



Previous research has demonstrated positive long-term effects of participation in preschool programs, and these effects are especially likely to appear on measures of academic outcomes. To investigate the long-term effects of attending an LAUP preschool, LAUP's Research & Evaluation Department requested the demographics and standardized test scores of second- and third-graders from multiple school districts, and compared data from LAUP alumni to data from students who had not attended LAUP. Our sample population was drawn from seven public school districts. We received data for 50,052 students in the second grade (283 LAUP, 48,072 non-LAUP), and received data for 46,441 students in the third grade (1539 LAUP, 46,441 non-LAUP). Although specific findings varied by school district, on average, children who had attended LAUP performed as well as or better than their peers on measures of academic outcomes. These findings suggest that attendance at a high-quality LAUP preschool can help to mitigate the negative academic effects associated with a low-income childhood.

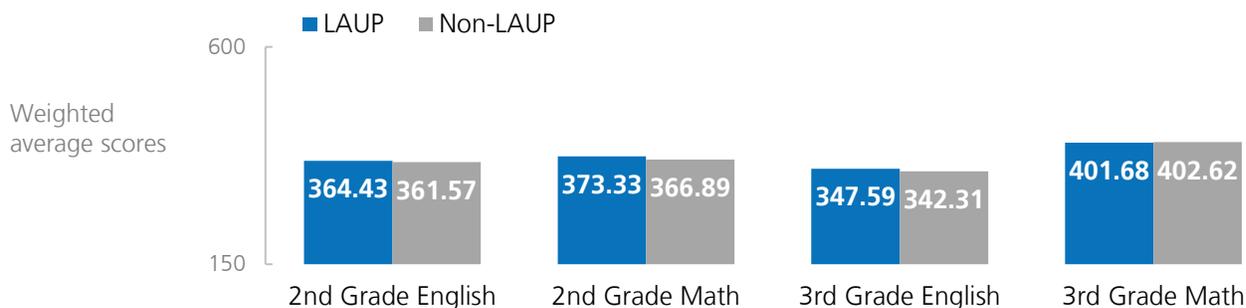
Introduction

High-quality preschool programs have the potential to improve children's long-term academic outcomes. This is especially true when those children come from low-income or disadvantaged backgrounds, and might otherwise not have had the opportunity to attend preschool (Palfrey et al., 2005). Many studies have found links between preschool attendance and long-term improvements in math skills, reading skills, and even college graduation rates (Barnett, Lamy, & Jung, 2005; Clements & Sarama, 2011; Snow, Burns, & Griffin, 1998; Campbell et al., 2012). By supporting cognitive development and eliminating the achievement gap typically seen between children of different economic brackets as early as kindergarten, preschool programs build a strong foundation for later learning. The current study is a longitudinal follow-up of LAUP's 2008-2009 preschool cohort, intended to quantify the academic benefits they received from their participation in LAUP's high-quality preschools.

A large body of research supports the finding that children who have attended preschool are more likely to succeed academically than children who have not attended preschool (e.g., Barnett, Lamy, & Jung, 2005; Slaby, Loucks, & Stelwagon, 2005; Camilli, Vargas, Ryan, & Barnett, 2010). These benefits often persist across multiple years of schooling. This study attempted to identify the medium- to long-term effects of LAUP's preschool programs by examining the performance of students in 2nd and 3rd grade who had attended an LAUP preschool. Our primary variables of interest were academic outcomes, as experienced by students who had attended LAUP and by students who had not attended LAUP. For the purposes of this study, academic outcomes were defined as students' scores on the California Standardized Test (CST) in English and Math.

LAUP students performed as well as, or better than, their peers in the same school district, although in most cases the difference was not statistically significant.

Data analysis revealed a consistent pattern of positive results for LAUP students within each school district. In each individual district, students who had attended an LAUP preschool consistently scored higher on the CST than students who had not attended an LAUP preschool. Weighted averages show that when scores from all districts were combined, LAUP alumni received higher scores on 3 out of 4 tests.

