
Early Divisions: Racial and Economic Segregation in Virginia's Public Pre-Kindergarten

Karen Babbs Hollett, Erica Frankenberg,
& Genevieve Siegel-Hawley

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Introduction

Participation in high-quality¹ preschool leads to positive social and academic outcomes for children. These outcomes include greater kindergarten readiness, reduced likelihood of grade retention, higher rates of high school graduation and postsecondary degree attainment, fewer instances of involvement with the criminal legal system, and improved physical health.² Benefits are particularly pronounced for Black and Latinx children.³ This body of evidence has led policymakers to meaningfully expand governmental investment in quality preschool programs as a strategy for addressing racial opportunity and achievement gaps. However, children of color, and especially Black children, are significantly less likely than their White peers to attend preschool programs with high-quality ratings.⁴

Racial segregation may be a driver of quality gaps in preschools. Preschool programs are highly racially segregated, even more so than K-12 schools.⁵ This extreme segregation is likely related to families' needs and preferences for their young children to be in preschool settings close to home, creating enrollment patterns that are highly sensitive to ongoing residential segregation. Reduced access to resources in many communities of color – a product of racially discriminatory government policies⁶ – may make it difficult for preschool providers in these communities to secure well-qualified staff, developmentally-appropriate curricula, and other supplies and capital needed to meet quality standards. Indeed, higher levels of residential segregation are associated with lower

¹ While definitions of “high-quality” vary, most preschool quality rating systems are based on standards that include nurturing interactions with well-trained caregivers, developmentally appropriate curricula, outreach and support systems for families, and health and safety. See: Kirby, G., Caronongan, P., Malone, L. M., & Boller, K. (2015). What do quality rating levels mean? Examining the implementation of QRIS ratings to inform validation. *Early Childhood Research Quarterly*, 30, 291-305.

² McCoy, D. C., Yoshikawa, H., Ziol-Guest, K. M., Duncan, G. J., Schindler, H. S., Magnuson, K., & Shonkoff, J. P. (2017). Impacts of early childhood education on medium-and long-term educational outcomes. *Educational Researcher*, 46(8), 474-487.

³ Amadon, S., Gormley, W. T., Claessens, A., Magnuson, K., Hummel-Price, D., & Romm, K. (2022). Does early childhood education help to improve high school outcomes? Results from Tulsa. *Child Development*; Bassok, D. (2010). Do Black and Hispanic children benefit more from preschool? Understanding differences in preschool effects across racial groups. *Child Development*, 81(6), 1828-1845.

⁴ Friedman-Krauss, A. & Barnett, S. (2020). *Access to high-quality early education and racial equity*. National Institute for Early Education Research; Latham, S., Corcoran, S. P., Sattin-Bajaj, C., & Jennings, J. L. (2021). Racial disparities in pre-K quality: Evidence from New York City's universal pre-K program. *Educational Researcher*, 50(9), 607-617.

⁵ Greenberg, E., Monarrez, T., Feng, A., Feldman, A., Hinson, D., & Peiffer, E. (2019). *Segregated from the start: Comparing segregation in early childhood and K-12 education*. Urban Institute; Piazza, P. & Frankenberg, E. (2019). *Segregation at an early age: 2019 update*. The Center for Education and Civil Rights; Ready, D., & Reid, J., (2022). *Segregating Gotham's youngest: Racial/ethnic sorting and the choice architecture of New York City's Pre-K for All*. EdWorkingPaper: 22-560. Annenberg Institute at Brown University.

⁶ Rothstein, R. (2017). *The color of law: A forgotten history of how our government segregated America*. Liveright Publishing.

quality evaluation scores in state-funded preschool programs.⁷ Preschools located in communities with greater shares of Black residents are rated lower on measures of quality compared to preschools in predominantly White communities.⁸

Racial and economic school segregation often overlap, and racial differences in economic segregation are also associated with racial differences in access to key instructional resources. Thus, segregation by race *and* economic status may help explain the relationship between racial segregation and racial gaps in preschool quality.⁹ Black and Latinx preschoolers are enrolled in classrooms with substantially higher shares of low-income peers, on average, compared to White and Asian preschoolers.¹⁰ And preschool classrooms with high concentrations of Black and Latinx children and children with low family incomes are associated with fewer resources, larger class sizes, and lower academic achievement.¹¹ In contrast, economically and racially integrated preschool classrooms are associated with higher levels of language and mathematics learning, even when controlling for other factors associated with instructional quality.¹² Positive associations between the share of higher-income children in preschool programs and children's language outcomes, controlling for other student and teacher factors, suggests a relationship between economic composition and resource prevalence.¹³ That is, a harm of segregated preschool is that children from low-income families may lack access to learning opportunities that typically occur in more well-resourced preschool settings.

Beyond academics, preschool segregation has significant social consequences. Racial bias in children emerges in infancy and peaks between the ages of 3 and 5.¹⁴ But intergroup contact during

⁷ Valentino, R. (2018). Will public pre-K really close achievement gaps? Gaps in prekindergarten quality between students and across states. *American Educational Research Journal*, 55(1), 79-116.

⁸ Bassok, D., & Galdo, E. (2016). Inequality in preschool quality? Community-level disparities in access to high-quality learning environments. *Early Education and Development*, 27(1), 128-144; Latham et al., 2021.

⁹ Carter, P. L., & Welner, K. G. (Eds.). (2013). *Closing the opportunity gap: What America must do to give every child an even chance*. New York: Oxford University Press; Reardon, S. F. (2016). School segregation and racial academic achievement gaps. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 2(5), 34-57.

¹⁰ Ready & Reid, 2022.

¹¹ LoCasale-Crouch, J., Konold, T., Pianta, R., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2007). Observed classroom quality profiles in state-funded pre-kindergarten programs and associations with teacher, program, and classroom characteristics. *Early Childhood Research Quarterly*, 22(1), 3-17; Ready, D. D., & Reid, J. L. (2019). Children's executive function development and school socio-economic and racial/ethnic composition. *Early Childhood Research Quarterly*, 47, 457-471.

¹² Reid, J. L. (2016). Racial/ethnic diversity and language development in the preschool classroom. In E. Frankenberg, L. M. Garces, & M. Hopkins (Eds.), *School integration matters: Research-based strategies to advance equity* (pp. 39-55). New York: Teachers College Press; Reid, J. L., & Ready, D. D. (2013). High-quality preschool: The socioeconomic composition of preschool classrooms and children's learning. *Early Education & Development*, 24(8), 1082-1111.

¹³ Weiland, C., & Yoshikawa, H. (2014). Does higher peer socio-economic status predict children's language and executive function skills gains in prekindergarten? *Journal of Applied Developmental Psychology*, 35(5), 422-432.

