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An examination of School Transition on Value-Added Growth in Arkansas

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An Examination of School Transition on Value-Added Growth in Arkansas

Summary Points

- On average, groups of students who transition to a new school have lower value-added growth scores than students who do not.
- Comparisons of growth scores can be made for white students, Black students, and students qualifying for free or reduced-price lunch in grades 3—10.
- Students in 6th and 7th grade who transition to new schools demonstrate statistically significantly lower growth than their peers who do not transition.
- Schools should develop robust transition plans, especially for students in the 6th and 7th grades.

In this brief, we examine grade-level value-added growth scores during the years that students transition upward to a new building. We used five years of publicly available growth data to compare and make predictions about a grade's value-added growth for mathematics and ELA during a transition year. We find that transitioning schools in 6th and 7th grade continually has an impact on value-added growth scores.

Introduction

Students typically attend at least three schools throughout their K-12 education; an elementary school, a middle school, and a high school. The years in which students transition upward from one school to the next can be challenging for students, teachers, and families (Bronstein et al., 1996; Chung et al.,1998). Additionally, student learning could be negatively impacted during a year of transition (Anderson et al., 2000; Bronstein et al., 1996). In the state of Arkansas, individual school districts determine when students transition upwards to a new school building. The variety of transition years statewide allows for comparisons to be made between students who transitioned to new schools and students who remained in the same school. In this study, we examine grade-level value-added growth scores to examine the differences in academic success between students in grades requiring a transition to a new school and those who remain at their prior schools for the subsequent grade. While our research design prevents us from making causal claims, we hope that our findings are used as a starting point for further research around school transition years.

Academic Growth

Typically, studies focus on student achievement as the primary tool for measuring student success. Achievement is typically measured by performance on standardized achievement tests focusing on mathematics or literacy. Many times, we'll see achievement relating to if a student is on, below, or ahead of grade level.

While studying achievement has its merits, another valuable tool to assess student learning are growth scores. Growth scores show how a students' test scores change relative to students with similar prior achievement. Unlike achievement, growth is not highly correlated with outside of school factors.

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Growth scores are a valuable tool since thy can help separate the effects of non-school related factors from student learning.

The system Arkansas uses for school accountability is Every Student Succeeds Act, or ESSA. Student growth is a component of a school's ESSA score. This score is calculated from grades 3-10 based on performance of the ACT Aspire, the annual state assessment. Students receive an individual growth score in math and ELA. These scores are averaged by subject to calculate a school-level growth score. The target for a school's growth score is 80. This means that students, on average, made the same level of growth in math and ELA, compared to similar students across the state. A score below 80 means that, on average, students in that grade made less growth than students with similar test score histories. Scores above 80 represent that student in that grade, on average, demonstrated more growth than students with similar test score histories. These scores typically range from 70-90.

In Table 1, we present the average school-level math and ELA growth scores for the 2020-21 school year for the combined student population.

Table 1
Average School-Level Growth Scores by Grade, 2020-21

Grade	Math	ELA
3rd	78.90	79.27
4th	79.07	79.97
5th	79.47	79.87
6th	79.95	80.29
7th	79.33	79.76
8th	79.49	79.74
9th	80.21	80.01
10th	79.70	79.73

Study Design

This study examines the relationship between groups of students who transition upwards to a new school building and who remain in the same building regarding the value-added growth score. Our analysis focused on the entire school population, white students, Black students, and students who are eligible for free or reduced-price lunch, which we have used as an indicator of poverty.

The data we used for our analysis included: mathematics and literacy school level growth scores by grade level, the grades served at each school, total enrollment by grade, and enrollment by grade of the student groups mentioned above. We used publicly available data from 2015-2021 omitting the 2019-20 school year due to lack of assessment caused by the Covid-19 pandemic.

Transition Years

Transition years are described as the year that a student moves upwards from one school to another. These transitions typically happen two times: when students move from elementary to middle school and from middle school to high school. In Arkansas, the decision of when transitions years take place is left up to the autonomy of individual school districts. In Table 2, we present data showing the transition grades in Arkansas for our grade-levels of focus in the 2020-21 school year. The most common transition grade is 7th grade, followed by 9th, then 6th.

