiness Skills at Kindergarten Entry: Differential Associations by Home Language, Income, and Program Characteristics," *Early Childhood Research Quarterly*, vol. 54 (2021).[a]	Virginia's programs (public pre-kindergarten, Head Start, or subsidized private)	Positive	Positive
Arya Ansari et al., "The First-Grade Outcomes of Pre-K Attendees: Examining Benefits as a Function of Skill Type, Environments, and Subgroups," *American Educational Research Journal*, vol. 60, no. 6 (2023).[a]	Virginia's programs (public pre-kindergarten, Head Start, or subsidized private)	Positive	Positive
Jordan S. Berne, Brian A. Jacob, Tareena Musaddiq, Anna Shapiro, and Christina Weiland, "Impacts of Michigan Transitional Kindergarten Through Third Grade," *Child Development* (2026).	Michigan Transitional Kindergarten	Positive	Positive[c]
Mary Bratsch-Hines, Kevin Bastian, Michael Little, Lora Cohen-Vogel, Margaret Burchinal, and Ellen Peisner-Feinberg, "Associations of State-Funded Prekindergarten with Early Elementary Literacy and Absences," *Early Childhood Research Quarterly*, vol. 72 (2025).[b]	North Carolina Pre-Kindergarten Program	Positive	Not measured
Margaret Burchinal, Tiffany Foster, Kylie Garber, Lora Cohen-Vogel, Mary Bratsch-Hines, and Ellen Peisner-Feinberg, "Examining Three Hypotheses for Pre-Kindergarten Fade-Out," *Developmental Psychology*, vol. 58, no. 3 (2022). [b]	North Carolina Pre-Kindergarten Program	Positive	Positive
Brenda J. Harden et al., "Benefits of Pre-Kindergarten for Children in Baltimore, MD," *Early Childhood Research Quarterly*, vol. 64 (2023).	Baltimore's public pre-kindergarten	Positive	Positive
Jamie Heng-Chieh Wu, Hope Onyinye Akaeze, and Laurie A. Van Egeren, "Effects of a State Pre-Kindergarten Program on the Kindergarten Readiness and Attendance of At-Risk Four-Year-Olds," *Early Childhood Education Journal*, vol. 53 (2025).	Great Start Readiness Program (Michigan)	Positive	Positive
Michael Little, Kevin C. Bastian, Lora Cohen-Vogel, Mary Bratsch-Hines, Peg Burchinal, Ellen Peisner-Feinberg, "Is Skill Heterogeneity in Kindergarten Classrooms Associated with the Persistence of Pre-K Gains? Evidence from the IES Early Learning Network," *Early Childhood Research Quarterly*, vol. 68 (2024) [b]	North Carolina Pre-Kindergarten Program	Positive	Positive
Bianca Montrosse-Moorhead, Shaun M. Dougherty, Tamika P. La Salle, Jennie M. Weiner, and Hannah M. Dostal, "The Overall and Differential Effects of a Targeted Prekindergarten Program: Evidence from Connecticut," *Early Childhood Research Quarterly*, vol. 48 (2019).	School Readiness (Connecticut)	Positive	Positive
Michah W. Rothbart and Taryn W. Morrissey, "Beyond the Classroom: The Broader Effects of Public Preschool Expansion on Children's Early Educational Experiences and Early Literacy Skills," *Educational Evaluation and Policy Analysis*, vol. 48, no. 1 (2026).	Virginia Preschool Initiative Plus	Positive	Not measured
Michael J. Sulik, C. Townley-Flores, Lily Steyer, and Jelena Obradović, "Impacts of Two Public Preschool Programs on School Readiness in San Francisco," *Early Childhood Research Quarterly*, vol. 62 (2023).	San Fransico's programs (needs-based program and Transitional Kindergarten)	Positive	Not measured
Henry Woodyard, Tim Sass, and Ishtiaque Fazlul, "Assessing the Benefits of Education in Early Childhood: Evidence from a Pre-K Lottery in Georgia," *Economic Inquiry*, vol. 63 (2025).	Georgia's Pre-Kindergarten Program	Positive	Positive
Huang Wu, Jianping Shen, Xin Li, Megan Russell Johnson, and Huilan Y. Krenn, "Great Start Readiness Program and Children's Academic Achievement: A Longitudinal Study," *Early Childhood Education Journal*, vol. 53 (2025).	Great Start Readiness Program (Michigan)	Positive	Positive

Source: GAO analysis of selected studies. | GAO-27-108796

Notes: GAO defined literacy and mathematics inductively based on the measures reported in these studies. The studies used assessments such as Woodcock Johnson; Dynamic Indicators of Basic Early Literacy Skills; Measures of Academic Progress; or state or district assessments. Positive effects were statistically significant at the .05 level, unless otherwise noted.