¹⁴ Dunham, Y., Baron, A. S., & Banaji, M. R. (2008). The development of implicit intergroup cognition. *Trends in Cognitive Sciences*, 12(7), 248-253; Kelly, D. J., Quinn, P. C., Slater, A. M., Lee, K., Ge, L., & Pascalis, O. (2007). The other-race effect develops during infancy: Evidence of perceptual narrowing. *Psychological Science*, 18(12), 1084-1089.

this critical stage of development, especially when cross-group contact is structured to provide equal-status interaction, can disrupt the formation of racial prejudice.¹⁵ Racially integrated preschool classrooms are associated with reduced racial bias among children and greater probability of forming cross-racial friendships.¹⁶ The preschool workforce is also highly racially/ethnically diverse, especially in comparison to K-12.¹⁷ This diversity¹⁸ at the staffing level creates opportunities for children of all races to access the benefits of diverse adult role models,¹⁹ so long as integration efforts include both students and teachers.

Taken together, these social and academic benefits have led some experts to argue that racial and economic diversity should be considered an essential element of preschool quality.²⁰ Yet the design of many public preschool programs may increase the likelihood of Black and Latinx children attending racially and economically segregated classrooms.

Unlike K-12, preschool is not compulsory, and only a third of state-funded programs are universal (i.e., open to all age-eligible children). Eligibility for targeted preschool programs is primarily governed by income status, though eligibility criteria frequently include other “risk factors” associated with lower academic performance in kindergarten, such as having a single or teenage mother, an incarcerated parent, unstable housing, or low birth weight.²¹ Systemic racism makes these factors more prevalent among Black and Latinx children.²²

Policymakers argue targeted preschool programs use limited public dollars efficiently by prioritizing children who benefit most from early academic intervention. However, such policies may lead to the disproportionate enrollment of Black, Latinx, and low-income children in targeted

¹⁵ Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison Wesley; Pettigrew, T., & Tropp, L. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, 90(5), 751-783.

¹⁶ Gaias, L. M., Gal, D. E., Abry, T., Taylor, M., & Granger, K. L. (2018). Diversity exposure in preschool: Longitudinal implications for cross-race friendships and racial bias. *Journal of Applied Developmental Psychology*, 59, 5-15; Rutland, A., Cameron, L., Bennett, L., & Ferrell, J. (2005). Interracial contact and racial constancy: A multi-site study of racial intergroup bias in 3–5 year old Anglo-British children. *Journal of Applied Developmental Psychology*, 26(6), 699-713.

¹⁷ Paschall, K., Madill, R., & Halle, T. (2020). *Professional Characteristics of the Early Care and Education Workforce: Descriptions by Race, Ethnicity, Languages Spoken, and Nativity Status*. OPRE Report #2020-107. Washington, DC: Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

¹⁸ Preschool educators are severely underpaid compared to educators in K-12 and postsecondary settings, and few have access to benefits such as health insurance. While the racial diversity of the preschool workforce benefits children, current compensation policies and practices make it difficult for these educators to earn a living wage and arguably exacerbate racial income and health stratification.

¹⁹ Siegel-Hawley, G. (2012). *How non-minority students also benefit from racially diverse schools*. Research Brief No. 8. National Coalition on School Diversity.

²⁰ Reid, J., & Kagan, S. L. (2015). *A better start: Why classroom diversity matters in early education*. The Century Foundation and the Poverty & Race Research Action Council.

²¹ Friedman-Krauss, A., Barnett, S. W., Garver, K., Hodges, K., Weisenfeld, G. G., & DiCrecchio, N. (2019). *The state of preschool 2018*. National Institute for Early Education Research.

²² Trent, M., Dooley, D. G., Dougé, J., Cavanaugh, R. M., Lacroix, A. E., Fanburg, J., ... & Wallace, S. B. (2019). The impact of racism on child and adolescent health. *Pediatrics*, 144(2).

programs, making them more racially and economically segregated than universal programs and less likely to provide academically and socially enriching learning environments.²³ Recent debates about preschool effectiveness sparked by conflicting study findings have often overlooked the potential role of racial and economic composition in program outcomes. For example, in Tennessee, where preschoolers' long-term school performance was relatively poor, the program was means tested and more likely to be economically segregated, compared to Boston's open enrollment preschool program, where long-term effects were significant and positive.²⁴ These dynamics makes the study of segregation by race *and* economic status in preschool especially critical.

Contribution of this Brief

This research brief examines the extent to which Black, Latinx, and White children were racially and economically segregated in public preschool in Virginia in 2019-20.²⁵ It is part of a series on school segregation in Virginia. Previous briefs focused on drivers of K-12 segregation between schools, segregation within K-12 schools, and the relationship between segregation by race and poverty in K-12 schools. We explore many of those same dimensions here, in the context of preschool segregation.

The majority of state-funded preschool seats in Virginia are in targeted pre-kindergarten (pre-K) programs. Virginia's state-funded pre-K program, the Virginia Preschool Initiative (VPI), serves four-year-old children with family incomes at or below 200% of the federal poverty level, as well as other "at risk" children, who the state defines as children who are homeless, have parents or guardians without a high school diploma or GED, or who have special needs or disabilities. This targeted design makes Virginia an informative case for studying segregation. Given that 28 other states operate targeted pre-K programs similar to VPI, the implications of this study are far-reaching.

Virginia distributes VPI funding to school divisions (i.e., what in other states are typically called school districts). Most VPI classrooms are housed in public schools, although school

²³ Cascio, E. U. (2019). *Does universal preschool hit the target? Program access and preschool impacts* (No. w23215). National Bureau of Economic Research; Dotterer, A. M., Burchinal, M., Bryant, D., Early, D., & Pianta, R. C. (2013). Universal and targeted pre-kindergarten programmes: a comparison of classroom characteristics and child outcomes. *Early Child Development and Care*, 183(7), 931-950.

²⁴ Durkin, K., Lipsey, M. W., Farran, D. C., & Wiesen, S. E. (2022). Effects of a statewide pre-kindergarten program on children's achievement and behavior through sixth grade. *Developmental Psychology*; Gray-Lobe, G., Pathak, P. A., & Walters, C. R. (2021). *The long-term effects of universal preschool in Boston*. SEII Discussion Paper #2021.05.

²⁵ Because of how the pandemic has disrupted preschool education, we limit our analysis to the latest year prior to COVID-19 onset.

divisions can partner with local, community-based preschool providers to offer VPI services.²⁶ Given demographic similarities between pre-K- and kindergarten-age students in the same school zones, we consider kindergarten enrollment a plausible counterfactual were Virginia’s pre-K program to universally enroll all age-eligible children, as Virginia is one of few states that mandates kindergarten attendance at age 5. Comparing patterns in segregation between the two grade levels helps us to understand whether targeted public pre-K in Virginia—compared to universal kindergarten—relates to differences in segregation.

Summary of Key Findings and Recommendations

- Statewide, higher shares of Black and Latinx students were enrolled in pre-K compared to kindergarten, regardless of economic status.
- Public schools housing both pre-K and kindergarten classrooms had significantly more kindergartners who were White, Latinx, and economically disadvantaged (ED), suggesting a potentially inequitable pre-K site selection process that disfavors Black families.
- Black and Latinx pre-K students were more racially isolated and more likely to attend Black/Latinx concentrated schools than their kindergarten peers, who were themselves segregated.
- Black and Latinx ED pre-K students had especially high exposure to ED peers and were much more likely to attend a poverty concentrated school compared to their same-race non-ED and kindergarten peers.
- White non-ED pre-K students were isolated in overwhelmingly White and economically advantaged settings.
- Latinx ED pre-K students were the most likely to attend schools with concentrated racial and economic segregation.
- To remedy this extreme segregation and its harmful effects, we recommend a universal pre-K design, with supports for creating classroom environments that promote equal-status interactions among pre-kindergartners.

