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Early Grade Retention and Student Success

Evidence from Los Angeles

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SUMMARY

When a student fails to master academic material, educators face a range of choices—they can provide extra tutoring, place the student in summer school, or, as a last resort, hold the student back for a year. This last option—retention—often proves to be a difficult and contentious issue for both schools and parents. In California, we currently lack a clear picture of retention: Who is retained? How do retained students fare in the repeated year? And can retention help struggling students reach proficiency?

This report examines these questions by focusing on early elementary school retention in the Los Angeles Unified School District (LAUSD), which serves 11 percent of the public school students in the state. We find that 7.5 percent of students in the district are retained before the third grade. We also find that retention rates vary across schools and even across schools with similar student populations.

Risk factors for retention, in addition to poor academic performance, span a range of student characteristics. We find that relatively younger students and boys are much more likely than other students to be held back, even when all else is equal. Other risk factors include low household income, English learner status, and Latino or African American race/ethnicity. Students with several of these risk factors can face up to a one-in-nine chance of being retained.

Retention is a severe step, but it can benefit struggling students. We find that students retained in the first or second grade can significantly improve their grade-level skills during their repeated year. Gains in reading skills among students retained in the first grade are

significant and widely experienced. Among those retained in the second grade, the level of improvement in English language arts (ELA) and mathematics is also remarkable—many students improve at least one proficiency level and a significant percentage attain proficient status, with larger shares in math (41%) than in ELA (18%).

Our interviews with LAUSD principals show quite varied attitudes to retention. Many acknowledge that it can have short-term benefits, but some remain concerned about long-term consequences. Our findings suggest that a blanket policy against retention may be misguided. Of course, earlier interventions to prevent retention are in the best interests of all—of students and, because of costs, of school districts and the state.

In times of budget cuts, the intervention options available to a district or school may be severely constrained. Intervention costs fall more heavily on the district, which makes choices about where and how to use its funds to support at-risk students. But if a district or school cannot or does not provide adequate interventions to prevent retention, retention costs will fall largely on the state. Thus, policymakers at all levels have an interest in the range of early educational interventions—up to and including retention.

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Introduction

When educators encounter a student struggling to master academic material, they face a variety of options in how to intervene, ranging from tutoring in a particular area of weakness, such as reading skills, to requiring that the student remain in a grade for an additional year. Grade retention is generally considered a last-resort option, assuming that other efforts to improve academic skills have failed to sufficiently prepare the student to advance to the next grade. In kindergarten and the first grade, additional concerns about developmental preparedness—for example, behavioral skills—can be a factor in retention decisions.

The decision to retain a child for an additional year in the early elementary grades is difficult and often contentious. Proponents argue that retention will provide low-achieving students with extra time to acquire grade-level academic and social/behavioral skills before starting the next grade. They maintain that promoting children to the next grade before they have mastered the requisite knowledge and skills sets them up for failure down the road. Opponents argue that grade repetition does not significantly increase academic achievement and may negatively affect children's social and emotional development by harming self-esteem, for example, thus raising the odds that they will drop out of high school. The latter concerns seem to weigh more heavily than the potential benefits with many educators and parents, making them hesitant to take what they view as a drastic step—grade retention. An additional concern is the cost to the state of an extra year of schooling for retained students.

Although the academic literature on grade retention is large, it does not provide a clear view of the policy's effectiveness, particularly for early grades.[1] Yet grade repetition continues across the country, indicating that some educators and parents feel that it has merit for certain students.

California schools use retention in early elementary grades, but the state does not collect information—either directly or from school districts—on how frequently this practice occurs or whether grade repetition leads to academic improvement. In 1991, the California Department of Education recommended against student retention on the grounds that research did not support the practice (George 1993). However, this recommendation conflicts with current state law, enacted by Assembly Bill (AB) 1626 in 1998, which requires that school districts adopt a pupil promotion and retention policy to identify students in grades 2 through 8 who should be retained.

Grade retention is generally considered a last-resort option.

The decision of whether or not to promote students should be based on their grades, their proficiency levels on statewide assessments, and their performance on other academic achievement indicators as determined by the school district, although teachers can recommend the promotion of students who are not performing at the minimum requirements.[2] AB 1626 does not cover other grades, such as kindergarten and the first grade, but school districts can choose to include them.

Because California does not collect statewide retention data, we have chosen to examine the retention data of LAUSD, the largest school district in California, serving about 11 percent of public school students in the state. The district has a diverse student population, including large numbers of English learner (EL) students and students from low-income families—groups generally perceived to be at higher risk for grade retention. LAUSD also includes a significant number of students from more-advantaged families, making comparisons across a range of student characteristics possible. Finally, the large number of schools serving K–2 students (over 500) allows us to explore differences across schools. Given the size and diversity of LAUSD, we believe that our findings have implications for other districts, particularly those serving urban areas.

Standards-Based Promotion

LAUSD has a district-wide standards-based promotion (SBP) policy for grades 2 through 5 and for grade 8 requiring that children master grade-level content standards before they advance a grade in the following year (Los Angeles Unified School District 2003). The standards are defined in terms of demonstrated achievement in English language arts and mathematics, although there are separate requirements for English learners and students with disabilities. School staff can override SBP rules if they determine that retention would be inappropriate for a student.[3] The SBP policy puts the onus on schools to identify at-risk students early, so that schools have time to target interventions, such as after-school instruction programs, to prevent the need for retention.

In deciding to retain a child, educators must reasonably believe that an extra year in a given grade is in the child's best interest.

Kindergarten and the first grade are not subject to LAUSD's SBP rules. At these grade levels, the process is more consultative between parents and school staff, because parents must provide consent for retention to occur.[4] The district's general philosophy toward promotion and retention in these early grades is that children learn best when the curriculum is appropriate for their ability, physical/social maturity, and age (Los Angeles Unified School District 1998). In deciding to retain a child, educators must reasonably believe that an extra year in a given grade is in the child's best interest. One requirement for mandatory retention, beginning with the second grade, is that summer school classes must be available to give a student the opportunity to gain sufficient grade-level skills to avoid retention. However, as a result of budget cuts, these classes have recently been suspended in LAUSD.

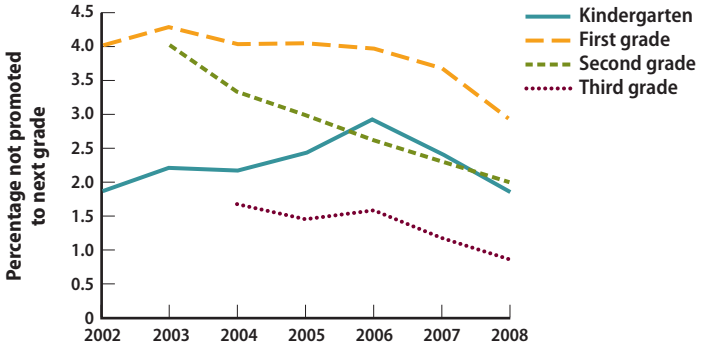
Although school districts develop their own promotion and retention processes, LAUSD's policy is broadly similar to those of other large urban districts in California.[5] A common feature is the emphasis on early identification and coordinated intervention for at-risk students. Due in part to state requirements, districts specify how standards-based rules are applied (e.g., how students are identified as being at-risk and when school staff make such determinations) and which grades they cover. Some SBP plans in large urban districts in California begin in the first grade rather than in the second grade. In these cases, parental consent is not always mandatory for retentions in the first grade.

