College Readiness Systems Longitudinal Evaluation: EXCELerator Program Impact, Year 2 Report

August 2011

Deborah J. Holtzman
Frances Stancavage

AMERICAN INSTITUTES FOR RESEARCH®
2800 Campus Drive, Suite 200
San Mateo, CA 94403
800-356-2735 • 650-843-8100
www.air.org

1014_08/11

Contents

Tables

Figures

Executive Summary

College Readiness Systems (CRSs) for comprehensive reform are designed to help prepare all students for college success and support schools and school districts in their work toward this goal. There are two key CRS principles: ensuring access and opportunity for all students, regardless of their backgrounds, and creating a culture of rigorous coursework and high expectations. The College Board provides participating schools with a variety of customizable programs, services, and resources to help them meet their goals.

Included in CRS are two different implementation models: College Board schools, which are new small schools, and EXCELerator schools, which are existing schools that adopt CRS reform.

In 2009, the College Board selected the American Institutes for Research (AIR) to conduct a longitudinal evaluation of CRS. The evaluation examined the implementation and the impact of the program in both College Board and EXCELerator schools. *This report focuses on the impact of the EXCELerator program from its inception in the 2006–07 school year through the 2009–10 school year.* We used a comparative interrupted time series (CITS) design to analyze the effects of the program, comparing the EXCELerator schools to both themselves, prior to implementation, and other similar schools that did not adopt the program.

The EXCELerator Program

The EXCELerator program is designed to help underrepresented groups enter the pipeline to higher education. It was launched in 2006 as a collaborative project among the College Board, the Bill & Melinda Gates Foundation, and participating school districts. By the 2009–10 school year, it had been implemented in 49 high schools and 45 middle schools. The EXCELerator schools were existing schools that agreed to engage in “transformation” based on the EXCELerator model of reform. Many of these schools received grants that provided funding and resources for three years. Other EXCELerator schools were supported solely though district funding.

In the 2006–07 school year, the first cohort of 12 schools began implementing the EXCELerator program. These included 4 high schools in Chicago and 4 high schools in Duval County, Florida, that received grants to adopt the program, and 4 more high schools in Duval County (labeled “mirror schools”) that were funded by the district. The 4 mirror schools then received EXCELerator grants in 2007–08, along with another 4 schools in Chicago, 4 schools in Denver, and 4 schools in Hillsborough County, Florida. Four more schools in Duval also implemented the program as mirror (district-funded) schools, bringing the total of new EXCELerator schools in the second cohort to 16.

The Hillsborough County School District was interested in a broader, districtwide implementation of the program and committed funding to enable all 21 of the district’s remaining regular high schools, and all 45 of its middle schools, to implement EXCELerator. This districtwide implementation began in the 2008–09 school year, and these participating schools constituted the third cohort of EXCELerator schools.

At the outset of the program, EXCELerator set the following highly ambitious objectives for the participating grant-funded schools. By the end of the grant period, schools were to

- Reduce the dropout rate in each school by 10 percent.
- Increase the graduation rate in each school by 10 percent.
- Increase the college-going rate in each school by 10 percent.
- Increase the number of underrepresented groups in Advanced Placement (AP) courses until student participation in AP courses reflects the demographic distribution of each school.
- Increase the percentage of graduating seniors in each school who have completed at least one AP course and exam by 50 percent OR to 20 percent of graduating seniors, whichever is greater.
- Increase the percentage of graduating seniors who score a 3 or higher on at least one AP exam by 40 percent OR to 20 percent of graduating seniors, whichever is greater.
- Increase the percentage of graduating seniors in each school who take AP courses who score a 3 or higher on at least 3 AP exams by 40 percent OR to 15 percent of graduating seniors who take AP courses, whichever is greater.
- Increase the number of students taking the SAT in each school by 10 percent with no loss in performance.

AIR's Evaluation

AIR is an independent, nonprofit, and nonpartisan organization with several decades of experience in designing and conducting rigorous education research and evaluating educational programs. Our evaluation of CRS was designed to generate rigorous scientific evidence on whether the program was achieving its goals of improving student outcomes related to college readiness.