²⁶ Information from the Virginia Department of Education suggests this policy was designed for divisions where school facilities lack adequate space for pre-K classrooms. Research also suggests preschools housed in community-based settings, versus public schools, may be more welcoming for families of color (e.g. greater likelihood of staff members sharing families’ race/ethnicity, more culturally affirming curricula and family engagement practices, etc.).

Data and Methods

We used school-level enrollment data from the Virginia Department of Education for the 2019-2020 academic year, including counts by grade, race, and economic disadvantage (defined in Virginia as eligibility for free or reduced price lunch and/or other federal aid programs, such as SNAP or Medicaid²⁷). Pre-K enrollment included all children enrolled in pre-K programs operated by public schools, regardless of funding stream. Fifty-four percent of all pre-K seats were funded by the Virginia Preschool Initiative (VPI).²⁸ Other targeted pre-K funding streams included Head Start,²⁹ Title I, and Early Childhood Special Education.

While comprehensive information on how Virginia divisions filled their non-VPI pre-K seats is unavailable, a review of selected division websites conducted by the authors showed divisions tended to prioritize enrolling children with low family incomes, those with developmental delays and other disabilities, and in some cases those whose parents worked for the school system or municipal government. This evidence suggests even when schools aren't limited by state eligibility policies, there remains a preference or expectation for targeted enrollment in pre-K.

Our sample of 1,150 schools includes students whose race was identified as Black, Latinx, or White. These students comprised 89.3% of all pre-K enrollment and 85.7% of all kindergarten enrollment in our sample year. Because student economic status subgroup counts of less than 10 were suppressed, including students of other races in our analysis was practically difficult. Data suppression also meant that subgroup analysis included fewer schools in some cases. Our sample offers a window into pre-pandemic trends which may or may not return in a “new normal.”

We employed two common measures to assess racial and economic segregation: interaction and concentration.³⁰ The interaction index is a weighted average that measures differential student interaction with student groups (e.g., racial or economic groups). There are two forms of interaction, exposure and isolation. The *exposure* calculation measures interaction with other group members, and is important for understanding the extent to which students are exposed to students

²⁷ The limitations of using student poverty measures is discussed in the related research brief on segregation by race and poverty in Virginia's K-12 schools (see p. 4-5, linked [here](#)).

²⁸ While VPI sets enrollment criteria, up to 15% of a division's VPI slots can be filled based on locally-established eligibility criteria. Examples of these criteria, based on VPI guidelines, include children living in single parent homes, children in foster care, English learners, children with an incarcerated parent, and children with a parent on military deployment.

²⁹ Head Start – the federal preschool program that targets children with family incomes below the poverty line – served 14,382 children in Virginia in 2019, approximately half of whom were enrolled in programs operated by public schools.

³⁰ Governmental Accountability Office. (2016). *Better use of information could help agencies identify disparities and address racial discrimination*. Washington, DC: Author; Orfield, G., Siegel-Hawley, G., & Kucsera, J. (2014). *Sorting out deepening confusion on segregation trends*. Los Angeles, CA: The Civil Rights Project; Reardon, 2016.

in groups different than their own. The *isolation* calculation, in contrast, measures interaction with a group member's own group. Exposure and isolation are related. For example, high isolation would mean that students have relatively lower exposure to other groups. *Concentration* is a measure of the extent to which students are enrolled in schools with high levels, or concentrations, of students from certain groups. Concentration matters for understanding variation in student composition, compared to the interaction index, which is a weighted average. Exposure, isolation, and concentration are descriptive measures that help us understand several different dimensions of segregation, and to describe and compare segregation between grades and between students by race and economic status.³¹

With private pre-K data unavailable, we do not have the full universe of pre-K offerings in Virginia. Other measures of segregation, like dissimilarity or Thiel's *H*, require a full universe. As a result, we do not employ them here.

Pronounced Pre-K and Kindergarten Enrollment Differences

Because segregation is a product of schools' demographic composition, we begin by exploring differences in the enrollment composition of pre-K and kindergarten. This analysis allows us to better understand whether differences in segregation between pre-K and kindergarten may be solely a result of compositional differences between the two grade levels, or whether additional factors may also be influencing segregation. Understanding the potential mechanisms driving differential patterns in segregation is important as different mechanisms have different policy implications.

State-level Pre-K and Kindergarten Enrollment

At the state level, enrollment differences between pre-K and kindergarten were pronounced (Table 1). Statewide, enrollment in public school-based pre-K was roughly a third of kindergarten enrollment. Among all racial groups, the share of economically-disadvantaged (ED) students was greater in pre-K (46.8%) compared to kindergarten (38.2%), an expected finding given the targeted nature of pre-K. There were substantially fewer White students in pre-K relative to kindergarten, though White students remained the largest racial subgroup in pre-K. The share of Black students in pre-K (31.6%) was substantially greater than the share of Black students in kindergarten (20.7%), as was the case for Latinx students, though to a lesser degree. But also among Black and Latinx students, there were higher shares of both ED *and* non-economically-disadvantaged (non-ED) students in pre-K compared to kindergarten, suggesting their overrepresentation in pre-K relative

³¹ Massey, D. S., & Denton, N. A. (1988). The dimensions of residential segregation. *Social Forces*, 67(2), 281-315.

to White students was not solely a result of differences in economic status between racial groups. For example, Black non-ED students were 14.7% of all pre-K students but were only 8.5% of all kindergarten students. Likewise, 7.2% of kindergartners were non-ED Latinx students while 9.0% of pre-kindergartners were.³² It may be that Black and Latinx pre-K students are overrepresented in public school-based pre-K settings, while White pre-kindergartners are overrepresented in private ones.

Table 1

Statewide Enrollment in Pre-K and Kindergarten, 2019-2020³³

	Schools with Pre-K		Schools without Pre-K	
	n	%	n	%
Black Students	10,871	31.6%	19,080	20.7%
ED	5,812	16.9%	11,198	12.1%
Non-ED	5,059	14.7%	7,882	8.5%
White Students	12,903	37.5%	44,016	47.6%
ED	4,742	13.8%	10,637	11.5%
Non-ED	8,161	23.7%	33,379	36.1%
Latinx Students	6,912	20.1%	16,081	17.4%
ED	3,806	11.1%	9,412	10.2%
Non-ED	3,106	9.0%	6,669	7.2%
All Students	34,373	100%	92,407	100%
ED	16,083	46.8%	35,263	38.2%
Non-ED	18,290	53.2%	57,144	61.8%

Source: Virginia Department of Education

³² We conducted similar analysis where we compared the demographic composition of pre-K and kindergarten in schools that had both grade levels. Overall school-level patterns were similar to state-level patterns. However, given lower school-level enrollment counts in pre-K, perhaps due to low class size requirements, data suppression was common, and as a result we do not include that analysis here. Those findings are available by request.

