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Trends and Disparities in Readiness using the Kindergarten Individual Development Survey (KIDS)

Kindergarten Readiness in Illinois Series

Part 1

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External Review

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Kindergarten Readiness in Illinois Part 1: Trends and Disparities in Readiness using the Kindergarten Individual Development Survey (KIDS)

Executive Summary

Kindergarten readiness refers to a child's level of preparation for formal education upon entering kindergarten. It encompasses a range of skills and developmental milestones that are important for the transition into the structured learning environments of K-12 schools. Kindergarten Readiness Assessments (KRAs) can provide educators and policymakers with valuable information about their students. They may offer teachers insights about their students' development to help personalize and tailor instruction, as well as aggregate data for school leaders and policymakers to strategically allocate resources where they are needed most. Starting in the 2017-18 school year, the Kindergarten Individual Development Survey (KIDS) has been implemented statewide in Illinois. The assessment aims to capture a holistic view of students' development in 3 key domains: approaches to learning and social-emotional development, language and literacy, and math.

This study is the first in a series on kindergarten readiness in Illinois. It is motivated by prior work that documents early disparities in kindergarten readiness at kindergarten entrance. Kindergarten readiness has been shown to be an important developmental measure that relates to later school performance and helps ensure that students are ready to learn when they enter the K-12 education system. Identifying these disparities may be central to equity, since student groups that are systematically less likely to be kindergarten ready may be less able to take advantage of the learning opportunities offered in elementary school, which may in turn reinforce educational inequality. Conversely, it is also critical that K-12 schools are "student ready," meaning that they are ready to support students at varying levels of kindergarten readiness. As such, understanding more about differences at kindergarten entry can help target resources and investments in early childhood and the K-12 education system.

In this report, we perform a descriptive analysis of kindergarten readiness in Illinois. We use data on the population of Illinois kindergarteners between the 2017-18 and 2021-22 school years provided by the Illinois State Board of Education (ISBE). In our analysis, we build on the existing literature and examine readiness over time, by domain, and by student subgroups, using an equity perspective to understand differences in scores. We summarize our key findings below:

Findings:

1. **Statewide, KIDS participation levels were high, and kindergarten readiness increased over time.** Kindergarten readiness improved in all three domains between 2017-18 and 2021-22.
2. **There were differences in kindergarten readiness between student subgroups. Over time, all student subgroups showed improvements, but differences were stable over time.** White and Asian students were 15 to 25 percentage points more likely than Black and Hispanic/Latino students to be kindergarten ready in all three domains. Students who were eligible for Free or Reduced-Price Lunch (FRPL), were English Learners (ELs), or had an Individualized Education Program (IEP) were 15 to 25 percentage points less likely to be kindergarten ready in each of the three domains. Girls were

more kindergarten ready than boys in the domains of social-emotional development and language and literacy, and older students (in months) were more kindergarten ready in all domains.

3. **Most ELs were not given the alternative language assessment items specifically designed for ELs**. ELs in bilingual classrooms (20% of ELs) were overwhelmingly more likely to receive the alternative language assessment items than ELs not in such classrooms. This suggests that EL readiness levels are not systematically measured across districts and schools in the state.
4. In districts that administer the KIDS assessment throughout the year, **students exhibit growth throughout the school year**, highlighting that readiness skills can develop through schooling.

Kindergarten Readiness in Illinois Part 1: Trends and Disparities in Readiness using the Kindergarten Individual Development Survey (KIDS)

Kindergarten readiness encompasses a broad range of knowledge, skills, and behaviors that lay important foundations for learning in K-12 education. Kindergarten Readiness Assessments (KRAs) can provide educators and policymakers with valuable information about their students. They may offer teachers insights about their students' development to help personalize and tailor instruction, as well as aggregate data for school leaders and policymakers to strategically allocate resources where they are needed most.

Starting in the 2017-18 school year, the Kindergarten Individual Development Survey (KIDS) has been implemented statewide in Illinois. This assessment, designed to gauge children's readiness to learn upon entering kindergarten, relies on teachers' observations across a standardized set of developmental measures. The assessment aims to capture a holistic view of students' development in 3 key domains: approaches to learning & social-emotional development (SED), language and literacy, and math.

This study, the first in a series on kindergarten readiness in Illinois, is guided by the following research questions:

1. What proportion of children are kindergarten ready in Illinois? How has it changed in the last five years?
2. Are there differences in kindergarten readiness by demographic characteristics like racial/ethnic group, English Learner (EL) status, having an Individualized Education Program (IEP), free and reduced-price lunch eligibility (FRPL), gender, and age?
3. In districts that assessed students multiple times in the year, does readiness improve throughout the school year?

Subsequent reports in this series will examine the relationship between kindergarten readiness and later school outcomes, as well as the relationship between kindergarten readiness and participation in state-supported early childhood activities, to understand how these factors—among many other observable and unobservable factors—contribute to students' academic trajectories from a young age.

Background

Kindergarten readiness refers to a child's level of preparation for formal education upon entering kindergarten. It encompasses a range of skills and developmental milestones that are important for the transition into the K-12 learning environment. These skills come from the domains of basic numeracy and literacy, language development, and SED, such as listening, communicating, emotional maturity, and self-regulation (First 5 Center for Children's Policy, 2020). It may also include mindsets or attitudes like curiosity, a positive disposition towards learning, and sharing and taking turns (Urban Child Institute, 2011). Importantly, numerous studies find kindergarten readiness in math, language, and SED predict later academic success (Duncan et al., 2007). Prior studies also highlight significant differences in readiness between children from varying family-income levels and by racial-ethnic groups, showing its potential as a

tool for diagnosing and better understanding investments in early childhood and the K-12 education system (Herring et al., 2022).

Throughout the U.S., kindergarten readiness is increasingly measured through district or statewide assessments. These assessments can help educators and policymakers gauge a child's proficiency in key areas and identify any potential areas of concern or strength. The measures are meant to offer insights about kindergarteners' development to various stakeholders in the education system. Teachers may find that these assessments help them tailor instruction to meet students at their individual developmental levels and create a more personalized learning experience. School leaders could also benefit by gaining an understanding of their student body's developmental landscape, allowing them to allocate resources strategically and make decisions informed by data. At the district level, kindergarten readiness assessments can offer education leaders information for decisions regarding Pre-K and kindergarten programs. Finally, policymakers can leverage these measures to discern patterns, identify key areas of concern, and extend additional resources and target supports where they are needed most (Duncan et al., 2007).

Kindergarten Readiness Assessments: The National Landscape

KRAs, like KIDS in Illinois, are part of a larger national trend. Since the 1990s, education leaders and researchers have been developing standards and tools for assessing and ensuring that kindergarteners have a set of developmentally appropriate skills and behaviors that are essential for success in the K-12 education system (Kagan et al., 1995). These standards recommend that assessments should be administered by children's kindergarten teachers (potentially complemented with information from parents and other school staff), be culturally and linguistically appropriate for the population, and cover multiple domains of readiness, including motor development, socioemotional development, language and literacy, and emerging mathematical reasoning (U.S. Department of Education et al., 2011).

Throughout the country, kindergarten readiness assessments with these characteristics are being adopted by most districts and states. This is part of a federal push: since 2011, federal grants from U.S. Department of Education and Health and Human Services for the Race to the Top - Early Learning Challenge (RTT-ELC) encouraged states to create plans and implement KRAs with these characteristics. KRAs have expanded dramatically since, with 20 states receiving these grants in 2011 and new grants and federal assistance becoming widely available (Jensen et al., 2021). As of 2020, 41 states were either developing or implementing KRAs (Weisenfeld, 2020).[1]

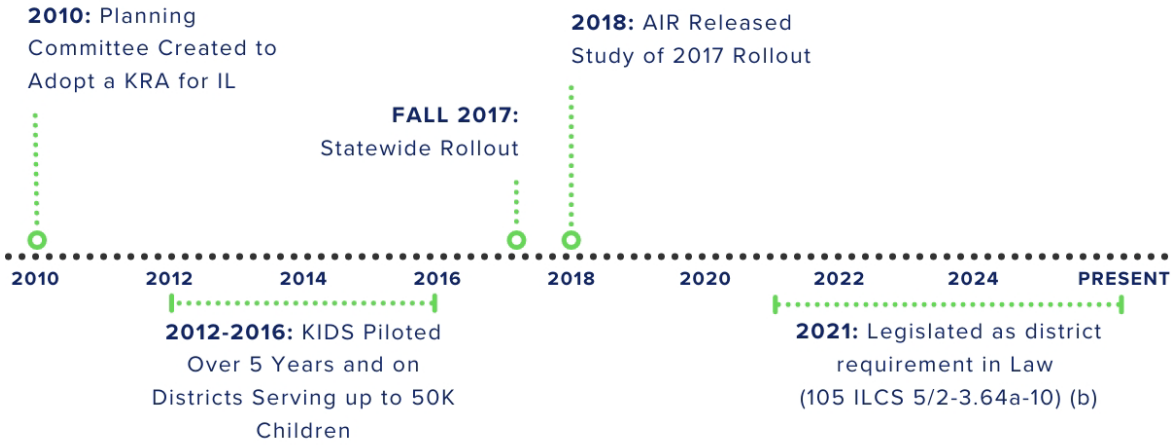
History of KIDS

Illinois developed and piloted its own KRA between 2010 and 2016 with the help of a planning committee, which included Illinois State Board of Education (ISBE) staff, child development experts, teachers, school leaders, and other advocates. Through a partnership with WestEd, the committee adapted the Desired Results Developmental Profile-Kindergarten (DRDP) to be aligned with Illinois standards for kindergarten and early learning (Bowdon et al., 2019). The assessment was piloted in select districts between

[1] For the most updated list of state KRA policies, see WestEd's dashboard: https://csaa.wested.org/tools/state-of-states/

2012 and 2016, serving up to 50,000 kindergarteners, and became known as KIDS. The original version included 55 measures across 11 readiness domains, but was shortened to only require 14 measures, leaving the remaining measures as optional (see Appendix Table A1 for optional readiness domains). This underscores the complexity of assessing the many dimensions of kindergarten readiness. Figure 1 shows the timeline of the adoption, creation, and implementation of KIDS.

Figure 1. Timeline of KIDS development and rollout.



The American Institutes for Research (AIR) and the Regional Educational Laboratory (REL) Midwest conducted an evaluation of the 2017 statewide data and found the KIDS measure to be reliable and have a stable factor structure (Bowdon et al., 2019). Starting in the 2017-18 school year, KIDS has been implemented statewide in Illinois. Designed to gauge the readiness to learn of children entering kindergarten, KIDS relies on teachers' observations across a standardized set of developmental measures. Using the KIDS framework, teachers observe and document children's skills, knowledge, and behaviors at the start of kindergarten in different developmental domains. The assessment contains 14 mandatory measures that all teachers are required to collect from all students (with exceptions for specific disabilities[2]). Districts may optionally have their teachers collect more than the required 14 measures (up to the original 55 measures) or may collect data more than once over the year (at fall, winter, and spring periods) to assess developmental growth (ISBE, 2021a).