Retention Rates

Retention rates in grades K–3 have been declining recently in LAUSD. As of 2008, about 1 to 3 percent of students (depending on grade) were retained at the end of the year (compared to retention rates ranging from 1.5 to 4 percent four years earlier). As Figure 1 shows, retention is most common in the first grade and least common in the third grade.[6] In light of SBP rules, the declining retention rates in grades 2 and 3 are encouraging signs that students are making gains in core content areas. However, the pattern of kindergarten and first-grade retention suggests that schools may be retaining some children earlier, before standardized testing occurs; this may account for some of the declining retention in later grades.[7]

It is difficult to place LAUSD's recent retention rates in the context of state and national rates because informa-

Figure 1. Annual retention rates have been declining

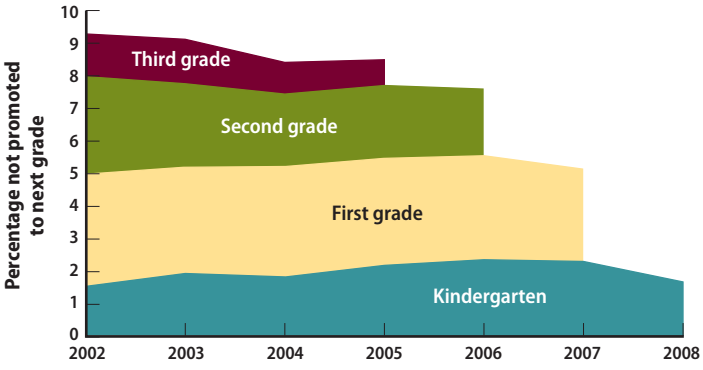


NOTES: The sample depicted in this figure includes all LAUSD children in grades K–3 who have valid grade promotion data and who do not attend a special education school, starting with kindergarten and first-grade students in 2002 and going through 2008. The sample includes about 450,000 children at more than 500 schools. We refer to school years by the end year (i.e., 2001–02 is noted as 2002).

tion is limited, but they may be at the low end, at least for kindergarten. Most available state and national retention statistics are for earlier periods when retention rates appear to have been higher. The U.S. Department of Education (1997) reported a national kindergarten retention rate of 6 percent in 1993 and 5 percent in 1995. Nationally representative survey data from the Early Childhood Longitudinal Study–Kindergarten Class of 1998–99 suggest a kindergarten retention rate of 3.5 percent for 1999 (Burkam et al. 2007). By comparison, kindergarten retention in LAUSD from 2002 to 2008 ranged from 1.8 to 3 percent (Figure 1). Prior retention information for LAUSD and California as a whole is two decades old. In 1989, statewide retention rates for K–3 were 5.7, 4.4, 1.8, and 1.1 percent, respectively (George 1993). LAUSD's K–3 retention rates in 1989 are similar to those we find for 2008 (Isonio 1990).

Although only a small percentage of students are retained in a grade in a given school year, larger percentages experience retention at some point during their early education. Figure 2 shows the share of entering cohorts of LAUSD students retained by each grade, among those students whom we can follow for several years.[8] Among the most recent groups of kindergartners we can follow to the second or third grade, 8.5 percent entering in 2005 experienced grade retention before the fourth grade, and 7.5 percent entering in 2006 experienced retention before the third grade.[9]

Figure 2. By third grade, many are retained



NOTES: This figure shows cumulative student retention rates by grade and school entry year. The sample includes 315,397 first-time kindergarten students who entered school in 2002 through 2008 and remained in LAUSD through the third grade (or until school year 2008, for cohorts 2006 through 2008).

Focus of This Report

We focus our study on retention patterns for students retained at any point before the third grade (because elementary schools retain few students after the second grade) and describe the short-term improvements that repeaters make on grade-level assessments. We approach retention as an intervention that educators and parents want to avoid but one that some feel becomes necessary and more desirable than continued promotion and failure in subsequent grades. The study findings are meant to help educators better understand which students repeat. They also describe the types of improvements that educators and parents can reasonably expect in the retention year and indicate which groups of students appear to benefit more than others. Schools can compare these statistical improvements to the benefits they expect from targeting supplementary services to students.

We augment our findings with information gathered from 20 interviews with elementary school principals in the district. The interviews focused on learning about the school's retention policies and practices, the role of parents in the decisionmaking process, specific interventions that are targeted before and after retention decisions, and personal opinions on the effectiveness of grade retention.

In this report, we explore two specific questions: Which LAUSD students are at highest risk of being retained? And do retained students in LAUSD demonstrate improved academic skills in the grade they repeat?

In the remainder of this report, we describe recent retention rates for students based on several characteristics, including such demographics as gender, family income, and proficiency with the English language. We then examine which of these characteristics relates significantly to the likelihood of retention by the third grade, controlling for differences across students in other characteristics. Next, we compare students' first- and second-grade assessment scores in the repeated year to their initial scores in that grade and see whether improvements are more likely among students with certain characteristics. Finally, we present our conclusions and policy implications. We provide more extensive details and methodological explanations in technical appendices, which we refer to

throughout the text and which are available at www.ppic.org/content/pubs/other/311JCR_appendix.pdf.

Identifying Students at Risk of Retention

Certain groups of students are more likely than others to be retained. Previous studies have pointed to such student characteristics as age, gender, socioeconomic background, and race/ethnicity as risk factors for early grade retention (Burkam et al. 2007; Xia and Kirby 2009). Our analysis indicates that these same factors are influential in the early-grade retention patterns we find in LAUSD. Students entering school at relatively young ages, boys, children from low-income families, English learners, and Latinos are significantly more likely to be retained in a K–2 grade.[10] Further exploration demonstrates that even after holding constant a student's kindergarten reading skills and other factors such as school characteristics, these five student characteristics are significant predictors of retention. Yet some characteristics matter more than others, and having multiple risk factors predicts a much higher likelihood of retention.

As shown in Table 1, the overall district average rate of retention before the third grade is 7.5 percent for students entering kindergarten in 2006.[11] Academic performance (i.e., early reading skills) is the most predictive factor of retention: The lowest-performing students are 18 percentage points more likely than the highest-performing students to be retained before the third grade.[12] We also see meaningful differences in rates of retention by the student characteristics noted above, partly attributable to differences in academic performance between groups. The largest differences are found for relatively young students compared to older students and for Latinos compared to Asians. Relatively young students are 7.6 percentage points more likely than relatively old students and 4.8 percentage points more likely than students born in the middle months to be retained.[13] Latinos are 5.7 percentage points more likely than Asians, 4.1 percentage points more likely than whites, and 1.5 percentage points more likely than African Americans to be held back a year. African American students are also more likely to be retained than white and Asian students. English learners are 4.3 percentage points more likely to be retained than children proficient in English. And, finally, boys are 2.8 percentage points more likely than girls, and children eligible for the meal program are 1.9 percentage points more likely to be retained than children from higher-income families.[14]

To determine whether these student characteristics are truly significant risk factors for retention, we held constant many other differences across students, peers, and

Table 1. Retention rates vary widely across student characteristics

	Rate (%)
Overall retention before the third grade	**7.5**
Academic performance	
Highest kindergarten reading skills	0.9
Lowest kindergarten reading skills	19.1*
Entry age	
Youngest (born September through November) (reference group)	11.6
Middle (born March through August)	6.8*
Oldest (born December through February)	4.0*
Gender	
Male	8.9
Female	6.1*
Meal program participant	
Yes	7.9
No	6.0*
English learner	
Yes	9.5
No	5.2*
Race/ethnicity	
Latino (reference group)	8.3
White	4.2*
African American	6.8*
Asian	2.6*

SOURCE: LAUSD administrative data on students entering kindergarten in the 2005–06 school year and continuing in LAUSD through 2007–08.

NOTES: Highest kindergarten reading skills represents students scoring 100 percent correct (about one-quarter of students); lowest skills represents students scoring 73 percent correct or less (also about one-quarter of students). See Technical Appendix A for further details.

* Denotes statistically significant mean differences at the 5 percent level between groups or compared to the reference group for categories with more than two groups.

schools, including a measure of early academic skills and starting kindergarten when first eligible (see the text box). This approach facilitates a better understanding of who is retained, because large segments of the population have several of the student characteristics identified in Table 1.

