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Am Educ Res J 2013 50: 1392 originally published online 2 August 2013
DOI: 10.3102/0002831213498810

American Educational Research Journal
December 2013, Vol. 50, No. 6, pp. 1392–1423
DOI: 10.3102/0002831213498810

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Research in grade retention has predominantly focused on the effect of this practice on the retained student. This study contributes to the limited body of research examining the effect of retained classmates on the outcomes of other students in the same classroom. Using a longitudinal data set of all elementary school students in a large urban school district, this study evaluates how the percentage of retained classmates affects other students' absence patterns, both unexcused and excused. Focusing on absences as an outcome is key, as they signal educational disengagement and highly correlate with schooling and lifelong success. Based on quasi-experimental methods, the results indicate that a greater percentage of retained classmates increases other students' absences. The effect is only present on unexcused absences, not excused absences, hence signaling an increase in disengagement in other students. Individual- and classroom-level moderating effects are evaluated, and policy implications for classroom assignment are discussed.

Keywords: absences, peer effects, grade retention, economics of education

Research in the area of grade retention has focused almost exclusively on the effects of this practice on those retained students per se. Whereas a few recent studies may have shown some minor benefits of retention (e.g., Hughes, Chen, Thoemmes, & Kwok, 2010), particularly for smaller subsets of students (e.g., J. P. Greene & Winters, 2007; Lorence & Dworkin, 2006), research on the whole would not support this practice as effective, neither for academic purposes (Jimerson, Anderson, & Whipple, 2002; Reynolds, 1992) nor for development (Anderson, Jimerson, & Whipple, 2005; Morrison, Griffith, & Alberts, 1997; Shepard & Smith, 1990).

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While the direction of the effects of retention practices on retained students is fairly well established, an underresearched area in this field is the classroom peer effect exerted on other students. However, given the academic and developmental characteristics of retained students, it is highly likely that a classroom peer effect exists. Academically, retained students tend to have lower achievement levels than continuously promoted students (Alexander, Entwistle, & Dauber, 2003; Hong & Raudenbush, 2005; McCoy & Reynolds, 1999; Meisels & Liaw, 1993; Reynolds, 1992; Roderick & Nagaoka, 2005). Much of this research supports that retained students end up even lower on the achievement distribution as a result of this practice than they would have been otherwise.

Retention is also cited in the empirical research as leading to worsened health and developmental outcomes than had those same students been continuously promoted (Holmes & Matthews, 1984; Jimerson, 2001a, 2001b; Shepard & Smith, 1990). For instance, Mantzicopoulos and Morrison (1992) found an increase in attention problems during the repeated year of kindergarten. Retained students also tend to exhibit lower self-esteem than continuously promoted students (Jackson, 1975; Jimerson, 2001a, 2001b; Shepard & Smith, 1990). Pagani, Tremblay, Vitaro, Boulerive, and McDuff (2001) found retained students to also have higher instances of anxiety, inattentiveness, and externalizing behavioral issues. Jimerson, Woehr, and Kaufman (2002) found that elementary school students reported grade retention as one of the most stressful life events.

These individual-level issues that retained students face can materialize as a peer effect on others' school absences in two main capacities. First, a peer effect may arise from the academic issues specifically facing retained students. As mentioned, being grade retained leads to even lower academic performance for retained students compared to having been continuously promoted (Hong & Raudenbush, 2005; Roderick & Nagaoka, 2005). With an increasingly greater number of retained students in the classroom, this may exacerbate the need for academic remediation. Hence, retained students in particular may utilize a disproportionate amount of classroom time as teachers must reallocate regular instruction in order to respond to the higher educational needs of retained students' needs, which as mentioned are even higher than low performers or continuously promoted students. As such, nonretained classmates may potentially be adversely affected: Classroom instruction slows and the overall classroom environment becomes less engaging for nonretained classmates (Gottfried, 2013b). Prior research has established that in a less engaging classroom environment, students become more distracted and less motivated (Henry & Rickman, 2007; Patterson, Reid, & Dishion, 1992), which in turn may increase school absences (Bealing, 1990; Harte, 1994; Reid, 1983; Southworth, 1992).

Second, a peer effect may be induced on others' school absences due to the behavioral issues facing retained students. As previously described, there

are individual-level behavioral issues associated with being retained, including inattentiveness, disorder, stress, and disruption. Consequently there may be peer effects on other students by creating an environment of negative interactions and by modeling social disengagement (Ekstrom, Goertz, Pollak, & Rock, 1986; Finn, 1989; Johnson, 2005; Newmann, 1981). That is, through behavioral issues, retained students can negatively affect the outcomes of other classmates in three ways: by inducing classroom disengagement behaviors from their classmates through their own disruptive actions, modeling disengaged behavior, or redirecting a teacher's attention toward classroom management. In this latter scenario, a teacher would have less time to foster a stimulating and engaging environment for others, similar to the mechanism described in the previous paragraph. Indeed, prior research has supported that behavioral disruptions by some do in fact induce disengagement issues and decrease school success for other classmates (Henry & Rickman, 2007; Lazear, 2001; West & Sloane, 1986). Hence, increasingly larger numbers of retained classmates might suggest even greater disengagement issues for others, thereby increasing school absences (Bealing, 1990; Harte, 1994; Reid, 1983; Southworth, 1992).

Theoretically, these mechanisms are supported in the literature: Lazear (2001) put forth that instruction in the classroom is a common good, and consequently students with high needs may exert negative externalities onto other students in the classroom. In the scope of grade retention, this theoretical framework is played out in the following two ways. First, retention induces an individual effect through a decrease in retained students' academic and behavioral outcomes. Second, this individual effect spills over onto the outcomes of other students in the room—either the teacher must spend a disproportionate amount of time on remediation or behavior modification, or there may be social disruptions by the retained student that induce disengagement (and hence school absences) in others.

Empirically, only one previous study has directly examined the peer effect of grade retained classmates on other students' outcomes (see Gottfried, 2013b), and thus little empirical evidence exists outside of this single study. The findings of the research indicate that a greater number of retained classmates decreases standardized achievement outcomes for other students in the class. Lavy, Paserman, and Schlosser (2008) conducted research that approximates evaluating the peer effect of retained students. They examined the proportion of peers who were older than would be expected for their cohort and found a negative effect on others' achievement outcomes. Admittedly, however, the majority of the older students were not actually grade retained.

Hence, though not extensive, there is some empirical evidence to support the peer effects mechanisms described previously. That being said, all prior research on the peer effects of retained students have focused on achievement as an outcome. However, given that the purported mechanisms

previously described put forth that an increase in the number of retained classmates may induce disengagement in other students, outcomes related directly to educational engagement, like school absences, merit being explored. Hence, this present study evaluates the relationship between having retained classmates and other students' absences, as absences serve as direct signals of disengagement from school (Bealing, 1990; Gottfried, 2009; Harte, 1994; Reid, 1983; Southworth, 1992).