As outlined in an ISBE Fall 2021 report, the primary aim of KIDS is to provide valuable insights for teachers, administrators, families, and policymakers (ISBE, 2021b). By assessing kindergarteners in three key developmental domains—SED, language and literacy, and math—the survey aims to capture a holistic view of students' knowledge, skills, and behaviors at the start of their K-12 education journey. Teachers observe students on these 14 required measures during regular classroom activities and rate them in one of 6 developmental categories for each measure: building–earlier, building–middle, building–later, integrating–

[2] See "KIDS Exempt Special Needs Guidance." Illinois State Board of Education: https://www.isbe.net/Documents_KIDSWebsiteResources/KIDS_Exempt_Special_Needs_Guidance.pdf.

earlier, integrating–middle, and integrating–later. These 14 measures are then combined into the three domains, as shown in Table 1, using psychometric analyses to convert the ratings from multiple measures to scale scores and determine the kindergarten readiness cutoff for each domain.

Table 1. KIDS domains and the 14 required measures.

Subset	Within Domain	Domain Abbreviation	Number within Domain	Measure Name
Subset 1: ATL-REG--SED	Approaches to Learning – Self-Regulation	ATL-REG	1	Curiosity and Initiative in Learning
			2	Self-Control of Feelings and Behavior
			3	Engagement and Persistence
	Social and Emotional Development	SED	3	Relationships and Social Interactions with Familiar Adults
			4	Relationships and Social Interactions with Peers
Subset 2: LLD	Language and Literacy Development	LLD	3	Communication and Use of Language (Expressive)
			4	Reciprocal Communication and Conversation
			6	Comprehension of Age-Appropriate Text
			8	Phonological Awareness
			9	Letter and Word Knowledge
Subset 3: MATH	Cognition, Including Math and Science	COG:MATH	1	Classification
			2	Number Sense of Quantity
			3	Number Sense of Math Operations
			6	Shapes

Source: "Kindergarten Individual Developmental Survey. USER'S GUIDE & INSTRUMENT." 2018. ISBE.

English Learners (ELs)

KIDS aims to be culturally and linguistically responsive. Thus, in an effort to accurately examine the language development of ELs, KIDS includes an alternative assessment of Domain 2 (Language and Literacy). In this alternative version – which teachers are expected to observe in both English and the student's home language[3] – two required measures are substituted with alternatives better suited for understanding ELs' emergent English skills. The alternative measures replace measures LLD 8 (Phonological Awareness) and LLD 9 (Word Knowledge), with measures LLD 1 (Receptive Understanding of Language) and LLD 10 (Emergent Writing). These measures are more relevant – and better capture emerging English language development - for children who speak another language at home.

The KIDS Guidance for Dual Language Learners (ISBE, 2017) "strongly recommends" that teachers use the alternative Language and Literacy (Domain 2) measure for students in bilingual classrooms (20% of ELs). For ELs not in bilingual classrooms[4] (the remaining 80%), the subset can be used "at the teacher's

[3] KIDS data do not include information on other languages spoken by teachers or other languages observed in the assessment. Thus, we cannot ascertain whether teachers assessed students in their home language.

[4] This includes ELs in a general education classroom or English as a Second Language classrooms.

discretion." In other words, teachers are not obligated to assess ELs using the alternative Language and Literacy Domain.

An Equity Perspective for Understanding Kindergarten Readiness in Illinois

This study is motivated by prior work on kindergarten readiness nationally and in Illinois. At the national level, studies have shown that kindergarten readiness is an important developmental measure that relates to later school performance (Duncan et al., 2007) and helps ensure that students are ready to learn when they enter the K-12 education system. This work argues that KRAs help identify differences in skills at kindergarten entry among different student subgroups (Jensen et al., 2021). Prior studies have consistently found differences in readiness by subgroups like racial/ethnic group, EL status, those with an IEP, and FRPL-eligibility nationally (Finder et al., 2021; Fryer & Levitt, 2006; Garcia, 2015; Reardon & Portilla, 2015). A prior report by ISBE found similar differences among students in Illinois (ISBE, 2023).

Importantly, we follow a rich literature base that conceptualizes these differences as opportunity gaps that are the product of inequality in opportunities for children to learn skills and behaviors before they enter the schooling system (Atteberry, 2021). These differences are shaped by access to early educational experiences (Ansari, 2017; Lapointe, 2007) and are intricately related to race and class, and the differing opportunities offered to students (Carter & Welner, 2013; Chetty et al., 2020). Researchers have identified several key factors that contribute to the racial-ethnic disparities in educational outcomes: more affluent White students, on average, have access to better funded and more effective schools (Goldhaber et al., 2015) and are more likely to receive early childhood education opportunities (Ansari, 2017), which in turn predicts higher academic achievement in the future (Cascio & Schanzenbach, 2013). Further, out of school factors like access to medical care, food insecurity, family stress, and neighborhood characteristics have all been shown to affect student outcomes, with a disproportionate share of Black and Latino children in the US struggling with these (Berliner et al., 2009). Identifying these disparities is central to equity because student groups that are systematically less likely to be kindergarten ready may be less able to take advantage of the learning opportunities offered in elementary school, which may in turn reinforce educational inequality (Duncan et al., 2007). Thus, the goal in identifying differences between groups is to extend additional supports, target interventions, and create opportunities to enhance equity in the education system; this may take the form of policy recommendations for new early childhood and K-12 educational experiences and funding for more students, but making such recommendations is outside IWERC's scope. We instead leave it to the readers to consider the implications of these findings.

In this report, we deepen the analysis of kindergarten readiness in Illinois. We build on the existing literature and disaggregate results by year, domain, and student subgroups, using an equity perspective to understand differences in scores. We also extend the analysis to consider additional demographic variables like age and gender that are also related to KIDS scores. Further, we examine not only kindergarten readiness by domain, but also measures of participation and scale-scores to get more detailed information on student progress. Finally, for the subsample of districts that collected KIDS data in Fall, Winter, and Spring, we show the evolution of scores and show how readiness improves throughout the school year.

In the next section, we describe the KIDS data and our analytic sample. We then describe the analysis method, followed by results and interpretations. Finally, we conclude with a discussion of limitations, contributions, and next steps.

Understanding Disparities in Context

This study reports disparities in outcomes between different student subgroups. Reporting on such disparities is important, especially with a new assessment tool, as we cannot address disparities until they are documented. However, we believe these disparities are best interpreted in light of unequal opportunities and resources, discrimination, and other systemic inequalities within and outside of the educational system. That is, **we always interrogate disparities in outcomes as resulting from differences in resources, investments, and opportunities.** We follow a vast literature that identifies and acknowledges the larger, systemic issues (institutional racism, redlining, discrimination, unequal investments, resources, and opportunities) that both historically and in the present shape these disparities (Berliner, 2009; Carter & Welner, 2013; Chetty, 2018; Ewing, 2018; Katznelson, 2005; Ladson-Billings, 2006).

Following Usher et al. (2023), we encourage our readers (and ourselves) to:

Consider and examine the root causes of the disparities observed in these reports.

Recognize that subgroups face significant differences in access to:

- Pre-K and other early childhood programs
- High-quality K-12 school environments
- Neighborhood and community resources
- Investments and supports from districts and governments

Question what we can do to improve equity in and out of K-12 education.

In line with IWERC's mission, we highlight disparities as a call to action for the education community to address these entrenched systemic inequities. This research seeks to provide data that promotes equity through incremental improvements, innovation, and re-envisioning systems for all learners and dismantling fundamentally unjust systems.

Sources: Castillo & Gillborn, 2022; Usher et al., 2023

Methods

Data

For this study, we use data provided by ISBE on kindergarten readiness from KIDS from the entire population of Illinois kindergarten students between the 2017-18 and 2021-22 school years. Children are assessed by their teacher in the first 40 days of kindergarten using the KIDS framework. The assessment involves observing, documenting, and reflecting on students' development on at least 14 mandatory constructs (ISBE, 2023). These ratings are converted to scale scores in three domains of kindergarten readiness: self-regulation and socio-emotional learning, language and literacy, and mathematical reasoning. Students are then rated as kindergarten ready or not kindergarten ready in each of the three domains based on these metrics. We combine the assessment data with detailed information on students' demographics, including racial/ethnic group, age, gender, FRPL status, IEP designation, and EL status.

Participation: We include two indicators of participation in the KIDS assessment. First, we identify whether a student was assessed on the 14 required measures, on which the three domains are based. Second, we identify whether a student was assessed on additional, optional measures beyond the 14. Because almost no students were assessed using the full 55 measures on 11 domains, we do not include this measure of participation.

Kindergarten Readiness Domains: In this study, we use the 3 mandatory kindergarten readiness domains, which are composed of the 14 required measures for all teachers to observe and record for all students. The optional measures and domains may be considered in some cases but are not part of our main analysis. The three domains are: Socioemotional Development and Self-Regulation (SEL), Language and Literacy, and Math. We describe the domains in detail below:

- **Domain 1 – Socioemotional Development (SEL/SED):** This measure includes items related to **self-regulation and socioemotional development**. The subset is comprised of 5 items in 2 subsets. The first subset is approaches to learning and self-regulation (ATL-REG), which includes curiosity and initiative in learning, self-control of feelings and behavior, and engagement and persistence. The second subset is social and emotional development (SED) and includes relationships and social interactions with familiar adults, and relationships and social interactions with peers.
- **Domain 2 – Language and Literacy:** This is a set of items related to **language and literacy**. The traditional version, used for the majority of students, includes 5 items: communication and use of language (expressive), reciprocal communication and conversation, comprehension of age-appropriate text, phonological awareness, and letter and word recognition. As noted above, the alternative measure substitutes measures LLD 8 (phonological awareness) and LLD 9 (letter and word knowledge), with alternative measures LLD 1 (receptive understanding of language) and LLD 10 (emergent writing). These measures are more relevant – and better capture emerging English language development – for children who speak another language at home.
- **Domain 3 – Math**: This is a subset of items related to **math and cognitive reasoning**. There are 4 indicators: classification, number sense of quantity, number sense of math operations, and shapes.

KIDS Scale Scores: The KIDS scale scores for each domain were provided by ISBE. The score in each domain is based on a combination of ratings in the 6 developmental categories (building–earlier, building–middle,

building–later, integrating–earlier, integrating–middle, and integrating–later) for each of the 14 required measures.

Kindergarten Readiness: The measure of kindergarten readiness in each domain was also provided by ISBE. We use this measure to show the share of students who are above the kindergarten readiness threshold in each domain.

The main analysis sample includes 491,165 students across 4 cohorts between 2017-18 and 2021-22 (we exclude the 2020-21 cohort because the data are not comparable due to lower participation during the pandemic). The sample includes students across 1,943 schools in 759 school districts. We summarize the sample as a whole and by the main racial/ethnic groups in Table 2. Among the kindergarteners in the sample, the average age is 66.3 months and 49% are female. Meanwhile, 48% are eligible to receive FRPL and 21% are ELs. In terms of racial/ethnic group, 48% of kindergarteners in the sample are White, 16% are Black, 25% are Hispanic/Latino[5], 5% are Asian, 4.5% identify with two or more races, 0.3% are American Indian or Alaska Native, and 0.1% are Native Hawaiian or Other Pacific Islander. Finally, while no students in the sample are missing kindergarten readiness in the three domains, there is a small subsample (<10%) missing scale scores. We document the patterns of missing data in Appendix Table A2.