As noted above, early reading skills are an important predictor of retention. Children who perform better on these assessments—the earliest academic measure available—are expected to be retained less frequently. For instance, students scoring the average 79 percent correct on the mid-year kindergarten assessments have a 3.2 percentage point lower rate of retention by the third grade than students scoring only 59 percent correct. Given the average 7.2 percent rate of retention in our sample, this means that those students with an average score are 44 percent less likely to be retained. Even after holding reading skills and numerous student, peer, and school factors constant, we find that retention patterns are significantly related to the characteristics listed in Table 1, with higher rates among younger children, boys, children from lower-income families, English learners, and Latino and African American children. However, after controlling for other factors, we find that the magnitudes are smaller than in Table 1 and also that the relative magnitudes of the effects of each student characteristic differ in several ways.[15]

For instance, adjusting for other factors including early reading skills, the retention rate for boys is 1.6 percentage points higher than it is for girls, compared to 2.8 percentage points higher in Table 1. Among these variables, the indicators for relatively young and old students (compared to children born in the middle months of March through August), Asians (compared to Latinos), and boys (compared to girls) have the largest association with the probability of retention. Younger age and male gender increase the likelihood of retention (2.4 and 1.6 percentage points, respectively) whereas Asian and older age decrease it (2.4 and 1.7, respectively). After controlling for other factors, African American students are 1 percentage point more likely to be retained than Latinos. This is opposite the direction seen in Table 1, indicating that Latinos' higher observed rates of retention may reflect the influence of

Academic redshirting before school entry

Intentionally delayed school entry, also known as "academic redshirting," should be considered in conjunction with early retention. Some parents, predominately from higher-income families, choose to delay their child's entrance into kindergarten an additional year to give the child extra time to mature and gain skills. Whether or not redshirted children are more ready, they are older and start school later because they are already one grade behind other children of their same age. From our perspective, academic redshirting amounts to a form of "preemptive" retention, although (importantly) redshirted children do not receive an additional year of formal instruction in a school setting, as do retained students, and they have different resources available to them in the "extra" year, depending on family characteristics.

Retention may be less common in districts where redshirting occurs frequently because more children are older when they enter school, and we find that older children are far less likely to be retained than younger ones. Parents tend to hold children out of school for an extra year when they would otherwise be among the youngest in their class. In LAUSD, children with fall birthdates are more than seven times more likely to be redshirted than those with winter birthdates, and boys are about 60 percent more likely to be redshirted than girls. The retention patterns we see in our study based on month of birth and gender might be more pronounced if children were not redshirted, because redshirted children have a low likelihood of being retained.

As noted above, redshirting occurs primarily among higher-income families, in part because these families have more resources for child care during the additional year their children are not yet in school. In LAUSD, redshirting rates are nearly three times higher for children who do not participate in the meal program. Redshirting rates among the lowest-performing schools are significantly lower than those found in the highest-performing schools. Moreover, redshirting is least common among Latinos, and white children have the highest rate by far—eight times higher than the redshirting rate for Latinos. These patterns of redshirting by student characteristics, especially for those young and white, remain significant after controlling for other student, peer, and school characteristics.

factors other than race/ethnicity, such as reading performance or socioeconomic disadvantage. These are all moderate to large effects, given that the cumulative rate of retention in the first three years of school is about 7 percent in the analysis sample. On the contrary, although significant, the associations with retention for low-income and EL status and for whites compared to Latinos are only about one-half a percentage point, which are much smaller effects for those characteristics after controlling for other factors.

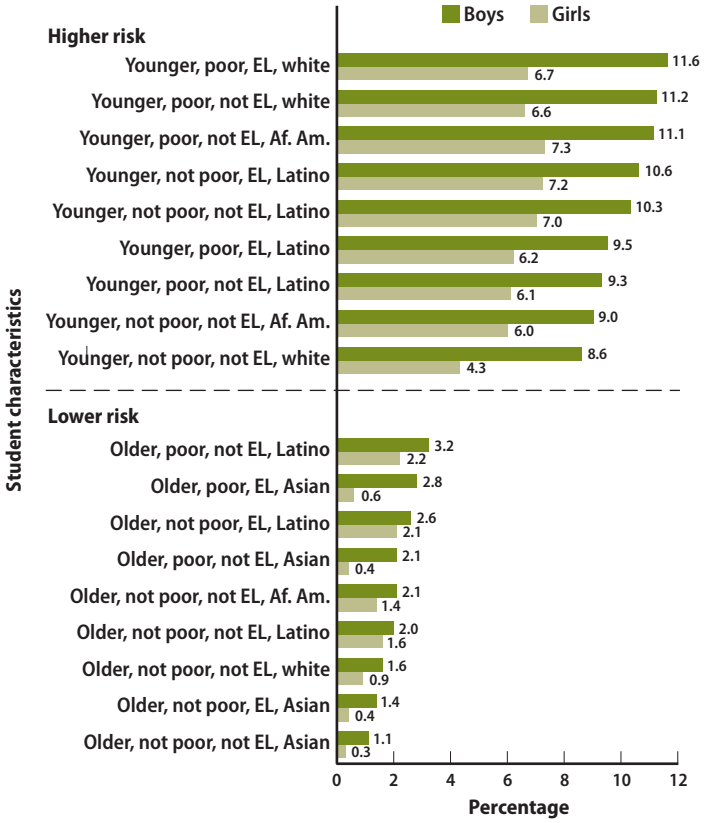
Children with Multiple Risk Factors

Although individual risk factors can affect the probability of retention, a combination of risk factors can increase it greatly. Figure 3 illustrates how the likelihood of retention before the third grade varies across groups of students with similar characteristics.[16] The horizontal bars show the predicted retention rate by the third grade that applies to student groups based on gender, expected entry age, meal program status, EL status, and race/ethnicity.

Children with multiple risk factors are substantially more likely to be retained than children without these risk factors, although there is some variation in which combination of risk factors matters most. Students with no risks or one risk factor have a very low likelihood of being retained, all else equal, and girls are significantly less likely to be retained than boys with similar characteristics. The factors that characterize the largest differences in retention probability are expected entry age and gender, with relatively younger boys consistently having the highest probability of retention, whereas relatively older girls consistently have the lowest likelihood of retention. For example, about 10 in 100 of the younger boys in the higher-risk subgroups are likely to be retained, but only about one or two in 100 of the older girls in the lower-risk subgroups are likely to be retained. However, younger age in conjunction with another risk factor also increases the probability that girls will be retained. In addition, Asian students consistently have lower-than-average probabilities, regardless of gender and the presence of other risk factors.

In general, we see a large difference in risk of retention between the higher- and lower-risk groups presented here—5 to 10 percentage points difference for boys and 2 to 7 percentage points for girls. However, within the higher- and lower-risk categories, there is much less variation between subgroups. This suggests that the presence of several risk factors in conjunction with younger age places students at much higher risk, with the exception of Asian students, and the specific combinations of those multiple factors are less critical. For instance, 9.5 percent of relatively younger Latino boys who are poor and English learners (five risk factors), 9.3 percent of younger Latino boys who are poor and not English learners (four risk factors), and 10.3 percent of younger Latino boys who are not poor and not English learners (three risk factors) are likely to be retained. By comparison, only 3.2 percent of relatively

Figure 3. Younger students are at higher risk of retention



SOURCE: Authors' calculations based on regression models described in Technical Appendix B.

NOTES: Younger = birth month in September, October, or November; older = birth month in December, January, or February; poor = student eligible for meal program; Af. Am. = African American. See Technical Appendix Table C2 for estimation results.

older Latino boys who are poor and not English learners (three risk factors but not including younger age) are likely to be retained.

Differences in Retention Across Schools

We would expect retention rates to vary by school, in part because student populations differ with respect to demographics and academic performance, and in fact we do see variation in school-level rates of retention in LAUSD. However, it is likely that other factors also affect retention rates. For instance, we believe that variations occur across schools with similar API ranks, because opinions about the effectiveness of retention differ among school administrators.