School absences are critical outcomes to assess. Research in attendance unequivocally upholds that student absences are negatively related to schooling success, including academic achievement, grade promotion, and high school completion (Dreyfoos, 1990; Finn, 1993; Gottfried, 2009; Lehr, Hansen, Sinclair, & Christenson, 2003; Steward, Steward, Blair, Jo, & Hill, 2008). Moreover, student absences in one year have been shown to have consequences on future years of assessment (Dryfoos, 1990; Finn, 1993; Lehr et al., 2003; Stouthamer-Loeber & Loeber, 1988).

There are also sociological, health, and economic concerns with increased absences. Sociologically, students who are absent more frequently often exhibit greater behavioral issues, including disengagement and alienation (Ekstrom et al., 1986; Finn, 1989; Johnson, 2005; Newmann, 1981). Highly absent students also tend to engage in both current and future health risk behaviors, such as smoking and alcohol and drug use (Halfors et al., 2002; Wang, Blomberg, & Li, 2005). Economically, students who are more frequently absent also face greater future economic hardships, such as unemployment (Alexander, Entwistle, & Horsey, 1997; Broadhurst, Patron, & May-Chahal, 2005; Kane, 2006). These ramifications associated with missing school are exacerbated for students in urban districts (Balfanz & Legters, 2004; Fine, 1994; Orfield & Kornhaber, 2001).

Given this span of concerns correlated with missing school, determining and preventing the drivers of absences appeals to a wide range of researchers and policymakers. Numerous studies have evaluated multiple drivers of absences such as student personality, teacher-pupil relations, school climate, and neighborhood quality (Bos, Ruijiters, & Visscher, 1992; Gottfried, 2013a; Marvul, 2012; Reid, 1982). And yet, the research is limited on how peers within the classroom environment may relate to absence behavior of other students. Hence, not only has the extant body of research not fully considered the effect of retained classmates on student attainment, but it has certainly not done so by looking at student absences, though they correlate highly with current and future school and life outcomes.

Thus, this study examines new dimensions of the retention, peer effects, and absence literatures with the following three research questions:

Research Question 1: Is there a classroom peer effect of the proportion of grade retained classmates on the absence outcomes of nonretained students in the same classroom?

No prior study has evaluated the effect of retained classmates on the absence outcomes of the nonretained students in the same classroom. Given that absences serve as indicators of educational disengagement and predictors of future failure as well as given prior but limited research on the classroom effects of retained students, this study hypothesizes that a greater proportion of retained classmates will increase other students' absences.

Research Question 2: Are the results differentiated by type of absence?

Excused absences may arise from academically motivated students who have legitimate reasons for missing school (Gottfried, 2009). On the other hand, in research and practice, students with more unexcused absences are considered to be academically disengaged (Baltimore County School District, 2006; Gottfried, 2009). Hence, by distinguishing among students' records of absences, it will be possible to determine how the effects differ by the meaning of the absences. Given that the Lazear (2001) theoretical framework indicates a decline in educational engagement in classroom environments with more disruption from classmates, this study hypothesizes that a greater percentage of retained classmates increases unexcused, but not excused, absences.

Research Question 3: Do individual and classroom factors moderate the peer effect of retained classmates?

Generally speaking, research in classroom composition often lacks an examination of how contextual factors may moderate the main effect. Rather, most of prior research determines that "more is better" or "more is worse" of a particular peer group but does not suggest policies or practices to improve these educational settings. This is a critical step, however, as policymakers and practitioners must consider how to organize classrooms more effectively based on current student populations rather than knowing simply the average statistical effect.

The selection of moderating factors assessed in this study are grounded in the prior literature that has either suggested the presence of moderating individual-level factors in peer effects research (most commonly seen) or a direct effect of other classroom factors on student outcomes. At the student level, prior research has examined the moderating effects of individual characteristics on the effect of peers by gender and income (Cho, 2012; Fletcher, 2010; Rose & Rudolph, 2006), having a disability (Fletcher, 2010), and academic ability (Gottfried, 2012; Hanushek, Kain, Markman, & Rivkin, 2003; Summers & Wolfe, 1977; Zimmer & Toma, 2000). Hence, these are examined in this present study. At the classroom level, several channels of peer effects are supported as directly correlated with student outcomes and are thus

examined in this study: class size (Dee & West, 2012; Shin & Raudenbush, 2011), gender (Hoxby, 2000), having classmates with special needs (Fletcher, 2010), having English language learner (ELL) classmates (Cho, 2012), and classroom behavior (Figlio, 2007; Lazear, 2001). Thus, these contextually critical characteristics may also serve to moderate the relationship between retained classmates and others' absences.

With these three research questions, this study contributes new knowledge on the effects of classroom composition and of grade retention on classmate outcomes. It does so by relying on a longitudinal, nonselective, and large-scale data set of elementary school children. By evaluating these relationships for young students, this study guides new policies and practices early in education based on a more well-rounded perspective of classmate contextual effects. Moreover, research has suggested that retention disproportionately affects urban students (Alexander et al., 2003; Corman, 2003; House, 1999). Thus, as America's urban youth face high risks of failure from retention, this may consequently affect the outcomes of other students in the same classroom who might have already been predisposed for educational disengagement and decline. By identifying driving classroom factors of absences for urban elementary school students, the findings of this study can be used to create supportive classroom environments for our students at greatest risk of educational disengagement.

Method

Data Set

This study relies on a large-scale administrative data set of individual student absence records and demographic, academic, and residential information as well as teacher, classroom, school, and year observations. Student and school data were obtained from the School District of Philadelphia via the District's Office of Student Records and through the District's Personnel Office. Neighborhood data were obtained from the 2000 census flat files at the census block level. Residential neighborhood information was collected on a student's home address, including street number and name and zip code. The merging of neighborhood data with the student-level database was achieved by geo-coding each address to its longitude and latitude and by assigning each student to a census block group.

Overall, the data were available for five cohorts of students. The first three cohorts were first observed as the kindergarten, first-, and second-grade classes in the 1994–1995 academic year. The fourth cohort was composed of the kindergarten classes of 1995–1996, and the fifth cohort was composed of the kindergarten classes of the 1996–1997 school year. Each cohort was then observed through the end of the 2000–2001 school year. Inclusive of both reading and math standardized tests, the analytical sample

consists of all nonretained elementary school students in Grades 2 through 5 for a total of N = 39,309 observations within all 175 public, neighborhood schools that contain elementary grades (either K–5 or K–8).

The analyses in this study employ observations from 1995 through 2001, as just explained. Because student characteristics have not significantly changed since the years of observations in this data set (Gottfried, 2011; School District of Philadelphia, 2013), issues addressed in this article continue to be important in the educational experiences of youth in the district. Further, because the data set is unique in that it is longitudinal, nonselective, and comprehensive of entire cohorts within the district, the results derived from employing these data are representative of those needs facing at-risk urban schoolchildren. Hence, the approach taken in this article remains applicable, and the results are generalizable as demonstrated in previous recent research (e.g., Gottfried, 2011).