³³ While this brief focuses on student enrollment between pre-K and kindergarten by race and economic status, it's worth noting that there were also enrollment differences by race and disability status. Like students experiencing economic disadvantage, students with disabilities are prioritized for enrollment in Virginia's public pre-kindergartens. Students with disabilities were a disproportionality higher share of pre-K students (28.9%), compared to kindergarten (9.4%). While White students composed 37.5% of total pre-K enrollment, they represented 50.5% of all pre-K students with disabilities. By comparison, White students were 47.6% of all kindergartners, and were 51.0% of those with disabilities. While English learners are considered an "at risk" group according to VPI guidelines, there were disproportionality fewer English learners in pre-K (2.1%) relative to kindergarten (14.9%).

Where Pre-K Classrooms are Located

Given our focus on enrollment differences between pre-K and kindergarten, we were interested in how kindergarten demographics varied between public schools housing both pre-K and kindergarten classrooms and those with just kindergarten (Table 2). After all, while many public schools with a kindergarten classroom also served pre-K students, approximately 27% of schools did *not* have a pre-K classroom, which could limit which families have proximal access to public pre-K.

Our analysis found that public schools with both pre-K and kindergarten classrooms had significantly more kindergartners who were White, Latinx, and economically disadvantaged, but significantly fewer Black kindergartners, compared to public schools without a pre-K classroom. Because kindergarten enrollment should reflect the racial and economic composition of the school community, these differences may indicate the disproportionate location of school-based pre-K programs in communities more accessible to White and Latinx families. Inequitable site selection is concerning because geographic proximity to public schools with pre-K is associated with pre-K enrollment,³⁴ and school-based pre-K programs typically score high on measures of quality.³⁵

Table 2

Mean School-level Kindergarten Enrollment by Pre-K Status, 2019-2020

	Schools with Pre-K		Schools without Pre-K	
	n	%	n	%
Black Students	811	19.5%	295	23.3%
ED	549	14.4%	201	18.4%
Non-ED	549	9.3%	201	11.0%
White Students	811	52.2%	295	47.7%
ED	716	17.2%	265	7.8%
Non-ED	716	39.3%	265	43.0%
Latinx Students	811	16.2%	295	13.7%
ED	530	12.7%	166	8.4%
Non-ED	530	6.6%	166	8.4%

³⁴ Ehrlich, S.B., Connors, M.C., Stein, A.G., Francis, J., Easton, J.Q., Kabourek, S.E., & Farrar, I.C. (2020). *Closer to home: More equitable pre-k access and enrollment in Chicago*. Chicago, IL: UChicago Consortium on School Research, NORC at the University of Chicago, and Start Early.

³⁵ Reid, J. L., Melvin, S. A., Kagan, S. L., & Brooks-Gunn, J. (2019). Building a unified system for universal Pre-K: The case of New York City. *Children and Youth Services Review*, 100, 191-205.

Table 2 – cont.

Mean School-level Kindergarten Enrollment by Pre-K Status, 2019-2020

	Schools with Pre-K		Schools without Pre-K	
	n	%	n	%
All Students	811	100%	295	100%
ED	805	42.6%	291	32.0%
Non-ED	805	57.4%	291	68.0%

Note: Mean differences are statistically significant at $p < .05$ for all groups except Black non-ED students. Numbers in parentheses are n, where n = number of schools. Following Greenberg and colleagues (2019), we excluded schools with pre-K enrollment < 5 . Sample sizes are lower for subgroup analysis because of data suppression. The number of students enrolled in kindergarten in schools with and without pre-K was similar; schools with pre-K had an average of 82.6 kindergarten students, and schools without pre-K had an average of 86.2 kindergarten students.

Stark Differences in Racial and Economic Segregation between Pre-K and Kindergarten

Comparing segregation between pre-K and kindergarten helps us understand the extent to which public pre-K policies reinforce or depart from existing K-12 segregation. While Virginia’s kindergartners are racially and economically segregated, stark differences between the grade levels indicate pre-K policies, and other potential factors, exacerbate segregation for the state’s youngest learners.

Interaction with Students from Different Racial and Economic Backgrounds

Differences in racial interaction were extreme in Virginia pre-K regardless of students’ economic status (Figure 1). When comparing racial isolation to a racial/ethnic group’s overall share of enrollment, the gap for pre-K students was higher than for kindergarten students, indicating greater sorting by race within pre-K aside from compositional differences between pre-K and kindergarten.

Black students’ isolation (i.e., interaction with a group member’s own group) was substantially higher in pre-K compared to kindergarten for both ED and non-ED students (Panel A). Likewise, relatively low exposure to White students did not differ meaningfully by Black pre-K students’ economic status. For example, Black children composed 31.7% of total pre-K enrollment, yet the average Black non-ED and ED pre-K student attended a school where 62.3% of their peers were also Black.

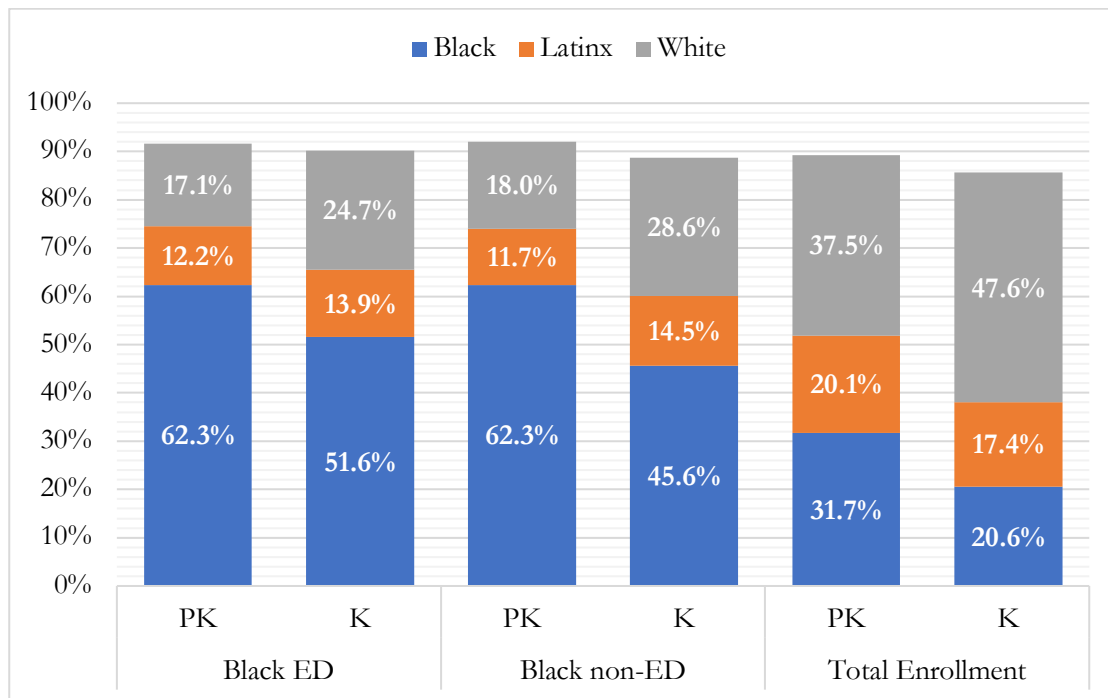
Latinx students' isolation followed a similar pattern as Black students', though differences between pre-K and kindergarten were of lower magnitude (Panel B). Moreover, because Latinx pre-K students were a lower percentage of total pre-K enrollment (20.1%), their isolation was lower than the isolation experienced by White or Black peers, particularly for non-ED Latinx students. Indeed, for Latinx pre-K students, differences by ED status were more substantial than for Black or White pre-K students.