Table 2
Count of Arkansas Schools by Transition Year, 2020-21

	Transition	Non-Transition	Total
3rd	29	456	485
4th	19	460	479
5th	72	375	447
6th	84	270	354
7th	167	157	324
8th	18	302	320
9th	120	190	310
10th	33	268	301

Descriptive Trends Analysis

After identifying the transition years at each school, we weighted each grade level's math and ELA value-added growth scores by the number of students in the grade and calculated an overall score for each identified grade level from 3rd – 10th. We calculated these scores twice per grade; first weighting growth scores for schools who did not transition upwards to a new school in that grade, then again for schools where students did transition to a new school for that grade. We compared the values to identify if students in grade levels that transition showed, on average, less growth than students in grade levels that did not transition to a new building. See Figures 1 and 2 for math and ELA comparisons in grade-level growth scores during transition years and non-transition years for the combined student population. The red line indicates a typical growth score of 80. We also compared students by racial and programmatic characteristics. See Figures 3-6 on the next page for comparisons between white students, Black students, and FRL students for math and ELA.

Figure 1

Average Mathematics Grade-Level Value-Added Growth by Transition, Grade 3-10, 2020-21

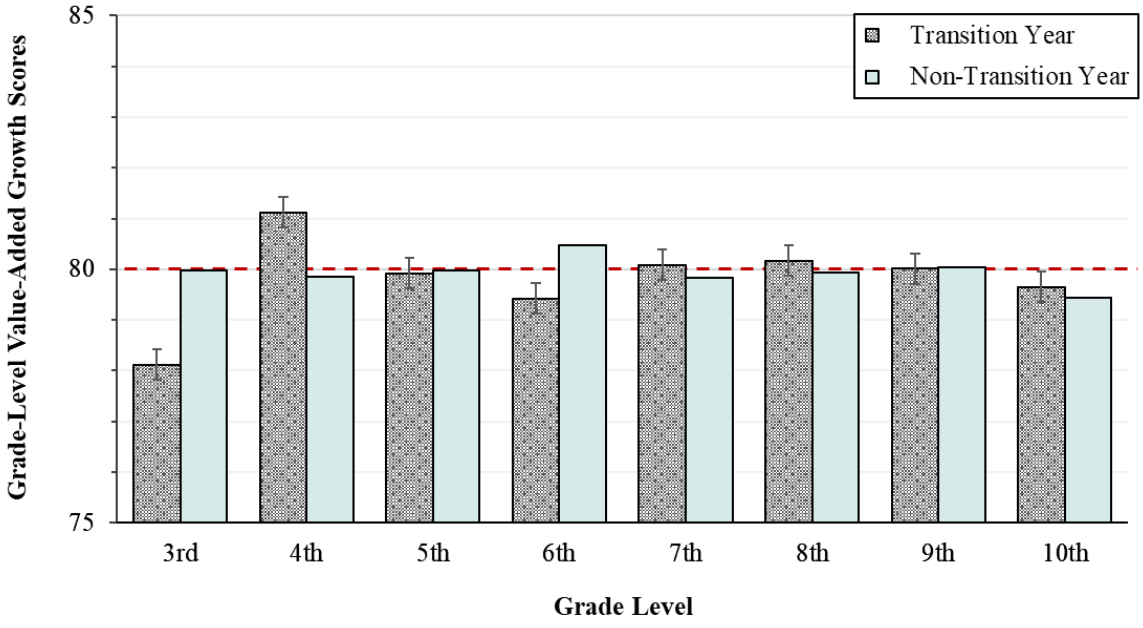


Figure 2

Average ELA Grade-Level Value-Added Growth by Transition, Grade 3-10, 2020-21

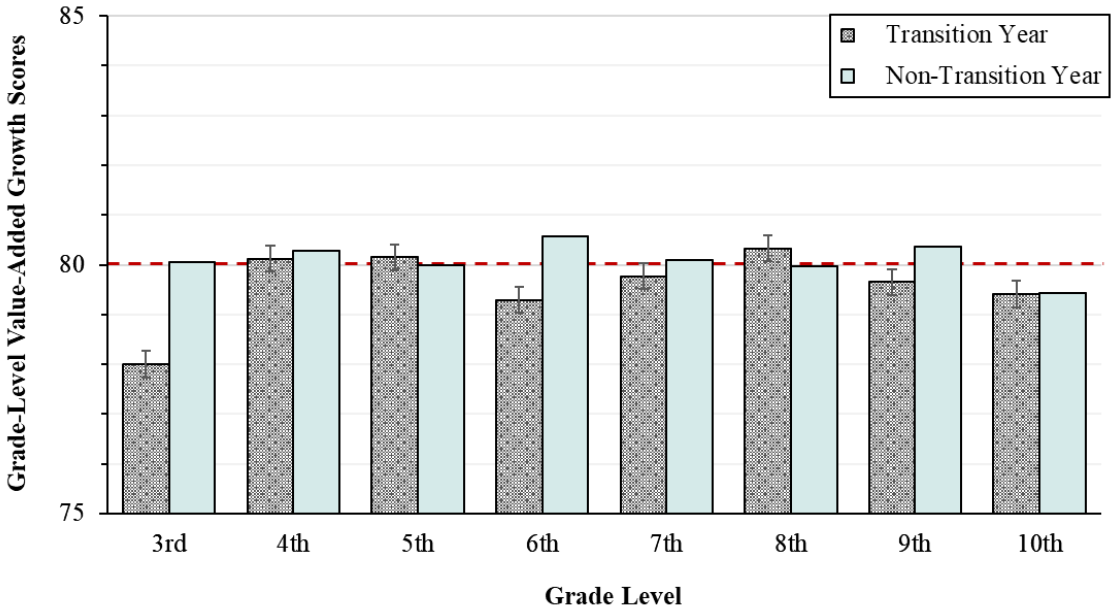


Figure 3

Average Mathematics Grade-Level Value-Added Growth by Transition and Subpopulation, Grade 3-6, 2020-21

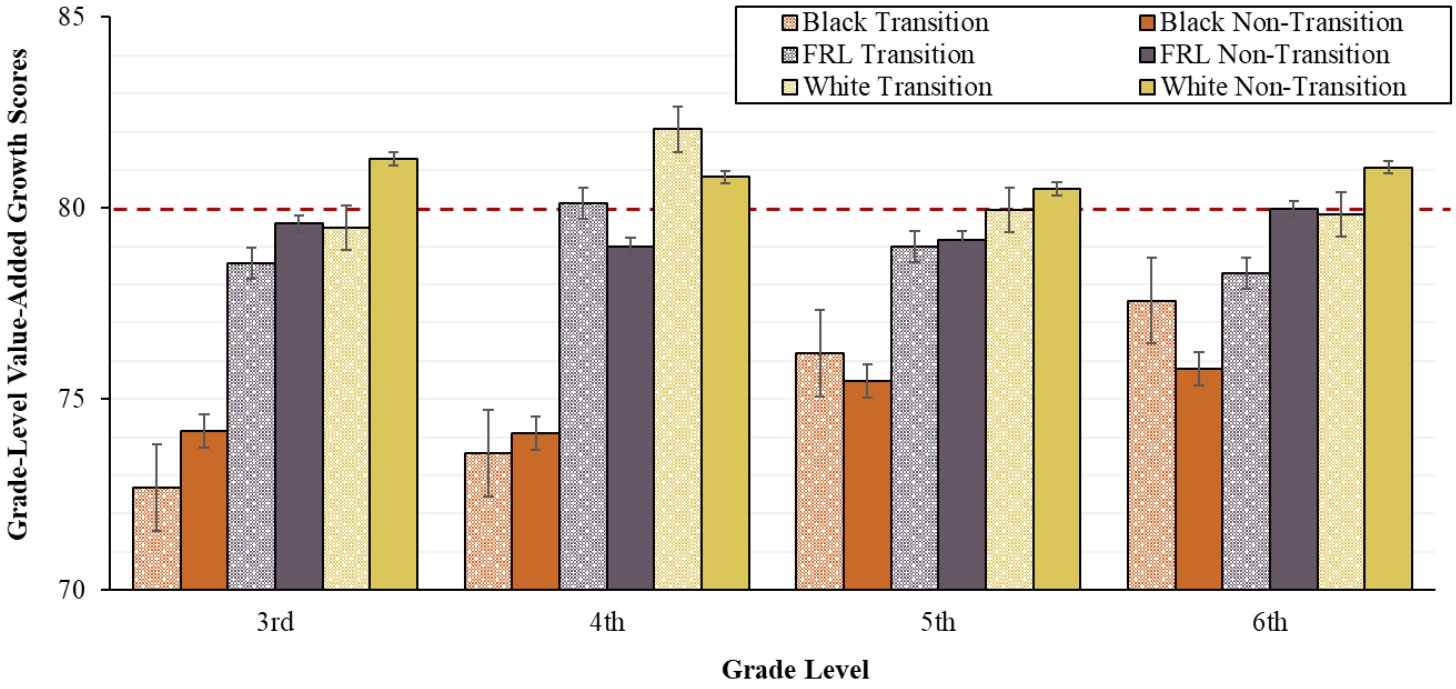


Figure 4

Average Mathematics Grade-Level Value-Added Growth by Transition and Subpopulation, Grade 7-10, 2020-21