[a]These three studies met the criteria to include in GAO's review but used the same data, so GAO counted them as one study in this analysis. GAO selected the most recent study for this analysis: Arya Ansari et al., "First-Grade Outcomes."

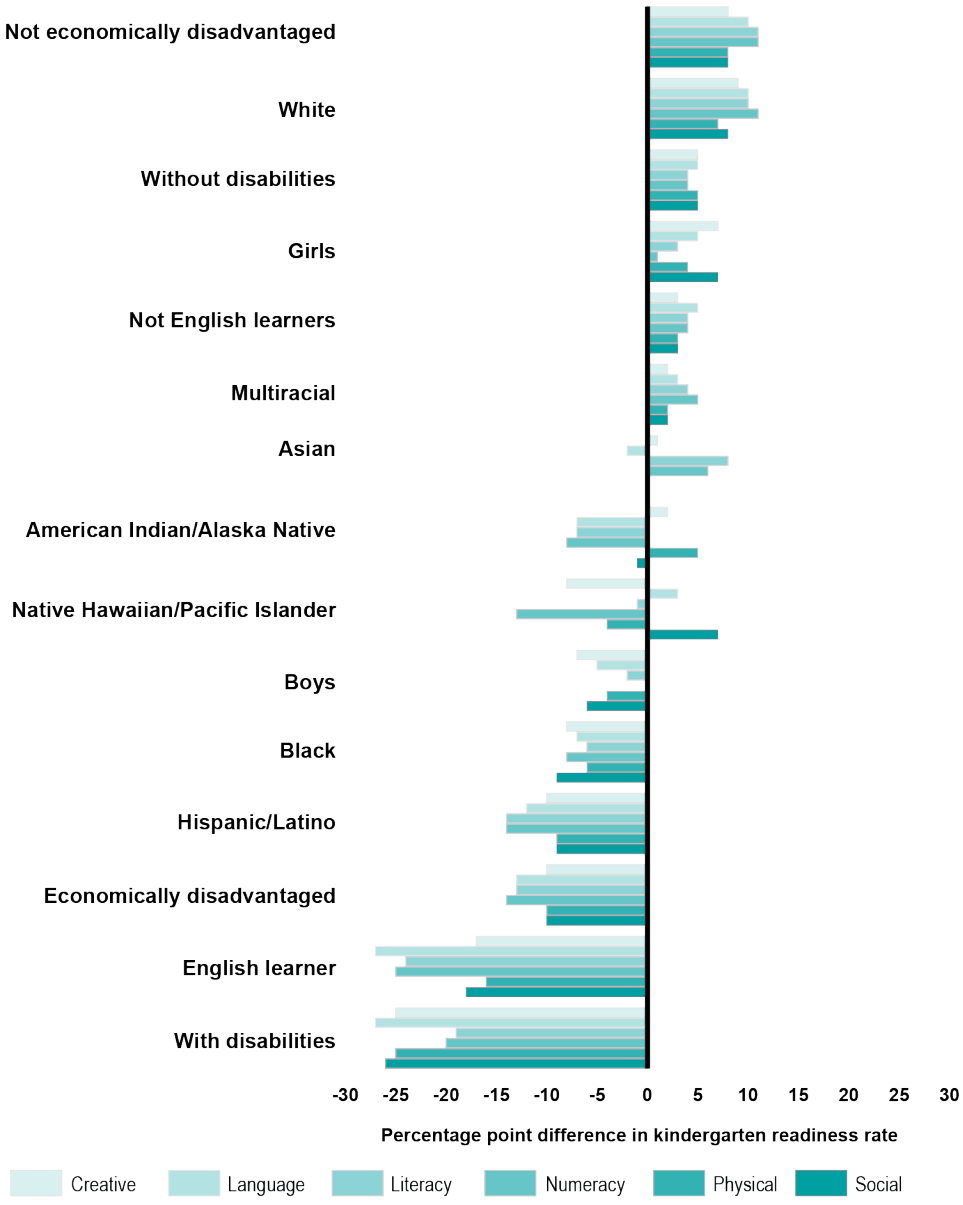
[b]These three studies met the criteria to include in GAO's review but used the same data, so GAO counted them as one study in this analysis. GAO selected the most recent study for this analysis: Bratsch-Hines, Bastian, Little, Cohen-Vogel, Burchinal, Peisner-Feinberg, "Associations of State-Funded Prekindergarten."