To examine growth in readiness within the school year, we also consider a subsample of 5,717 students in select districts who were assessed using KIDS in Fall, Winter, and Spring. This subsample is somewhat different from the overall kindergarten population, with a higher share of Hispanic/Latino students and fewer White students, as well as more EL and FRPL-eligible students. See Appendix Table A3 for descriptive statistics of the subsample.

[5] We follow terminology provided by ISBE (and used by the US Census Bureau) to refer to students' racial/ethnic groups. We recognize that these categories do not fully reflect the diversity of student identities in Illinois. For the sake of brevity, we refer to students classified as Hispanic/Latino as "Latino" in figures in this report. We acknowledge that many students may prefer identities such as Latino/a/x, Hispanic, Latinamerican, Latin-American, and Latin*.

Table 2. Descriptive statistics of the sample (means, with standard deviations in parentheses).

	All	White	Black	Hispanic /Latino	Asian	American Indian or Alaska Native	Native Hawaiian or Other Pacific Islander	Two or More Races
Female	0.49 (0.50)	0.48 (0.50)	0.49 (0.50)	0.49 (0.50)	0.49 (0.50)	0.49 (0.50)	0.45 (0.50)	0.49 (0.50)
English Learner	0.21 (0.41)	0.06 (0.24)	0.03 (0.18)	0.57 (0.49)	0.52 (0.50)	0.46 (0.50)	0.26 (0.44)	0.06 (0.24)
IEP	0.12 (0.32)	0.12 (0.33)	0.10 (0.30)	0.13 (0.33)	0.08 (0.28)	0.11 (0.31)	0.13 (0.34)	0.12 (0.33)
FRPL-eligible	0.48 (0.50)	0.30 (0.46)	0.79 (0.41)	0.67 (0.47)	0.25 (0.44)	0.62 (0.49)	0.44 (0.50)	0.48 (0.50)
Age (months)	66.30 (3.98)	66.48 (4.00)	66.14 (4.13)	66.11 (3.84)	66.06 (3.75)	66.10 (3.84)	66.02 (3.75)	66.35 (4.17)
N %	491,165 (100.0%)	236,844 (48.2%)	78,882 (16.1%)	125,061 (25.5%)	26,261 (5.3%)	1,397 (0.3%)	454 (0.1%)	22,266 (4.5%)

Analysis

This study examines trends in kindergarten readiness in Illinois across time and by subgroups. First, we report statewide trends in participation and kindergarten readiness over the three domains. Second, we present the trends by racial/ethnic group and different subgroups in order to examine differences and changes in kindergarten readiness. We also document differences in development by student age (in months) at testing. Third, given the trends in readiness for ELs, we examine to what extent this group is receiving the assessment designed specifically for EL students. Finally, among the subsample of schools that assessed kindergarteners multiple times throughout the year, we explore growth in KIDS scores and readiness throughout the year.

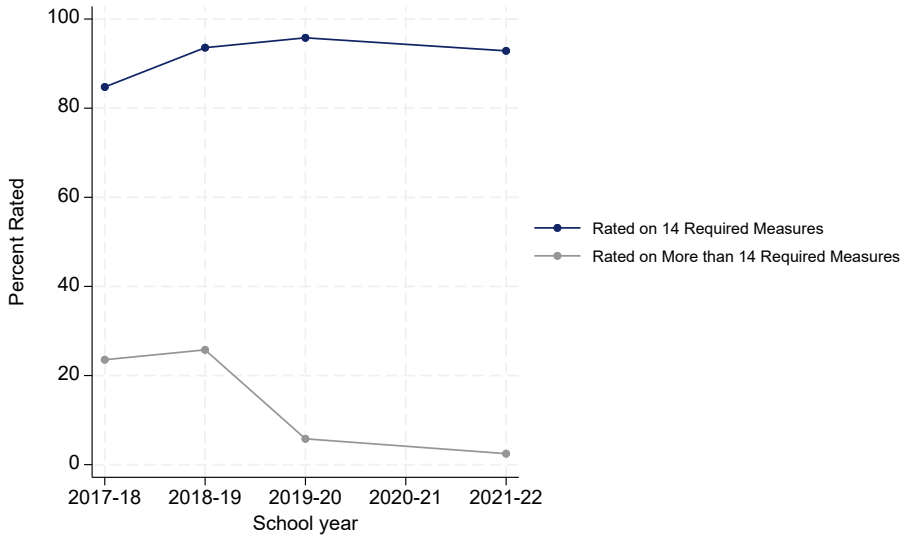
Findings

Finding 1: Statewide, KIDS participation levels were high, and kindergarten readiness increased over time.

The KIDS assessment was rolled out statewide during the 2017-18 school year and quickly obtained high levels of participation. Approximately 85% of all kindergarteners throughout the state were assessed using KIDS in the first year. Participation increased steadily to 96% of kindergarten students in 2019-20, before the outbreak of the pandemic. In 2020-21, participation dipped to 71%, despite districts' flexibilization of the assessment window, allowing teachers to assess students any time in the year (instead of only the first 40 days of class),[6] but promptly recovered to pre-pandemic levels by 2021-22. This pattern is consistent with pandemic-related declines in participation in other state-level assessments (such as the IAR). These high - and rising - levels of participation suggest that districts, schools, and teachers are responding swiftly to legislative changes and taking KIDS seriously.

While most districts reported high participation, in 2017-18 there were 97 districts (out of 759) that rated less than 90% of their students on the 14 required measures, of which only 9 reported no participation. However, by 2018-19 the number of districts had fallen to 39 (with only 3 reporting no participation) and by 2019-20 it was only 23 (with 4 reporting no participation). This offers suggestive evidence that the assessment was increasingly taken seriously by districts.

Figure 2A. KIDS participation by year (percentage of students assessed).



[6] This accommodation complicates the interpretation of kindergarten readiness in 2021, since it is not necessarily an assessment at kindergarten entry. This limits its comparability with other years, and it has therefore been excluded from the main analysis. However, we keep the participation statistics but interpret them with caution.

Within the KIDS framework, districts and schools participate with different levels of engagement. We document different levels of participation in Figure 2A. For example, in the 2017-18 school year, while 85% of students were assessed on at least the 14 mandatory measures, more than 20% of students were assessed on additional, optional measures, while less than 0.2% were rated on the full 55 measures and 11 domains (not pictured). This means that many districts, schools, and/or teachers went above and beyond the assessments they were obligated to record. For example, in 2017-18, 96 districts assessed more than 90% of their students on *more than* the 14 required measures. However, by 2019-20, the proportion rated on additional measures had declined to less than 10%. This suggests that there is also variation in the time, resources, and attention spent on completing the KIDS assessment, with a select group of districts choosing to go above and beyond the minimum requirements.

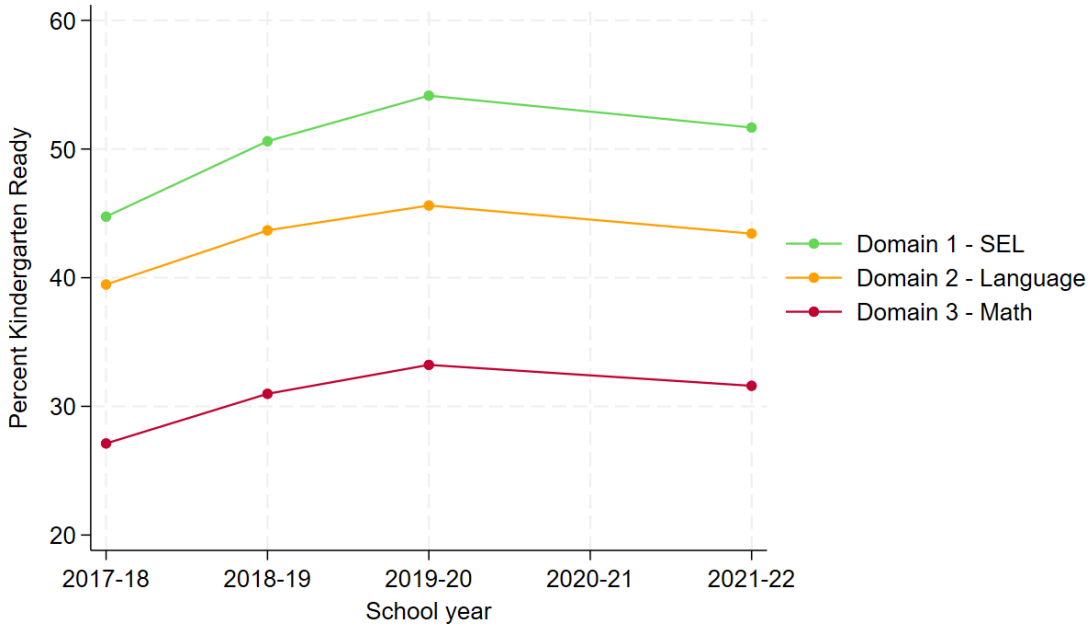
Finally, a subsample of 61 districts collected KIDS in Fall, Winter, and Spring (see Appendix Table A3 for descriptive statistics of this subsample). These districts also showed a significant commitment to going above and beyond in KIDS participation.

In sum, participation metrics offer a cursory glance at districts' commitment to KIDS. As a statewide assessment, it is important to count on high levels of participation from as many districts as possible, with the assessment administered in a similar way. While a more complete picture would require an implementation study, we present this as suggestive evidence that most districts do take the assessment seriously, and, in some cases, go above and beyond.

Kindergarten readiness improved in all three domains between 2017-18 and 2021-22.

In Figure 2B, we document the trends in KIDS domains of kindergarten readiness over time. Since the assessment was rolled out statewide, the share of students considered kindergarten ready has increased in all three domains, with a dip between the 2019-2020 and 2021-2022 school years (after the pandemic, noting that data on the 2020-21 school year are missing because they are not comparable to other years).By 2021-22, the share of students considered ready was only marginally lower than in 2019-20, before the pandemic, and higher than in 2017-2018.

Figure 2B. Percentage of students Kindergarten Ready in each domain by year.



Note: School year 2020-21 excluded due to limited comparability

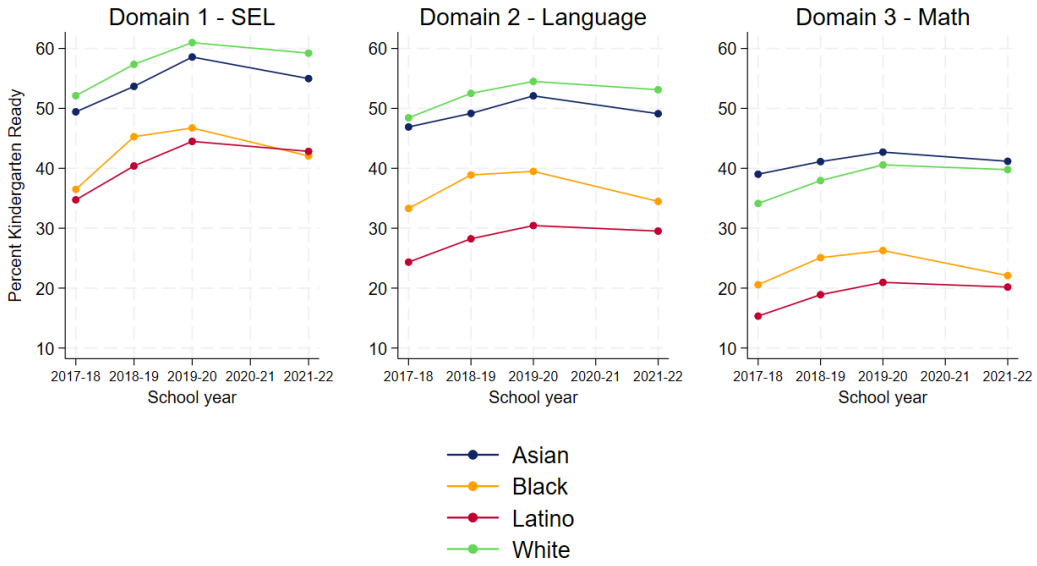
While the trends over time in the three domains are similar, there are some differences: readiness increased somewhat quicker in SEL, compared to Language and Math. Specifically, in Domain 1 (SEL), the share of students rated kindergarten ready rose from 45% in 2017-18 to 54% in 2019-20, and then returned to 52% in 2021-22. In Language and Literacy (Domain 2), the share ready rose from 39% in 2017-18 to 46% in 2019-20 and ended at 43% in 2021-22. Finally, in Math (Domain 3), the share considered ready increased from 27% in SY2018 to 33% in SY2020, followed by a slight decline to 32% in 2021-22.

