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# Field Experiments II: Opening My Laptop

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- A. Framed Field Experiment: Classroom Performance
  - B. Artefactual Field Experiment: Gender and Competition
  - C. Natural Field Experiment: Experiments with Firms
  - D. Concluding Remarks
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## B. Framed Field Experiment: Using Incentives To Improve Educational Achievement

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# Introduction

- In September 2008, we began a year-long Chicago Heights Miracle program among freshmen at two high schools in Chicago Heights, IL
  - We are comparing this year-long program with short-term, one-time achievement incentives among eighth and tenth graders
  - This comparison crossed with who receives the pecuniary rewards permits us to test certain theoretical predictions and speak to policymakers.
  - Our goal is to develop rigorously tested cost-effective programs that can be applied in schools facing similar challenges
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# Chicago Heights

- Changing demographics:
  - In-migration from Chicago housing projects
  - Middle class families have migrated to the suburbs or opted out of the public school system
  - Percentage of low-income students in the public high schools increased from 39.5% in 1999 to 68.7% in 2008\*
- Low achievement:
  - High school dropout rate is 53% \*\*
  - 80% of 11th graders score below state standards\*
- Chicago Heights Promise was founded with the goals of:
  - Improving high school graduation and college attendance rates
  - Bringing families back into the city and the public school system
  - Stimulating economic and community development

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\*Source: Illinois Report Card

\*\*Source: Chicago Heights Promise Working Group

# Chicago Heights Miracle: Incentives

Treatment variables:

1. Award Recipient: Students vs. Parents
2. Award Distribution: Piece-rate vs. Lottery

- Piece-rate: \$50 awarded to each eligible student monthly
- Lottery: \$500 awarded monthly to up to 10 students (randomly chosen out of ~100)

Students qualify for incentives if they meet monthly achievement standards:

- Grades: No Ds or Es in any class at the end of the month
- Behavior: No all day suspensions in-school or out-of-school
- Attendance: No more than one unexcused absence
- Standardized test performance: Meet grade level reading score or improve on fall test score (February and May only)

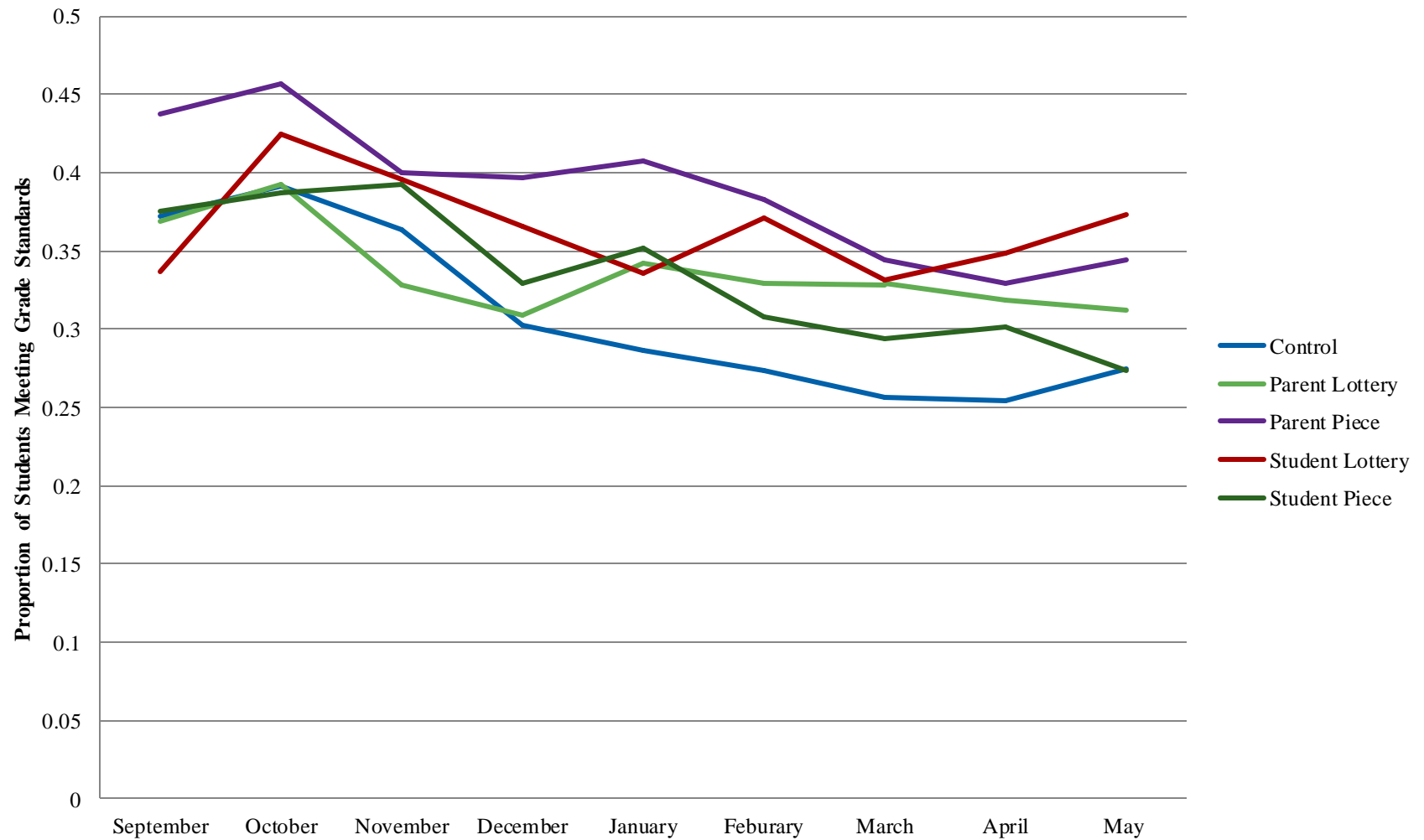
## Chicago Heights Miracle: Experimental Design