[c]This result was statistically significant at the .1 level.

How did kindergarten entry assessment (KEA) results compare across student groups and school districts?

In school year 2024–2025, Connecticut's KEA found that, in each of the six developmental areas, 41 to 56 percent of students were ready for kindergarten. Kindergarten readiness varied by demographic group (see fig. 7).

Figure 7: Kindergarten Readiness by Student Group and Developmental Area Relative to All Students



Source: GAO analysis of Connecticut kindergarten entry assessment data from school year 2024–2025. | GAO-27-108796

How are students assessed?

Teachers assess students based on their knowledge of their students' abilities, rating each student into one of three performance levels based on how consistently the student demonstrates skills in each developmental area and the level of instructional support the student requires.

In this report, we refer to students as "ready" if they were rated at the highest performance level, consistently demonstrating skills with minimal support.

What developmental areas does the KEA assess?

- Creative/aesthetic (e.g., portraying experiences in drawings, playing pretend)
- Language
- Literacy
- Numeracy (e.g., counting, identifying shapes and patterns)
- Personal/social (e.g., interacting with peers, seeking help to resolve conflicts)
- Physical/motor

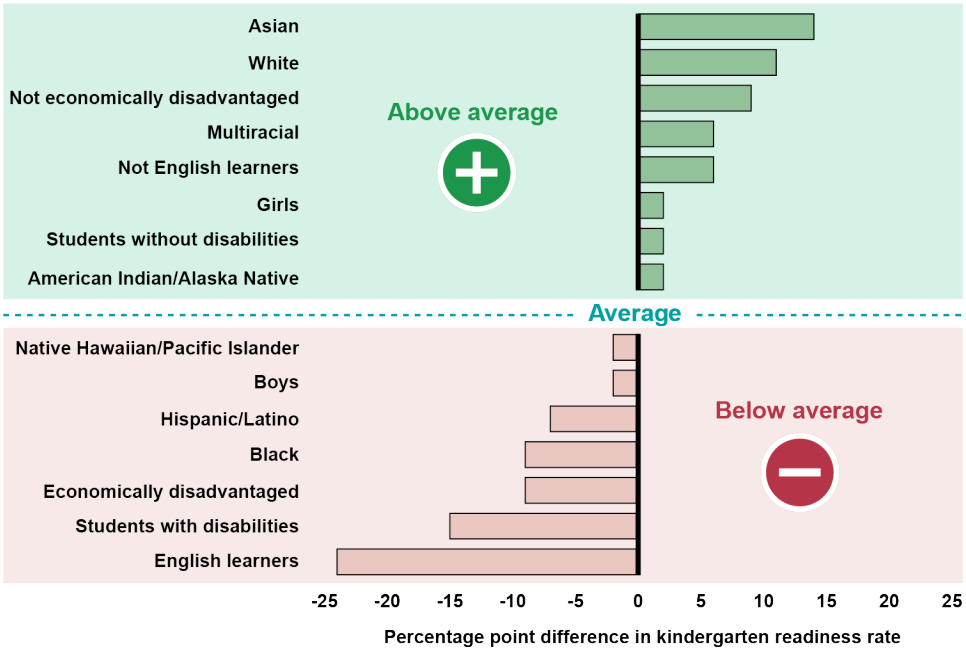
What KEA information does the state report?

Connecticut separately reports data on the percentage of students ready for each developmental area. It does not report students' readiness overall.

How did kindergarten entry assessment (KEA) results compare across student groups and school districts?

In school year 2024–2025, Florida's KEA found that 43 percent of students were ready for kindergarten. Readiness varied by demographic group (see fig. 8).