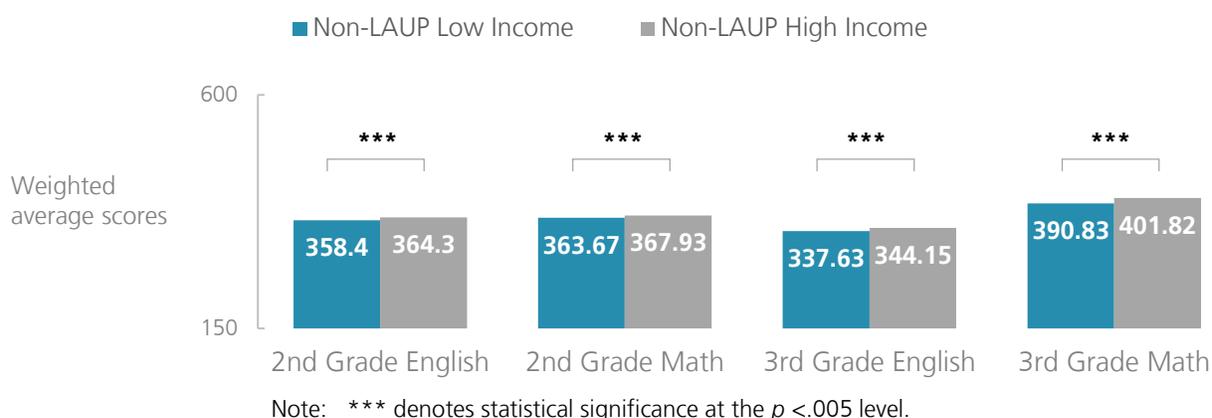


In most cases, the differences between LAUP students and non-LAUP students were too small to be statistically significant. This pattern of success in academic outcomes existed despite disparities in family income; in fact, in the largest district studied, lower-income children received significantly greater benefits from attending LAUP.

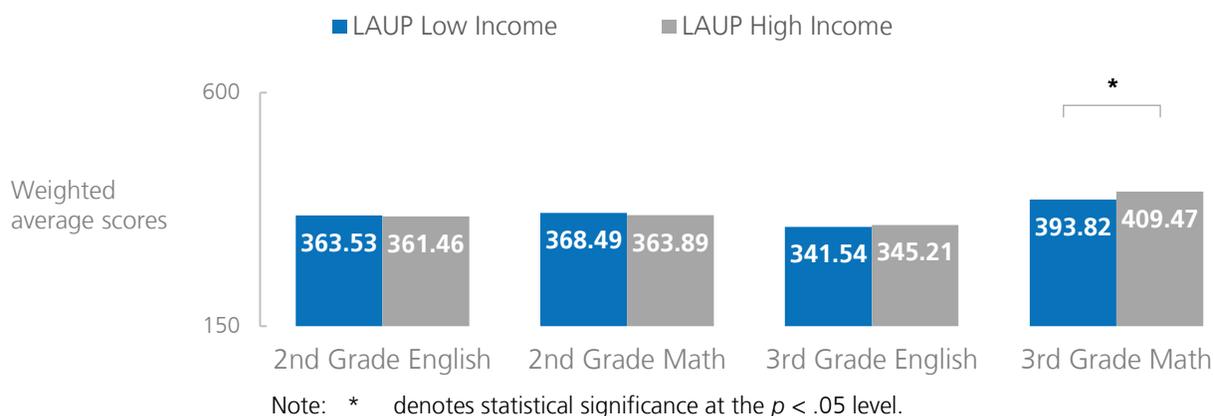
Enrollment in an LAUP preschool appeared to have reduced the negative effect of lower-income background on children’s 2nd and 3rd grade CST performance.

For the purposes of this analysis, “lower-income” children were defined as children who participated in their school’s free or reduced-price lunch program (FRLP). “Higher-income” children were those who did not participate in FRLP. Notations of statistical significance refer to the significance of the differences between high- and low-income children’s scores on the same test. For students who did not attend LAUP, income level strongly predicted CST performance.

Among children who did not attend LAUP, higher-income children significantly outscored lower-income children in ELA and math at both grade levels.



In contrast, participation in LAUP reduced these income-based effects. Among the district’s children who did attend LAUP, higher-income children significantly outscored their lower-income peers on only 1 out of 4 tests (3rd grade CST Math).



Importantly, this effect was also weaker than the income effects seen in the non-LAUP group. There were no significant differences in test score between lower- and higher-income LAUP students in 3 out of 4 tests (2nd grade CST English and Math, and 3rd grade CST English). Thus, for students who attended LAUP, income level did not predict CST performance. Compared to the disadvantage seen across all 4 tests for lower-income students who did not attend LAUP, these results suggest that enrollment in an LAUP preschool may have mitigated the negative effects of a lower-income background on students’ test scores.

Conclusion

Several years after graduation, LAUP alumni showed evidence of academic benefits which can be attributed to their enrollment in LAUP preschools. Furthermore, these benefits appeared despite the fact that the available outcomes measures were limited to CST scores. In future studies, as these students enter middle school and high school, we may be able to create a more complete picture of academic performance by looking at student grades, suspensions, and other data points that will provide additional information on academic outcomes.

