

Summer Learning Disparities

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Karen F. Kehoe, Anita S. McGinty, Jamie DeCoster, Allison Gray

KEY POINTS

- This study leveraged three years of population-level data to examine summer literacy learning trends in Virginia.
- Across multiple grades (K-3), children’s literacy skills at the beginning of summer were the strongest predictors of literacy skills at the end of summer.
 - ⇒ This effect *increased* over time.
- Small but significant aggregate effect sizes were also found for region[†], race, and economic disadvantage.
 - ⇒ Students in the southwestern region of the state performed significantly worse on fall reading assessments than students in the rest of the state. Students in northern Virginia had consistently better performance, relative to students statewide.
 - ⇒ Black and Hispanic students had significantly lower fall reading performance than their peers identifying as Asian, White, or Other.
 - ⇒ Students with economic disadvantage performed significantly worse on fall reading assessments than their non-disadvantaged peers.
 - ⇒ Effects were largest in the summer after kindergarten and *decreased* as children progressed through elementary school.
- Findings suggest the need to address disparate opportunities to maintain and extend reading skills over the summer, especially for students at risk of low reading achievement.

STUDY MOTIVATION

Several, often interrelated, factors contribute to the well-documented gaps in reading achievement often seen along geographic, racial, and socioeconomic lines. Not least among these sources of inequity is the cumulative effect of “summer slide”^{1,2}. This phenomenon occurs when children’s learning not only stagnates over the summer months but also experiences a setback. By fall, in the absence of daily classroom instruction and regular skills practice over the summer months, many children do not fully retain the knowledge and skills developed during the previous school year (i.e., they “slide” backward). In a single year, children can regress up to two to three months of reading skill over the summer^{3,4}.

At the same time, other children maintain and even extend their learning into the summer months and arrive at school in the fall with skills that meet or exceed those demonstrated at the beginning of summer. The occurrence of this disparity year over year – some children lose skill when school is out while others gain it – can lead to a reading achievement gap of more than two grade levels by eighth grade⁵.

Why does summer pose a problem for some and confer a benefit for others? Research emphasizes that summer learning disparities result primarily from **differences in opportunities** to sustain and extend learning when school is not in session⁶. Cost, lack of program availability, and access to transportation are among the barriers to participation in organized summer learning programs, and these challenges disproportionately affect low-income and minority youth^{7,8,9}.

USING STATEWIDE DATA TO EXPLORE SUMMER LEARNING TRENDS

This study sought to better understand the sources of summer learning disparities in Virginia. Using three years (SY2016-SY2018) of statewide literacy data on more than 210,000 students at each grade level from kindergarten through third grade, we examined summer learning trends among regional, racial, and socioeconomic student subgroups.

The available data do not permit a calculation of *absolute* summer learning loss or gain. Instead, for each grade level, we compared average fall literacy scores, controlling for spring scores, of student subgroups to the average performance of students across the state. We also compared average reading performance of subgroups to one another. This approach enabled us to detect patterns in *relative* reading performance of students at the end, versus beginning, of summer. It also allowed us to draw inferences about populations of students who may be most at risk for summer slide due to unequal summer learning opportunities.

[†] Geographic region was a significant predictor of fall literacy scores, controlling for spring scores, at 2nd and 3rd grade but not at 1st grade.

FINDINGS

I. SPRING SKILLS STRONG PREDICTOR OF FALL READING

As shown in Table 1 below, children’s literacy skills, as measured by PALS summed scores, in the spring of the previous grade were the strongest predictors of literacy skills in the fall of the next grade. This was true at each grade level: kindergarten to first grade; first to second grade; and second to third grade. Spring PALS scores explained 59% of the variance in fall PALS scores in first grade, 79% of the variance in fall PALS scores in second grade, and 89% of the variance in fall PALS scores in third grade. This finding offers one example of the stability of children’s early reading trajectories^{10,11} as they progress through the elementary grades. It also shows that, once performance gaps are established, they become increasingly difficult to dismantle.

Table 1.

Predictions of fall PALS scores from spring PALS, region, race, and economic disadvantage.