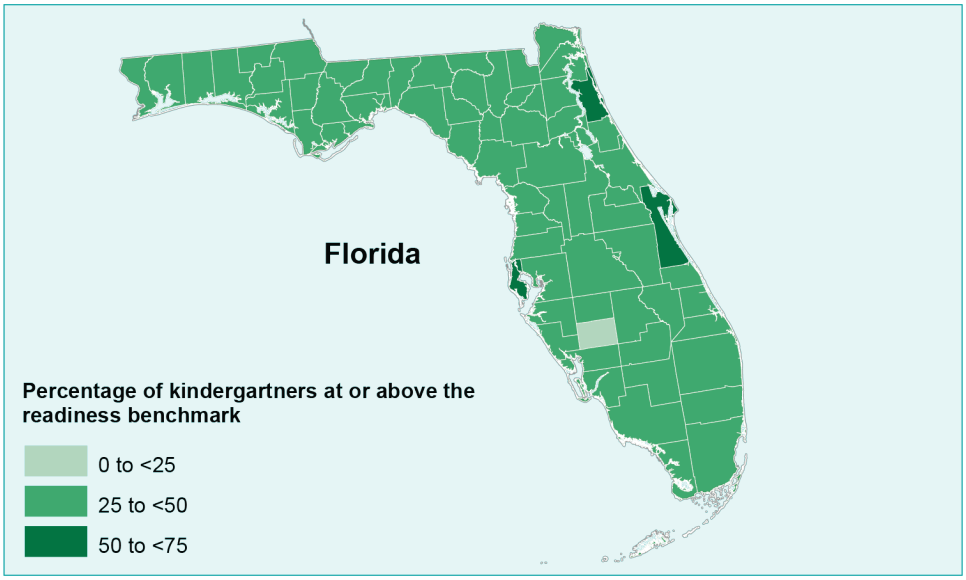
Figure 8: Kindergarten Readiness by Student Group Relative to All Students



Source: GAO analysis of Florida kindergarten entry assessment data from school year 2024–2025. | GAO-27-108796

In 90 percent of Florida school districts, less than half of students were ready for kindergarten (see fig. 9). In three counties—Brevard, Pinellas, and St. Johns—and four virtual or laboratory schools, over half of students were ready.

Figure 9: Kindergarten Readiness by School District, School Year 2024–2025



Source: GAO analysis of Florida kindergarten entry assessment data and Department of Education School District Boundaries data. | GAO-27-108796

Note: Florida also reported data on six school districts that are laboratory, virtual, or charter school districts. Because they do not have geographic boundaries this figure excludes them.

How are students assessed?

Students take a computer-adaptive test. The test questions use a mix of text and pictures, and there is audio for all questions and instructions.

What developmental areas does the KEA assess?

- Literacy
- Numeracy (e.g., numbers, early math concepts)

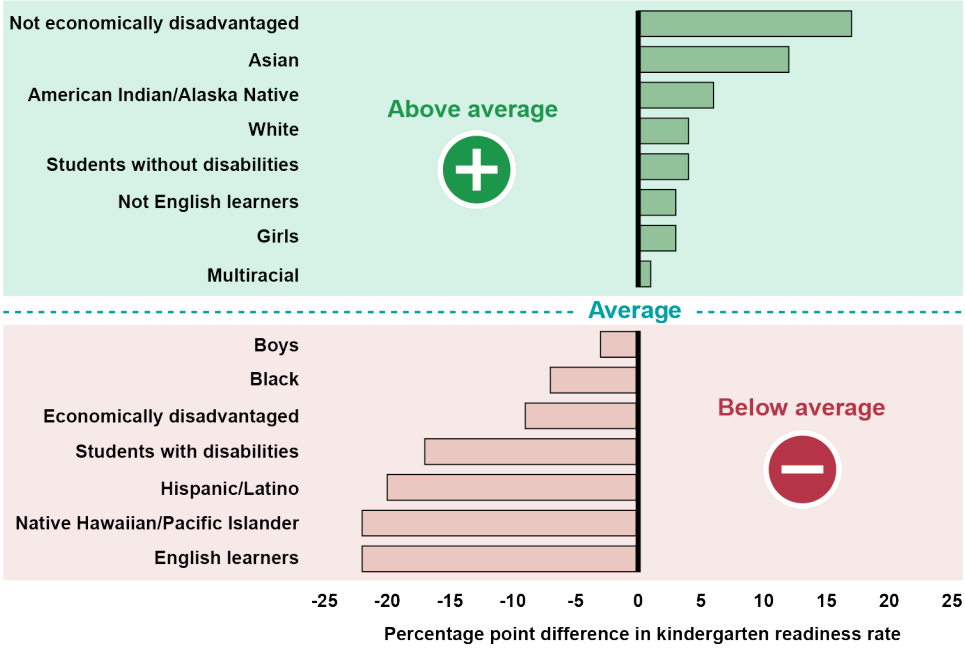
What KEA information does the state report?

Florida reports the percentage of students ready overall and does not report separately by developmental area.

How did kindergarten entry assessment (KEA) results compare across student groups and school districts?

In school year 2024–2025, Kentucky's KEA found that 46 percent of students were ready for kindergarten. Kindergarten readiness varied by demographic group (see fig. 10).