The gold standard for evaluating program outcomes is a randomized controlled trial (RCT), in which equivalent groups are formed that differ only with regard to the intervention of interest. Because this approach requires that the groups be randomized prior to intervention, it could not be used to evaluate the current cohorts of EXCELerator schools, which were not selected randomly. Instead, we employed a rigorous quasi-experimental design—based on comparison to control schools—that approximates RCT. More specifically, given that the EXCELerator model operates through adoption by existing schools, our control group was formed by identifying equivalent schools that might have adopted the program but did not. In other words, the unit of analysis in our EXCELerator impact evaluation was the school. The central research question was as follows:

- Did schools that converted to EXCELerator produce better student outcomes than schools that did not convert?

To address this question, we examined school-level outcomes of EXCELerator schools over time (from before implementation to after) and compared them to the outcomes, over the same span of time, for matched comparison groups of control schools. The CITS design is a method well suited for studying whether schools are getting better over time and in relation to a comparison group.

To the extent possible, the outcomes examined in our evaluation conform to the formal objectives established by the EXCELerator program. However, our focus was on the performance of EXCELerator schools ("treatment schools") compared to the performance of other matched schools ("control schools"), not the specific metrics encoded in the program objectives. We also examined the impact of EXCELerator adoption on state and local accountability test scores because this allowed us to look at a broad indicator of academic achievement for middle schools and the lower grades of high school.

Accordingly, we examined treatment/control differences in the following:

- Graduation and dropout rates
- AP exam participation and performance
- SAT participation and performance
- State and local accountability test performance

For the high schools, we statistically examined the effects of the EXCELerator program in its first, second, third, and fourth years of implementation, up through the 2009–10 school year (the latest year for which data were available at the time of analysis). For the middle schools, which were all in their second year of implementation in 2009–10, we examined the effects of the EXCELerator program in its first and second years of implementation, as well as effects for high-implementing schools and low-implementing schools.

Our statistical models include fixed effects for schools and years. The school fixed effects capture (and control for) the characteristics of individual schools that remain more or less stable over time, such as (in most cases) the general demographic composition and the achievement level of each school. The year fixed effects capture systematic variation over time in the outcome of interest across the schools in the sample.

Major Findings

The major findings on the impact of EXCELerator are as follows. The examples, which are included to provide a sense of the magnitude of effects, are based on the statistical analysis; thus the numerical figures are adjusted, model-based estimates rather than actual, observed numbers. Unless otherwise noted, all reported effects are statistically significant.

- The EXCELerator program is associated with increased graduation rates starting in the second year of program implementation, and the magnitude of the effect increases over time. The results are statistically significant for the third and fourth years of implementation.

Example: EXCELerator schools in their fourth year of implementation had graduation rates that were 8.0 percentage points higher than those for non-EXCELerator schools.[1]

- The EXCELerator program is associated with decreased dropout rates starting in the second year of program implementation, and the magnitude of the effect increases over time. The results are statistically significant for the fourth year of implementation.

Example: EXCELerator schools in their fourth year of implementation had dropout rates that were 2.5 percentage points lower than those for non-EXCELerator schools.

- The EXCELerator program is associated with statistically significant increases in the percentage of students who take AP exams in all four years of program implementation. In the first two years of program implementation, there are also statistically significant increases in the percentage of students scoring 3 or higher on AP exams and in the percentage of students scoring 2 or higher on AP exams (out of all students enrolled in Grades 9–12 in each school). However, by the third year, the program is associated with a statistically significant *negative* effect on the percentage of students scoring 3 or higher on AP exams; the percentage of students scoring 2 or higher also decreases, although the effects on scores of 2 or higher do not become significantly negative.

Examples: The percentage of students taking an AP exam was 6.5 points higher for EXCELerator schools in their first year of implementation than for non-EXCELerator schools. By the fourth year of implementation, the percentage of students taking an AP exam was 11.0 points higher for EXCELerator schools.