To get an overall sense of how retention rates vary across schools, we examined school-level rates of retention at the 25th and 75th percentiles among all schools in the district with K–2 enrollment. We found that the 25 percent of schools (about 120) with the lowest retention rates retained 0.6 percent or fewer of all K–2 students in school year 2008, whereas the 25 percent of schools with the highest retention rates retained at least 3.3 percent of their K–2 students. Seventeen percent of schools (83) had no K–2 retention in 2008. And zero retention is not confined to only the highest-performing schools: Half of the zero-retention schools were low-performing schools with an API rank in the lowest deciles of 1 to 3. This might be explained in part by the fact that the low-performing schools with zero retention had statistically lower (although still substantial) percentages of Latino students, EL students, and students eligible for the subsidized meal program than the low-performing schools with some retention. These particular schools also had double the percentages of Asian and white students (24%) than the low-performing schools with retention.

Our analyses of school-level differences suggest that retention decisions differ across schools for reasons other than student demographics and academic performance. As we would expect, retention is more common in low-API schools than in high-API schools. However, when we looked at rates of retention across schools with the *same* API rank, we found considerable variation in rates. Although one-quarter of API 1 schools retained at least 2.73 percent of K–2 students in 2008, another one-quarter retained less than 0.77 percent of K–2 students. At the same time, when we compared retention rates across schools with *different* API ranks, we found that one-quarter of API 4 schools and one-quarter of API 7 schools retained at least 4.2 percent of students—much higher rates than the lowest-ranked schools. And even among the highest-performing schools—the API 10 schools—one-quarter retained at least 1.7 percent of K–2 students. Moreover, when we look at the mean mid-year kindergarten reading skills of students *retained* before the third grade in API 10 schools, we see that their percentage correct score is 76, which is the same as the mean of *nonretained* students in API 1 schools. Finally, schools with an API rank of 9 or 10 had much higher retention rates in 2008 for students in kindergarten than in either the first or second grade, an opposite pattern from the one we found in schools with an API rank of 1 or 2.

It also appears that some risk factors have different relationships with the likelihood of retention when students attend higher- or lower-performing schools. When we compared students in schools with an API rank in the lowest two deciles (1, 2) with those in the highest four deciles (7–10), we found that a student's kindergarten reading

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Reading performance is an important factor in early grade retention.

skills, race/ethnicity, and age are significantly associated with different likelihoods of retention (for both girls and boys) after controlling for other factors.[17]

For example, although African American students are more likely to be retained than Latino students across schools in LAUSD, the effect is stronger in schools with lower API ranks for both boys and girls: African American students are 2 to 2.5 percentage points more likely to be retained than Latino students in low-API schools but are not significantly more likely to be retained in high-API schools. We also see that higher-performing students on the mid-year kindergarten reading assessments are less likely to be retained in low-rank schools than are higher-performing students in high-rank schools. In contrast, a student's relative age is more strongly associated with retention likelihood in high-API schools. Younger age is associated with a 0.6 to 1.5 percentage point higher likelihood of retention in high-API schools than in low-API schools. The size of the effects is larger for boys than for girls. For boys, being relatively older at school entry is associated with a somewhat lower retention probability in high-API schools, but being older does not differ significantly between school ranks for girls. Notably, the probability of retention based on low-income or EL status does not significantly differ for students across school ranks. Possible explanations for differences between schools are provided in the section discussing perspectives of principals.

Improvements in Early Academic Skills

The explicit goal of retaining students is to give them an extra year of instruction so that they are better prepared before entering the next grade. The No Child Left Behind Act of 2001 considers academic proficiency an important accountability measure for schools, thus pointing to the need for educators to better understand the effects of interventions such as retention. The academic improvement of retained students has not been systematically studied in California schools. Whether or not repeating a grade improves student performance in the long run is difficult to determine without randomly assigning students to repeat a grade and then following them for many years. However, our analysis enables us to understand what can be expected in the short run on selected academic measures. We find that LAUSD students who repeat the first or second grade can achieve meaningful gains in the repeated year, providing examples of the reading and math

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improvements that educators and parents can reasonably expect for retained students. Although repeaters with multiple risk factors appear to improve first-grade skills by similar amounts, all else equal, some groups of retained second-graders experience more impressive improvements than others. We also provide suggestive evidence that some of the gains in the repeated grade can be continued into the next grade. However, we should note that although all groups achieve educationally meaningful gains, students who repeat a grade do not catch up to their original peers' levels of performance.

Of course, the performance of students *should* improve after repeating a year of the same content material and, in the second grade, gaining familiarity with the California Standards Tests (CSTs) and the test-taking process. Our analysis illustrates just how much improvement can be expected and whether some groups improve more than others. Educators can use these findings as a basis for comparing the expected benefits of other interventions they might consider in lieu of retention. However, a word of caution is in order. Although we can identify these academic gains, we cannot necessarily attribute them exclusively to the retention policy itself.[18] We believe that making causal interpretations of our estimates might over-attribute the effects of retention; the estimated relation-

ships between retention and academic outcomes we report probably lie toward the high end of what one might expect.

First- and Second-Grade Improvements

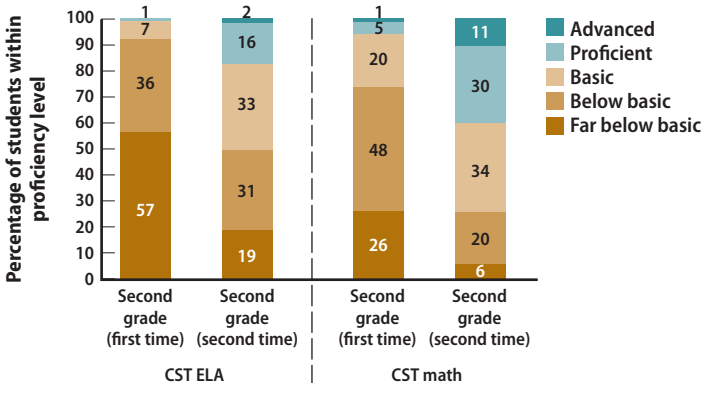
First- and second-grade students repeating a grade demonstrate a meaningful gain in grade-level skills in their repeating year. In this section, we look at first-grade reading-skills improvements and second-grade proficiency gains in English language arts and math on the California Standards Tests.[19] The first-grade reading-skills measure is a composite of four skills assessed at both mid-year and the end of the year.[20] We compare the average percentage correct out of the maximum number possible on each student's second time in grade to the average percentage correct in the first year, controlling for other factors. Schools do not use first-grade reading assessments for accountability purposes, but starting in the second grade, the CST scores become a critical element in school accountability. For students repeating the second grade, we use two improvement measures for ELA and math: improvement of at least one proficiency level and improvement to the proficient or advanced level (i.e., proficient in subject). Both are important gauges of academic progress, because improving at least one proficiency level is a reasonable goal for retained students, and the percentage of proficient students is the key accountability measure for schools.

Students repeating the first grade score about 40 percent correct on the reading-skills assessment during their first year in grade, compared to about a 70 percent average among all students taking the assessment, indicating that low reading performance is an important factor in determining who is retained. Among the subgroups discussed above, all of the students repeating the first grade have very similar first-time reading scores (34 to 41 percent correct) after controlling for other factors. Moreover, first-grade repeaters with different risk factors improve a surprisingly similar amount, achieving an estimated 64 percent correct on the reading-skills assessment in their repeat year. The only significant difference among risk factors is that African American girls, especially those who are poor, are estimated to improve their scores less than Latino girls with similar characteristics, by about 9 percentage points.[21] However, the predicted average 64 percent correct in the repeated year is still below the average 71 percent correct for students who were not retained in the first grade.