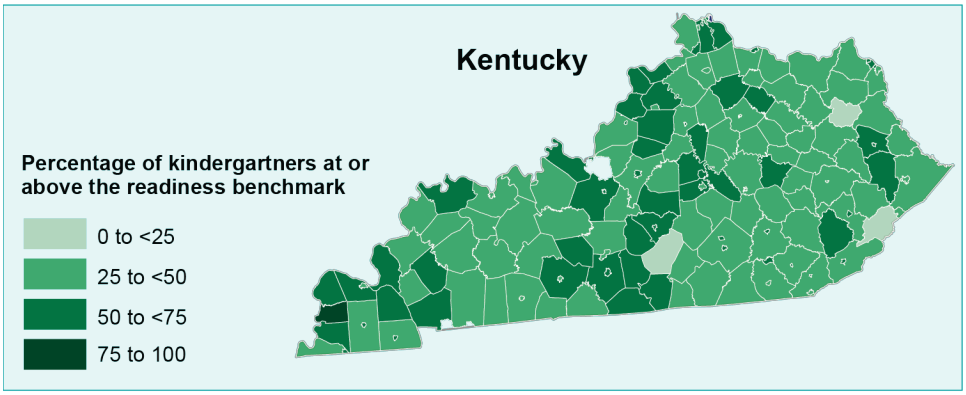
Figure 10: Kindergarten Readiness by Student Group Relative to All Students



Source: GAO analysis of Kentucky kindergarten entry assessment data from school year 2024–2025. | GAO-27-108796

In 60 percent of Kentucky school districts, less than half of students were ready for kindergarten (see fig. 11). In two districts—Fort Thomas Independent and Carlisle County—over 75 percent of students were ready.

Figure 11: Kindergarten Readiness by School District, School Year 2024–2025



Source: GAO analysis of Kentucky kindergarten entry assessment data and Department of Education School District Boundaries data. | GAO-27-108796

Note: Kentucky also reported data on one laboratory school district. Because it does not have geographic boundaries, this figure excludes it.

How are students assessed?

Kentucky uses screeners with questions designed to assess students' academic/cognitive, language, and physical skills. Parents also complete a questionnaire to assess students' self-help and social-emotional skills.

What developmental areas does the KEA assess?

- Academic/cognitive (e.g., how we think and learn, alphabet, numbers, shapes)
- Language (e.g., speaking, listening)
- Physical (e.g., fine and gross motor skills)
- Self-help (e.g., solving problems, following directions)
- Social emotional (e.g., recognizing emotions, interacting with others)

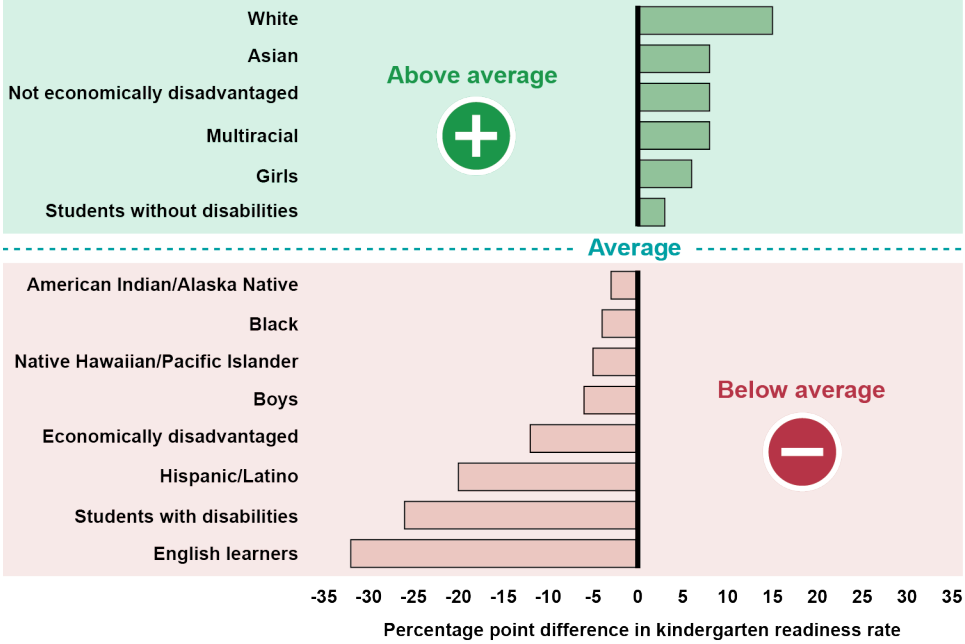
What KEA information does the state report?