The percentage of students scoring 3 or higher on an AP exam was 1.0 point higher for EXCELerator schools in their first year of implementation compared to non-EXCELerator schools and 1.2 points higher in their second year of implementation. EXCELerator schools in their third year had 0.7 percent *fewer* students scoring 3 or higher than non-EXCELerator schools, and EXCELerator schools in their fourth year had 1.6 percent fewer students scoring 3 or higher.

- The EXCELerator program is associated with large and statistically significant increases in the percentage of seniors who take the SAT, starting in the second year of program implementation. At the same time, there are modest—but statistically significant—increases in the percentages of seniors scoring at least 500 on the SAT critical reading and mathematics sections (out of all seniors, not just test takers). These effects turn negative, however, when controlling for the percentage of students taking the SAT, and average SAT scores among test takers decline in both subject areas.

Examples: The percentage of seniors who took the SAT at some point during high school was 42.5 points higher for EXCELerator schools in their fourth year of implementation than for non-EXCELerator schools.

The percentage of seniors scoring at least 500 on the SAT was 4.9 points higher for EXCELerator schools in their fourth year of implementation than for non-EXCELerator

[1] "Non-EXCELerator schools" includes comparison schools that never adopted the EXCELerator program as well as EXCELerator schools in the years before they adopted the program.

schools. However, when participation rate was included as a control, the EXCELerator fourth-year effect was to *lower* the percentage of seniors scoring at least 500 on the SAT by 9.9 points, indicating that the rate of increase for high-scoring seniors did not keep pace with the rate of increase for participation.

- Following program implementation, EXCELerator high schools do not appear to perform as well on state/local accountability tests as do their matched comparison schools. The negative effects can be seen in both reading and mathematics in both Grades 9 and 10. There do not appear to be any negative (or positive) effects on Grade 11 scores, although it should be noted that the majority of EXCELerator schools are in jurisdictions that do not have 11th-grade tests.

Example: In 10th-grade reading, the EXCELerator schools lost ground over time at an almost-linear rate: EXCELerator schools showed a deficit of approximately 0.15 standard deviations in the first year of implementation, 0.35 in the second year, 0.47 in the third year, and 0.77 in the fourth year. For 10th-grade mathematics, the first year of implementation was associated with a 0.11 standard-deviation deficit; the deficits in the second, third, and fourth years were 0.35, 0.41, and 0.67 respectively.

- After two years of implementation, EXCELerator middle schools appear to be having a modest positive effect on state test scores in reading but a modest negative effect on state test scores in mathematics. In all cases, the second-year effects are more positive than the first-year effects, suggesting that the schools are trending in a positive direction, but most of the effects do not reach the level of statistical significance. Schools that are rated as high implementers of EXCELerator produce more positive effects than schools that are rated as low implementers.

Example: In the second year of implementation, 8th-grade reading scores on the Florida Comprehensive Assessment Test (FCAT) were 1.5 scale points higher for EXCELerator schools than for non-EXCELerator schools, while FCAT 8th-grade mathematics scores were 1.3 points lower. Neither difference was statistically significant.

In summary, the EXCELerator program, when examined in relation to both school-level outcomes prior to implementation and outcomes for similar nonprogram schools, appears to be having the desired effects on graduation rates, dropout rates, and participation in AP exams and the SAT. Effects on AP and SAT performance, meanwhile, have generally not been positive, which may be at least partially explained by the increased participation rates. The analysis also finds a negative effect of the program on state/local test scores in high school. However, increased achievement on such tests was not an explicit goal of the program.

After two years of operation, EXCELerator middle schools, by contrast, appear to be having a modest positive effect on state test scores in reading and appear on course to reverse first-year losses on state test scores in mathematics.

Overall, there is evidence that the EXCELerator program is having success in meeting some—but not all—of its desired outcomes.