Among students repeating the second grade, we see gains both in CST proficiency-level improvement and in achieving proficient status. Most repeaters initially occupy the two lowest proficiency levels (below basic and far below basic) within the five proficiency levels designated for ELA and math (Figure 4).[22] As Figure 5 shows, after repeating the grade, many students improve at least one proficiency level and a significant percentage achieve proficient status, with larger shares proficient in math (41%) than in ELA (18%).

The majority of students in all of the subgroups with multiple risk factors are predicted to improve their performance by at least one proficiency level, especially in math.[23] This may be due in part to familiarity with the test or test-taking process the second time around. However, we also see some evidence of differences in improvement by risk factors. Specifically, African Americans are less likely than Latinos to achieve proficiency-level gains in either ELA or math: The percentage gaining a level is less than average in both subjects, whether younger or older, boy or girl. It is most pronounced for boys in math and for girls in ELA. The improvement for girls who are English learners differs depending on subject matter. Girls who are English learners

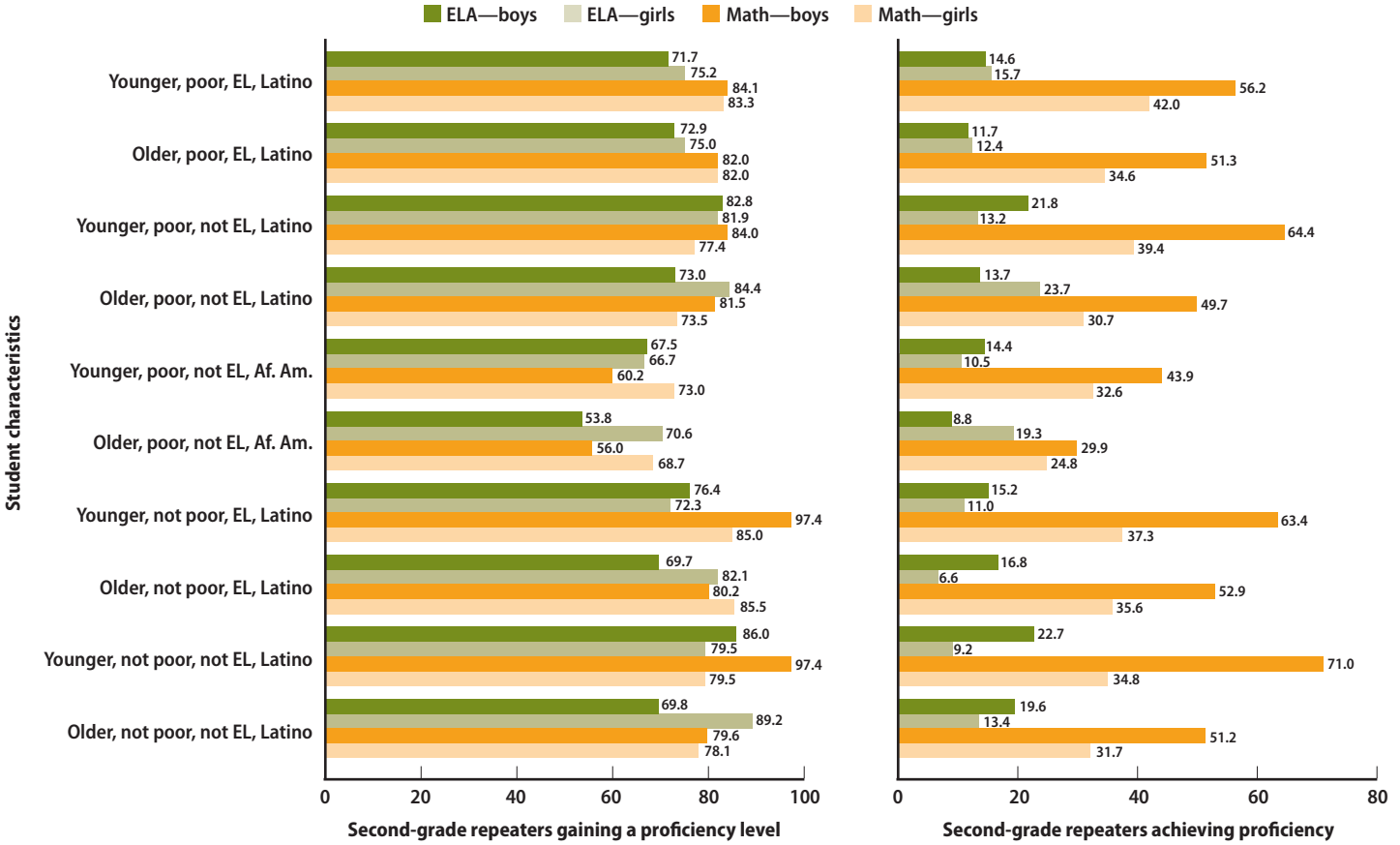
Figure 4. Many second-grade repeaters make proficiency gains



SOURCE: Authors' calculations.

NOTE: The figure includes LAUSD students entering kindergarten in 2004 school year.

Figure 5. Many repeaters are likely to gain a proficiency level, and some are likely to achieve proficient status



SOURCE: Authors' calculations.

NOTES: Younger = birth month in September, October, or November; older = birth month in December through August; poor = student eligible for meal program; Af. Am. = African American. The figure includes LAUSD students entering kindergarten in school years 2003 through 2005. See Technical Appendix Tables C5 and C6 for estimation results.

are less likely to improve in ELA and more likely to improve in math than are non-EL girls. Low-income status and entry age are not significant predictors of gaining a level in either subject.

From an accountability standpoint, we are interested not only in student improvements in proficiency levels but also in students achieving proficient status. Some of the students who repeat the second grade become proficient in ELA or math in their second year, with a higher likelihood for math: Sixteen percent of boys and 19 percent of girls become proficient in ELA, and 48 percent of boys and 38 percent of girls become proficient in math. As can be seen in Figure 5, fewer than one-quarter of students within any subgroup achieve ELA proficiency, whereas more than half in several subgroups achieve proficiency in math. The findings also suggest that certain groups are more likely than others to achieve proficiency. Specifically, Latino boys are more likely than African American boys to become proficient in both ELA and math, by about 5 to 7 percentage points, holding other factors constant. Girls from low-income families appear to be more likely than girls from more-affluent families to become proficient in ELA, by about 4 to 10 percentage points. Girls' age also seems to play a role in conjunction with EL status. Younger girls who are English learners are more likely to become proficient in ELA than younger girls who are not English learners, although these differences are more modest than the differences by income level. Differences between boys and girls appear to depend on the other risk factors

present (in addition to gender), and the differences can be large in some cases, such as for non-EL students.

Performance Improvements in Context

Because students in LAUSD who are retained in early grades tend to improve in the repeated year, we examine their scores in the context of students who are not retained. We do this both to gauge the extent to which students who are retained catch up to other students and to see whether they maintain their gains in the next grade. Our analysis focuses on students who repeat the second grade because proficiency levels on the second- and third-grade CSTs can be meaningfully compared.

It is debatable whether we should expect retained students, who by definition are lagging behind other students, to catch up to other students. But summarizing their outcomes in this context provides one metric of how much improvement we might reasonably expect. It also enables us to see whether second-grade proficiency rates are similar for students retained at different points in their schooling (i.e., in kindergarten, the first grade, or the second grade). However, we avoid making strong inferences with regard to these observations because students retained in specific grades differ from each other in ways we may not observe.

Do Students Who Repeat the Second Grade Catch Up?