GRADE	R^2	ΔR^2			R^2
	PALS - spring of previous grade	Region	Race	Economic Disadvantage	Multiple Predictor Model
1 st Grade	.590	ns	.006	.007	.614
2 nd Grade	.794	.001	.001	.001	.797
3 rd Grade	.894	.000	.000	.000	.850

Note. With the exception of Region in the fall of first grade, all predictors were statistically significant at the $p=.05$ level.

II. DISPARITIES BY REGION, RACE, AND ECONOMIC DISADVANTAGE

Table 1 also shows that small additional amounts of variance in fall literacy scores were explained by geographic region, race, and economic disadvantage. In other words, each of these factors influenced fall PALS scores *above and beyond* the contribution of children’s spring scores. That these demographic characteristics each had a unique and additive effect on children’s literacy skills in the summers after kindergarten, first, and second grade suggests systemic opportunity gaps that are related to sociodemographic factors during children’s first years of school.

Geographic Region

Analyses of summer learning trends by geographic region revealed statistically significant differences in reading performance for students in the fall of second grade (i.e., the summer following first grade) and third grade (i.e., the summer following second grade), but not in the fall of first grade (i.e., the summer following kindergarten). Figure 1 at the top of the next page displays relative PALS performance by the Virginia Department of Education (VDOE) Superintendent’s regions.

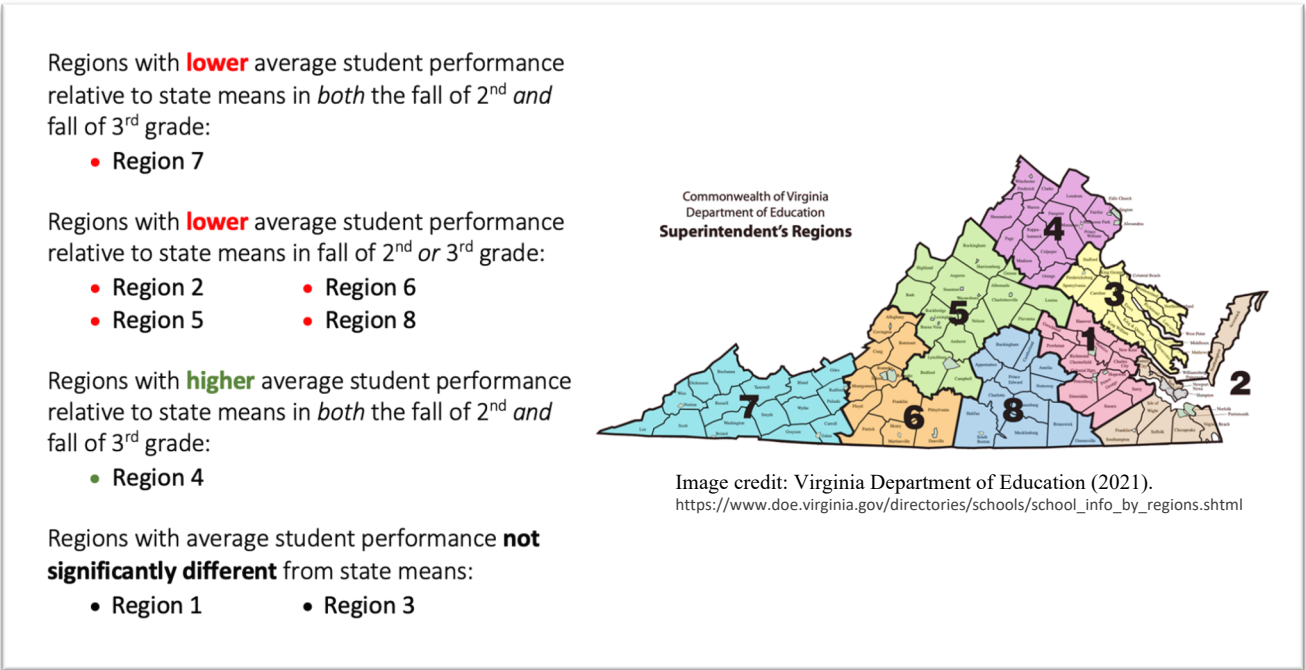


Figure 1. Fall PALS performance by geographic region, controlling for spring PALS, race, and economic disadvantage.