Chapter 1
Introduction

CRSs for comprehensive reform are designed to help prepare all students for college success and support schools and school districts in their work toward this goal. There are two key CRS principles: ensuring access and opportunity for all students, regardless of their backgrounds, and creating a culture of rigorous coursework and high expectations. The College Board provides participating schools with a variety of customizable programs, services, and resources to help them meet their goals.

Included in CRS are two different implementation models: College Board schools, which are new small schools, and EXCELerator schools, which are existing schools that adopt CRS reform.

In 2009, the College Board selected AIR to conduct a longitudinal evaluation of CRS. The evaluation examined the implementation and the impact of the program in both College Board and EXCELerator schools. *This report focuses on the impact of the EXCELerator program from its inception in the 2006–07 school year through the 2009–10 school year.* We used a CITS design to analyze the effects of the program, comparing the EXCELerator schools to both themselves, prior to implementation, and other similar schools that did not adopt the program.

The EXCELerator Program

The EXCELerator program is designed to help underrepresented groups enter the pipeline to higher education. It was launched in 2006 as a collaborative project among the College Board, the Bill & Melinda Gates Foundation, and participating school districts. By the 2009–10 school year, it had been implemented in 49 high schools and 45 middle schools. The EXCELerator schools were existing schools that agreed to engage in "transformation" based on the EXCELerator model of reform. Many of these schools received grants that provided funding and resources for a period of three years. Other EXCELerator schools were supported solely though district funding.

Participating Schools

In the 2006–07 school year, the first cohort of 12 schools began implementing the EXCELerator program. These included 4 high schools in Chicago and 4 high schools in Duval County, Florida, that received grants to adopt the program, and 4 more high schools in Duval County (labeled "mirror schools") that were funded by the district. The 4 mirror schools then received EXCELerator grants in 2007–08, along with another 4 schools in Chicago, 4 schools in Denver, and 4 schools in Hillsborough County, Florida. Four more schools in Duval also implemented the program as mirror (district-funded) schools, bringing the total of new EXCELerator schools in the second cohort to 16.

The Hillsborough County School District was interested in a broader, districtwide implementation of the program and committed the funding to enable all 21 of the district's remaining regular high schools, and all 45 of its middle schools, to implement EXCELerator.

This districtwide implementation began in the 2008–09 school year, and these participating schools constitute the third cohort of EXCELerator schools.

Table 1.1 summarizes the numbers of schools participating in the program and includes information on where the schools are located and when they adopted the program.

Table 1.1. EXCELerator Schools, by District and Cohort

State	District	Cohort 1 (2006–07)	Cohort 2 (2007–08)	Cohort 3 (2008–09)	Total
High Schools					
Illinois	Chicago	4	4	0	8
Colorado	Denver	0	4	0	4
Florida	Duval	8[a]	4[b]	0	12
Florida	Hillsborough	0	4	21[c]	25
	Totals	**12**	**16**	**21**	**49**
Middle Schools					
Florida	Hillsborough	0	0	45[c]	45

[a]Includes four district-funded mirror schools that became grant schools in 2007–08. [b]New district-funded mirror schools. [c]District-funded schools.

Table 1.2 provides data on the race/ethnic composition and size of the EXCELerator schools. The data characterize the schools at baseline, that is, in the year *prior* to EXCELerator implementation. As Table 1.2 shows, the EXCELerator schools in Chicago and Duval had, on average, very high percentages of black students. The Denver schools had high percentages of Hispanic students, while the Duval schools had very low percentages of Hispanic students. The Hillsborough schools, meanwhile, had relatively even distributions of black, Hispanic, and white students. Notably, however, the cohort 3 Hillsborough high schools had relatively higher percentages of white students. This may reflect the fact that the school selections for cohorts 1 and 2 focused on schools with high need, while cohort 3 was districtwide implementation.