Key features of the sample merit further elaboration. As mentioned, the sample utilized in this study contains only those students who have never been retained: This is a requirement in this analysis so that it is possible to isolate the effect of having retained classmates. Additionally, the sample only includes second- through fifth-grade students for three reasons. First, data must exist on several key lagged measures (e.g., prior standardized achievement performance). Since students in this data set have key lagged measures only beginning in second grade, this is the grade at which this analytical sample begins. Second, in order to be included in the sample, data must also exist for other measures, including student demographic and academic data, neighborhood information, and teacher and classroom data (as well as school assignment). Finally, the sample only contains children up through fifth grade. It is in elementary school when children are contained in a single classroom throughout the day and year, thereby allowing for a clear identification of the peer group. Determining a peer group starting in middle school becomes muddied, as students shift classrooms (and hence peer groups) throughout the day (Gottfried, 2012).

Dependent Variables

Table 1 provides details on the dependent and independent variables employed in this study. There are three dependent variables: total number of absences in a given school year, subsequently broken out into the number of unexcused and excused absences. On average, a student is absent approximately 12.4 total days, with about 8.7 days unexcused and 3.7 excused. This breakout between unexcused and excused absences is consistent with prior research in absence patterns in urban school systems (e.g., Gottfried, 2009). In more detail, the range of total absent days is from 0 to 66 days (at the 99th percentile). For unexcused absent days, the range is similar—0 to 58 days (at the 99th percentile).

Table 1
Descriptive Statistics

	Mean	*SD*
Outcomes		
Total days absent	12.40	12.27
Number of unexcused absences	8.69	10.64
Number of excused absences	3.71	5.59
Peer variable		
Retained students per classroom	0.12	0.08
Student demographic/academic data		
Male	0.54	0.50
Black	0.68	0.47
Latino	0.09	0.28
Asian	0.04	0.21
Other	0.00	0.04
1-year lagged SAT9 math score	54.56	19.21
Special education	0.02	0.15
English language learner	0.03	0.16
Free lunch	0.47	0.50
Behavior problem	0.06	0.23
Student neighborhood data		
Census block White	0.30	0.33
Census block at/below poverty	0.14	0.09
Census block vacant	0.13	0.09
Median block income (in dollars)	28,660.78	12,265.75
Teacher and classroom data		
Male	0.02	0.12
Black	0.04	0.20
Latino	0.00	0.03
Asian	0.00	0.02
Master's degree	0.03	0.17
Class size	29.12	3.24
Mean lagged reading score	26.59	10.11
n	39,309	

Only aggregate numbers of absences are provided for each student and academic year: It is not possible from the data to determine when in the year students were absent. Moreover, aside from the distinction on the students' records between excused and unexcused absences, no other details are provided on the reasons for specific absences. However, the Attendance and Truancy Office in the district's offices provided definitions for excused and unexcused absences that are used as guidelines in all elementary schools. As a rule, an excused absence requires students having a note, signed by a doctor or parent, for short-term illnesses, such as a cold or flu, that lasts

for no more than 3 days. A long-term medical illness, such as chicken pox or hospitalization, strictly requires a doctor's signature. Additionally, a short-term emergency for immediate family, such as death, is an excused absence but cannot last for more than 2 days. In the specific case of family death, a death certificate is required upon return.

An unexcused absence is recorded when a student lacks a note when returning to school. Though the link between disengagement and unexcused absences in particular has not been measured in educational research, it has been assumed both in the absence literature and in practice that disengagement is indeed the primary reason for unexcused absences (see e.g., Baltimore County School District, 2006; Gottfried, 2009). This may occur due to skipping school or due to asking a parent to stay at home. However, even with some notes, there are some smaller, more minor reasons for which an absence can still be classified as unexcused. Unexcused absences with notes include family problems that do not involve the child, such as parent illness or unemployment. In addition, missing school for non-school activities is deemed as unexcused, ranging from recreational to extracurricular activities. For example, a student's music recital is not an excused absence. Finally, suspension is always considered an unexcused absence. From the data set, however, it is not possible to distinguish suspension from other unexcused absences. Future research may entail examining a data set in which this distinction is made. Additionally, future qualitative research might determine the true extent to which these rules are enforced and by whom, as this level of detail would not be included in a quantitative administrative district data set. However, the fact that of the average 13 days absent 9 of those are unexcused, it would appear that there is at least some degree of enforcement in the differentiation between types of absences.

Key Predictor: Retained Classmates

The key predictor variable in this study is the percentage of students in the classroom who have been previously grade retained. To derive this measure involved two steps. The first step required identifying all students in the classroom who had been retained at some point between kindergarten and the start of the current school year. If a student had the same grade level on his or her record twice (or more), the indicator for retention for that student was coded as a 1 in the current year, indicating that the student had been retained, either in the current grade or in a previous grade. On the other hand, a value of 0 for this covariate indicates that a student was promoted continuously throughout his or her tenure over the sample time period. Note that less than 1% of the retained sample had been retained more than once. This percentage is consistent with Roderick and Nagaoka (2005). Additionally, approximately 16% of the sample was grade retained,

which is consistent with prior research on grade retention in urban schools (e.g., McCoy & Reynolds, 1999).

Recall that the sample consists only of those students who have a 0 for retention, thereby composing the nonretained classmate sample on which the effect of retained peers was tested. In the second step, student retention data were aggregated up to a classroom-level measure. This measure is constructed as a classroom percentage of retained students.

Student Demographic and Academic Data

For each student in every school year, the data set contains demographic and academic information. Some variables are time-invariant, such as gender and race. Additional time-varying information includes: a 1-year lagged measure of ability (a normal curve equivalent SAT9 math score) and yearly indicators for special education status, ELL status, free lunch status, and whether or not the student has a behavior problem, determined by his or her behavior grade from the previous academic year.

Student Neighborhood Data

Data at the student level of analysis also contain residential neighborhood information. The empirical model utilizes four measures that describe the census block on which the student resides. They include: the percentage of a student's census block that is White, the percentage of a student's block at or below poverty, the household vacancy rate for the block, and the block's median household income. Note that in the absence of other direct measures of family data, free lunch status and neighborhood information often serve in empirical models as proxies for family background (Hanushek et al., 2003), as they are based on direct observation of family and neighborhood characteristics (e.g., household and census block incomes).

Teacher and Classroom Control Variables

Data on teachers are sourced both from student records and from the district's personnel office. A student record provides the name of the teacher assigned to a student's classroom in a given academic year. In addition, a detailed teacher data set was obtained from the district's personnel office. From these, two sets of variables were incorporated into the data set. First, for each teacher, basic characteristics include race and gender. Second, a binary variable indicates whether a teacher had a master's degree, based on the record that provides detail on which graduate school the teacher had attended.

Observable classroom-level control variables are employed as a first attempt to account for endogeneity issues pertaining to the peer effect

(i.e., that a larger percentage of retained classmates might be found in specially sized or academically tracked rooms). More rigorous ways of accounting for the placement of students are discussed in the following analysis section. Yearly class size and peer ability are included in the analyses. The average class size is approximately 28 students. Peer ability is derived based on the 1-year lagged testing outcomes for students in the classroom. Student *i*'s lagged test outcome is not included in the average class score. Thus, each student has a slightly different average peer ability observation in a given school year.