Students repeating the second grade demonstrate sizable proficiency gains in their repeated year, but their proficiency rates lag far behind those of students who were never retained. Table 2 summarizes second- and third-grade proficiency rates in ELA and math for both nonretained children and children retained at different early grade levels. The table includes children who were first-time kindergartners in 2004, which is the most recent entry year that we can follow to the third grade (given that children repeat a grade).[24] Rows 1 and 2 under the "Second grade" column apply to students who have repeated kindergarten or the first grade and who take the CSTs in the second grade (i.e., they are tested after they have repeated an earlier grade). For students who have repeated the second grade, we present proficiency rates for both their first attempt (row 3, the first year they are in the second grade before being retained) and their second attempt (row 4, after repeating the grade). The final two rows report averages for ever retained and never retained children.[25]

The findings in the second-grade columns indicate that students who repeat the second grade catch up to the CST proficiency rates of students who have repeated an earlier grade (for example, in ELA: 17.7% compared to 19.5% and 14.1% for retained kindergarten and first-grade students, respectively). During the students' initial year in the second grade, proficiency rates in both subjects are very low—in the single digits. The gains are sizable in the second year, relative to the students' initial performance (jumping from 1% to 17.7% in ELA and from 6.2% to 40.5% in math), on par—if not always statistically—with the performance of students who have repeated kindergarten and the first grade. Overall, retained students have lower proficiency rates than students who are not retained before the third grade. This difference is starker for ELA (16.6% compared to 44.4%) than for math (34.8% compared to 58.4%), but the difference is sizable for both subjects.

How Do Students Retained in the Second Grade Perform in the Third Grade?

Our evidence suggests that students who repeat the second grade may achieve higher average rates of proficiency in the third grade than they would have if they had not repeated the grade. We followed the sample of students in Table 2 to the third grade and report their CST performance in the far right column. Their CST proficiency rates are higher in the third grade than their proficiency rates for the first time they took the second-grade CST.

Although it is the case that proficiency rates for all third-grade students tend to be lower than rates in the second grade, particularly in ELA, rates among children who were ever retained declined more substantially.[26] For instance, the ELA proficiency rate for retained children decreases by more than half (from 16.6% to 7.9%) but for nonretained children decreases by just over one-quarter (from 44.4% to 31.6%). In math, never-retained children demonstrate essentially the same rate of proficiency in the

Table 2. Attainment of proficiency is especially strong in math

Row	Grade retained	Second grade percentage proficient	Third grade percentage proficient
English language arts			
1	Kindergarten	19.5	11.9[a]
2	First grade	14.1[a]	6.6
3	Second grade (before repeating)	1.0[a]	n/a
4	Second grade (after repeating)	17.7	6.6
5	Ever retained K–2	16.6[b]	7.9[b]
6	Never retained K–2	44.4	31.6
Mathematics			
1	Kindergarten	32.5[a]	32.4
2	First grade	32.5[a]	28.3
3	Second grade (before repeating)	6.2[a]	n/a
4	Second grade (after repeating)	40.5	32.3
5	Ever retained K–2	34.8[b]	30.5[b]
6	Never retained K–2	58.4	58.3

NOTES: Proficiency rates in the "ever retained" category use second-time scores for second-grade repeaters. Rows 3 and 4 include students with valid scores in both the initial and repeat years. The table includes students entering kindergarten in school year 2004.

[a] Denotes statistically significant differences at the 5 percent level relative to row 4.

[b] Denotes statistically significant differences relative to row 6.

third grade, whereas children with prior retention exhibit a somewhat lower rate. Students repeating the second grade show substantial improvement when they take the CST the second time (i.e., when they repeat the second grade), yet as we can see in the fourth row of Table 2, their proficiency rates are lower in the third grade than when they took the CST the second time. This raises the question of what their proficiency rates in the third grade might have been if they had not repeated the second grade. Although we cannot say for certain, the evidence suggests that the gains from repeating the second grade may persist to some extent in the third grade. Third-grade proficiency rates for students who repeated the second grade are considerably higher than the rates they achieved during their first time in the second grade. These improvements in proficiency are particularly striking in math. For example, only 6.2 percent of students repeating the second grade were proficient in math during their first year in the second grade, but 32.3 percent of these students were proficient in math in the third grade. Although we do not know that these repeaters would have performed differently on the third-grade CST if they had *not* repeated the second grade, it seems quite likely that the gains from repeating the second grade did persist to some extent into the third grade. Given their very low proficiency rates in their first year in the second grade, it seems unlikely that these students would have achieved the third-grade proficiency rates we see if they had not repeated the second grade.

This evidence suggests at least a short-term achievement gain among students who repeat the second grade. They catch up to the level of students who have repeated earlier grades but—even as early as the following year—appear more sensitive than students who have not repeated a grade to future drop-offs in achievement as measured by the CST. Unfortunately, our data prevent us from exploring outcomes beyond the third grade to see how proficiency rates may change over longer periods. Previous research has found mixed evidence on short-term gains among students who repeat the third grade, with (at most) a slight benefit for the initial year or two following retention, similar to what we find among students who have repeated the second grade (Greene and Winters 2007; McCombs, Kirby, and Mariano 2009; Roderick and Nagaoka 2005). The policy and education communities would benefit greatly from rigorous research examining the longer-term effects of early grade retention, including its effects on such outcomes as high school graduation rates.

Perspectives of Principals

Our interviews with principals to learn about school-level perceptions and policies concerning grade retention revealed differing philosophies about whether and when to retain students.[27] The similarities and variations in these perspectives are consistent with what we see in our quantitative analyses. The differing philosophies, often strongly stated, also help explain why the likelihood of retaining students with similar risk factors can differ depending on the school they attend.

Half the principals we spoke with said that they did not believe that retention was effective in improving students' long-term performance. The other half thought that retention could be effective in certain cases, with a couple of principals suggesting that it would be wrong to promote a struggling student to the next grade where coursework would be more difficult. Principals with a general aversion to retaining students were located in schools with a range of API ranks, which helps explain in part our discovery that retention rates vary even within low-API-ranked schools.

Within schools, retentions are viewed case by case, and a general consensus seems to be that earlier retention is preferred to later. This is consistent with the higher rates of retention we see in kindergarten and the first grade than in the second and third grades. However, opinions on the optimal grade for retention still differ. For instance, one principal noted that kindergarten is the only grade to consider, if at all, whereas another principal stressed a strong philosophy that the first grade is the year to retain students at risk.

Additionally, the higher likelihood of retaining boys and relatively younger students might be attributed in part to teacher and principal perceptions about the maturity of K–1 students. Several principals we spoke with indicated that young boys often lack the maturity or social skills needed to advance a grade. Although many principals said that academic performance is the main indicator of the need for retention, some also noted that they weigh maturity and social skills (the "whole child") when making recommendations.

Most principals indicated that they preferred other interventions and that they would consider retention only after other efforts did not appear to be working. Principals stressed the importance of trying to identify at-risk children as early as possible, certainly by mid-year, so that parents could be notified and school staff could convene team meetings to discuss appropriate interventions and monitor student progress throughout the rest of the year. Retention was generally perceived as an option of last resort, and several principals said that they were hesitant to recommend retention, because their past experiences led them to believe that grade retention could have adverse effects in later grades.[28]

The principals mentioned a number of options for helping at-risk students, and many noted that the interventions continued to be available to those students who were repeating a grade. The following interventions were specifically mentioned:

Trained instructional aides to work with students in small groups on specific skills within classrooms.

Designated intervention teachers to work with individuals or small groups of students, either within the regular classroom or in "pulled out" sessions.

Learning centers and resource specialist assistance for individuals or small groups of students.

After-school tutoring and Saturday classes led by trained school staff or volunteers.

Summer school or intersession classes.

Our finding of improvements in first-grade reading skills and gains in second-grade proficiency levels during the repeated year may be due, in part, to the fact that students who are repeating a grade often receive extra help

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The higher likelihood of retention for boys and younger students might have to do with perceptions of maturity.

through interventions such as small-group, in-class tutoring by intervention teachers or after-school help focusing on the specific skills in which the students are deficient.

A number of principals indicated that the final retention recommendation rests at the administrator level, and in some cases school administrators can influence or override teacher recommendations. And finally, although teachers and principals can educate parents about the benefits or drawbacks of retention for a particular student, parental acceptance of the recommendation is an important consideration for principals in the earliest grades—and the final word in most schools.