A focus on the share of students above the kindergarten readiness cutoff could obscure trends in students' scale scores and changes in their development that do not move students above/below the threshold. Therefore, we also examined trends in children's average scale scores in Appendix Figure A1. This analysis of scale scores reveals a similar pattern: scale scores improved in all three domains between 2017-18 and 2019-20. In line with the discussion above, SEL scores improved faster than Language and Math scores. The average SEL scale score increased from 342 in 2017-18 to 371 in 2019-20, followed by a slight decline to 368 in 2021-22. Meanwhile, Language and Math scores rose from 327 to 343 and from 320 to 337, respectively. They also exhibited a decline in 2021-22 of approximately 5 points in either case.

Finding 2: All subgroups showed improvements in readiness, but the differences remained stable.

Examining the trends by subgroup reveals important differences. First, in Figure 3A we document differences in kindergarten readiness by racial/ethnic group in all three domains. In our main analysis, we follow prior literature that has focused on the inequitable disparities faced by Black and Hispanic/Latino students compared to White and Asian students (Fryer & Levitt, 2006; Herring et al., 2022; Reardon et al., 2014). Trends for all racial/ethnic groups can be found in Appendix Figure A2.

Figure 3A. Percent Kindergarten Ready in each domain by year by racial/ethnic group.

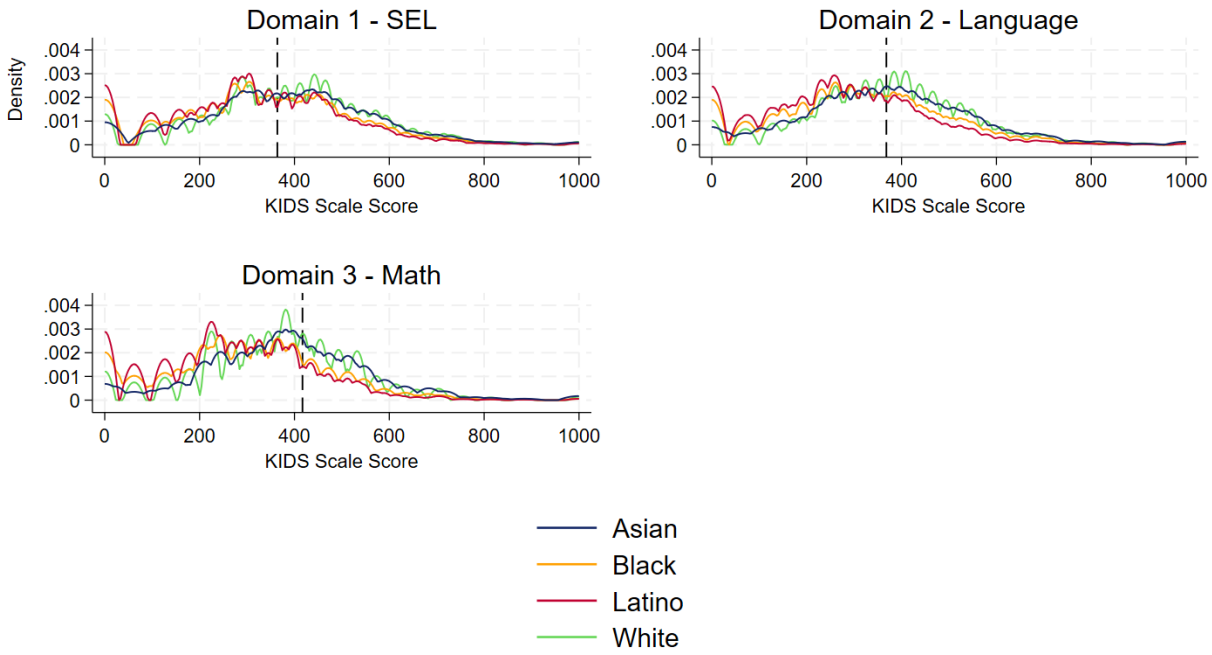


Note: School year 2020-21 excluded due to limited comparability

The share of White and Asian students who are kindergarten ready surpasses the share of ready Black and Hispanic/Latino students by approximately 15 percentage points for SEL (Domain 1) and up to 25 percentage points for Language and Literacy (Domain 2) and Math (Domain 3) across years. The share of students considered kindergarten ready in all three domains increased between 2017-18 and 2019-20 for these four racial-ethnic groups. While all four groups show improvements across the five years, Black students suffered the largest declines in readiness between 2019-20 and 2021-22. The trends in scale scores (see Appendix Figure A3) reveal a similar pattern. That is, there is little to no indication of a convergence in readiness between the groups (in fact, the disparity widens for Black students relative to White students). In other words, we do not observe a reduction in the racial-ethnic disparities in kindergarten readiness.

In order to better understand these differences in kindergarten readiness, we present the distribution of KIDS scale scores by racial/ethnic group in Figure 3B. Despite the differences in kindergarten readiness and average scale scores by school years, the figure below reveals that there is significant overlap in the distribution of scores by racial/ethnic group. That is, students of all racial/ethnic groups are represented at the top and bottom of the distribution (albeit in different proportions).

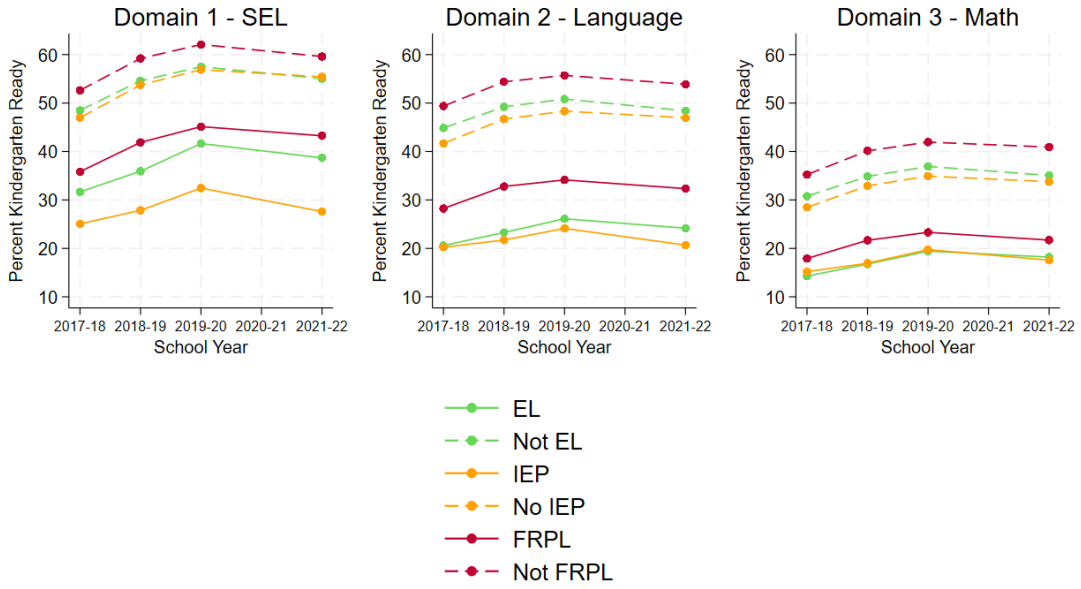
Figure 3B. Distribution of KIDS scores by racial/ethnic group (proportion/density on y-axis).



Note: Horizontal lines denote threshold for Kindergarten Readiness

We disaggregate the trends in kindergarten readiness by FRPL-eligibility, EL status, and IEP designation in Figure 4. The share of FRPL-eligible students considered kindergarten ready is approximately 17 percentage points lower than students who are not FRPL-eligible in SEL, nearly 22 percentage points lower in Language and Literacy, and 17 percentage points lower in Math. For ELs, the difference is even larger in Language: these students are 17 percentage points less likely to be ready in SEL, 25 points less likely in Language and Literacy, and 17 percentage points less likely in Math, compared to students proficient in English. Finally, students with an IEP are the least likely to be kindergarten ready, trailing students without an IEP by more than 20 percentage points in SEL and Language and Literacy, and nearly 15 percentage points in Math. For trends in scale scores, see Appendix Figure A4.

Figure 4. Percent Kindergarten Ready in each domain by year by EL status, IEP status, and FRPL status.



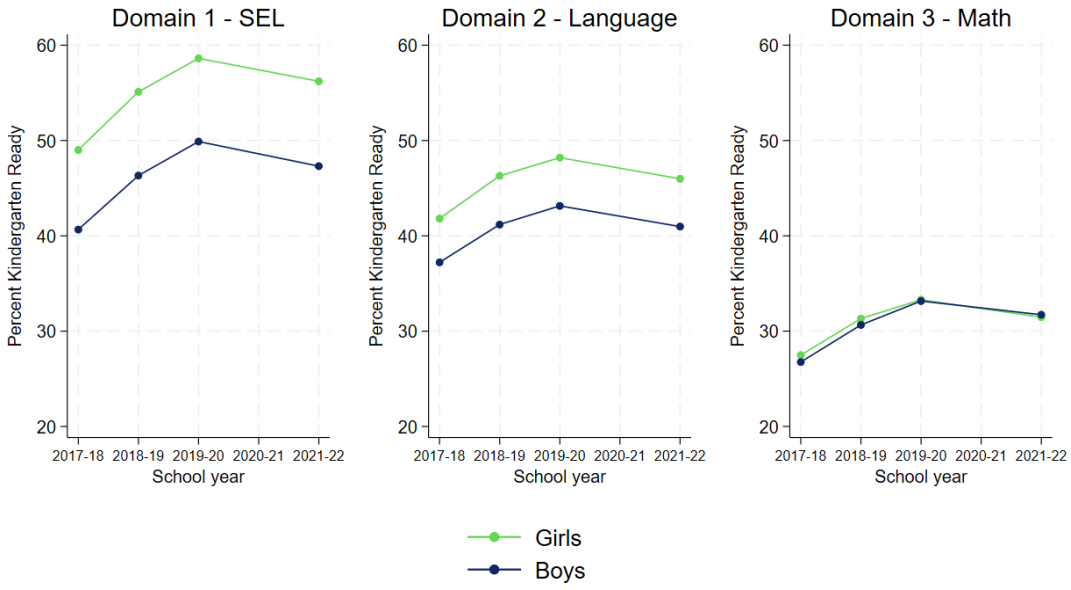
Note: School year 2020-21 excluded due to limited comparability

Despite these differences, we still observe improvements in all domains among all subgroups before the pandemic. Yet, while all groups are improving on average, there is little indication of a convergence, or a reduction in the size of the disparities between each set of paired groups (e.g., IEP and No IEP).