Partial correlation coefficients are presented in Table 2. They are based on the correlations between the percentage of retained classmates and an indicated independent variable in a given row, controlling for the joint influence of all other independent variables. The results of the table suggest very small correlations between any of the independent variables in the analysis and the percentage of retained students in that classroom. In the bottom portion of the table, the correlations between the percentage of retained classmates and teacher and classroom correlations approximate to zero. Thus, classrooms with higher percentages of retained students do not appear to be systematically related to observable characteristics of teachers and classrooms, large or small and high achieving or otherwise. That said, the proceeding section further addresses classroom assignment in more detail.

Empirical Specification

Baseline Model

This study employs a linear empirical specification for a baseline analysis of the effect of the percentage of retained classmates on other students' absences:

$$A_{ijgkt} = \beta_0 + \beta_1 R_{ijgkt} + \beta_2 I_{it} + \beta_3 N_{it} + \beta_4 C_{jgkt} + \beta_5 T_{jgkt} + \varepsilon_{igjkt}, \quad (1)$$

where *A* is the number of absences (either total, unexcused, or excused) for nonretained student *i* in classroom *j* in grade *g* in school *k* in year *t*.

The key predictor variable is *R*, the percentage of retained classmates in student *i*'s classroom *j* in grade *g* in school *k* in year *t*. At the student level, other sets of independent variables include *I*, which represents student demographic and academic characteristics in year *t*, and *N*, which represents student residential neighborhood census block characteristics. At the classroom level, *C* are classroom characteristics and *T* are teacher characteristics. The model also accounts for grade-level indicators.

Finally, the error term ε includes all unobserved determinants of achievement. Empirically, this component is estimated with Huber/White/sandwich robust standard errors (Huber, 1967; White, 1980), adjusted for classroom clustering. Because students are nested in schools by classroom

Table 2
Correlation Coefficients With Percentage of Retained Students in the Classroom

Student demographic/academic data	
Male	.00
Black	.00
Latino	.00
Asian	.00
1-year lagged SAT9 math score	–.01*
Special education	.00
English language learner	–.01
Free lunch	.01*
Behavior problem	–.01+
Student neighborhood data	
Census block White	.00
Census block at/below poverty	.01
Census block vacant	.01
Median block income (in dollars)	.00
Teacher and classroom data	
Male	–.04***
Black	.03***
Latino	–.02***
Asian	.03***
Master's degree	.01
Class size	–.06***
Mean lagged reading score	–.05***

$^{+}p < .10$. $*p < .05$. $***p < .001$.

and hence share common but unobservable characteristics and experiences, clustering student data by classroom provides for a corrected error term given this nonindependence of individual-level observations (Primo, Jacobsmeier, & Milyo, 2007).

Accounting for Unobserved Heterogeneity

It may be possible that unobserved school-level factors are correlated with the key predictor variable as well as with the outcome. For example, one school might attract effective and engaging teachers for unobserved reasons. As a result, the teachers might aggregately reduce need to retain students; however, this would also imply that other students may be less likely to be absent from school due to also having these more effective and engaging teachers. In this hypothetical case, this unobserved facet of the school environment might underestimate the effect of the percentage of retained classmates on individual absences. Alternatively, there could be overestimation bias. For instance, schools with lower principal involvement may be more likely to have to retain children, but these schools might

also be making fewer investments to reduce student absences. Indeed, a second specification in this study includes school-level fixed effects:

$$A_{ijgkt} = \beta_0 + \beta_1 R_{ijgkt} + \beta_2 I_{it} + \beta_3 N_{it} + \beta_4 C_{jgkt} + \beta_5 T_{jgkt} + \delta_k + \varepsilon_{igjkt}, \quad (2)$$

where δ_k are school fixed effects. Technically, the term δ_k is a set of binary variables that indicates if a student had attended a particular school (for each school variable in the data set, 1 indicates yes and 0 indicates no). This set of school indicator variables leaves out one school as the reference group (this process is analogous to creating indicator variables for race, where one racial category is left out as the reference group).

School fixed effects δ_k control for the influences of schools by capturing unobserved systematic differences across each unique school. By, in essence, holding constant those time-invariant school-specific characteristics, such as curriculum, school neighborhood, educational investments, organization, hiring practices, aggregate parental involvement, or retention policies, the model is accounting for school-level variance. Hence, the primary source of variation used to identify the peer effect occurs across classrooms within each school (in addition to controlling for grade level).

Even with the inclusion of school fixed effects, it is possible that time-varying unobserved school-level factors may be influencing the estimate of the percentage of retained classmates on student absences. For example, if there were an increased emphasis on accountability in a given school year, the estimated effect of the key predictor and outcome may be biased. An analogous explanation might exist for a decline in school quality year after year. To account for these potential time-varying school confounds, a second revision to the baseline specification includes school-by-year fixed effects:

$$A_{ijgkt} = \beta_0 + \beta_1 R_{ijgkt} + \beta_2 I_{it} + \beta_3 N_{it} + \beta_4 C_{jgkt} + \beta_5 T_{jgkt} + \delta_{kt} + \varepsilon_{igjkt}, \quad (3)$$

where δ_{kt} represents school-by-year fixed effects. In more detail, δ_{kt} is a set of binary variables for each school-year combination identifying if a student was in a given grade in a particular school. This set of school-year indicator variables leaves out one school-year category as the reference group.

Finally, in addition to biases on the estimates that may arise from unobserved school factors, there may also be within-school sorting (i.e., various student groupings across classrooms). On the one hand, principals might be more likely to assign more resilient or capable nonretained students—namely, who are least likely to experience negative effects of having a classmate who has been retained—into classrooms that have a greater percentage of retained students. Or, principals might place less resilient or capable nonretained

students with a greater percentage of retained classmates as a way to sort students by "problem" area. Given the potential biases in the data, a student fixed effects model is employed as a final revision to the baseline model:

$$A_{ijgkt} = \beta_0 + \beta_1 R_{ijgkt} + \beta_2 I_{it} + \beta_3 N_{it} + \beta_4 C_{jgkt} + \beta_5 T_{jgkt} + \delta_i + \varepsilon_{igjkt}, \quad (4)$$

where δ_i represent student fixed effects. Analogous to previous models in this study, student fixed effects are binary indicators for each individual student (based on student ID code), in which one student category is omitted as the reference.

This final model conducts a within-student analysis, which is made possible in this study because students in the data set were observed for several years. Thus, there are multiple data points for each individual student. By examining the effects of a treatment variable for the same student over time, a student fixed effects model controls for student-specific factors that may have been biasing the previous estimates. Hence, each student essentially serves as his or her own control group as all effects are identified within students (Clotfelter, Ladd, & Vigdor, 2007). Relevant to this study, it thus becomes possible to derive the effect of retained classmates based on students in the sample going in and out of rooms with varying percentages of retained classmates. The crux of this model is that student fixed effects control for all unobserved confounders that remain constant over time, and what remains in the equation are solely time-varying effects, such as peer groupings in a given school year. By accounting for within-student variation, this eliminates any biases caused by the correlation between the regressors and the unobserved influences, such as sorting. Hence, the student fixed effects model is the most robust of all specifications. Note that consistent with prior research, the error remains clustered at the classroom level, as the "treatment" of the percentage of retained classmates is a classroom-level measure (see e.g., Clotfelter et al., 2007). Also, in any given classroom there may still be unobserved, yet shared, experiences by all students in a single classroom.

