Title: The Effects of Grade Retention on High School Completion and Performance

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Abstract

Background:
While requiring a failing student to repeat a grade is not a new idea, the widespread availability of standardized assessment results for all students in grades 3-8 has made it practical to establish uniform, objective policies for deciding whether and when to retain students. The theory behind test-based promotion policies is that students who fail to demonstrate a sufficient understanding of their current grade’s curriculum lack the prerequisite proficiency to fully engage in the following grade. An additional year of instruction in the current grade provides the student the opportunity to improve proficiency and more fully engage in the curriculum of the following grade; i.e., it ensures “that students are promoted only if they are prepared for higher level work” (NYCDOE, 2009). That improved preparedness is expected to lead to subsequent improved achievement and preparedness in later grades and ultimately a greater chance that the student will complete high school and be better prepared for long-term success.

Contrary to this theory, a large prior literature, based upon observational studies and summarized in meta-analyses by Holmes (1989) and Jimerson (2001), finds that retention is negatively associated with academic performance and increases the potential for dropping out of high school. More recently, this earlier literature has been criticized as having serious methodological flaws (c.f, Alexander, Entwisle, and Dauber, 2003; Allen, Chen, Willson, and Hughes, 2009; Hong and Raudenbush, 2005; Lorence, Dworkin, Toenjes, and Hill, 2002). The primary empirical challenge facing these studies stems from the fact that “retention may reflect a subjective decision-making process based on a variety of factors” (Jimerson, Carlson, Rotert, Egeland, and Sroufe, 1997, p.4).

The use of standards-based assessments as a uniform basis for retention eligibility allows for the implementation of quasi-experimental designs in evaluating the impact of retention. Studies using this framework have found mixed results on academic outcomes. Examinations of students in Chicago (Jacob & Lefgren, 2004; Roderick & Nagaoka, 2005) found, at most, small benefits, with the positive effects concentrated among younger students and dissipating quickly, while studies using data from Florida (Greene and Winters, 2007; Schwerdt, West, and Winters, 2015), Texas (Hughes, Chen, Thoemmes, and Kwok, 2010), and New York City (Mariano and Martorell, 2013) find evidence of much larger positive impacts that persist for at least several years. Among high school outcomes, Jacob and Lefgren (2009) found that eighth-grade retention increased chances of dropout, but sixth-grade retention had no significant effect, while Schwerdt, West, and Winters (2015) found third-grade retention did not impact the probability of graduating high school.

Purpose:
This study examines the impact of grade retention under a comprehensive student promotion policy instituted by New York City Department of Education (NYCDOE). Building upon earlier work that explored impacts on short-term test scores, the current study examines effects on measures of high school persistence and academic performance. It will add to the scant available evidence on the causal impact of grade retention on high school dropout and graduation, and will also provide new evidence on the effects of retention on measures of high school enrollment, progression (credit accumulation), and standardized academic performance measures (Regents exams). This study will also be the first to examine these outcomes separately for retention in each of grades 3 through 8.
Subjects:
We use administrative data provided by NYCDOE on students in all grades subject to the
NYCDOE promotion policy from 2003–2004 through the 2011–2012 school year. Each cohort
contains approximately 54,000 to 63,000 policy-eligible students, with retentions ranging from
one to six percent per cohort. Analytic data will focus on students who took standardized
assessments given at the conclusion of NYCDOE’s mandatory summer school program, as these
assessments determined retention eligibility. Outcome data through 2015–2016 will be
incorporated into the analysis. Table 1 identifies each cohort in the sample, along with the 2015–
2016 grade for both promoted and retained students. Available data include assessment
measures, retention status, background characteristics, and comprehensive baseline academic and
behavioral information.

Intervention:
The NYCDOE implemented a new assessment-based promotion policy for general
education students in grade 3 in 2003–2004. By 2009–2010, the policy had been extended to
grades 3 through 8. Promotion requirements under the policy required students to demonstrate
meeting at least the second of four performance levels in both mathematics and ELA. Students
scoring Level 1 on either spring state assessment were required to attend summer school unless
they demonstrated Level 2 in a portfolio review. Summer students who subsequently scored
Level 1 on the City’s standardized assessment at the end of the summer program were retained
unless they demonstrated Level 2 on a summer portfolio or were granted an appeal by the their
principal and community superintendent. As seen in Figure 1, scoring below the Level 2 cutoff
on the summer assessment sharply increases the likelihood of being retained.

Research Design:
We use a fuzzy regression discontinuity research design (Hahn, Todd and van der
Klaauw, 2001; Imbens and Lemieux, 2008) that exploits the fact that grade retention is largely
determined by whether a student scores below the Level 2 cutoff on the summer assessment.
More specifically, the research design will use Level 2 status on the summer assessment as an
instrumental variable for grade retention. If the discontinuity seen in Figure 1 is a source of
variation in grade retention that is not related to confounding factors, at least near the Level 2
cutoff, then any discontinuity in a given outcome at the Level 2 cutoff will reflect a causal
impact of grade retention. Standard tests to ensure validly based upon key model assumptions are
employed.

Findings and Conclusions:
We have fit preliminary models for all outcomes. Data from the 2015–2016 school year
will be available in November, offering a substantial increase in sample size. Final models will
be run at that time. Because we currently only have preliminary results, we cannot yet draw firm
conclusions; however, final results and conclusions will be available well in advance of the
conference dates.
References


Table 1. Expected Grade in the 2015–2016 School Year for Each Cohort Subject to the NYCDOE Student Promotion Policy

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Notes: R=retained students; P=promoted students; G=high school completed. Grey boxes indicate cohort not subject to the policy.
Figure 1: Fraction of Students Retained in Grade by Summer Assessment Score

Note: The sample includes all students subject to the policy in grades 3 through 8 between 2004 and 2012 who took the summer assessment. The vertical axis represents the proportion of students retained in grade in the following year. The horizontal axis is defined as the minimum of the math and ELA summer assessment scores, centered to be equal to zero at the Level 2 cutoff and scaled to the width of Level 2 on the assessment reporting scale for each grade and year. Thus all students were Level 1 on at least one subject if and only if they were below zero on the horizontal axis.