Despite much lower percentages of White students enrolled in pre-K than kindergarten (37.5% compared to 47.6% in kindergarten), White isolation for non-ED and ED students in pre-K was similar to kindergarten (Panel C). If students were more evenly distributed across schools, we would expect exposure to White students to be lower in pre-K due to compositional differences. Instead, White non-ED pre-kindergartners were in schools where 60% of their pre-K peers were White, while White ED pre-kindergartners were in schools where 63% of their classmates were also White. White pre-kindergartners exposure to Black students was especially low (between 15-17%), given the percentage of Black students in pre-K (31.7%).

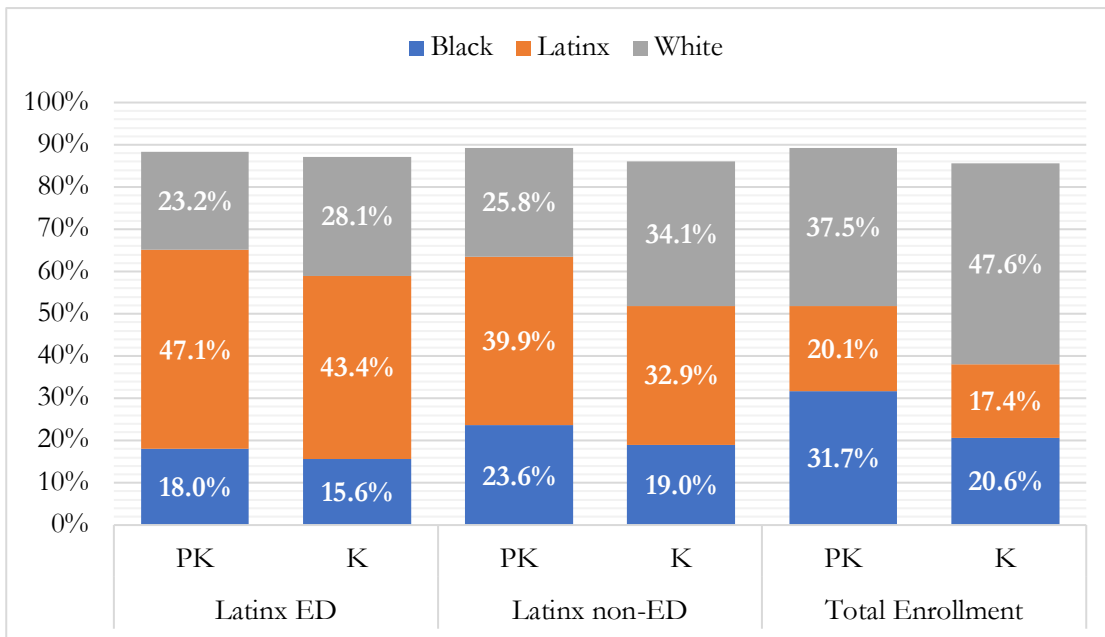
Figure 1

Grade-level Racial Interaction Index for Pre-K and Kindergarten Students, 2019-2020

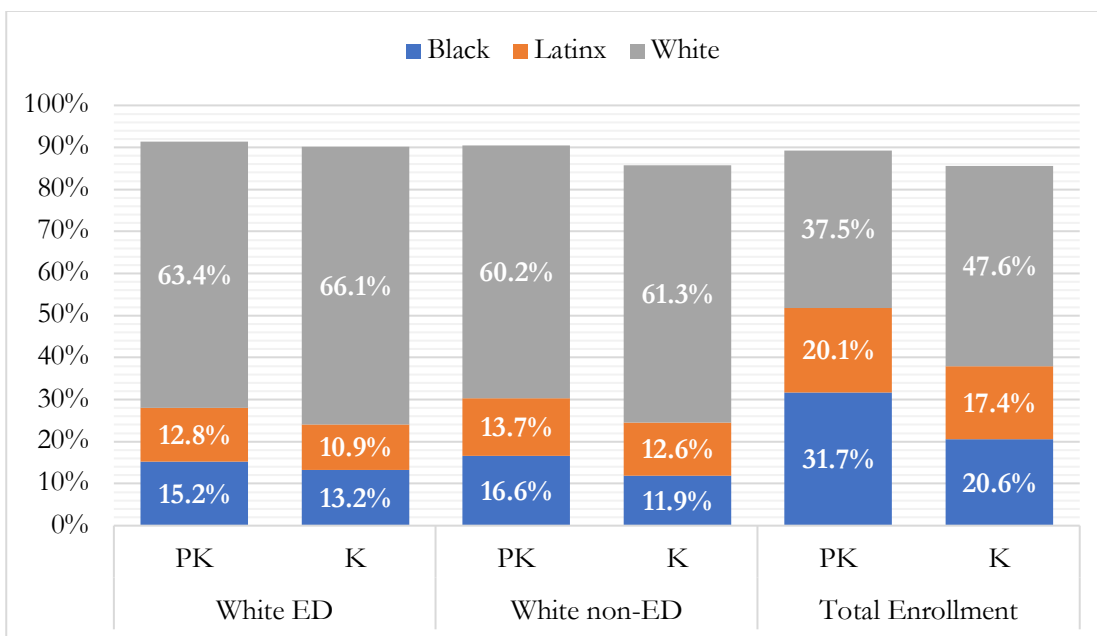
Panel A



Panel B



Panel C



Note. This figure shows the racial interaction index for pre-K (PK) and kindergarten (K) students, by race and economic status. Panel A shows Black students' interaction with same- and other-race peers; Panel B shows those interactions for Latinx students; and Panel C shows those interactions for White students. The Total Enrollment column in each panel shows the total percentage of Black, Latinx, and White students enrolled in each grade, allowing us to compare how each racial group's interactions compare with the overall racial composition of their grade level.