Results

Effect on Total Absences

Table 3 presents all four empirical specifications for the effect of the percentage of retained classmates on the first of three outcomes—total absences. The estimates in the table are unstandardized coefficients with Huber/White/sandwich robust standard errors adjusted for classroom clustering in parentheses. Recall that the sample includes only those students who have been continuously promoted throughout their schooling, so that it is possible to examine the effect of having retained classmates.

Table 3

Estimates of Effects of Retained Classmates on Student Total Absences

	Baseline	School Fixed Effects	School-Year Fixed Effects	Student Fixed Effects
Retained students per classroom	4.40***	2.73**	2.24*	11.30***
	(1.21)	(1.14)	(1.14)	(2.77)
Effect size[a]	0.03	0.02	0.02	0.08
Model controls				
Student demographic/academic data				
Male	0.21	0.21	0.21	
	(0.13)	(0.13)	(0.13)	
Black	–2.39***	–2.32***	–2.49***	
	(0.20)	(0.23)	(0.23)	
Latino	–1.01***	–1.12***	–1.30***	
	(0.27)	(0.32)	(0.32)	
Asian	–5.56***	–6.43***	–6.65***	
	(0.34)	(0.35)	(0.35)	
Other	4.42*	3.73+	3.75+	
	(2.28)	(2.19)	(2.17)	
1-year lagged SAT9 math score	–0.11***	–0.07***	–0.07***	–0.10***
	(0.01)	(0.00)	(0.00)	(0.01)
Special education	1.81***	1.34***	0.83+	2.28*
	(0.55)	(0.49)	(0.46)	(0.97)
English language learner	–0.84*	–0.78+	–0.71	–1.03
	(0.42)	(0.44)	(0.46)	(0.96)
Free lunch	3.15***	3.37***	3.47***	–1.37***
	(0.14)	(0.16)	(0.16)	(0.35)
Behavior problem	2.47***	3.19***	3.42***	–2.08***
	(0.34)	(0.31)	(0.31)	(0.61)
Student neighborhood data				
Census block White	1.52***	1.06***	1.01***	
	(0.29)	(0.28)	(0.28)	
Census block at/below poverty	2.10+	1.64	1.63	
	(1.16)	(1.02)	(1.01)	
Census block vacant	2.19**	2.18**	2.15***	
	(0.78)	(0.81)	(0.78)	
Median block income	0.00***	0.00***	0.00***	
	(0.00)	(0.00)	(0.00)	
Teacher and classroom data				
Male	0.71	0.92	1.16+	–3.03
	(0.63)	(0.64)	(0.60)	(2.02)
Black	–0.41	0.60+	–0.41	–2.46
	(0.43)	(0.35)	(0.46)	(1.50)

(continued)

Table 3 **(continued)**

	Baseline	School Fixed Effects	School-Year Fixed Effects	Student Fixed Effects
Latino	–0.62	2.59	1.22	–0.83
	(2.00)	(1.97)	(3.43)	(7.24)
Asian	–9.40***	–7.24***	–6.52***	–2.71***
	(2.38)	(1.01)	(1.93)	(0.44)
Master's degree	–0.66	–0.21	–0.92*	–0.38
	(0.43)	(0.40)	(0.40)	(1.35)
Class size	0.04	–0.05+	–0.12**	0.06
	(0.03)	(0.03)	(0.04)	(0.04)
Mean reading score	–0.06***	–0.07***	–0.10***	–0.03*
	(0.01)	(0.01)	(0.02)	(0.01)
n	39,309	39,309	39,309	39,309
R^2	0.07	0.13	0.14	0.84

Note. Robust Huber-White standard errors adjusted for clustering within classrooms are in parentheses. All regressions include a constant.
[a]Effect sizes in this study are estimated as the standardized beta coefficient.
$^{+}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

The first column presents the baseline specification, in which only observable student, neighborhood, teacher, and classroom covariates are included in the model. The next two columns build on the baseline specification and incorporate school and then school-year fixed effects. Finally, the fourth column presents the student fixed effects model from Equation 4, in which only time-varying covariates remain present in the specification.

The table indicates two key points. First, and importantly, the coefficients pertaining to the percentage of retained classmates are statistically significant regardless of which model is examined in the table. Hence, the inclusion of more complex modeling techniques does not veer away from supporting the key premise in this study—that a greater percentage of retained classmates increases other students' absences. A larger, positive coefficient suggests a larger (negative) peer effect.

Second, the inclusion of school, then school-year, and finally student fixed effects drastically improves the explained portion of the variance of the outcome, total days absent. Each modification to the baseline model does improve the ability to explain the variance in absences. That being said, however, the model with the greatest explanatory power is the student fixed effects specification in the final column. This finding is logical, as student fixed effects models account for within-child variance and related omitted

factors (W. H. Greene, 2000). Additionally, the likelihood-ratio test also favors the student fixed effects model over any of the other three models in the table.

Without proceeding any further, a model accounting only for the unobserved school or school-year environments might have suggested a slight overestimation in the baseline model in the effect of retained peers on absences. This is evidenced by the small decrease in the size of the coefficients between column 1 and column 2 and even smaller decrease between column 2 and column 3. However, relying on the student fixed effects model in the final column (which has the greatest explanatory power, as mentioned previously) actually demonstrates a drastic underestimation in the effect of the percentage of retained classmates—an increase in coefficient size of almost 260% larger than the baseline model. Hence, once controlling for within-child variance, the estimates of the peer effect of retained classmates verifiably increases in magnitude, though the direction remains the same as in the other models. Thus, this most rigorous of empirical models suggests that while the interpretation is similar across all analyses, there were unobservable student-level factors previously influencing the estimate of the percentage of retained classmates. Hence, this exemplifies the importance of relying on multiple fixed effects models to derive conclusions: not including student fixed effects led to a downward bias in the estimates.

It is hence clear that having a greater percentage of retained classmates predicts greater school absences for those other students in the same classroom. This remains true even after controlling for a wide range of observable characteristics and accounting for omitted variable biases and the multilevel structure of the data. To interpret the effect, the measure of effect sizes in this evaluation is the standardized beta coefficient (e.g., Caldas, 1993; Hoxby, 2000; McEwan, 2003). The relationship between the percentage of retained peers and absences corresponds to an effect size of approximately 0.08σ in the student fixed effects model. This effect size is consistent with prior quasi-experimental research on classroom peer effects, in which effect sizes approaching 10% of a standard deviation are on the larger end of the spectrum (Ammermueller & Pischke, 2006; Hoxby, 2000). What this does show is the effect experienced by every nonretained student in the classroom. Hence, there is potential for extremely large aggregate classroom effects when considering that the result pertains to all nonretained students in the classroom.