Next, in Figure 5, we disaggregate the trends by gender to identify differences in readiness between boys and girls over time[7]. On average, girls are 9 and 5 percentage points more likely to be kindergarten ready in SEL and Language, respectively, than boys. However, they are similarly likely as boys to be ready in Math. This is aligned with literature showing that, in the early years of education, girls on average obtain higher test scores in ELA than boys, with mixed evidence in Math (Hoxby, 2000; Fryer & Levitt, 2010). The difference and trends by scale scores (Appendix Figure A5) follow a remarkably similar pattern. Between the 2017-18 and the 2019-20 school years, both girls and boys improved in terms of kindergarten readiness at a similar rate. As such, we do not observe changes in the difference *between* boys' and girls' readiness.

[7] We limit our analysis to boys and girls because we do not have information on students' gender identity or their gender beyond the binary.

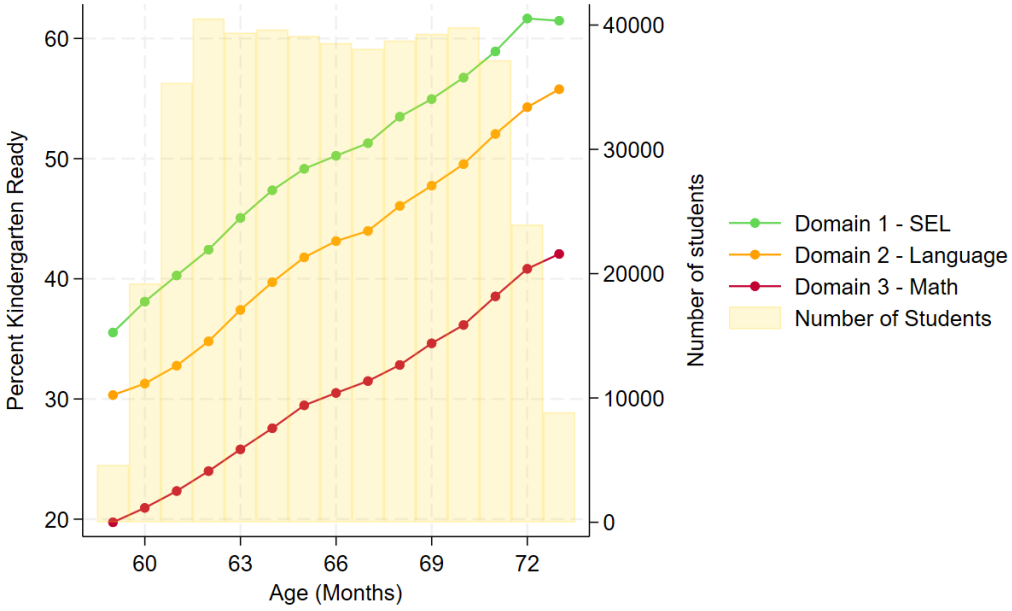
Figure 5. Percent Kindergarten Ready in each domain by year by gender.



Note: School year 2020-21 excluded due to limited comparability

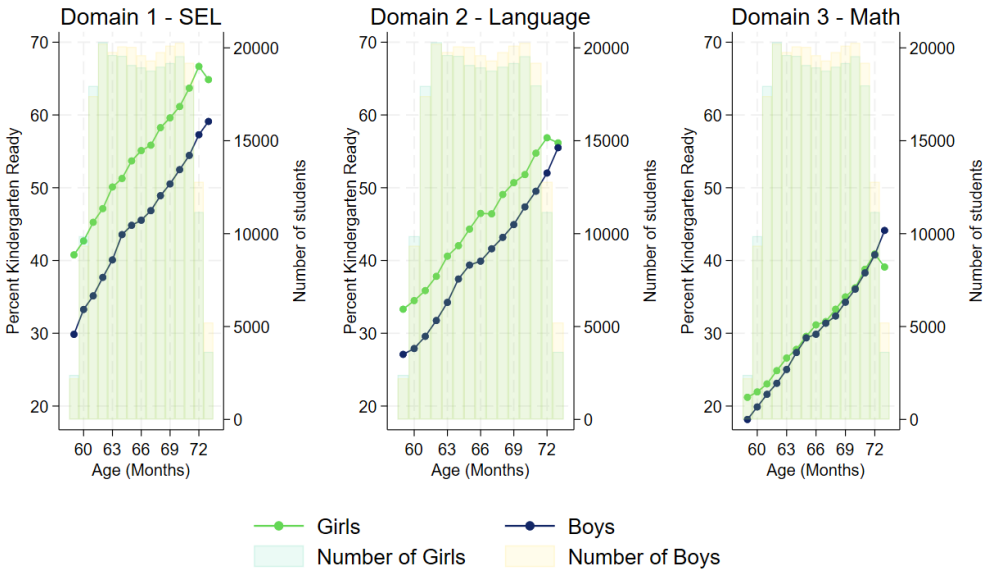
Finally, we consider the relationship between kindergarten readiness and students' age at assessment. As documented in Figure 6A, there is a positive relationship between age in months and kindergarten readiness through 73 months (after which the number of students is very small). That is, older students within a cohort are more likely to be deemed kindergarten ready in all three domains. This is aligned with prior literature indicating a relationship between age and test scores within grades, particularly in early grades (Peña, 2022). This suggests that some of the variation we see in classrooms is to be expected given developmental differences by age. As such, a student's age (in months) at testing is an important variable when considering variation in students' readiness.

Figure 6A. Kindergarten readiness by age (months).



We disaggregate the relationship between age and kindergarten readiness by gender in Figure 6B. As the figure shows, girls are more likely to be kindergarten ready at all ages when compared to boys in Domain 1 (SEL) and Domain 2 (Language), while readiness is similar in Domain 3 (Math). This is aligned with literature showing that, in the early years of education, girls on average obtain higher test scores in ELA than boys, with mixed results in Math (Hoxby, 2000).

Figure 6B. Kindergarten readiness by age (months) and gender.

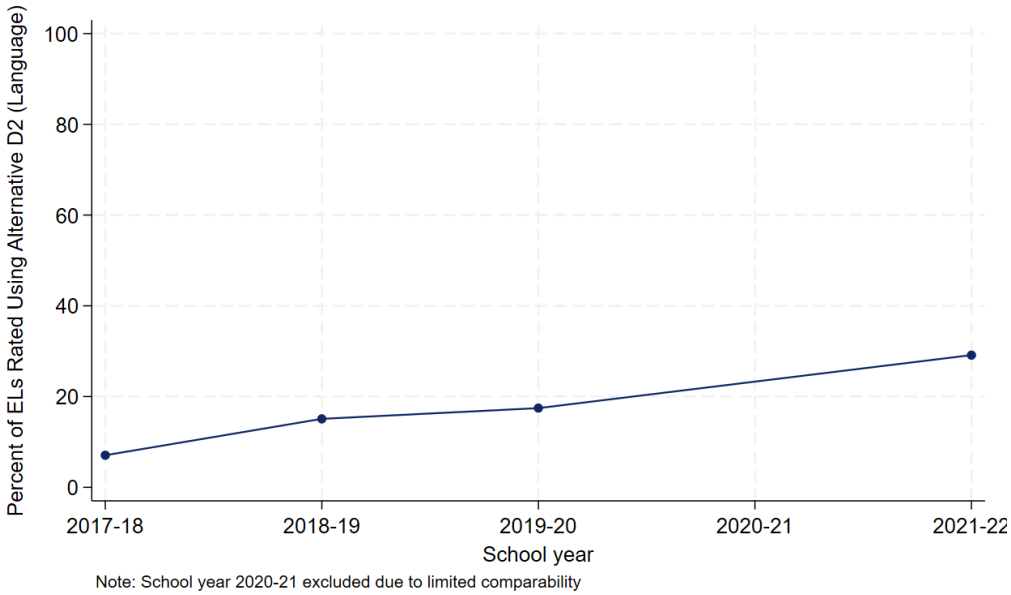


Finding 3: Most ELs were not given the alternative language assessment items specifically designed for ELs. ELs in bilingual classrooms were overwhelmingly more likely to receive the alternative language assessment items than ELs not in such classrooms.

Finally, given the differences in kindergarten readiness highlighted for ELs, we explore how these students were assessed, specifically in the Language domain. As we described above, KIDS aims to be culturally and linguistically responsive. This is particularly notable in the use of the Alternative Domain 2 (Language and Literacy), which is an effort to properly examine the language development of ELs. As such, students should be assessed in English and their home language. However, we do not have data on the languages a teacher speaks or whether the teacher understands the student's home language. Further, prior work on KIDS has noted that, in most cases, ELs did not receive the alternative assessment (Bowdon et al., 2019). In this section, we examine the share of EL students administered the alternative assessment and consider possible explanations for this trend.

In Figure 7A, we plot the share of ELs rated using the Alternative Domain 2 in each cohort. While less than 10% of ELs received the alternative measure in 2017-18, the share has been increasing steadily to nearly 20% in 2019-20, and 30% in 2021-22. In other words, while most ELs are still not receiving the alternative assessment, there appears to be a clear improvement over the years.

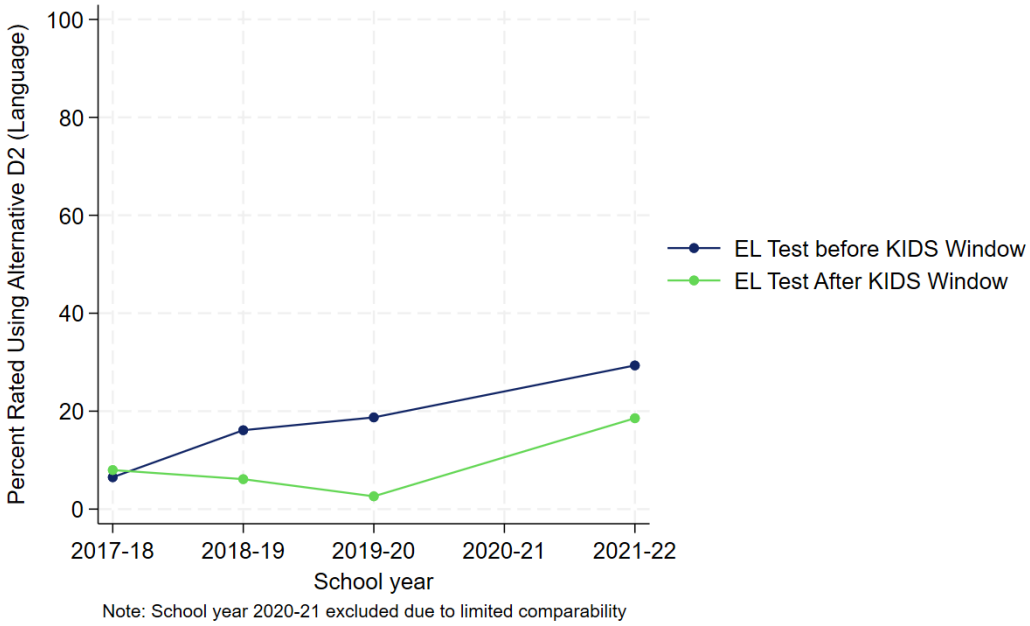
Figure 7A. Percent of ELs rated using Alternative Domain 2 (Language).