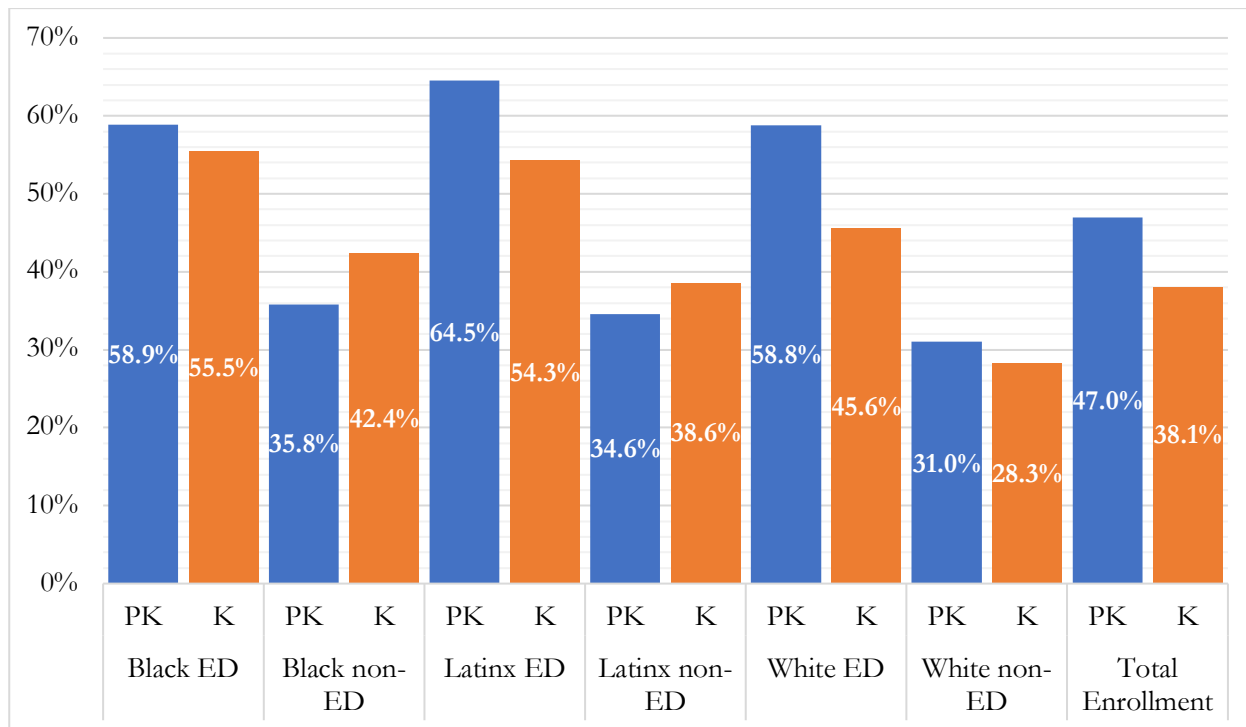
Differences in exposure to ED peers by race in pre-K were similar – though starker – than those experienced by same-race kindergarten peers (Figure 2). Unlike with racial isolation, differences *within* racial groups were greater in pre-K compared to kindergarten. The typical Black ED pre-K student attended a school where 58.9% of their pre-K peers were economically disadvantaged, while the typical Black non-ED pre-K student attended a school where only 35.8% of their pre-K peers were economically disadvantaged. In kindergarten, rates of exposure to ED peers were 55.5% and 42.4% for Black ED and Black non-ED students, respectively.

Exposure to ED peers was also greater in pre-K among White and Latinx ED students. Like Black non-ED students, Latinx non-ED pre-kindergartners actually had less exposure to ED peers than Latinx non-ED kindergartners. This follows the trend of more pronounced differentiation among Latinx pre-K students in terms of racial segregation, as described above. Among White children, exposure to ED peers was greater in pre-K regardless of students’ economic status.

Altogether, these data indicate Black and Latinx pre-K students who were economically disadvantaged experienced the greatest levels of both racial *and* economic segregation.

Figure 2

Grade-level Exposure to Students from Economically Disadvantaged Households for Pre-K and Kindergarten Students, 2019-2020



Note. This figure shows pre-K (PK) and kindergarten (K) students’ exposure to economically-disadvantaged (ED) peers, by race and economic status.

Concentration

Pre-K students of all races were more likely than their same-race kindergarten peers to be enrolled in racially or economically concentrated schools (Figure 3).

Differences in enrollment in Black/Latinx concentrated schools between pre-K and kindergarten were especially large for Black students (Panel A). For example, while 55.2% of Black non-ED pre-K students were enrolled in Black/Latinx concentrated schools, only 29.9% of Black non-ED kindergarten students were enrolled in similar settings. Latinx pre-K students, and especially Latinx non-ED pre-kindergartners, were more likely than their kindergarten peers to be in schools of Black/Latinx concentration. White non-ED pre-K students were more likely than their kindergarten peers to be in White concentrated schools, despite the lower share of White students in pre-K.

In contrast to racial concentration, the pre-K gap in enrollment in poverty concentrated schools was much smaller for Black students, at 8.0 percentage points for Black ED students and 0.1 points for Black non-ED students (Panel B). Notably, Black non-ED pre-K students were substantially more likely than their kindergarten peers to be in schools with concentrated economic advantage, while Black ED pre-K students were somewhat less likely.

Over a third of Latinx ED pre-kindergartners were enrolled in poverty concentrated schools – the highest rate of any observed subgroup – leading to an especially large gap between pre-K and kindergarten (20.9 percentage points). The pattern for Latinx non-ED students in poverty concentrated schools and concentrated economic advantage schools was similar to Black non-ED students.

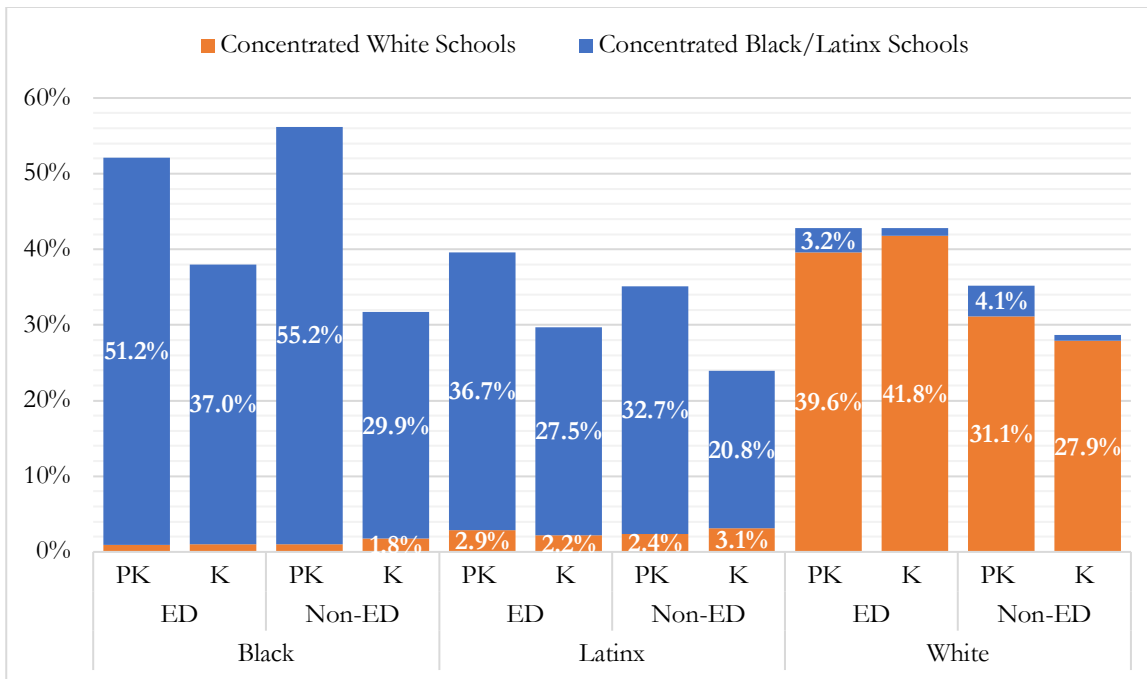
White pre-kindergartners, and especially those who were economically disadvantaged, were much more likely than their kindergarten peers to be in concentrated poverty schools, perhaps reflective of targeted programs in areas with concentrated White rural poverty. Unlike their Black and Latinx non-ED peers, White non-ED pre-kindergartners' enrollment in schools with concentrated economic advantage was similar to that of kindergartners, and both were exceptionally high.