### Treatment Assignment: Baseline (All Dates)

	Piece Rate	Lottery
Student Rewards	N = 187(193)	N = 193 (199)
Parent Rewards	N = 197 (202)	N = 198 (203)
Control Group	N = 188 (193)	

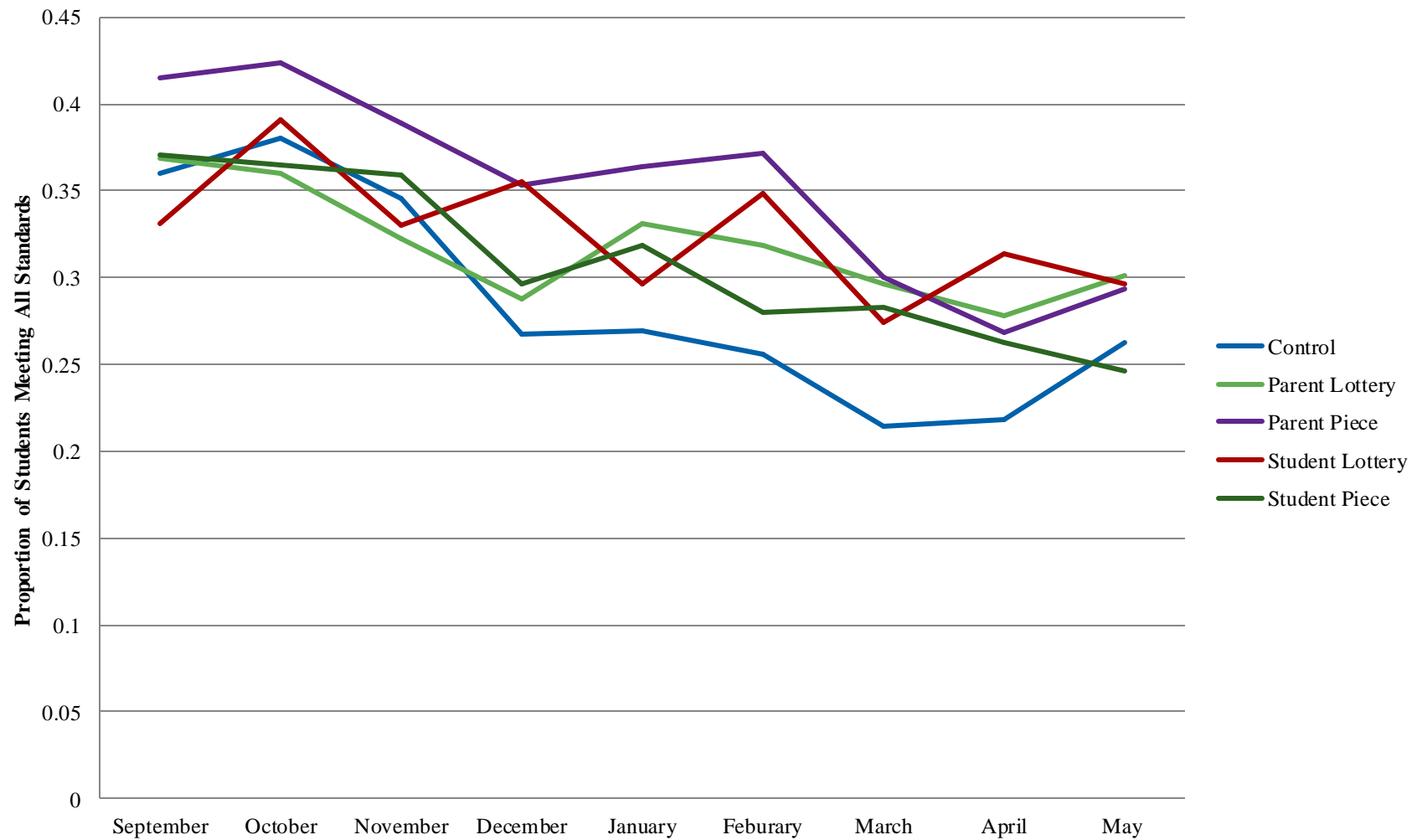
# Meet Grades

## Meet Grades Standards, by Treatment Group



## Meet All: By Group

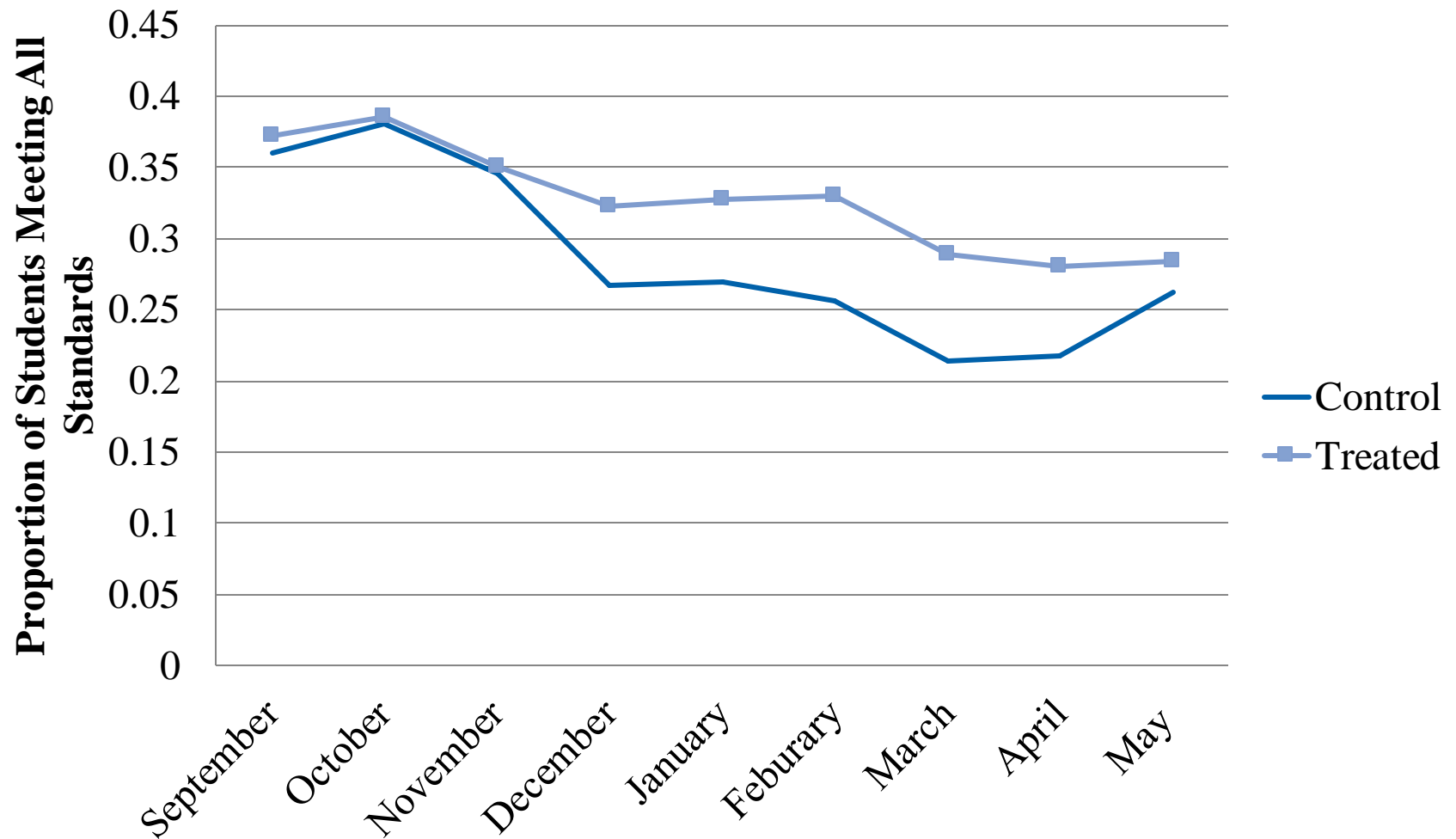
**Meet All Standards, by Treatment Group**