Racial Group Membership

Analyses of summer learning trends by racial and ethnic groups revealed that Asian students scored, on average, 7 points higher in the fall of first grade (controlling for kindergarten spring scores) than the mean across the population of students. White students and students identifying as “Other” also scored significantly higher than the mean; however, these differences were much smaller than for Asian students. In the fall of first grade, Black and Hispanic students scored 1-2 points below the population mean. This same pattern of performance by racial group that was seen in the fall of first grade emerged in the fall of second and third grades, as well. The strength of the effect, however, decreased as children got older. In other words, for students from the same geographic region and of similar economic status and literacy skill level at the end of each school year, race was a significant but increasingly small factor in fall literacy performance, after accounting for prior achievement and other student characteristics.

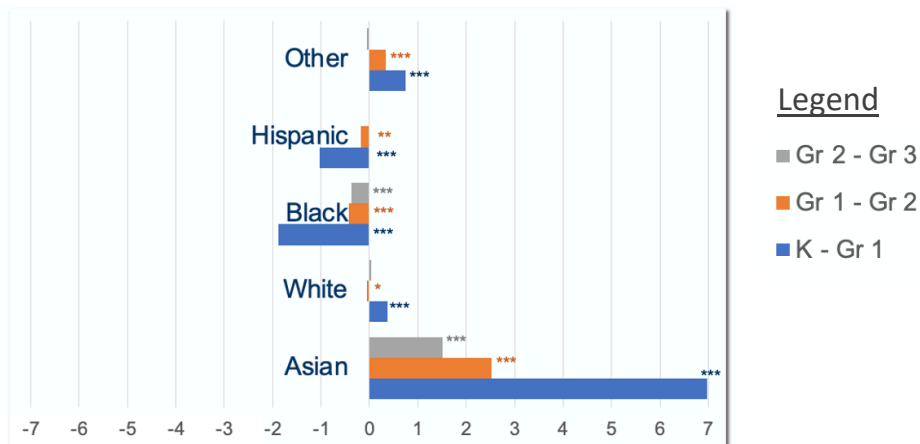


Figure 2. Average point differences on fall PALS by racial group, controlling for spring PALS, region, and economic status.
* $p < .05$, ** $p < .01$, *** $p < .001$

Economic Disadvantage

Finally, economic status significantly predicted fall literacy scores at each grade level from first through third grade, above and beyond the effects of prior achievement (i.e., spring scores in the previous grade), geographic region, and racial group membership. Students with economic disadvantage, who attended school in the same geographic region, had identical spring assessment scores, and belonged to the same racial group scored up to four points lower on fall PALS assessments than non-disadvantaged students. Figure 3 below shows average point differences on literacy scores in the fall of grades 1-3 (i.e., following the kindergarten, first-, and second-grade summers), that can be attributed to economic status alone. As with race, the strength of the effect decreased each year from first through third grade, after accounting for other student characteristics.

