Teaching to the rating: School accountability and the distribution of student achievement

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Abstract

This paper examines whether minimum competency school accountability systems, such as those created under *No Child Left Behind*, influence the distribution of student achievement. Because school ratings in these systems only incorporate students' test scores via pass rates, this type of system increases incentives for schools to improve the performance of students who are on the margin of passing but does not increase short-run incentives for schools to improve other students' performance. Using student-level, panel data from Texas during the 1990's, I explicitly calculate schools' short-run incentives to improve various students' expected performance, and I find that schools do respond to these incentives. Students perform better than expected when their test score is particularly important for their schools' accountability rating. Also, low achieving students perform better than expected in math when many of their classmates' math scores are important for the schools' rating, while relatively high achieving students do not perform better. Distributional effects appear to be related to broad changes in resources or instruction, as well as narrowly tailored attempts to improve the performance of specific students.
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"Under the [No Child Left Behind] law, schools must test students annually in reading and math from third grade to eighth grade, and once in high school. Schools receiving federal antipoverty money must show that more students each year are passing standardized tests or face expensive and progressively more severe consequences. As long as students pass the exams, the federal law offers no rewards for raising the scores of high achievers, or punishment if their progress lags." (Schemo, 2004)

"In what amounts to educational triage, we screen for those students whose scores are closest to the 70 they need to pass… [T]eachers receive a class set of color-coded labels. Blue is for students who've excelled in previous years; green is if everything's OK; yellow is if scores are passing perilously close to 70; gray is if the student might slip below 70 or who have passed one year but failed another. And red… is for kids who have

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failed a particular test for two years. We are told to concentrate on the yellow and gray kids; the ones who are in the 'strike zone.'" — Teddi Beam-Conoy, a Texas elementary school teacher, 2001

1. Introduction

On January 8, 2002, President George W. Bush signed into law the "No Child Left Behind Act of 2001," a reauthorization of the Elementary and Secondary Education Act. The most prominent policy change instituted by the new law was to require that states adopt school accountability systems based on minimum competency testing. The law authorizes the U.S. Department of Education to withhold federal funds if a state does not administer a testing and accountability system meeting several requirements. Similar to Texas' current accountability system, (which began when President George W. Bush was Governor), *No Child Left Behind* requires states to rate schools based on the fraction of students demonstrating "proficiency."

The focus of this paper is to examine whether accountability systems that use test score measures based only on minimum competency influence the distribution of student achievement. Because school ratings in these systems only incorporate test results via pass rates, this type of system increases incentives for schools to improve the performance of students who are on the margin of meeting these standards, while offering no short run incentives for schools to improve other students' performance. Schools might therefore concentrate on the marginal students, to the detriment of very low achieving students and of high achieving students.

There is previous evidence that agencies alter the timing of their actions (e.g., Courty and Marschke, 1997, 2004) and engage in cream-skimming (e.g., Heckman et al., 2002) in response to specific performance measures. There is also a growing literature concerning the impact of school accountability programs on student achievement (e.g., Grissmer and Flanagan, 1998; Carnoy et al., 2003; Figlio and Rouse, 2005; Jacob, 2005; Hanushek and Raymond, 2005). There is relatively little evidence, however, concerning whether schools or other agencies alter the distribution of outcomes due to performance measures based on minimum competency rates.[1] Under *No Child Left Behind*, schools have fairly strong incentives to focus on pass rates, because schools with low ratings must allow students to transfer to other public schools and may lose some of their federal revenue.[2] Perhaps more significantly, school ratings may lead to organizational interventions,[3] changes in school prestige, changes in local property values,[4] and financial rewards to schools and teachers.[5]

In order to investigate the effect of a minimum competency accountability system on the distribution of achievement, I analyze individual-level test score data and school-level accountability data from Texas in the 1990's. Unlike a typical regression discontinuity design, I exploit the presence of discrete cutoffs at both the individual-level and the agency-level. There is a cutoff for a passing test score, and there are also multiple cutoffs for school accountability indicators such as attendance rates, dropout rates, overall pass rates, and the pass rates of different ethnic groups within the school. First, I estimate the marginal effect of a hypothetical improvement in the expected performance of a particular student on the probability that a school obtains a certain rating that year. I then directly test whether students earn higher than expected test scores when schools have stronger short run incentives to focus on

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[1] Some states require students to pass tests in order to graduate from high school, and cross-state comparisons provide mixed evidence on whether these tests hurt or help relatively low achieving high school students (Jacobson, 1993; Jacob, 2001). Working papers explicitly examining distributional effects of school accountability programs assume that, in the absence of any behavioral responses, test score gains are either equally likely throughout the test score distribution (Deere and Strayer, 2001) or equally likely at symmetric points around the passing score cutoff (Holmes, 2003). Jacob (2005) finds evidence of strategic behavior by comparing students' relative performance on high stakes exams and external assessments after the imposition of accountability in Chicago. In addition to holding schools accountable for their proficiency rates, Chicago had a different test score cutoff which was the basis for retaining low performing students in their grade. The analyses of distributional effects below identify distributional effects caused solely by incentives linked to proficiency rates, and these analyses also use a different methodology.

[2] States must allow students in schools with sufficiently low pass rates for two consecutive years to transfer to other public schools. In addition, schools with sufficiently low pass rates must allow students from low income families to receive free tutoring services from the provider of the student's choice, paid with federal funds that the school district would normally use for other expenditures.

[3] As of 2002, thirty-eight states had policies for sanctioning schools and/or school districts based on unsatisfactory student performance. In thirty of these states, possible sanctions included taking over a school or school district, closing a school, or re-organizing a school district (Education Commission of the States, 2002).

[4] Figlio and Lucas (2004) find that house prices increase in Florida when the local elementary schools receive an "A" rather than a "B" grade, even when controlling for the linear effects of the test measures used to determine the ratings.

[5] In 2002, nineteen states had programs granting monetary awards to either districts or schools based on student performance. Thirteen of these states permitted the awards to go directly to teachers or principals as salary bonuses (Education Commission of the States, 2002). Lavy (2002) finds that teachers in Israel raise students' test scores in response to financial incentives.