Table 1.2. Baseline Demographic Data on EXCELerator Schools

	Cohort 1 Schools (2005–06 demographics)			Cohort 2 Schools (2006–07 demographics)			Cohort 3 Schools (2007–08 demographics)		
	N	Mean	SD	*N*	Mean	SD	*N*	Mean	SD
Chicago									
Percentage black	4	53.4	48.6	4	49.0	35.8			
Percentage Hispanic	4	29.5	34.3	4	44.5	30.2			
Percentage white	4	11.9	16.1	4	2.3	3.2			
Enrollment in Grades 9–12	4	1,422	797	4	1,794	1,099			
Denver									
Percentage black				4	14.1	13.9			
Percentage Hispanic				4	59.0	34.6			
Percentage white				4	22.1	20.2			
Enrollment in Grades 9–12				4	1,335	182			

	Cohort 1 Schools (2005–06 demographics)			Cohort 2 Schools (2006–07 demographics)			Cohort 3 Schools (2007–08 demographics)		
	N	Mean	SD	*N*	Mean	SD	*N*	Mean	SD
Duval									
Percentage black	8	64.4	25.7	4	49.8	16.7			
Percentage Hispanic	8	4.2	3.3	4	7.7	4.6			
Percentage white	8	28.8	20.9	4	36.4	12.7			
Enrollment in Grades 9–12	8	1,901	620	4	1,467	565			
Hillsborough (high schools)									
Percentage black				4	27.1	28.5	21	21.9	13.8
Percentage Hispanic				4	31.6	22.8	21	24.6	11.8
Percentage white				4	36.1	22.5	21	45.3	17.6
Enrollment in Grades 9–12				4	2,061	451	21	2067	422
Hillsborough (middle schools)									
Percentage black							44[a]	25.2	18.8
Percentage Hispanic							44	27.7	13.5
Percentage white							44	38.7	19.5
Enrollment in Grades 6–8							44	967	297

[a]One Hillsborough middle school is omitted from this table because it did not open until the 2008–09 school year, the year of implementation.