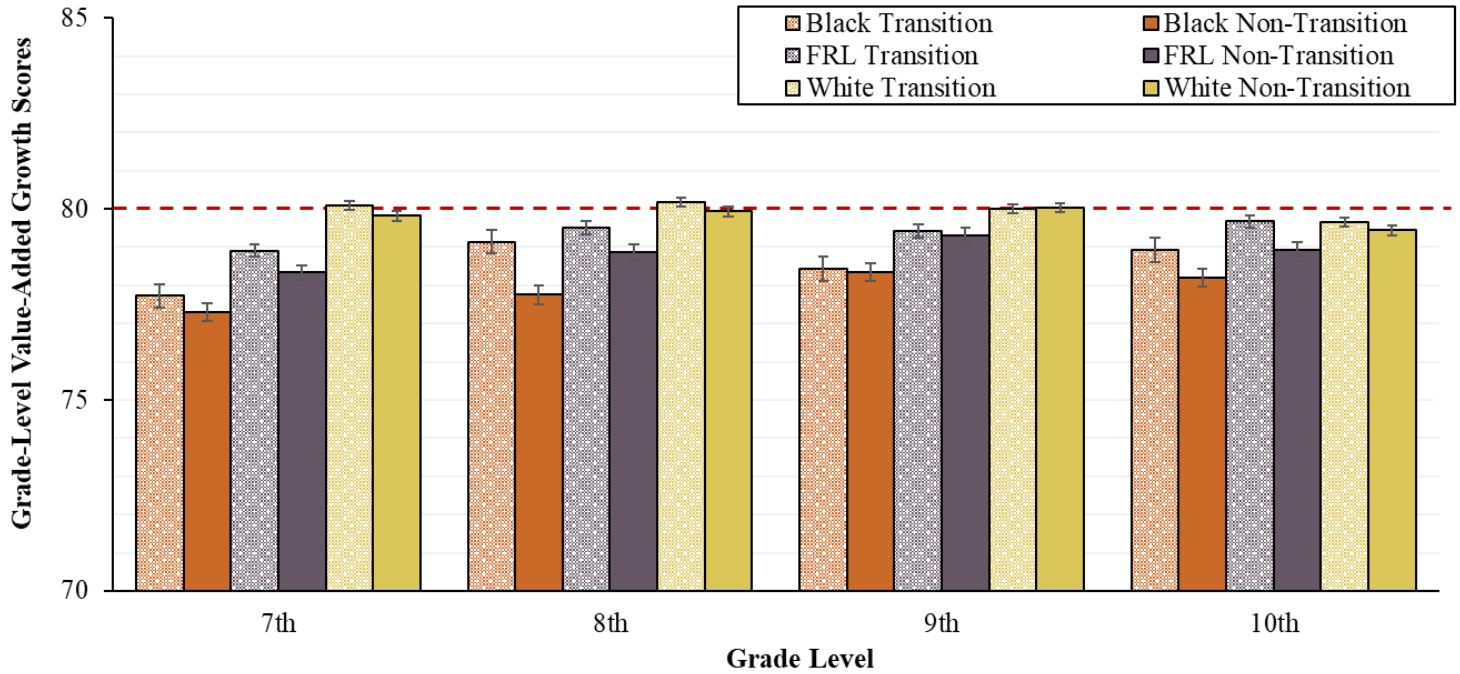


Figure 5

Average ELA Grade-Level Value-Added Growth by Transition and Subpopulation, Grade 3-6, 2020-21