Kentucky reports the percentage of students ready overall and for each developmental area separately.

How did kindergarten entry assessment (KEA) results compare across student groups and school districts?

In school year 2023–2024, Maryland's KEA found that 44 percent of students were ready for kindergarten. Kindergarten readiness varied by demographic group (see fig. 12).

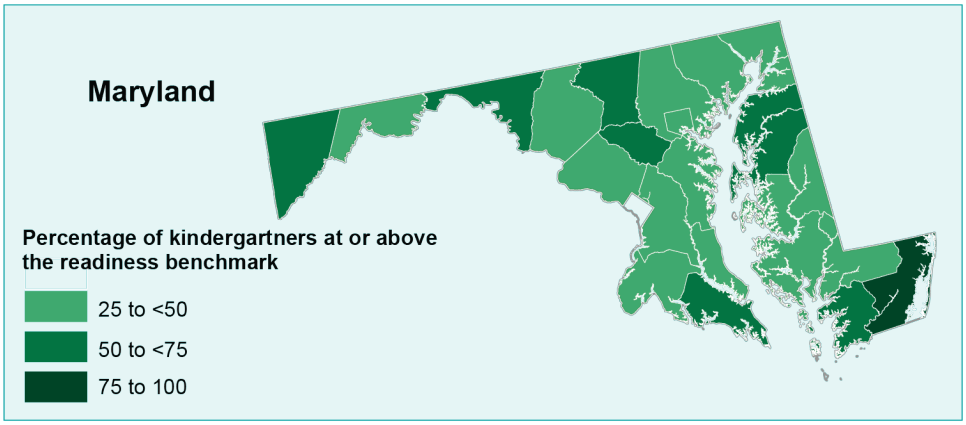
Figure 12: Kindergarten Readiness by Student Group Relative to All Students



Source: GAO analysis of Maryland kindergarten entry assessment data from school year 2023–2024. | GAO-27-108796

In 63 percent of Maryland school districts, less than half of students were ready for kindergarten (see fig. 13). One district—Worcester County—had over 75 percent of students ready.

Figure 13: Kindergarten Readiness by School District, School Year 2023–2024



Source: GAO analysis of Maryland kindergarten entry assessment data and Department of Education School District Boundaries data. | GAO-27-108796

How were students assessed?

Teachers assessed students by observing them and asking them to respond to questions and complete tasks.

What developmental areas did the KEA assess?

- Language and literacy
- Mathematics
- Physical well-being and motor development
- Social foundations (e.g., recognizing emotions, resolving conflicts, solving problems)

What KEA information did the state report?

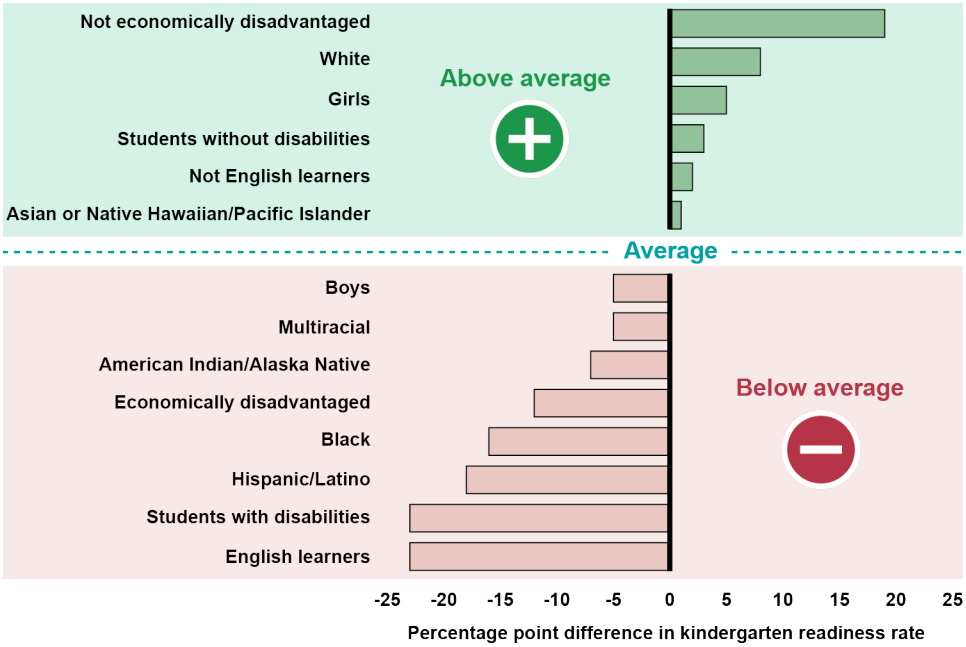
Maryland reported the percentage of students ready overall. Maryland also reported students' average scores for each developmental area. It did not report the percentage of students who met a readiness benchmark in each area.