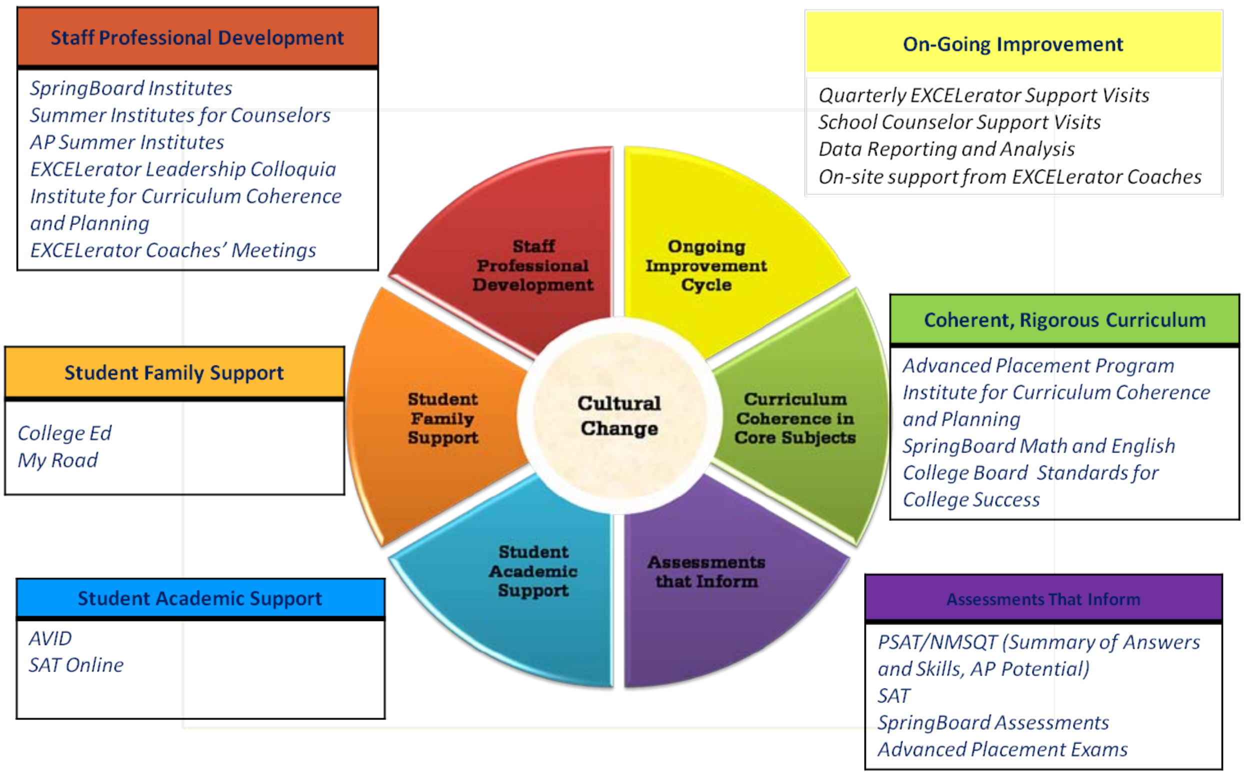
Model of Reform

The College Board formulated a reform model specifying six "drivers" of college readiness reform, all centered on fostering a "culture of college readiness" at schools:

- **Coherent, rigorous curriculum.** "Aligned to college standards, a rigorous academic curriculum for middle and high school students increases students' opportunities to take and succeed in advanced-level courses."
- **Assessments that inform.** "Assessments are used as tools to inform and drive teaching and learning."
- **Student academic support.** "Districtwide programs and practices to support student academic success and to assess the effectiveness of programs and practices."
- **Student family support.** "School-based counseling and college prep programs support students and their families in preparing for college enrollment and success."
- **Staff professional development (PD).** "Extensive and ongoing PD for principals, teachers, counselors, district office staff focused on collaborative problem solving and learning."
- **Ongoing improvement cycle.** "Ongoing improvement based on regular monitoring and data analyses."

Figure 1.1, developed by the College Board, lists the programs and services that constitute the EXCELerator model and illustrates how these programs and services link to the presumed drivers of college readiness reform. The implementation component of AIR's evaluation used surveys of school staff members to gauge the extent to which many of the individual programs and services (e.g., AP, SpringBoard, AVID, and CollegeEd) have been implemented in EXCELerator schools (Stancavage, Nakashima, Holtzman, & Shkolnik, 2011).

Figure 1.1: How EXCELerator Programs and Services Link to the Drivers of College Readiness Reform



Source. The College Board, personal communication, June 13, 2009.

Program Objectives

At the outset of the program, EXCELerator set the following highly ambitious objectives for participating grant-funded schools. By the end of the grant period, schools were to

- Reduce the dropout rate in each school by 10 percent.
- Increase the graduation rate in each school by 10 percent.
- Increase the college-going rate in each school by 10 percent.
- Increase the number of underrepresented groups in AP courses until student participation in AP courses reflects the demographic distribution of each school.

- Increase the percentage of graduating seniors in each school who have completed at least one AP course and exam by 50 percent OR to 20 percent of graduating seniors, whichever is greater.
- Increase the percentage of graduating seniors who score a 3 or higher on at least one AP exam by 40 percent OR to 20 percent of graduating seniors, whichever is greater.
- Increase the percentage of graduating seniors in each school who take AP courses who score a 3 or higher on at least 3 AP exams by 40 percent OR to 15 percent of graduating seniors who take AP courses, whichever is greater.
- Increase the number of students taking the SAT in each school by 10 percent, with no loss in performance.

No specific objectives were written for the middle schools that joined the program as part of the districtwide Hillsborough implementation in cohort 3.

AIR's Evaluation

AIR is an independent, nonprofit, and nonpartisan organization with several decades of experience in designing and conducting rigorous education research and evaluating educational programs. Our evaluation of CRS was designed to generate rigorous scientific evidence on whether the program was achieving its goals of improving student outcomes related to college readiness.