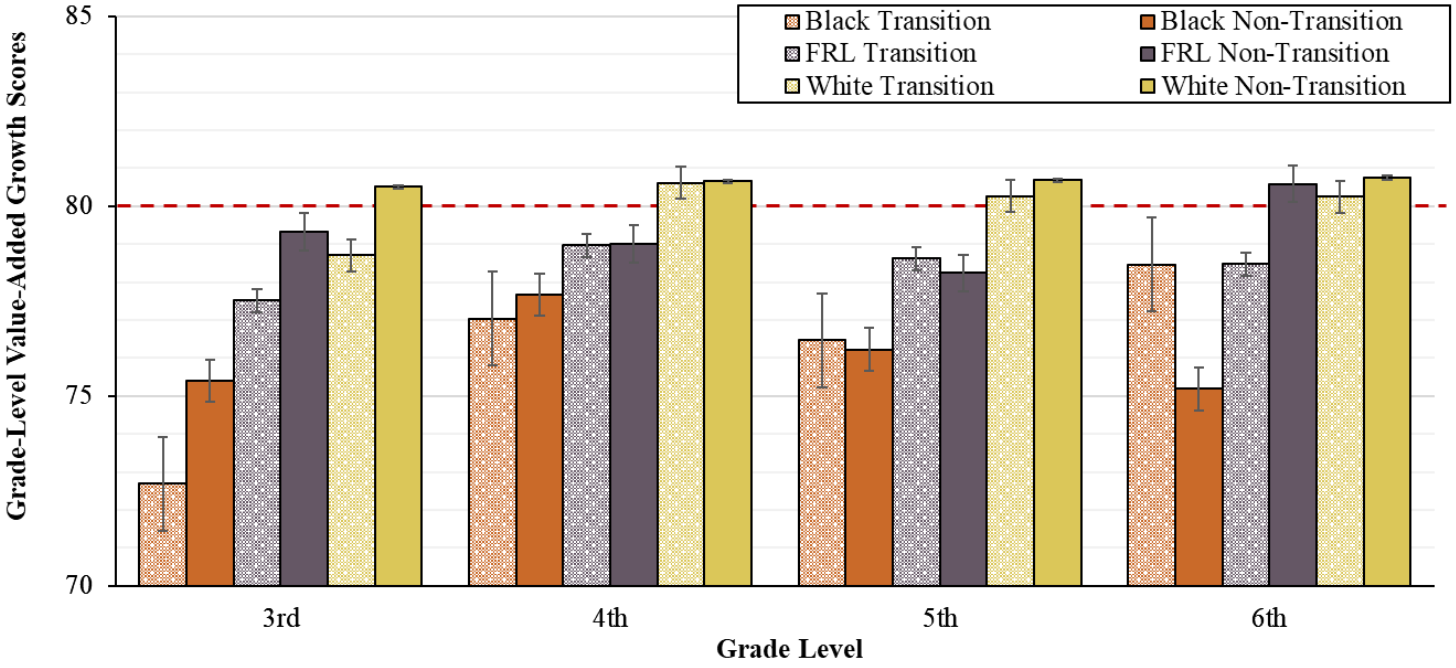
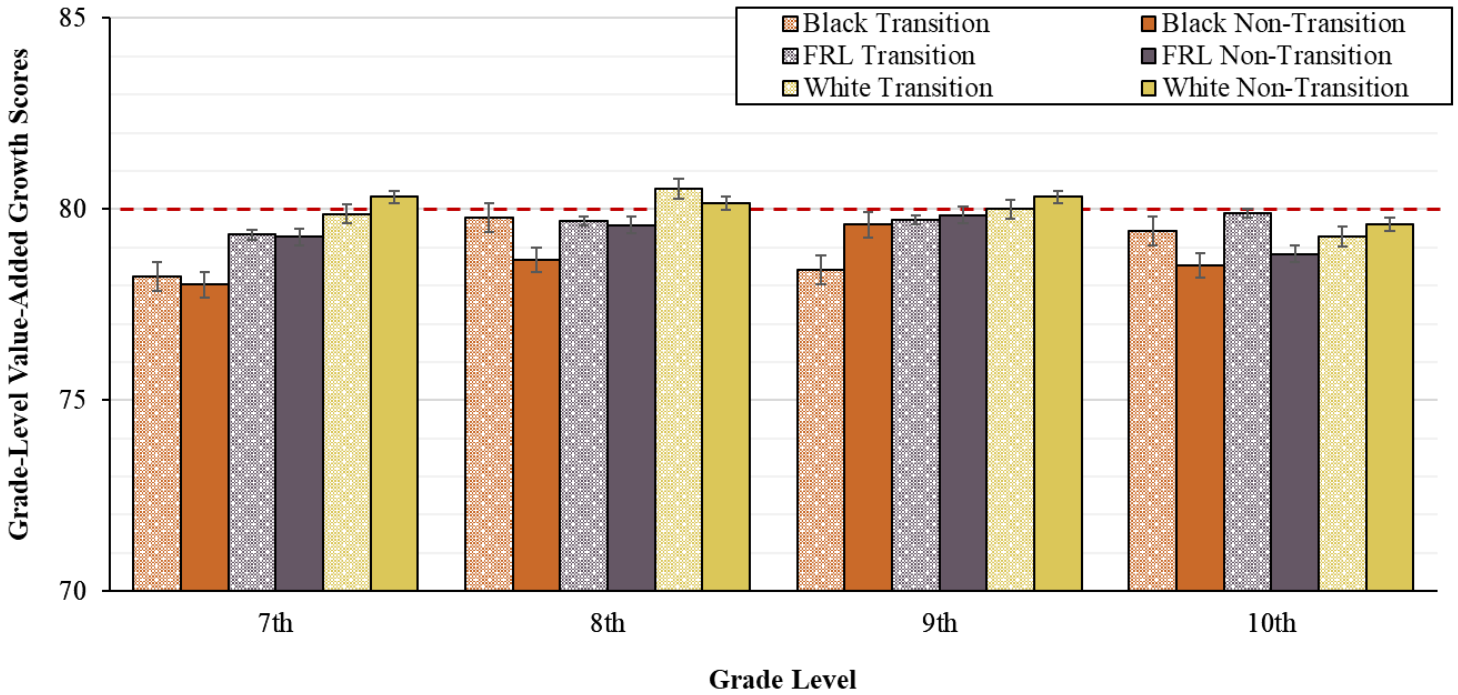