It is possible to put this effect into perspective by examining the effect sizes of other coefficients in the student fixed effects model. The effect size of the percentage of grade retained classmates is approximately the same size as the ELL gap (0.08σ) and only slightly smaller than the poverty gap (0.10σ). As such, putting a nonretained student into a room with a one standard deviation higher than average percentage of retained peers is equivalent to the effect of being an ELL or high poverty student. In fact, the effect size of the number of grade retained classmates is approximately 50% the effect size of being a special

education student, thereby demonstrating the effect over multiple standard deviation movements in the percentage of grade retained classmates.

Results by Absence Category

Distinguishing the outcomes by unexcused and excused absences provides a slightly, yet more realistic, interpretation of the peer effect of retained classmates. Table 4 presents analogous models to those presented in Table 3—beginning with a baseline analysis and ending with a student fixed effects model. However, the distinction between the two tables is that in Table 4, the outcomes are either unexcused absences in the left section of the table or excused absences in the right section.

The results for unexcused absences depict an almost identical interpretation of the results in Table 3. Students with a greater percentage of retained classmates have a greater number of unexcused absences. This finding is consistent throughout all models predicting unexcused absences, with evidence once again provided by the student fixed effects model that an underestimation of the effect exists in the baseline and school fixed effects analyses. Indeed, the effect sizes in all unexcused absence models are nearly equivalent to those found in Table 3.

On the other hand, there are no statistically significant effects of retained classmates once the outcome is excused absences. Hence, the results indicate that the peer effect of retained students drives unexcused absences, rather than driving excused absences. This result is significant, as unexcused absences may signal educational disengagement (Gottfried, 2009), which as this study shows is related to classroom composition. On the other hand, there is no reason to suspect that the percentage of retained classmates should predict other students' sick days from school.

Moderating Effects

The analyses so far have documented that a greater percentage of retained classmates has negative implications for absence patterns for other students in the same classroom. A logical extension of these findings is to determine what is useful for policy. The fact that retention is a prevalent schooling practice implies that students will continue to be retained, and other students will hence have retained students as classmates. As such, the true question of interest to policymakers is not simply how having a greater percentage of retained classmates in the classroom influences absenteeism, but rather how to effectively organize classrooms in light of this continued practice.

To begin this policy discussion, this study relies on two additional analyses based on potential moderating effects. In Table 5, the results from Tables 3 and 4 have been delineated by individual student characteristic to determine if different student groups are differentially affected by having

Table 4

Estimates of Effects of Retained Classmates on Unexcused and Excused Absences

	Outcome: Unexcused Absences				Outcome: Excused Absences			
	Baseline	School Fixed Effects	School-Year Fixed Effects	Student Fixed Effects	Baseline	School Fixed Effects	School-Year Fixed Effects	Student Fixed Effects
Retained students per classroom	3.89***	2.24*	2.74*	11.14***	0.54	0.52	0.45	0.16
	(1.07)	(1.05)	(1.11)	(2.45)	(0.59)	(0.57)	(0.60)	(0.98)
Effect size[a]	0.03	0.02	0.02	0.09	0.01	0.01	0.01	0.00
Student demographic/academic data	Y	Y	Y	N	Y	Y	Y	N
Student neighborhood data	Y	Y	Y	N	Y	Y	Y	N
Teacher and classroom data	Y	Y	Y	Y	Y	Y	Y	Y
n	39,309	39,309	39,309	39,309	39,309	39,309	39,309	39,309
R^2	0.10	0.18	0.21	0.83	0.08	0.15	0.20	0.81

Note. Robust Huber-White standard errors adjusted for clustering within classrooms are in parentheses. All regressions include a constant.
[a]Effect sizes in this study are estimated as the standardized beta coefficient.
*$p < .05$. ***$p < .001$.

Table 5
Individual Moderating Effects—Coefficients on Percentage of Retained Classmates

	Outcome		
	Total Absences	Unexcused Absences	Excused Absences
Estimates from Table 3 or 4	11.30***	11.14***	0.16
	(2.77)	(2.45)	(0.98)
Male	11.82***	11.54***	0.28
	(3.73)	(3.32)	(1.30)
Female	10.90***	10.88***	0.01
	(2.93)	(2.64)	(1.12)
Lower ability	26.65**	22.79**	3.86
	(8.52)	(7.64)	(3.28)
Higher ability	6.46*	7.00**	0.54
	(2.77)	(2.51)	(1.29)
Special education	50.62	44.28	6.31
	(41.43)	(42.08)	(12.56)
Not special education	10.89***	10.76***	0.13
	(2.62)	(2.32)	(0.97)
English language learner (ELL)	6.19	4.82	1.37
	(13.47)	(11.52)	(6.55)
Not ELL	11.71***	11.38***	0.33
	(2.82)	(2.49)	(1.01)
Free lunch	10.56*	11.93**	–1.36
	(4.73)	(4.32)	(1.38)
Non free lunch	9.41***	9.09***	0.32
	(2.66)	(2.37)	(1.31)
Behavioral issue	3.22	4.69	–1.47
	(31.47)	(28.81)	(12.03)
No behavioral issue	10.30***	10.48***	–0.17
	(2.66)	(2.38)	(1.00)

Note. Robust Huber-White standard errors adjusted for clustering within classrooms are in parentheses. Each cell represents a separate regression, which includes the same control variables as in Tables 3 and 4.
*$p < .05$. **$p < .01$. ***$p < .001$.

a greater percentage of retained classmates. This way, it is possible to determine if individual characteristics moderate the effect of the percentage of retained classmates on absence outcomes. Each cell represents the coefficient and standard error of the percentage of retained classmates based on a fully interacted model based on a demographic characteristic indicated in the leftmost column. The outcome is identified at the top of each of three columns. Recall that the sample includes all nonretained students.

As mentioned in the introduction, demographic characteristics were purposefully selected in Table 5 based on malleable policy factors grounded in prior work on moderating effects in classroom research. For instance, it may be possible for a school administrator to consider differential effects by gender or testing ability and can hence make classroom composition changes accordingly. However, in an East Coast urban district like Philadelphia, considering the effects by race may not be as useful for school administrators, as schools are fairly homogeneous. Thus, administrators in these schools may not be able to consider differential effects across racial characteristics as easily as they could consider composition by other demographic or academic characteristics.

Overall, the results do suggest heterogeneity by student characteristic and hence ways that school administrators might organize classrooms to avoid exacerbated effects of retained classmates. Moreover, all results are consistent with the overall interpretation in Table 4—that there is an effect on unexcused absences, but not on excused absences.

Looking at the unexcused absences column, nonretained boys ($p < .001$) are slightly more influenced by having a higher percentage of retained classmates than are nonretained girls ($p < .001$). Academically, lower ability students ($p < .01$) (defined as scoring at or below the 25th percentile in the lagged measure of achievement) are much more influenced by the percentage of retained classmates compared to higher ability students ($p < .01$). Additionally, high poverty nonretained students ($p < .01$) (defined as receiving free lunch) are absent with a greater percentage of retained classmates compared to students not receiving free lunch ($p < .001$). Finally, the results do suggest that special education and ELL students as well as students with behavior problems are not influenced by the percentage of retained classmates. While this may be the case, the results here might also have been driven by relatively smaller sample sizes compared to their respective counterparts.