We also found that White non-ED pre-K students were more likely than White non-ED kindergartners to be enrolled in schools of concentrated racial *and* economic advantage (Panel C), despite lower shares of White students and higher shares of economically disadvantaged students in pre-K. Latinx ED pre-K students were the most likely of any observed subgroup to be in schools with concentrated racial *and* economic segregation (18.5%), and the pre-K-kindergarten gap in enrollment in these schools was largest for Latinx ED pre-kindergartners.

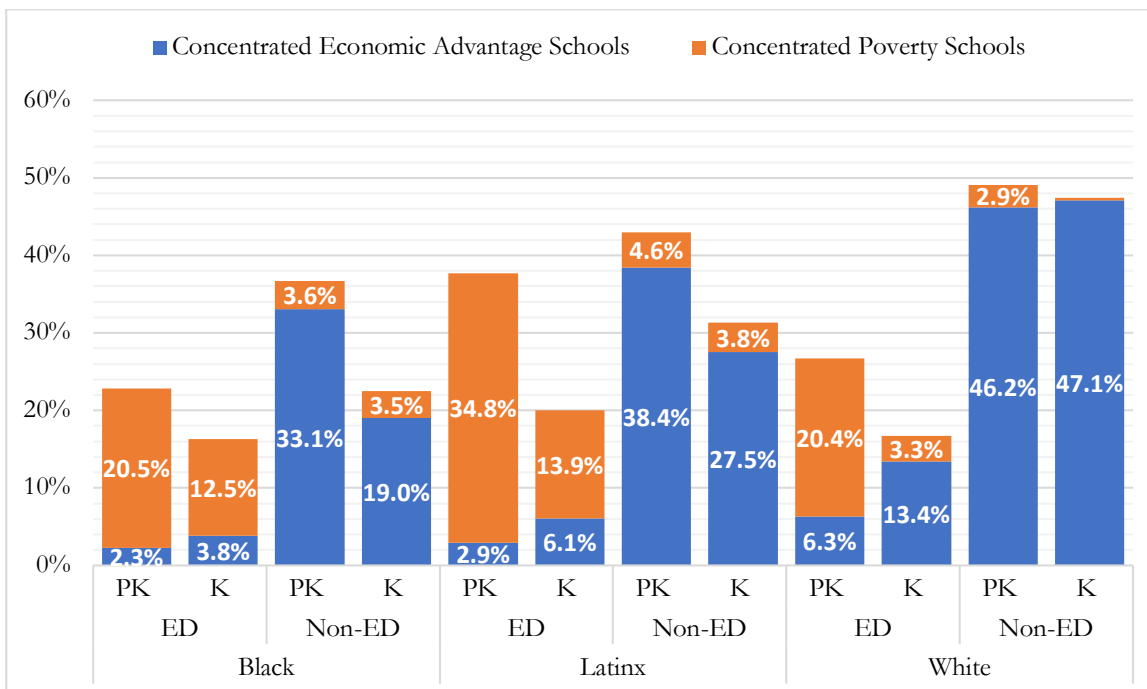
Figure 3

Pre-K and Kindergarten Students' Enrollment in Racially and Economically Concentrated Schools