Next, we examine the reasons why this may be the case. The first hypothesis is timing: since teachers assess students on KIDS in the first 40 days of kindergarten, and students are typically screened in English Language in the first 30 days of kindergarten, it is possible that teachers are unaware that a student is an EL when they assess them. To test this, we disaggregated the above graph by students who were EL screened before the KIDS assessment period and those screened after (Figure 7B). If timing was the driver of

the low alternative domain use, we would expect to see a large difference in the share rated using the alternative domain between these two groups. While we do observe a difference – approximately 10 percentage points on average across years – in the likelihood of receiving the alternative domain, this does not seem to be the primary explanation.

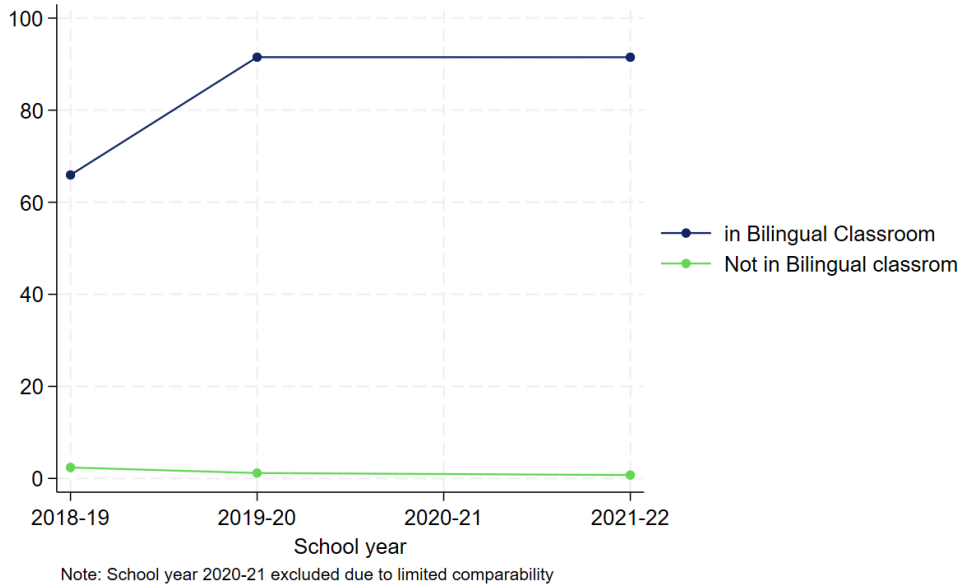
Figure 7B. Percent of EL students rated using Alternative Domain 2 (Language) by timing of KIDS administration window and EL Screening window.



The second hypothesis is that teachers in bilingual classrooms are more likely to have the tools and resources to assess ELs using the alternative domain. Since the KIDS Guidance for Dual Language Learners (ISBE, 2017) "strongly recommends" that teachers use the alternative Language and Literacy (Domain 2) measure for students in bilingual classrooms, we consider the share of students in EL classrooms that receives the alternative assessment versus those in non-bilingual classrooms in Figure 7C. In this case, we find that ELs in bilingual classrooms are 50 to 70 percentage points more likely to be rated using the alternative domain. For example, in the 2021-22 school year, the most recent year in our dataset, less than 3% of students in non-bilingual classrooms were assessed using the alternative domain. Meanwhile, among those in bilingual classrooms, more than 90% of students received the alternative assessment. **This provides strong evidence that the low uptake of the alternative language measure is driven by the limited guidance for ELs' assessment outside of bilingual classrooms. It is important to emphasize that more than 80% of ELs are not in bilingual classrooms, meaning that the bulk of ELs are very unlikely to receive the alternative assessment.** Teachers who are not in bilingual classrooms may not have the guidance, resources, or knowledge to assess ELs using the alternative domain 2. For example, in bilingual classrooms, the software for inputting KIDS ratings (KIDSTECH) defaults to the alternative language

measures. Otherwise, teachers need to manually find the alternative measures and input them. This logistical difference is also a part of the explanation for the differences between classroom types.

Figure 7C. Percent of EL students rated using Alternative Domain 2 (Language) by bilingual classrooms.

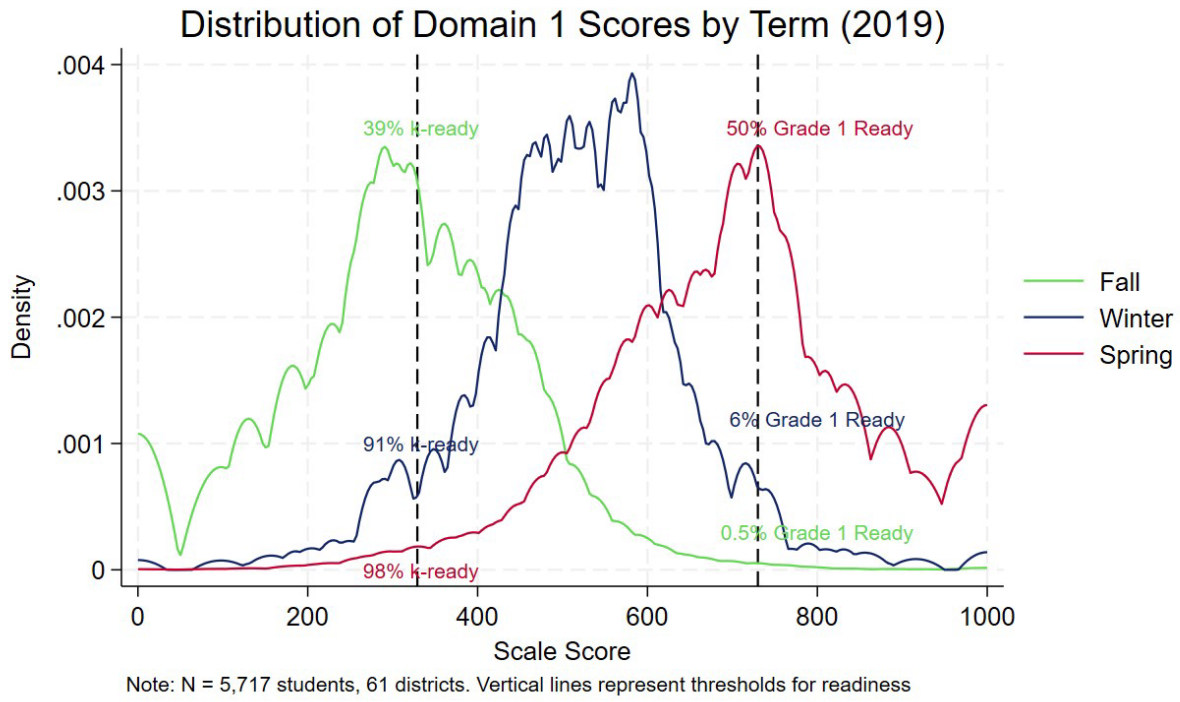


Finding 4: In districts that administer the KIDS assessment throughout the year, students exhibit meaningful growth in kindergarten and first grade readiness, highlighting that readiness skills can develop through schooling.

Lastly, we examine students' growth in kindergarten and first grade readiness throughout the school year among the subsample of students who were assessed in Fall, Winter, and Spring of kindergarten. This group is comprised of students in districts that volunteered to assess students multiple times throughout the year in order to monitor growth or change in readiness. As such, it is not necessarily representative of the kindergarten population overall (see Appendix Table A3 for summary statistics of the subsample). Additionally, this subsample is only available for the 2018-19 cohort.

This sample offers the unique opportunity to follow students' growth and development throughout the academic year. In Figure 8, we document that, while only about a third of students were rated kindergarten ready in SEL in Fall, by Winter most students were above the threshold, and by Spring, more than 98% of students were deemed kindergarten ready (For the Language and Math domains, see Appendix Figure A6). It is particularly noteworthy that scores grew far beyond the kindergarten readiness threshold and many approached the *first grade readiness* threshold: while almost no students were *first grade* ready (a significantly higher threshold in the same assessment) in Fall of kindergarten, by Spring 6% are ready and by Winter 50% of students are first grade ready in SEL. (These trends are similar for Math and Language; see Appendix Figure A6). This suggests students' socioemotional learning and academic knowledge progress significantly throughout the year. While we acknowledge the multifaceted nature of this growth, with age likely being a contributing factor, it is unlikely that age on its own could explain this growth. The difference in kindergarten readiness between students tested at 60 months and 72 months is about 30 percentage points (Figure 5A), while the difference in readiness between students tested in Fall and Spring is almost 60 percentage points. We regard the findings as suggestive evidence that teachers and schools can and do move the needle on readiness and help students grow.

Figure 8. Distribution of Domain 1 (SEL) scores by administration term (SY2018-19).



Note: N = 5,717 students, 61 districts. Vertical lines represent thresholds for readiness

Study Limitations

While this study provides novel insights into the state of kindergarten readiness in Illinois, it is not without significant limitations. First, we have limited information on how students are evaluated across classrooms, teachers, and schools. While the assessment has been found to be reliable and some preliminary studies examined inter-rater reliability (Bowdon et al., 2019), KIDS is still based on teacher observations, which may vary depending on the teacher, exhibit systematic biases towards certain student groups, or change over time as all the parties involved become more familiar with the assessment. This also makes it difficult to ascertain whether improvements in kindergarten readiness from 2017-18 to 2021-22 actually reflect changes in incoming students' development and skills, or whether it is related to changes in implementation and how teachers rate students (though there have been no formal policy changes in this sense). Without additional data, we are not able to test whether this is the case.

Second, this report uses descriptive methods to highlight differences in kindergarten readiness by student demographics. It is important to note that, as such, the analytical method used here can point to differences but cannot make claims as to the cause of these differences in kindergarten readiness. Since we cannot separate the role of the home environment, Pre-K attendance and/or quality, and access to other resources, for example, from individual variation in development and learning, we cannot identify causes of improvement in kindergarten readiness over time.

Finally, given that we do not have item-level data, we cannot validate the scales or test them for different populations. Though prior studies have examined some of KIDS' psychometrics, such as inter-rater reliability, factor structure, and construct stability, there are still outstanding questions regarding test validity.

Conclusions and Implications

In this study, we showed that trends in kindergarten readiness, as captured by KIDS, are aligned with research on early childhood and kindergarten, as well as the reports produced by ISBE (ISBE, 2023). Specifically, we find that participation in KIDS and kindergarten readiness were improving steadily every year before the pandemic but were slightly lower in 2021-22. We also note disparities between demographic groups: White and Asian students are more highly rated and are more likely to be deemed kindergarten ready in all domains compared to Black and Hispanic/Latino students (who are also more likely to be FRPL-eligible). Importantly, there does not appear to be any evidence of a convergence, as the difference between racial/ethnic groups has remained relatively constant throughout the analysis period. Considering these differences using the framework of opportunity gaps suggests that disparities in socioeconomic opportunities persisted throughout the analysis period. Yet, despite these differences, it is important to note that the distribution of scores shows significant overlap between racial/ethnic groups; students of all racial/ethnic groups are represented at the top and the bottom of the distribution.