Table 6 evaluates moderating effects of classroom-level characteristics: These classroom-level characteristics were aggregated from the student-level characteristics found in the baseline model. If the presence of classroom contextual effects exists, then this enables school administrators to address distributional issues in order to reduce any negative peer effect of retained classmates. The table is constructed analogously to Table 5—each cell represents the coefficient and standard error on the percentage of retained classmates based on a fully interacted model based on classroom characteristic indicated in the leftmost column. The outcome is identified at the top of each of three columns, and the sample includes all nonretained students.

The results indicate that classroom settings may indeed moderate the relationship between the percentage of retained classmates and absence outcomes. Looking at the unexcused absences column, first nonretained students in larger than average classroom ($p < .001$) may experience

Table 6
Classroom Moderating Effects—Coefficients on Percentage of Retained Classmates

	Outcome		
	Total Absences	Unexcused Absences	Excused Absences
Estimates from Table 3 or 4	11.30***	11.14***	0.16
	(2.77)	(2.45)	(0.98)
Class size			
Below average size	10.75	9.83	0.92
	(11.27)	(10.89)	(4.82)
Above average size	11.51***	11.44***	0.07
	(2.57)	(2.34)	(1.43)
Percentage of boys in classroom			
Below average	8.09	9.46+	–1.36
	(5.59)	(5.44)	(2.53)
Above average	12.83*	11.22*	1.60
	(5.96)	(5.43)	(2.00)
Classmates with special needs			
No	6.88*	8.23**	–1.35
	(3.23)	(3.13)	(1.70)
Yes	13.73***	10.71+	3.02
	(7.56)	(6.40)	(2.68)
Classmates with English language learner (ELL) needs			
No	11.28**	11.44***	–0.15
	(3.66)	(3.40)	(1.37)
Yes	9.92**	8.90*	1.01
	(3.70)	(3.65)	(2.39)
Classmates with behavior issues			
No	16.31	13.00	3.32
	(13.42)	(11.22)	(7.10)
Yes	8.82***	9.31***	–0.49
	(2.94)	(2.57)	(1.09)

Note. Robust Huber-White standard errors adjusted for clustering within classrooms are in parentheses. Each cell represents a separate regression, which includes the same control variables as in Tables 3 and 4.
$^{+}p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

a negative effect of having a greater percentage of retained classmates, whereas this is not the case in smaller classrooms. Hence, smaller class size may serve as a protective factor when placed in the same environment as retained classmates. Second, the gender of a student's classmates tends to moderate the effects of the percentage of retained students on absence outcomes. Nonretained students whose classmates are composed mostly

of boys ($p < .05$) tend to experience negative effects on absences of having a greater percentage of retained classmates. On the other hand, nonretained students with mostly girl classmates ($p < .01$) do not experience as drastic of negative effects.

The final three categories of classroom factors examine the characteristics of other students in the same room as retained students. Note that these additional characteristics do not overlap with retained students: For the purposes of this analysis, the characteristics listed in the table are mutually exclusive from having been retained. The results suggest a much larger (and hence more detrimental) prediction of retained classmates when the classrooms also contain students with special needs ($p < .01$) or students with behavioral issues ($p < .001$). On the other hand, there do not appear to be dramatic moderating effects in either direction of having ELL classmates in addition to a greater percentage of retained classmates.

Discussion

The findings of this study have contributed new insight into the relationships between grade retention, classroom contextual factors, and absence behavior. Prior to this study, little research had focused on the peer effects of having classmates who have been grade retained—no study had considered the effect on other students' absences. A focus on absences is critical, however, as higher rates of absences are highly correlated with educational decline, high school dropout, weakened socio-emotional development, increased health risk behaviors, and greater risk of unemployment in adulthood (Alexander et al., 1997; Broadhurst et al., 2005; Chen & Stevenson, 1995; Connell, Spencer, & Aber, 1994; Ekstrom et al., 1986; Finn, 1993; Gottfried, 2009; Halfors et al., 2002; Johnson, 2005; Kane, 2006; Newmann, 1981). These problems stemming from absences are especially pertinent in urban school systems, like the one studied in this evaluation (Balfanz & Legters, 2004; Fine, 1994; Orfield & Kornhaber, 2001). Hence, identifying and remedying factors of student absenteeism is crucial, particularly for urban students.

To do so, this study relied on a large-scale data set of students in urban elementary schools. The benefit of utilizing large-scale, longitudinal, administrative data is twofold. First, it is possible to document cohorts of students by classrooms, grades, and schools year after year. Hence, this nested structure of the data not only allows for a more refined estimate of the peer effect through multilevel modeling, but also enables for the clear-cut identification of exact classroom peer groupings over time.

Second, relying on longitudinal, comprehensive district data enables for multiple methodological approaches to be undertaken as a way to more accurately estimate the size and direction of the effect of having retained classmates. As consistent with prior research in classroom peer effects in

elementary school (Cho, 2012; Fletcher, 2010; Gottfried, 2012), variants on fixed effects modeling were employed in order to account for omitted variable biases. The first approach started with a baseline assessment, in which only total, unexcused, and excused absences were separately modeled based strictly on observable student and classroom characteristics. Even without accounting for unobserved factors, these initial results provided formative evidence that having a greater percentage of retained classmates was associated with higher individual absences.

A second approach built directly on the baseline specification by testing variants of school and school-year fixed effects models. The intention was to account for unobservable school time-invariant and time-varying factors that may be influencing both the percentage of grade retained classmates as well as absences. Even after accounting for these unobserved factors, the findings nonetheless supported the results from the baseline model. While the coefficients from the set of school fixed effects models might have suggested a slight overestimation in the effect compared to the baseline model, the most rigorous of all models—namely, student fixed effects models—presented a different, and more accurate, interpretation.

In this final approach, a student fixed effects strategy was employed in which the estimates of having retained classmates on absences were identified from within-student variation in the percentage of grade retained peers over time. Doing so allowed for the model to account for unobserved within-school sorting by using each student as his or her own control. Hence, what remained in the analyses were time-varying percentages of grade retained classmates (in addition to all time-varying control variables) in an attempt to more precisely isolate the peer effect. Using student fixed effects is supported in quasi-experimental educational research (Schneider, Carnoy, Kilpatrick, Schmidt, & Shavelson, 2007): Controlling for student and neighborhood characteristics and school, grade, and year fixed effects, the point estimates consistently indicated that for students with a higher percentage of retained classmates, nonretained students have greater absences.

When disaggregating the outcomes by type of absence, a more detailed picture was revealed. While the results were statistically significant in all models where unexcused absences served as the outcome, the effect completely dropped away with excused absences as an outcome. Hence, greater unexcused absences serve as the effect of having a greater percentage of retained classmates.