Policy Implications

Grade retention in elementary school is a negative academic outcome early in children's educational careers, and many efforts are made to avert this last-resort intervention. Yet retention occurs, and we find that students can benefit from it, at least in the short term. The probability of retention before the third grade is much higher for students with certain risk factors, most notably poor academic performance, younger age, and male gender. When we look at the role of multiple risk factors, even after controlling for academic performance and other factors, we find that about one in 10 relatively younger boys with at least one additional risk factor are likely to be retained before the third grade. In contrast, generally fewer than two in 100 students with zero or one risk factor are likely to be retained. The probability of retention can differ across schools even when students have similar characteristics, suggesting a difference in school-level policies and philosophies about retention, which were confirmed in our interviews with principals. When retention does occur, students can make sizable gains in grade-level skills in the repeated year, even across subgroups with different risk factors, although students are not likely to achieve the same grade-level scores as their nonretained peers. We also find suggestive evidence that some of the gains in proficiency and skills will benefit students in the next grade level as well, although the longer-term outcomes are uncertain.

The high probability of younger students being retained should be considered in light of the state's kindergarten entry-age cutoff date.

These findings have several implications for education policy. The high probability of relatively younger students being retained should be considered in light of the state's kindergarten entry-age cutoff date of December 2, one of the latest in the nation. Among LAUSD students entering kindergarten in 2006 who were retained by the third grade, 41.5 percent were born in September through November. What will be the effect on retention rates of the new California law that moves the date from December 2 to September 1 (Senate Bill 1381)? Our research suggests that this change would likely reduce retention among those students with fall birthdays—that is, they would enter kindergarten a year older (Cannon and Lipscomb 2008). Moreover, these students will now be eligible for a two-year transitional kindergarten program offering a year of instruction with a modified kindergarten curriculum before they enter kindergarten.[29] This program is likely to better prepare students for the academic demands of kindergarten and the first grade; and because it is in practice similar to kindergarten retention, we would almost surely see early retention rates decline. However, the underlying issue that retention addresses remains—namely, that many students struggle to master academic content (and particularly those students with multiple risk factors), regardless of their relative age in class, and would benefit from additional attention and intervention. Moreover, moving the cutoff date will change which students are relatively youngest in the grade, and those made relatively youngest by a change in the cutoff date (i.e., summer birthdays) may be at increased risk for retention (Elder and Lubotsky 2009).

Given the educationally meaningful grade-level skill gains we observe in LAUSD for students repeating the first and second grades, a blanket policy of no grade retention

may be misguided. And it might well be cause for concern that students do not have similar access to this type of intervention across schools. If other options do not provide students with sizable gains in skills, then retention may be an appropriate intervention. However, that said, intervening early to prevent retention may be in the best interests of all. We provide estimates of academic improvements that are reasonable to expect for at-risk students and thus could be considered goals for interventions in lieu of retention. For example, schools could set a target that students with multiple risk factors achieve 64 percent correct on first-grade Open Court reading skills, or that second-grade students move up at least one proficiency level, particularly from the levels far below basic or below basic, even if achieving proficiency is not realistic.

The academic benefits of retention we describe occur after one full year of additional instruction, and there are substantial costs associated with this intervention. At a minimum, it requires one additional year of state education spending for each retained student, and it causes a student to graduate from high school one year later thus delaying labor force entry. To avoid retention for at-risk students, schools must institute effective early interventions that substantially improve grade-level skills. Evidence of what works to prevent retention is limited, however, and a couple of comprehensive approaches recently studied in LAUSD and New York found only small benefits for math and English language arts. An LAUSD study of the effects of Supplemental Education Services provided to low-income elementary students in 2007–08 found significant but very small increases in students' CST scores (less than 10 CST scale points), suggesting that this may not be a cost-effective approach (Barnhart 2009). Similarly, a recent study of third- and fifth-grade retention in New York City schools found that students at risk of retention received significant but small benefits in English language arts and math from such interventions as one-on-one tutoring, Saturday classes, and summer school classes (McCombs, Kirby, and Mariano 2009). This research suggests that interventions are more likely to be effective when they are adequately funded, when students are assisted one-on-one or with small student-to-teacher ratios, when staff are adequately supported through professional development to work with at-risk students, and when students are monitored over time to assess their progress and which services they receive (Marsh et al. 2009; McCombs, Kirby, and Mariano 2009).

In California, we need to learn more about which interventions are used in which grades, how consistently they are used and over what length of time, and which options work better than others to help students meet performance standards. The development of a statewide, longitudinal database of students that includes information on services received could help to identify effective interventions to prevent retention and the long-term outcomes of students who do repeat a grade.

If other options do not provide students with sizable gains in skills, then retention may be an appropriate intervention.

Finally, district- and school-level funding constraints play a major role in the types of interventions accessible to students at a particular school, creating differential access to the types of interventions that may prove most useful to prevent retention. In times of budget cuts, the intervention options available to a district or school may be severely constrained. For example, current budget cuts have forced LAUSD to suspend summer school classes. Another funding consideration is who bears the costs of interventions and retentions. Intervention costs fall more on the district, which makes choices about where and how to use its funds to support students at risk of retention, whereas retention costs fall on the state as an additional year of average daily attendance support for retained students. In the end, if a district or school cannot or does not provide adequate interventions that prevent the need for retention, the cost of retention falls largely on the state. Thus, policy-makers at all levels have a stake in coordinating efforts around interventions to prevent retention. ●

Notes

[1] Xia and Kirby (2009) provide an excellent review of studies published since 1980. They found little support for lasting academic benefits of retention for students. The most common result was a negative relationship between retention and later academic outcomes. However, many studies do not focus on the earliest grades and are unable to distinguish whether this relationship is causal, because students are not picked at random to repeat a grade. The students who do repeat a grade arguably have a greater likelihood of lower educational outcomes for other reasons as well, such as poor academic skills.

Eight of the 87 studies in the RAND review used methods to address these selection concerns and facilitate causal inferences, and these studies have mixed findings. Greene and Winters (2007) found that third- to tenth-grade students retained under Florida's test-based promotion policy demonstrated higher achievement than earlier cohorts up to two years later. Matsudaira (2008) concluded that summer school attendance has a positive effect on reading and math scores in a large, urban district in the northeast. Although the findings are not directly about retention, summer school is a common intervention that schools use for children at risk of repeating a grade. In contrast, Roderick and Nagaoka (2005) found no evidence of higher achievement growth for Chicago's third-grade students subject to a high-stakes testing policy. In fact, third-grade repeaters faced a higher rate of subsequent special education placement. The findings for sixth-grade repeaters indicated that they had lower subsequent achievement growth. Jacob and Lefgren (2004, 2009) also used Chicago's school accountability system to examine retention and found no evidence of consistently better or worse performance for repeaters in the short run, although retention in the eighth grade increased students' probability of dropping out of high school.

[2] Proficiency level in reading is the primary basis for promoting students to the third and fourth grades. Proficiency levels in reading, language arts, and math are the primary factors in determining whether to promote students in other covered grades (California *Education Code* 48070.5).

[3] Los Angeles Unified School District (2003) and California *Education Code* 48070.5.

[4] Parental consent is not required in the case of mandatory retention policies covering grades 2 and later. Parents who do not consent have a right to appeal (Los Angeles Unified School District 2003).

[5] We examined retention policies in Fresno, Long Beach, Oakland, San Diego, San Francisco, and San Jose.

[6] Our earliest observations are of kindergartners in 2001, meaning that we observe first-grade retention starting in 2002, second-grade retention starting in 2003, and third-grade retention starting in 2004.

[7] Kindergarten retention declined as well in 2007 and 2008. The expansion of full-day kindergarten programs in LAUSD during this period may offer a partial explanation for falling early-grade retention rates. Full-day kindergarten was implemented in the district between 2005 and 2008. Cannon et al. (2009) found that students in full-day LAUSD classes are less likely than are students in half-day classes to be retained by third grade.