We note similar differences in development, as captured by KIDS, between students with IEPs and those without, FRPL-eligible students from those who are not, and ELs from those who are already proficient in English. Finally, girls are more likely to be kindergarten ready in Domains 1 and 2 (SEL and Language) but score similarly to boys in Domain 3 (Math). In line with other trends, this difference has remained stable over time. We also establish the importance of age at testing. Older students are more likely to be rated kindergarten ready. However, the trend peaks between 71 and 73 months of age, after which the sample shrinks significantly.

Lastly, we examined the subsample of students who were assessed in Fall, Winter, and Spring of kindergarten in the 2018-19 school year. Among this group, we found that only about a third of students were rated kindergarten ready in Fall, but by Winter most students were above the threshold, and by Spring, 98% of students were deemed kindergarten ready in SEL. The Math and Language domains followed similar patterns, with less than 5% deemed not ready by Spring. Further, we observe that virtually no students were rated first grade ready in Fall, but by Spring approximately half of students were first grade ready in all 3 domains. This indicates meaningful growth throughout the school year. While we cannot entirely separate age and normative development from the contribution of schools or teachers, these findings show more rapid growth than we would expect from age-related development alone. We regard this as preliminary evidence that teachers and schools can move the needle on kindergarten and first grade readiness and help students grow.

This study establishes the persistence of disparities in readiness at kindergarten entry. Future reports in this series will delve into the contributions of these disparities to future academic performance and the extent to which prior and subsequent schooling experiences (including access to high-quality Pre-K and elementary schools) can mitigate them.

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Appendix

Appendix Table A1. Different levels of participation in KIDS.

KIDS Domains	Subsets for 14 State Readiness Measures Related to KIDS Domains (Aligned with 3 Domains)	KIDS 5 Aligned Domains of School Readiness	KIDS 11 Domains of Readiness with Full Alignment to Standards
Approaches to Learning – Self-wRegulation (ATL-REG)	ATL-REG – SED Subset	ATL-REG Domain	ATL-REG Domain
Social and Emotional Development (SED)	ATL-REG – SED Subset	SED Domain	SED Domain
Language and Literacy Development (LLD)	LLD Subset	LLD Domain	LLD Domain
English Language Development (ELD)			ELD Domain
Language and Literacy Development in Spanish (SPAN)			SPAN Domain
Cognition, Including Math and Science (COG: MATH, COG: SCI)	MATH Subset	COG: MATH Domain	COG: MATH, COG: SCI Sub-domains
Physical Development (PD)		PD Domain	PD Domain
Health (HLTH)			HLTH Domain
History – Social Science (HSS)			HSS Domain
Visual and Performing Arts (VPA)			VPA Domain

Source: "Kindergarten Individual Developmental Survey. User's Guide and Instrument." 2018. ISBE.

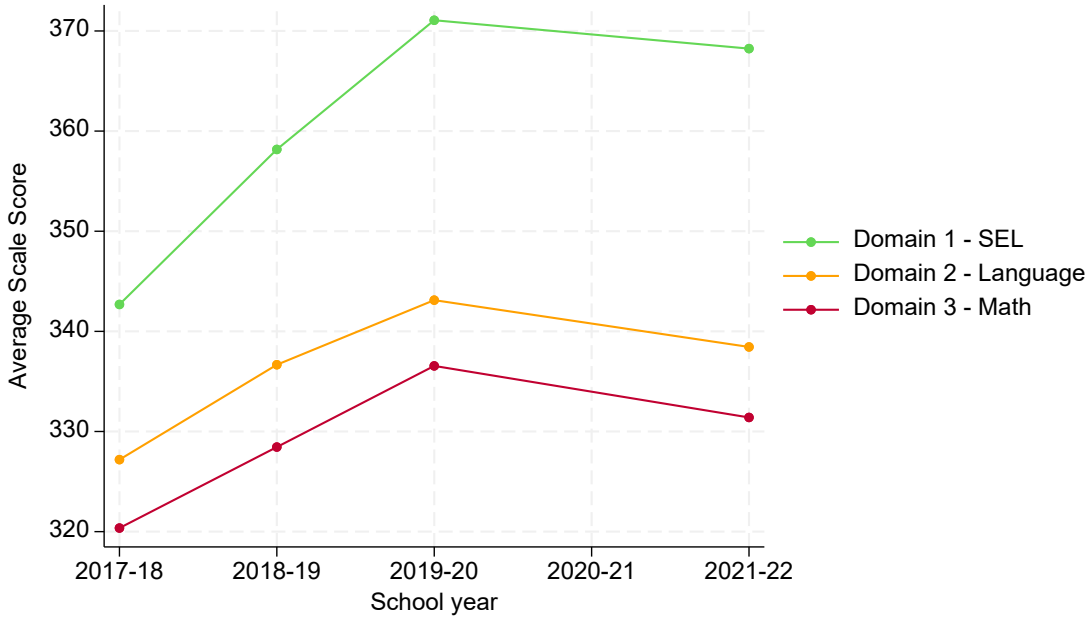
Appendix Table A2. Missing KIDS scores.

Counts and % of students missing KIDS Scores by Schoolyear					
	Not Missing	Missing 1 Domain	Missing 2 Domains	Missing all 3 Domains	Total
2018	105718	10213	1710	7081	124722
	84.76	8.19	1.37	5.68	100
2019	116076	3901	835	3231	124043
	93.58	3.14	0.67	2.6	100
2020	118736	1799	605	2812	123952
	95.79	1.45	0.49	2.27	100
2022	110002	1919	660	5867	118448
	92.87	1.62	0.56	4.95	100
Total	450532	17832	3810	18991	491165
	91.73	3.63	0.78	3.87	100

Appendix Table A3. Summary statistics for Growth Sample.

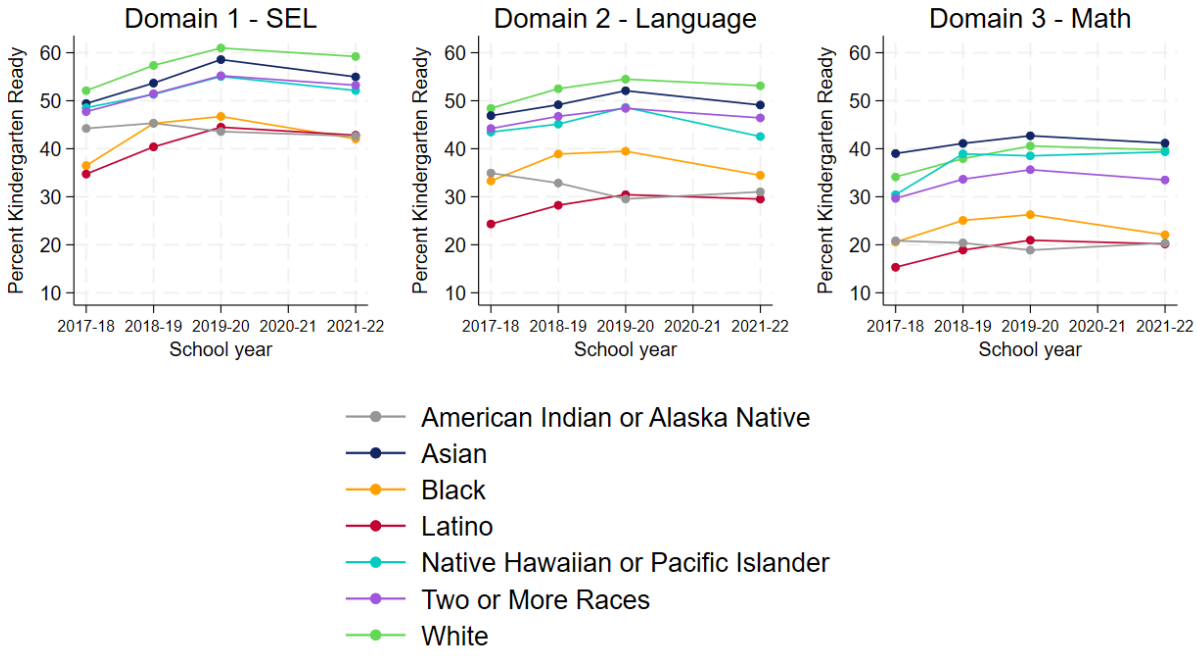
	Full Sample		Growth Subsample	
Variable	Mean	SD	Mean	SD
Female	0.49	0.50	0.49	0.50
English Learner	0.21	0.41	0.39	0.49
IEP	0.12	0.32	0.13	0.34
FRPL	0.48	0.50	0.57	0.50
Age (Months)	66.30	3.98	65.90	3.72
White	0.48	0.50	0.35	0.48
Black	0.16	0.37	0.10	0.31
Hispanic/Latino	0.25	0.44	0.44	0.50
Asian	0.05	0.22	0.05	0.22
N	491,165		5,717	

Appendix Figure A1. KIDS scale score in each domain by year.



Note: School year 2020-21 excluded due to limited comparability

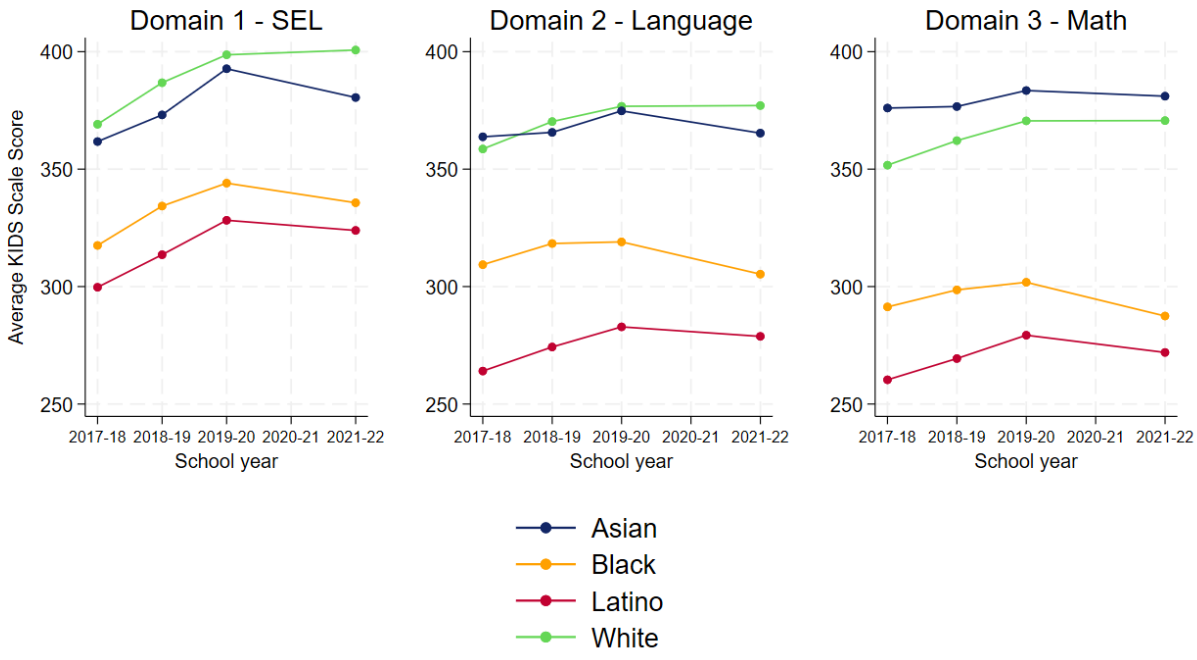
Appendix Figure A2. Kindergarten readiness by racial/ethnic group (all groups with available data).