Unexcused absences may signal academic disengagement (Baltimore County School District, 2006; Gottfried, 2009). Hence, the fact that a greater percentage of retained classmates predicts unexcused absences—but not excused absences—provides empirical support for the mechanism proposed in the introduction of this article. If the classroom environment can be characterized as a public good as Lazear (2001) has suggested, then the academic and behavioral issues specific to retained students may exert a negative

spillover onto their peers. For instance, it may be that retained students who have especially high academic needs—even compared to continuously promoted students (Hong & Raudenbush, 2005)—require more attention and help from their teachers (Everston, 1982) than do other types of low performing students. Hence, retained students might spur classmates' disengagement because they utilize a potentially disproportionate amount of teachers' time and the overall classroom environment becomes less engaging for nonretained classmates (Gottfried, 2013b). Or, it may be that retained students create a disruptive and disengaging environment through individual-level behavioral issues spurred by having been retained. In this case, by inducing disengaged behaviors from others or by teachers having to divert their attention away from creating a stimulating environment for the entire class and instead toward discipline, retained students may reduce the level of classmate engagement. In this study, decreased classroom engagement materialized in the form of increased unexcused absences.

Given this main finding, two ancillary tests provided insight into the policy implications of these results and further provided strategies that schools could implement when considering classroom distribution and the peer effects of retained students. It was found that there were many significant individual and classroom factors that moderated the negative main effects of having a greater number of retained classmates, including gender and ability at the student level and class size and peer characteristics at the classroom level. Moreover, there were consistencies between individual and classroom factors. For instance, males tended to have a greater number of absences with a greater percentage of retained classmates. Similarly, all nonretained students had fewer absences when there were fewer males in the room with a greater percentage of retained classmates.

Directly building off of this finding, a first overarching policy implication emanating from this study is that policymakers and practitioners must consider in more detail how various factors of the classroom environment may moderate peer effects emanating from having retained classmates. Often, research in classroom composition strictly examines a main effect—namely, presenting how more or a greater percentage of a peer group is better or worse for other students in the classroom. However, the findings in this study have indicated that additional characteristics of the nonretained students in the same classroom prove to be significant moderating factors, as do the characteristics of the classroom environment itself. Therefore, as more and more districts and states enact "get tough" retention policies, the issue of retained students' effects on their classmates will become even more widespread. Thus, researchers and practitioners must address the extent to which a growing number of retained students may affect the outcomes of their classmates and how additional contextual factors may moderate this relationship. This will enable for a more precise assessment of who is most susceptible and who is placed at greatest risk in which

classroom environments. Consequently, as schools consider classroom composition and make decisions accordingly, the findings in this study provide an empirically based starting point for an underestimated effect as to which classrooms can create the most supportive environment when faced with assigning retained students and their classmates.

Second, and related, a more complete picture is also drawn when considering not simply the effects of retained classmates on a record of absences as an aggregate measure, but rather delineated as unexcused and excused subcategories. It is true that both policy and practice are often based on aggregated measures of absences, particularly as schools are evaluated for Adequate Yearly Progress (AYP). However, the findings of this study demonstrate that with more detailed records and analyses, school administrators could use this refined information to more appropriately observe and gauge how the classroom context may contribute to educational disengagement. That is, given the fact that the percentage of retained classmates only affected unexcused absences rather than excused absences, schools could more efficiently use these data to identify at-risk environments early in schooling based on more realistic indicators of disengagement.

Third, the fact that there was significant, consistent peer effects of retained students on absences establishes the extent to which there are quantifiable classroom effects on student measures of attainment beyond achievement. While most peer effects studies traditionally have examined how one group of students may predict other students' achievement outcomes, this study demonstrates that there is also a prevalent effect on absences—particularly unexcused absences, which, as mentioned previously, not only signals academic disengagement but also highly correlates to concurrent and future educational, developmental, financial, and health outcomes. Hence, with the findings in this study—which brought to surface new channels by which classmates can influence student outcomes—stakeholders can guide school practices to more efficiently address how to improve the classroom context not solely by focusing on academic achievement, but also on additional student measures of attainment that also highly predict both success and failure.

Fourth, focusing on urban students has allowed this study to document the effect of retained students in particularly high-needs schools. The findings provide new evidence that a relationship exists between classroom composition and absences for elementary school students. For practitioners, having this evidence provides support for need to document absences and determine its sources for young urban students prior to entry into older grades when the consequences of missing school become more severe. Moreover, identifying factors of absenteeism is especially pertinent for urban elementary schools that are often challenged to meet AYP. For elementary schools, states' AYP formulae often include absence or attendance rates (U.S. Department of Education, 2002). Given absences' importance in

determine school performance, this study has highlighted the significance in determining driving forces of absences—namely, in this study, peer effects. Hence, researchers and practitioners can utilize the findings of this study to more efficiently guide policies and make educational adjustments to bolster supportive educational environments in urban schools, so that even with the presence of grade retention practices, schools are nonetheless ensuring success for all children.

Conclusion

The analyses and findings of this study have provided new evidence pertaining to grade retention, peer effects, and student absences. While most research on retention has focused on the outcomes for the retained student per se, this study examined a generally underresearched avenue—the spillover effect of retained classmates on others' attainment. Further, rather than focusing on achievement outcomes, this research examined absences, both unexcused and excused, as they signal a lack of school engagement and are high correlates of lifelong success. The results suggested a pervasive negative effect of a greater percentage of retained classmates as derived from multiple quasi-experimental methods on a panel data set of urban elementary schoolchildren. However, this study also found that many individual and classroom moderating characteristics may serve as protective factors in considering classroom composition. Hence, this study has facilitated an opportunity for urban educational experiences to be further delineated and for policy implications to be more thoroughly discussed.

Several avenues for further research can be based on the methods and findings in this study. First, this study has widened the discussion of classroom compositional effects beyond testing outcomes. With an appropriate survey-based data set or through the use of classroom observations, future research can build on this present study by examining the effect of grade retained classmates on other nontesting outcomes, such as socio-emotional or developmental outcomes or classroom social skills. Policy implications from this continued line of research would allow for practitioners to utilize results to identify which student outcomes have the strongest significant relationships associated with having a greater percentage of grade retained classmates. Hence, schools could more efficiently evaluate how peer effects place other students at risk of failure across multiple measures of student attainment and hence develop policies and programs to support protective classroom environments.

Second, this study expanded the discussion of absence behavior by disaggregating the outcome into unexcused and excused. Future research may continue in this direction by using or developing data sets where specific reasons within each type of absence are documented. Having an even further level of detail would allow for future research to evaluate peer effects

on particular types of unexcused absences. This would enable researchers to analyze even more refined specific categories of absence behavior and hence make policy recommendations regarding classroom composition based on these more refined designations.

Finally, many key advantages exist for evaluating the peer effects of retention and absences for students within a single, large urban school district: Urban youth are at extremely high risk for educational failure. However, differential results and interpretations may arise from the evaluation of other school systems. For instance, other district data sets may contain additional measures of the classroom environment, such as data on types of disciplinary issues occurring in the classroom, that may yield additional insight into the classroom context addressed here. A final research extension is to apply the methods from this study on multilevel, longitudinal data from other districts or nationally representative data sets to assess the generalizability of these new findings. In doing so, continued research can contribute to determining the effects of grade retention and classroom context and to reducing risk associated with educational disengagement.

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Manuscript received December 6, 2012
Final revision received May 16, 2013
Accepted May 28, 2013