Figure 6

Average ELA Grade-Level Value-Added Growth by Transition and Subpopulation, Grade 7-10 2020-21



As shown in Figures 1 and 2, there is no consistent pattern in the difference of grade-level value-added growth between student groups who transition to a new building compared to those who do not transition. When examining these scores more closely by student population in Figures 3-6, we continue to be unable to discern a specific pattern. We compared value-added growth scores for all school years from 2015-2021. These tables can be found in our full report.

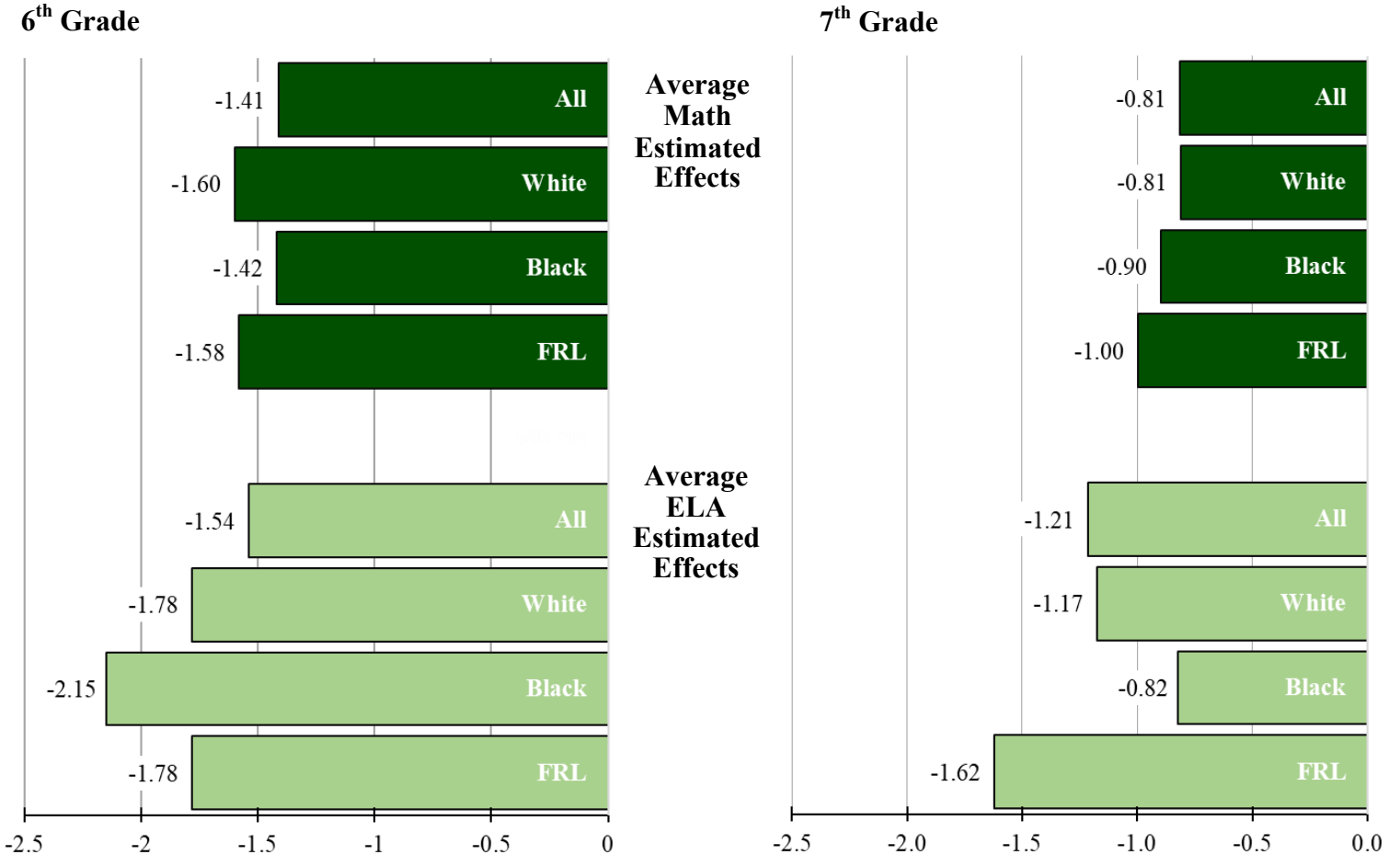
Multivariate Analyses

To more rigorously examine the relationship between grade-level growth and student transitions, we employ ordinary least squares (OLS) regression to predict school grade level growth scores given the characteristics if students transition to a new school or not. We ran two groups of regressions, one focusing on mathematics growth estimates, the other on ELA growth estimates. In each group we ran regressions for the combined student population, white students, Black students, and FRL students. Overall, we found that a transition between 3rd and 10th grades frequently returned lower value-added growth scores compared to student groups that did not transition.

Our estimated effects from 6th and 7th grade were statistically significant, while the results from all other grade levels were generally not. We averaged the estimated effects from the 2015-16 school year to the 2020-21 school year for 6th and 7th grade, and present the in Figure 7 below. From these charts, we can see that the average of estimated effect by grade level, student population, and subject all returned negative results. These results indicate that students in 6th and 7th grade who experience a building transition demonstrate lower value-added growth scores compared to students who do not transition. For more detailed information, please refer to the full paper.

Figure 7

Average Estimated Effects of Transition in 6th and 7th Grade from 2015-21