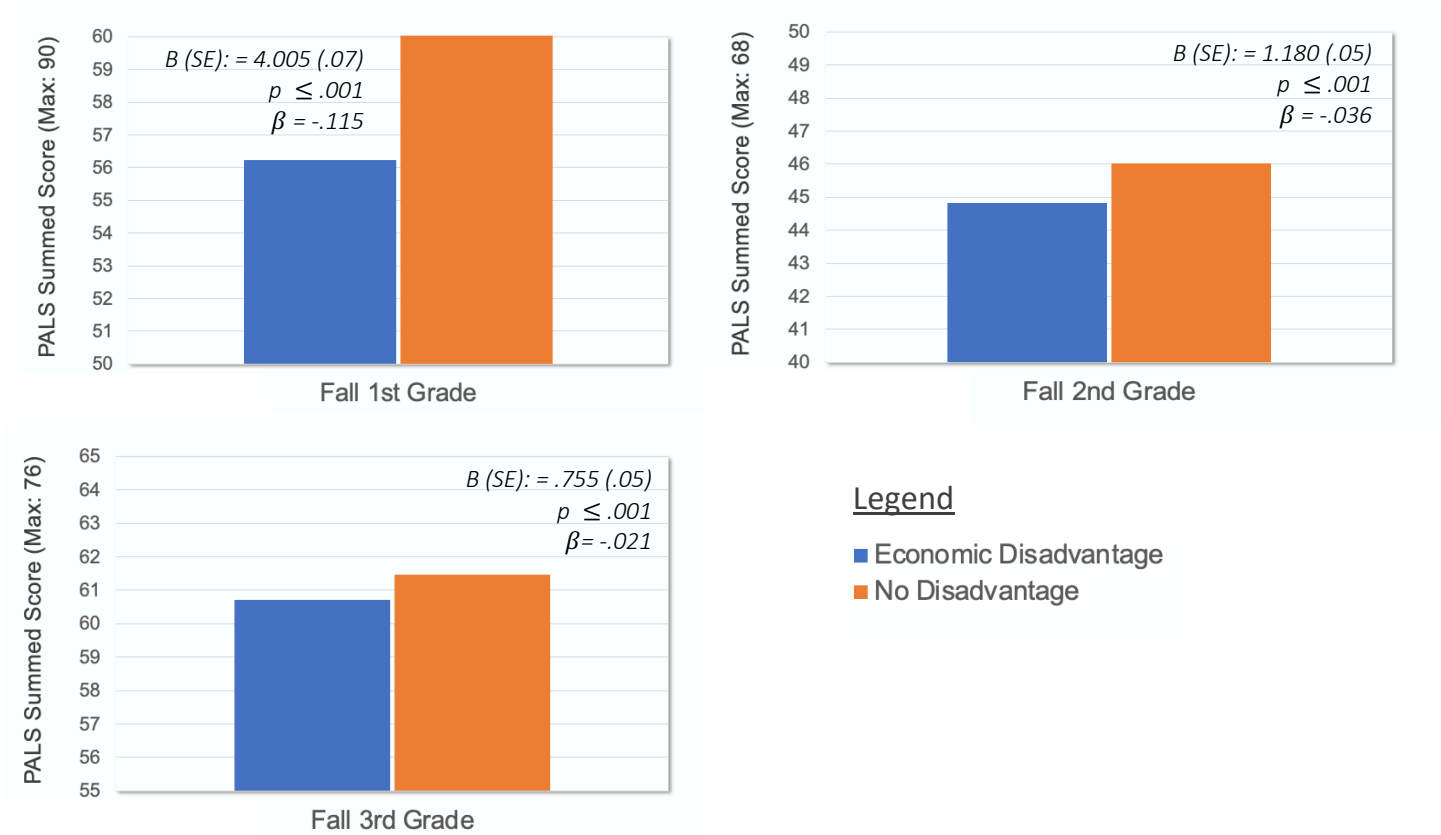


Figure 3. Mean scores on fall PALS by economic status, controlling for spring PALS, geographic region, and race. Note: Assessments are not vertically aligned; thus, differences in mean scores are not comparable across grade levels.

IMPLICATIONS

Researchers have argued that closing the summer *opportunity gap*¹² provides one of the most promising avenues for addressing educational inequities^{13,14,15}. The findings of this study reinforce the idea that children in Virginia have disparate opportunities to maintain and grow academic skill over the summer months, and that these differences reflect systemic inequities in society. Moreover, the effect of summer slide, compounded by the presence of sociodemographic factors, contributes to performance gaps that persist and widen over time. Findings indicate the need to develop and strengthen efforts aimed at preventing and reversing summer slide, especially for young students at risk of poor reading outcomes.

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The Phonological Awareness Literacy Screener (PALS) is the state-provided screening tool for the Virginia Early Intervention Reading Initiative (EIRI). For more information on PALS, visit pals.virginia.edu.

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