Because the same benefits for LAUP students consistently appeared across all districts in this study, it is strongly suggested that academic differences do exist between LAUP students and their peers. Future research will attempt to examine these differences in more detail.

References

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Appendix

Demographic Comparisons

In order to explore whether there were pre-existing differences between the students who attended LAUP and those who did not attend LAUP, we analyzed demographic data provided by the school districts.

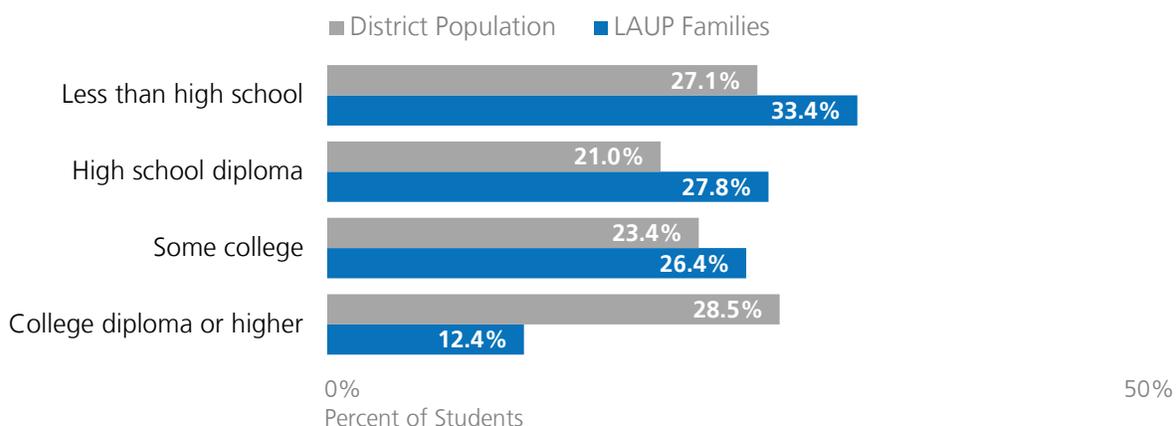
Gender and Ethnicity. Most districts provided data on the genders and ethnicities of the children they served; these demographic characteristics were very similar between LAUP alumni and children who did not attend LAUP. As might be expected, the percentages of male and female students were roughly equal in both the LAUP population (47.9% male, 52.1% female) and the non-LAUP population (49.9% male, 50.1% female).

Across districts, weighted averages revealed that both groups of children were most commonly Hispanic (LAUP: 79.46%, non-LAUP: 72.09%); other less common ethnicities were White (LAUP: 12.5%, non-LAUP: 12.81%)

and Asian (LAUP: 12.22%, non-LAUP: 14.17%) (note that percentages do not add to 100 because more than one option could be selected by parents). A very small minority of children in each district were identified as Black (LAUP: 1.16%, non-LAUP: 0.55%), Multiracial (LAUP: 0.56%, non-LAUP: 0.25%), or another ethnicity (LAUP: 0.87%, non-LAUP: 0.41%). Analyses of the LAUP student group versus the non-LAUP student group revealed no significant differences in ethnic demographics.

Parent Education. Research has shown that parents' levels of education can influence their children's academic performance through a variety of direct and indirect mechanisms (e.g., Haveman & Wolfe, 1995; Davis-Kean, 2005). To determine whether the LAUP parents and the non-LAUP parents differed on this metric, we analyzed data on parent level of education, which was provided by many of the districts we sampled. Weighted averages revealed that LAUP parents were less likely to have a college degree, and more likely to have less than a high school education.

Given this distribution of data, it is unlikely that LAUP students experienced an overall advantage due to parent education.



Household Income. The link between household income and children's academic achievement is well established (e.g., Brooks-Gunn & Duncan, 1997; Ferguson, Bovaird, & Mueller, 2007). Like the education level of a child's parents, the household income of a child's family can also influence that child's academic outcomes.

Districts did not provide data on students' household incomes. However, a useful proxy for household income is participation in a free or reduced-price lunch program, and data on these programs was provided by several districts. Analyses showed that LAUP students were somewhat more likely than their peers to participate in a free or reduced-price lunch program (FRLP). Across districts, 78.47% of LAUP alumni participated in FRLP, while 70.87% of non-LAUP students participated. From this data, it is possible to infer that LAUP students were slightly more likely to come from low-income backgrounds.

In addition to data on FRLP participation, we had access to household income data for the year in which LAUP students entered preschool. Across districts, nearly 90% of families had a household income of less than \$50,000 a year.

For more information about this evaluation please contact researchmail@laup.net.