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Discussion & Policy Recommendations

This study examined grade level value-added growth scores during the years that Arkansas students make a transition to a new building. Our sample included all public schools in Arkansas. Using a metric of student growth score, we find that transitioning to a new school has no consistent or statistically significant negative relationships with grade level student growth in mathematics and English language arts. However, our analysis did show consistent trends that school transitions in the 6th and 7th grade generally are associated with lower, and statistically significant, growth scores.

Based off our findings in this study, policymakers and school district leaders should be wary of proposals to increase the number of building transitions that a student makes. While overall trends do not indicate substantial differences in value-added growth scores, students in 6th and 7th grade who transition grow less than their peers who do not transition. Arkansas leaders can suggest policies that could benefit students during a transition year, especially in the 6th and 7th grade. We recommend deploying an age appropriate and research-informed program to be implemented during schools that transition in the 6th and 7th grade that focus on academic and social-emotional health of young adolescents. Examples of successful programs could provide activities that involve students, parents, teachers, counselors, and staff from the former to the transition school (Anfara & Schmid, 2007). The goals of these programs would be to encourage collaboration among elementary and middle school teachers, students, and families, encourage school leaders to focus on concerns of middle level transitions, and to create a sustainable program that shows positive results over years. Policymakers might suggest program evaluations focusing on schools with positive value-added growth scores during transitions to identify and replicate best practices throughout the state.

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