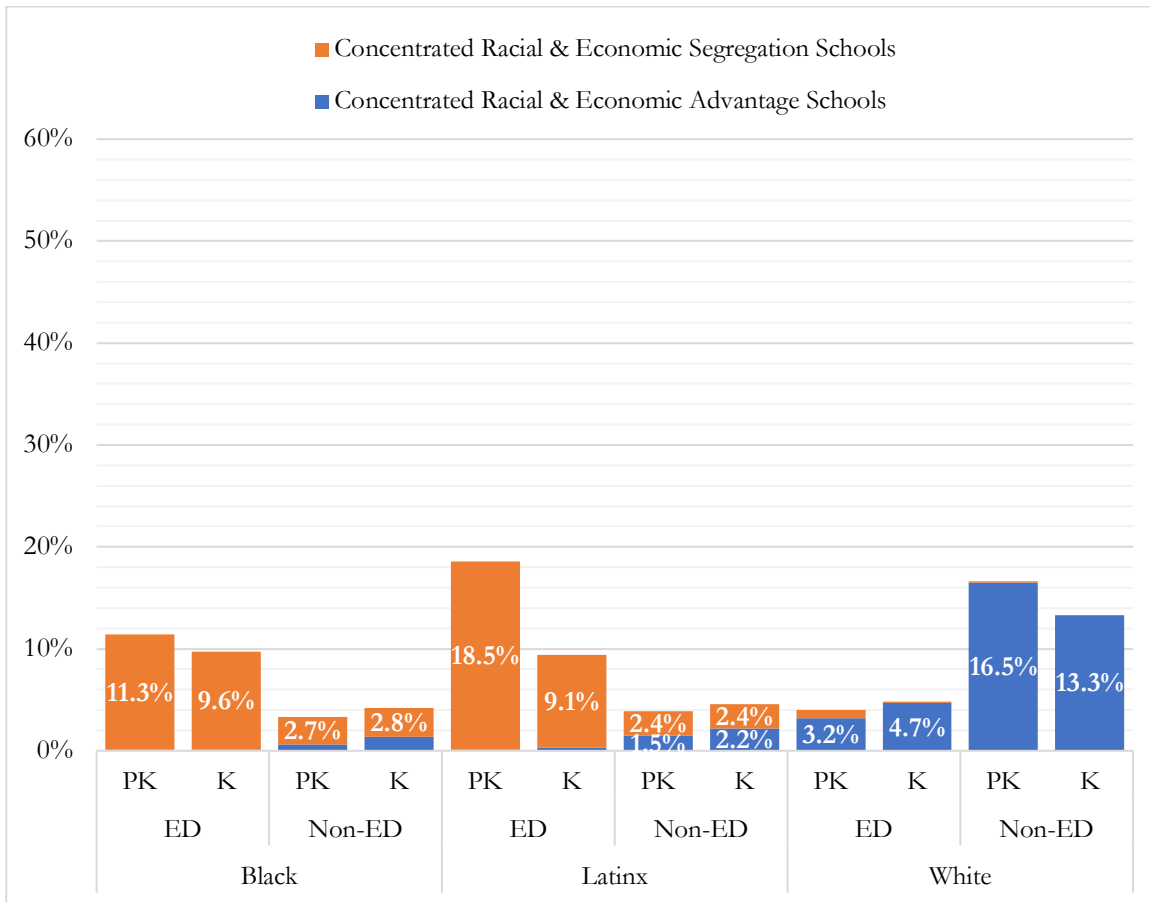
Panel A



Panel B



Panel C



Note. This figure shows the percentage of pre-K (PK) and kindergarten (K) students enrolled in racially and economically concentrated schools, by students' race and economic status. Panel A shows the shares of pre-K and kindergarten students enrolled in racially concentrated schools. Panel B shows the shares of pre-K and kindergarten students enrolled in economically concentrated schools. Panel C shows the shares of pre-K and kindergarten students enrolled in racially and economically concentrated schools. Concentrated White, concentrated Black/Latinx, concentrated poverty, and concentrated economic advantage schools are those where more than 75% of students from those racial and socioeconomic groups are enrolled in the school. Concentrated racial and economic advantage schools are those where less than 25% of students are economically disadvantaged and over 75% of students are White. Concentrated racial and economic segregation schools are those where more than 75% of students are economically disadvantaged and over 75% of students are Black or Latinx. Cases where the percentage of a group's enrollment was less than or equal to one percent are not labeled in this figure.

Conclusion

We found that statewide in Virginia, there were higher shares of Black and Latinx students enrolled in public school-based pre-K compared to kindergarten. Notably, this pattern extended to non-ED Black and Latinx students, despite the state’s focus on serving low-income children in its pre-K program. These racial differences in enrollment composition most likely contributed to higher levels of segregation experienced by Black and Latinx pre-kindergartners relative to their same-race kindergarten peers.

However, extreme segregation in pre-K relative to kindergarten suggests the influence of factors beyond enrollment composition. Black and Latinx students were more racially isolated and more likely to attend Black/Latinx concentrated schools than their kindergarten peers, who were themselves segregated. Black and Latinx ED pre-K students had especially high exposure to ED peers and were much more likely to attend a poverty concentrated school compared to their same-race non-ED and kindergarten peers. Meanwhile, White non-ED pre-K students were isolated in overwhelmingly White and economically advantaged settings. This last finding is especially noteworthy given that White students in public school-based pre-K were under-represented yet experienced similarly high levels of segregation as their kindergarten peers.

This pronounced segregation is all the more worrisome with evidence that children in school-based pre-K experience *less* segregation than their peers in privately-managed early education settings.³⁶ Private preschool providers serve greater shares of pre-kindergartners than public schools in most states, suggesting that for many young children, segregation may be even worse than what our findings show here.

Given the findings of the related research briefs in this series, our results suggest that school-based pre-K programs may be the beginning of an extensive pipeline of segregation for Black and Latinx students in Virginia. Our pre-K findings add to extant literature demonstrating substantial racial segregation in pre-K relative to other grade levels, provide new evidence of economic segregation in pre-K, and highlight the importance of analyzing data by race *and* economic status for understanding potential differences in educational opportunities for our youngest students.

Virginia’s public school-based pre-kindergartens provide valuable early educational opportunities to many Black and Latinx students. However, the emphasis on enrolling students with low family incomes, along with other “risk” criteria that may disproportionately target Black and Latinx children, could be one cause of heightened isolation of Black and Latinx pre-

³⁶ Ready & Reid, 2022.

kindergartners – and especially Black and Latinx ED pre-kindergartners – in racially and economically segregated schools. Other factors, such as local enrollment criteria for pre-K seats and overrepresentation in early childhood special education programs, may explain higher segregation for White students. In a fragmented preschool sector with various public and private options, it’s likely that several factors related to access, cost, available services, and perceived quality contribute to high levels of pre-K segregation in public schools.

Regardless of cause, intense racial and economic segregation raises concern about Black and Latinx children’s access to well-resourced, high-quality pre-K and all children’s exposure to intergroup contact during a critical period of social and cognitive development. Universal pre-K programs may be the best mechanism for ensuring all children have quality early learning opportunities while also providing the intergroup contact needed to counteract racial bias. However, while enabling the demographic composition of pre-K programs to more closely resemble kindergartens would be an improvement, it would still leave Virginia’s youngest learners in segregated learning environments, as our analysis shows, and as evidence from universal preschool programs also suggests.³⁷ Rather, universal programs must include student assignment policies that maximize opportunities for integration while also ensuring instructional activities and environments are structured to confer equal or elevated status to historically marginalized groups.³⁸ Such environments encourage a sense of belonging for all groups of students and offer robust opportunities for equitable play and cooperation. Ensuring pre-K sites offer comprehensive resources, including health and nutritional services, may also be essential for promoting diverse enrollment.³⁹

Increasing data collection on pre-K enrollment, particularly by children’s race and economic status, is also needed for any providers enrolling children receiving governmental funding. Creative strategies for counting or estimating enrollment across preschool settings, including the range of privately-operated preschool providers (e.g., child care centers, family child care homes) would go a long way in helping us understand, and ultimately reduce, the segregation experienced by our youngest learners. More qualitative data on how families make choices about where to enroll their children for preschool, particularly when diverse options are available, would also strengthen the evidence base.

Remedying segregation in pre-K has the potential to increase access to early learning resources for underserved students, improve all children’s academic and social outcomes, reduce the development of racial bias, and begin to dismantle segregation experienced in K-12 public schools. These outcomes benefit individual children and families *and* society as a whole, and are necessary steps toward creating a more equitable multiracial democracy for all.

³⁷ Latham et al., 2021.

³⁸ Zaki, J. (2019). *The war for kindness: Building empathy in a fractured world*. Crown.

³⁹ Ready & Reid, 2022.

About the Authors

Karen Babbs Hollett is a former elementary school teacher, instructional leader, and director at a state department of education. She is currently a doctoral candidate in the Educational Leadership program at Pennsylvania State University, where she studies issues of equity in early care and education (ECE) policy.

Erica Frankenberg is a professor of education and demography at the Pennsylvania State University, and director of the Center for Education and Civil Rights. Her research interests focus on racial desegregation and inequality in K-12 schools and the connections between school segregation and other metropolitan policies.

Genevieve Siegel-Hawley is an associate professor of educational leadership at Virginia Commonwealth University. Her research examines school segregation and resegregation in U.S. metropolitan areas, along with strategies for promoting inclusive school communities and policy options for a truly integrated society.

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The Center for Education and Civil Rights seeks to be a hub for the generation of knowledge and coalition-building among the education and civil rights communities to promote research-based actions that address the complicated nature of racial and ethnic inequality in the 21st century. The Center's collective work is intended to promote equity across the educational pipeline by supporting efforts that facilitate integration through an inter-disciplinary approach. CECR is directed by Erica Frankenberg. For more information, see cecr.ed.psu.edu or follow [@psu_civilrights](https://twitter.com/psu_civilrights).