[8] Technical Appendix A provides additional information. Although Figure 2 uses a smaller sample than Figure 1, it is the most accurate depiction available of cumulative retention rates for individual students without knowing the complete educational histories of children who enter and exit LAUSD between kindergarten and the third grade.

[9] Retaining the same child more than once is uncommon in elementary grades. State law prohibits double retention in kindergarten.

[10] *Age*: In California, children can enter kindergarten if they reach age five by December 2 of a given school year. The entry cutoff date means that, if everyone started on time, children born in September, October, and November would be the youngest in each class and children born in December, January, and February would be the oldest.

Low-income: Policymakers and researchers generally use the subsidized school meal program as an income proxy because children are eligible if their family income is at or below 185 percent of the federal poverty line. In LAUSD, 68 percent of K–12 students participated in the meal program in 2008, more than the state average of 50 percent.

English learner: The EL group includes children ever designated as English learners between kindergarten and the second grade. LAUSD has an above-average rate of English learners—48 percent of K–3 students in 2008, compared to 38 percent of K–3 students statewide (data provided by California Department of Education).

Race/ethnicity: In examining retention rates for children belonging to four major racial/ethnic groups, significant differences are noted relative to rates for Latinos (three-quarters of LAUSD's K–3 student population in 2008 was Latino).

[11] We use data from the cohort of kindergartners entering school in 2006 to illustrate the relationships presented in the table, but the patterns are similar for earlier years.

[12] We use a composite score from the Open Court Reading curriculum mid-year kindergarten assessments to determine academic performance. Open Court is a reading program for grades K–6. LAUSD teachers administer skills assessments every six to eight weeks to monitor student progress. See Technical Appendix A for additional information.

[13] Several recent studies, including evidence from California, found that entering school at an older age leads to a lower probability of retention (Cascio and Schanzenbach 2007; Dobkin and Ferreira 2010; Elder and Lubotsky 2009; Lincove and Painter 2006; McEwan and Shapiro 2008).

[14] Rose et al. (2008) found a close relationship in California between higher proportions of economically disadvantaged students and a lower school-wide achievement level. To identify low-performing schools, we analyzed LAUSD data using a school's rank (in deciles) according to California's Academic Performance Index (API). The API for elementary schools is a composite measure of student achievement from standardized tests that the state and federal governments use in school accountability systems. We found that retention rates among the lowest-API ranks are significantly higher than in the highest-API ranks.

[15] Technical Appendix Table C1 reports results for student-level characteristics for all children as well as results separately for boys and girls. The additional student, peer, and school characteristics we control for are student's redshirt status and parents' level of education; class size; percentages of classmates enrolled in the meal program, ELs, Latino children, and children whose parents have college degrees; school enrollment; state API rank; full-day kindergarten enrollment; Reading First school; and percentages of teachers with full credentials, authorized to teach English learners, and who have at least five years of experience. The analyses also include school year fixed effects. Technical Appendix Table A1 provides the average level of each variable by year in our sample. In this analysis, we restrict our sample to include only first-time kindergarten students from 2003 to 2006 who have three years of records and no missing values for any variable (nearly 150,000 children). The outcome is an indicator that signifies any retention experience within the first three years of school.

We are unable to control for a student's classroom behavior or social and emotional skills because we do not have that data. However, we recognize that those may be significant factors in retention decisions, albeit ones that can be subjective across teachers. We include such variables as age and gender, which may be correlated with classroom behavior.

[16] The findings present retention patterns as described above, except that separate analyses are conducted for boys and girls (Technical Appendix Table C2). We chose gender as the basis for running separate analyses for several reasons: It occurs randomly, it is not related to the other characteristics we examine, and the relative importance of retention predictor variables may differ for boys and girls. The findings do suggest larger effects for boys than for girls with respect to several characteristics, such as mid-year kindergarten reading skills, indicating that running separate analyses by gender provides a better sense of the eventual retention probabilities (before the third grade) of boys and girls in LAUSD. We also find that several interactions between risk factors (e.g., age and kindergarten reading score) increase or decrease the probability of retention, so we include interaction terms in the models used to predict retention probabilities by subgroups.

[17] Results are reported in Technical Appendix Table C3.

[18] Retained children differ from other LAUSD children in both observable and unobservable ways in our data, which prevents us from fully separating any pure retention effects from those related to the characteristics of retained students. In addition, we cannot separate retention effects from those of concurrent factors affecting children in the retention year (e.g., new teacher, new peer group, or greater familiarity with assessment measures).

[19] For these analyses, we use the same regression models we used in the previous section but with a different outcome measure. Samples include only retained students and those who have valid first-grade reading or second-grade CST scores for both years in the grade examined. We do not examine kindergarten repeater gains because the kindergarten year outcomes are likely to be confounded by the ceiling effect on the basic measures in the kindergarten skills assessment we use.

[20] The four skills are spelling, reading comprehension, word reading, and average reading fluency. The assessments are based on the Open Court curriculum. See Technical Appendix A for more details.

[21] The estimation results for interacted models by gender used for predictions are presented in Technical Appendix Table C4.

[22] The five proficiency levels are advanced, proficient, basic, below basic, and far below basic. Figure 4 represents students who entered kindergarten in the 2003–04 school year and subsequently repeated the second grade. Some students may be proficient in math and not proficient in reading. We find very similar proficiency-level patterns for students entering in 2002–03.

[23] Technical Appendix Table C5 provides estimation results. Additional subgroups listed in Figure 3 as having high probabilities of being retained include very few actual retained second-grade students in our sample. This is due in part to lower numbers of these students in LAUSD and because some of the groups may be more likely to be retained in kindergarten or the first grade. (The additional subgroups presented in Figure 3 that do not appear here in our analyses of second-grade students are younger, white, not poor, not EL; younger, African American, not poor, not EL; younger, white, poor, EL; and younger, white, poor, not EL.) Our age groups in Figure 5 also differ from those in Figure 3, where we compared the oldest to the youngest groups. Because few of the oldest students are retained (i.e., those born in December, January, and February), we present results for the youngest students (i.e., those born in September, October, and November) and for the relatively older students (those born in the other nine months of the year). Our estimates include controls for the student's first-time CST proficiency level, because achieving the next level or reaching proficiency status may depend in part on the initial level from which the student begins. The subgroups presented in Figure 5 represent 97 percent of the retained students in our sample.

[24] Technical Appendix Table B1 shows comparable statistics for first-time kindergartners in 2005 on second-grade CSTs.

[25] About 2,500 students in our sample were "ever retained K–2 students," and about 33,700 students were never retained. The overall rate of second-grade proficiency is 40.1 percent for ELA and 56 percent for math. The overall rate of third-grade proficiency is 29.9 percent for ELA and 56.3 percent for math.

[26] The second- and third-grade CSTs are not vertically aligned to measure skill growth, so we cannot comment on gains of students from the second to the third grade, just on average rates of proficiency levels as measured by the CST in each grade. Moreover, the CST ELA results have historically demonstrated lower scores for students in the third grade than in the second grade, so we focus on relative declines in proficiency between retained and nonretained students.

[27] Technical Appendix B describes our methods for interviewing 20 principals across schools with varying retention rates.

[28] The principals noted such examples as dropping out of school, gaining short-term skills but then falling behind academically a few years later, and being more physically mature than peers in middle and high school, which can lead to social problems.

[29] LAUSD is currently pilot-testing a similar transitional kindergarten program with broader eligibility. Starting in fall 2010, the district began offering a voluntary transition program for students born between June 1 and December 2. See LAUSD press release January 11, 2010, at http://notebook.lausd.net/pls/ptl/docs/page/ca_lausd/fldr_lausd_news/fldr_press_releases/kindergarten10.pdf.

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