We analyzed data from Maryland's school year 2023–2024 KEA. The state did not administer a KEA in school year 2024–2025 and implemented a new KEA in school year 2025–2026.

How did kindergarten entry assessment (KEA) results compare across student groups and school districts?

In school year 2024–2025, Ohio's KEA found that 37 percent of students were ready for kindergarten. Readiness varied by demographic group (see fig. 14).

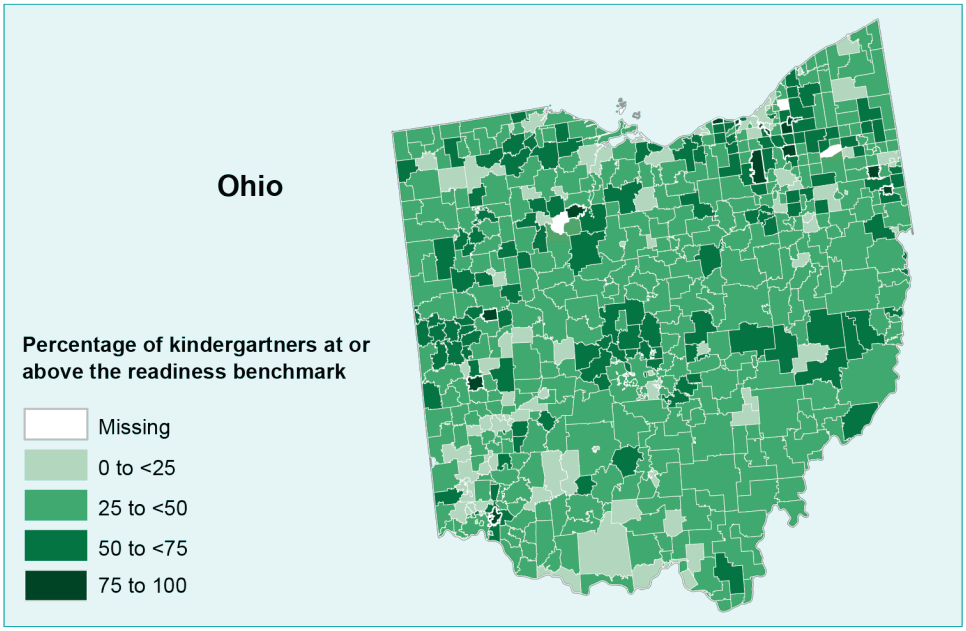
Figure 14: Kindergarten Readiness by Student Group Relative to All Students



Source: GAO analysis of Ohio kindergarten entry assessment data from school year 2024–2025. | GAO-27-108796

In 74 percent of Ohio school districts, less than half of students were ready for kindergarten (see fig. 15). Fifteen districts had over 75 percent of students ready. Chagrin Falls and Columbiana Exempted Village had the highest rates.

Figure 15: Kindergarten Readiness by School District, School Year 2024–2025



Source: GAO analysis of Ohio kindergarten entry assessment data and Department of Education School District Boundaries data. | GAO-27-108796

How are students assessed?

Teachers assess students by observing them and asking them to respond to questions and complete tasks.

What developmental areas does the KEA assess?

- Language and literacy
- Mathematics
- Physical well-being and motor development
- Social foundations (e.g., social and emotional development, approaches toward learning)

What KEA information does the state report?

Ohio reports the percentage of students ready overall and for the language and literacy developmental area. It does not report separately for the other three developmental areas.

Endnotes

[1]One study found a positive effect for math that was statistically significant at the .1 level. The other findings were statistically significant at the .05 level. Publicly funded preschool includes both public preschool programs and publicly funded spots at private preschools.

[2]Bianca Montrosse-Moorhead, Shaun M. Dougherty, Tamika P. La Salle, Jennie M. Weiner, and Hannah M. Dostal, "The Overall and Differential Effects of a Targeted Prekindergarten Program: Evidence from Connecticut," *Early Childhood Research Quarterly*, vol. 48 (2019).