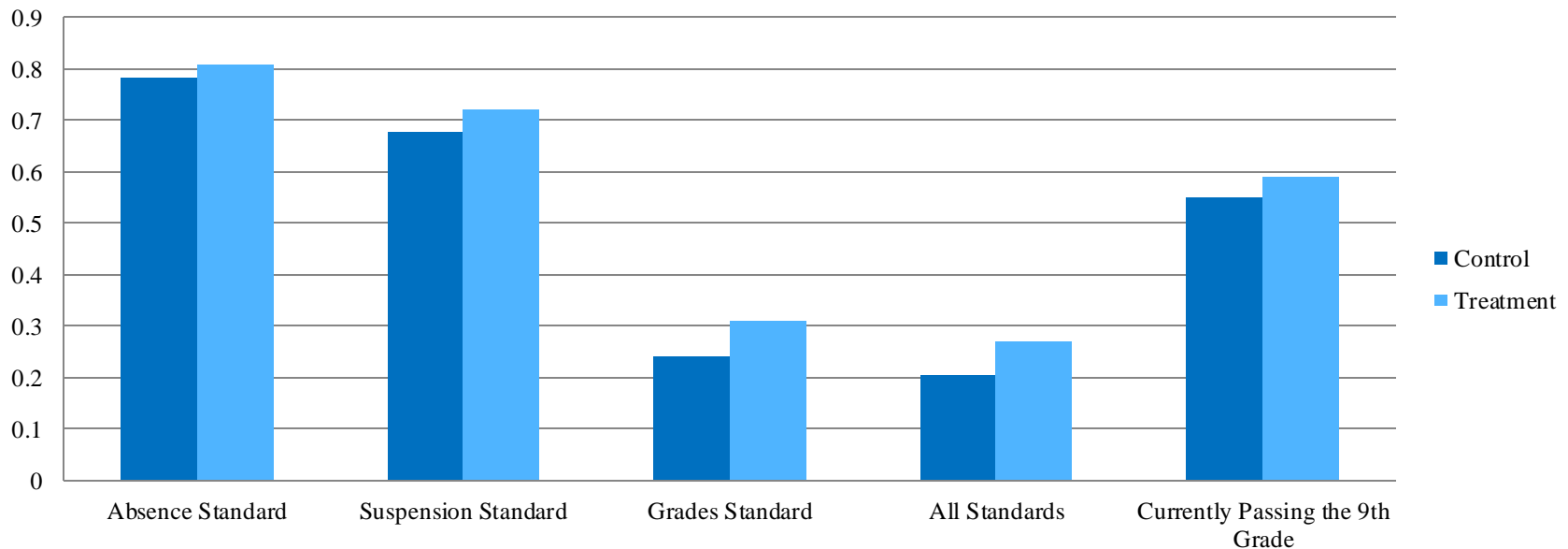
## Meet All: Collapsed

**Meet All Standards, by Treatment Group**



## Chicago Heights Miracle: Results

**Chicago Heights Miracle: Percent of Group Passing by Treatment**



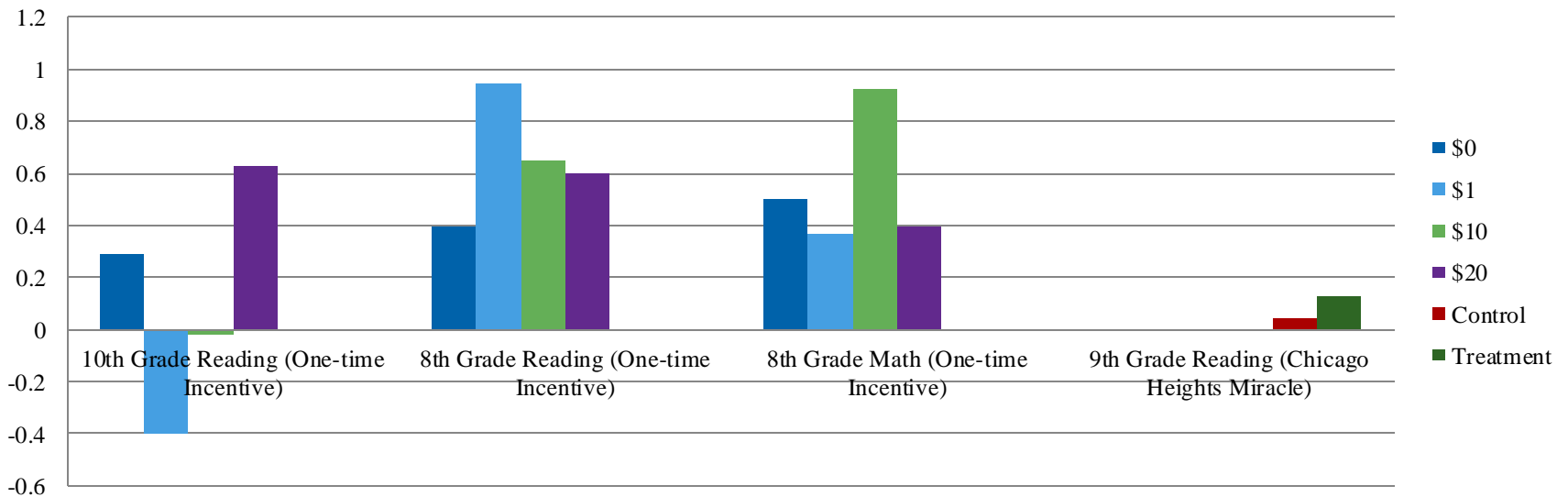
- We are spending \$160/student on 700 students to get a 5-7% boost in 9<sup>th</sup> grade passing rates. This equates to about 35-50 extra passing students, or between \$2,300 and \$3,300 per passed student.
- Chicago Heights spends approximately \$7,700 instructional expenditure per student (\$13,000 operational), or \$13,000 per passed student.

# One-time Incentives: Experimental Design

- The one-time incentives have a narrow focus, aimed solely at increasing effort on standardized tests.
- Students and Standardized tests:
  - 10th graders at Bloom High School: STAR Reading Test (~15 minutes)
  - 8th graders in District 170 (feeds into Bloom): ThinkLink Reading and Math tests (20-60 minutes each)
  - Both STAR and ThinkLink are “low-stakes” diagnostic tests
- Incentive to improve upon fall test score (\$1, \$10 or \$20)
  - Announced immediately before test
  - Reward given in cash immediately after test completed

## Chicago Heights Testing: Results

### Chicago Heights Testing: Improvements, in Standard Deviations, Test Scores Between Fall and Spring



Comparing \$0 and \$20 treatments, we would spend:

10<sup>th</sup> Grade Math Scores: \$59/SD improvement

8<sup>th</sup> Grade Reading Scores: \$99/SD improvement

8<sup>th</sup> Grade Math Scores: We did not improve 8<sup>th</sup> Grade Math Scores

Chicago Heights Miracle: \$253/SD improvement

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# Future Work: Ongoing and Planned Incentive Programs

- Early Education and Intervention
    - Chicago Heights Elementary School District 170
    - Compare intensive pre-k program to parental incentives for investing in children before they enter school
  
  - Teacher incentives
    - Chicago Heights Elementary and High School Teachers
    - Design incentives to encourage greater individual effort and teamwork
    - Base incentives on value-added (potentially more cost-effective than individual student incentives)
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