Note: School year 2020-21 excluded due to limited comparability

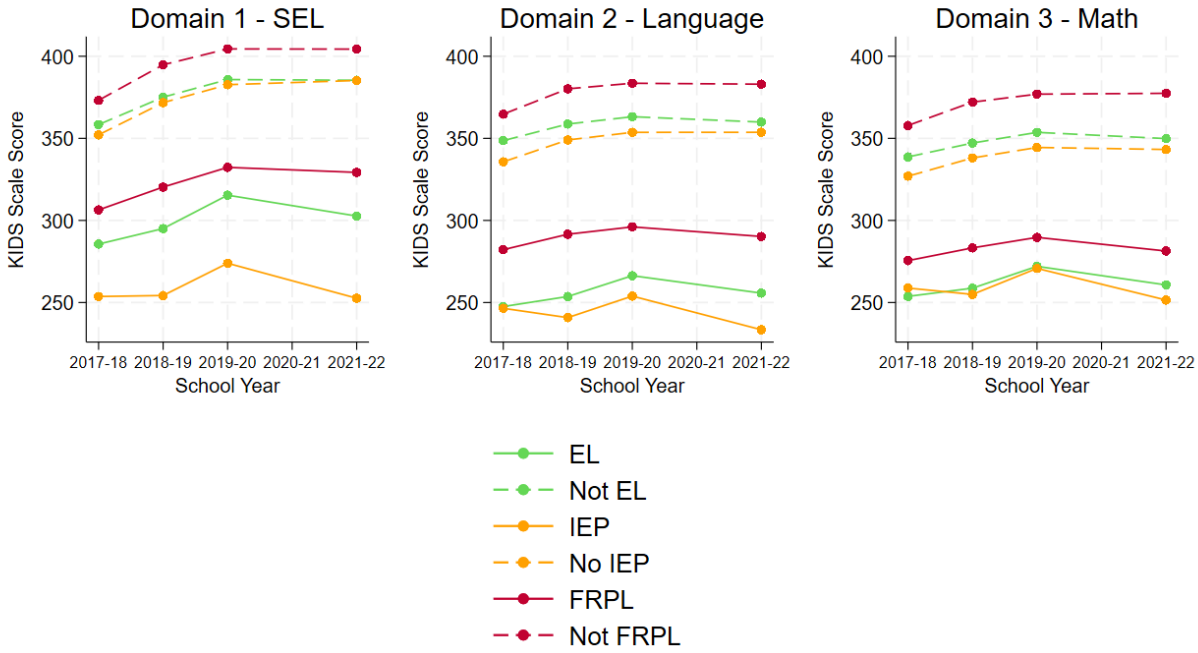
Note: We recommend caution when interpreting the trends for American Indian / Alaska Native and Native Hawaiian / Other Pacific Islander because the sample size is small (especially within year) and may thus render the trends unreliable.

Appendix Figure A3. KIDS scale score in each domain by year by racial/ethnic group.



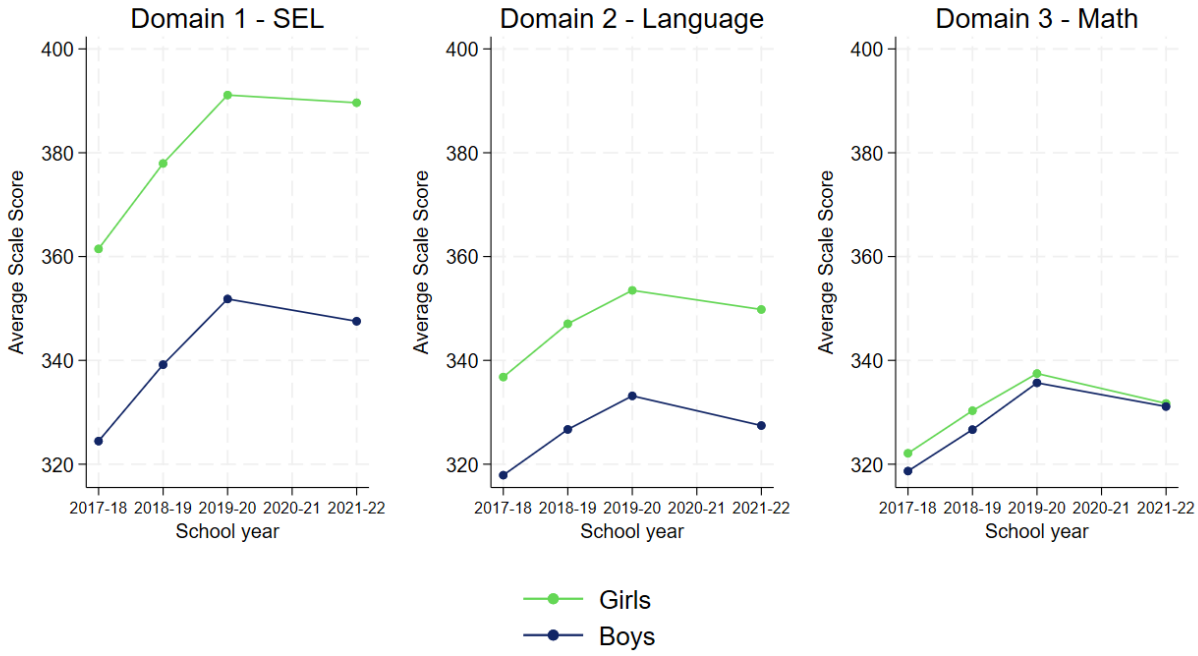
Note: School year 2020-21 excluded due to limited comparability

Appendix Figure A4. KIDS scale score in each domain by year by subgroup.



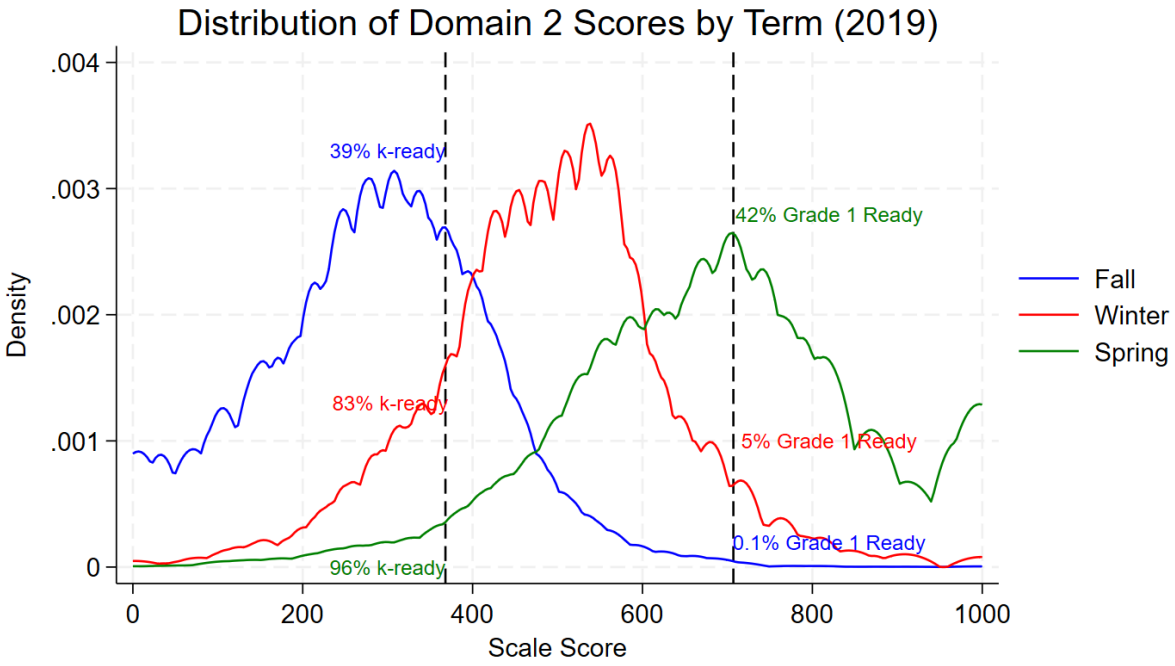
Note: School year 2020-21 excluded due to limited comparability

Appendix Figure A5. KIDS scale score in each domain by year by gender.

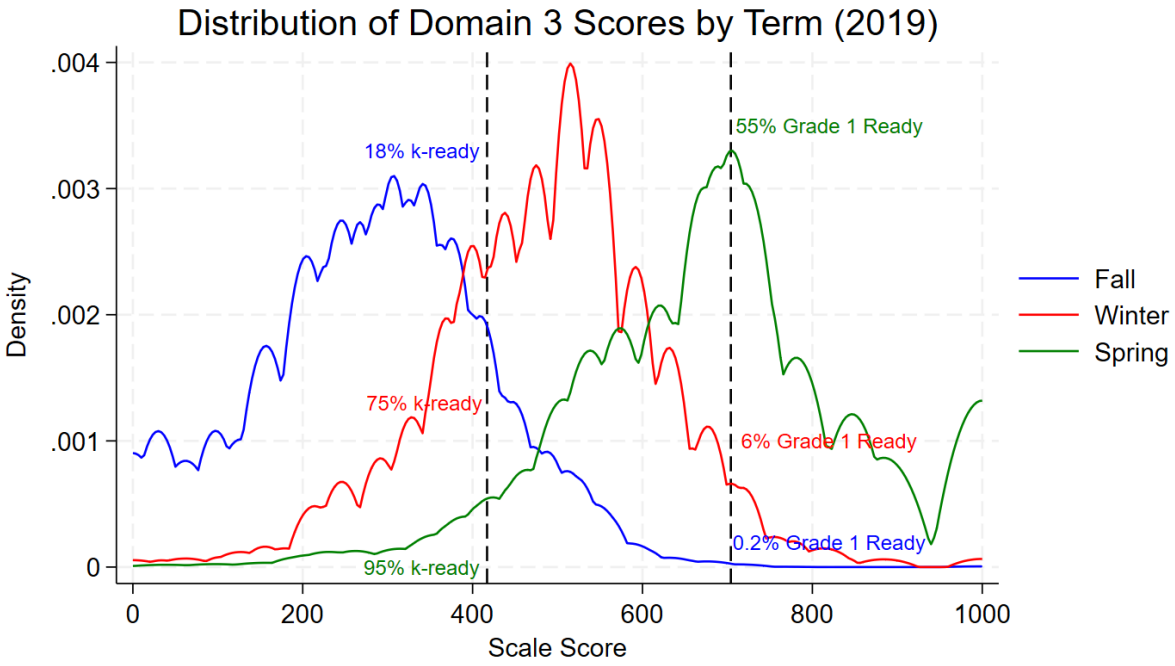


Note: School year 2020-21 excluded due to limited comparability

Appendix Figure A6. Distribution of Domain 2 and 3 scores by KIDS administration term (SY2018-19).



Note: N = 5,717 students, 61 districts. Vertical lines represent thresholds for readiness



Note: N = 5,717 students, 61 districts. Vertical lines represent thresholds for readiness

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