[3]Michah W. Rothbart and Taryn W. Morrissey, "Beyond the Classroom: The Broader Effects of Public Preschool Expansion on Children's Early Educational Experiences and Early Literacy Skills," *Educational Evaluation and Policy Analysis*, vol. 48, no. 1 (2026).

[4]Jordan S. Berne, Brian A. Jacob, Tareena Musaddiq, Anna Shapiro, and Christina Weiland, "Impacts of Michigan Transitional Kindergarten through Third Grade," *Child Development*, vol. 97, no. 4 (2026).

[5]Arya Ansari et al., "The First-Grade Outcomes of Pre-K Attendees: Examining Benefits as a Function of Skill Type, Environments, and Subgroups," *American Educational Research Journal*, vol. 60, no. 6 (2023).

[6]Our literature search focused on how preschool may affect kindergarten readiness in literacy and math. Seven of the studies we included also had findings on specific student groups that we found sufficiently reliable. A search designed to examine effects for specific student groups may have yielded different results.

[7]Arya Ansari et al., "The First-Grade Outcomes of Pre-K Attendees: Examining Benefits as a Function of Skill Type, Environments, and Subgroups," *American Educational Research Journal*, vol. 60, no. 6 (2023).

[8]Henry Woodyard, Tim Sass, and Ishtiaque Fazlul, "Assessing the Benefits of Education in Early Childhood: Evidence from a Pre-K Lottery in Georgia," *Economic Inquiry*, vol. 63 (2025).

[9]The results were often, but not always, statistically significant.

[10]Maryland reports average scores for each developmental area; it does not report the percentage of students ready for each area separately. Ohio reports separately only on readiness for the language and literacy area.

[11]Connecticut does not report an overall measure for kindergarten readiness. In four of Connecticut's six developmental areas (literacy, language, numeracy, and social skills), less than half of students were ready. In two of six areas (creative and physical skills), over half of students were ready.

[12]In this report, "kindergarten readiness rate" refers to the percentage of students who met or exceeded their state's readiness benchmark, based on the KEA results.

[13]States can choose how they identify economically disadvantaged students (e.g., eligibility for free or reduced-price lunch, eligibility for federal programs such as the Supplemental Nutrition Assistance Program or Medicaid, or children who are migrants or experiencing homelessness).

[14]We used public and private preschool enrollment estimates from the U.S. Census Bureau to calculate the estimated percentage of students under five years old enrolled in preschool for a school district. The regression estimate for preschool from the physical/motor developmental area for Kentucky was statistically significant at the .1 level. The other associations were statistically significant at the .05 level. Connecticut does not report an overall measure for kindergarten readiness. We found that districts with a higher percentage of students enrolled in preschool were positively associated with kindergarten readiness for three of six developmental areas. We found no statistically significant association in the other three areas.

[15]Maryland's estimates were generally less precise than other states which could be due to its small number of districts and the lack of variation in preschool enrollment across districts.

[16]The one exception was Maryland school districts with higher percentages of all students enrolled in preschool were associated with lower percentages of economically disadvantaged students ready for kindergarten. Our regression results indicate the association between general preschool enrollment and kindergarten readiness, not preschool enrollment of economically disadvantaged students and their kindergarten readiness.

[17]Connecticut does not report an overall measure for kindergarten readiness. We found districts with a higher poverty level were negatively associated with kindergarten readiness for three of six developmental areas. We found no statistically significant association in the other three areas.

[18]Maryland's estimates were generally less precise than other states which could be due to its small number of districts and the lack of variation in poverty rates across districts.

[19]In Kentucky, district poverty had a larger negative association with preschool readiness for boys than girls.

[20]GAO, *K-12 Education: State and Selected Teachers' Use of Kindergarten Readiness* Information, GAO-24-106552, (Washington, D.C.: Sept. 17, 2024).

[21]Due to KEA data availability, we used CCD data from 2024–2025 for Connecticut, Florida, Kentucky, and Ohio and 2023–2024 for Maryland.

[22]To calculate the estimated percentage of children enrolled in preschool, we divided the estimated number of children enrolled in preschool by the estimated number of children under 5 years old for each district. Since this variable is an estimate the standard errors may be underestimated.

[23]We used K-12 student demographics and district size, rather than kindergarten demographics and size, because the K-12 demographics are likely more representative of the demographic characteristics of an entire district and because the district-level demographics align with the SAIPE poverty measure, which reports school-age poverty for the district. There is a positive correlation between district-level demographics and kindergarten demographics.

[24]Our analysis excluded student groups with more than 10 percent of observations missing (e.g., due to suppression).