The gold standard for evaluating program outcomes is an RCT, in which equivalent groups are formed that differ only with regard to the intervention of interest. Because this approach requires that the groups be randomized prior to intervention, it could not be used to evaluate the current cohorts of EXCELerator schools, which were not selected randomly. Instead, we employed a rigorous quasi-experimental design—based on a comparison to control schools—that approximates RCT. More specifically, given that the EXCELerator model operates through adoption by existing schools, our control group was formed by identifying equivalent schools that might have adopted the program but did not. In other words, the unit of analysis in our EXCELerator impact evaluation was the school. The central research question was as follows:

- Did schools that converted to EXCELerator produce better student outcomes than schools that did not convert?

To address this question, we examined school-level outcomes of EXCELerator schools over time (from before implementation to after) and compared them to the outcomes, over the same span of time, for matched comparison groups of control schools. The CITS design is well suited for studying whether schools are getting better over time and in relation to a comparison group. Further details on how the comparison schools were selected and on how the CITS model was operationalized are provided in Chapter 2.

To the extent possible, the outcomes examined in our evaluation conform to the formal objectives established by the EXCELerator program. However, our focus was on the performance of EXCELerator schools ("treatment schools") compared to the performance of other matched schools ("control schools"), not on the specific metrics encoded in the program objectives.

In addition, although raising performance on state and local accountability tests is not among the official goals of the EXCELerator program, we examined the impact of EXCELerator adoption on accountability test scores because this allowed us to look at a broad indicator of academic achievement for middle schools (our only middle school indicator) and for the lower grades of high school.

Accordingly, for the high schools, we examined treatment/control differences in the following:

- Graduation and dropout rates (Chapter 3)
- AP exam participation and performance (Chapter 4)
- SAT participation and performance (Chapter 5)
- State and local accountability test performance (Chapter 6)

For the middle schools, we examined the following treatment/control differences:

- State accountability test performance (Chapter 7)

The report concludes with a brief summary chapter (Chapter 8) that presents the overall picture of performance emerging from the analyses of the individual indicators.

Chapter 2
Methodology

As noted in Chapter 1, we employed a CITS design to examine the impact of the EXCELerator program; that is, we examined school-level outcomes of EXCELerator schools over time and compared them to the outcomes, over the same span of time, for matched non-EXCELerator (comparison) schools. For each cohort, the year that the EXCELerator schools implemented the program was the year of interruption, and if outcomes improved for the EXCELerator schools after the interruption, relative to the performance of the comparison schools, we concluded that EXCELerator adoption was beneficial. In this report, we analyze outcomes through the 2009–10 school year.

In this chapter, we first explain how we selected the comparison schools. Then we describe the strategies we used to conduct the CITS analysis.

Selection of Comparison Schools

Our research design called for matching each EXCELerator school to two comparison schools based on the performance of the schools in the three years prior to implementation. Two comparison schools were selected for each treatment school to boost the statistical power for the analysis while also maintaining a high degree of similarity between the comparison schools and the EXCELerator schools.

Identification of Comparison School Candidates

Matching each EXCELerator school with other schools within the same district, where feasible, has the advantage of standardizing the policy context in which the schools are operating. For this reason, we selected within-district matches for the Chicago schools. However, matching within the school district clearly was not an option for the Hillsborough schools because every regular[2] high school and middle school in the district adopted the program. Duval and Denver, meanwhile, each had more than 33 percent of their high schools participating, which did not leave enough nonprogram schools to allow for within-district matches. Thus, in Florida and Colorado, we selected matches from throughout the state.[3]

All of the EXCELerator schools were regular, noncharter, currently open schools; the pool of potential comparison schools in Florida, Colorado, and Chicago was limited to other such schools. We matched each EXCELerator school with comparison schools of equivalent grade span, and EXCELerator schools that opened recently were matched with other schools that

---

[2] "Regular" is a classification used by the Common Core of Data (CCD) collected by the National Center for Education Statistics (NCES). Regular schools do not focus primarily on vocational, special, or alternative education.

[3] Selecting comparisons from the same state allowed us to hold constant some aspects of the policy context (although not as many as if the selections had been made from the same school district). In addition, it facilitated the use of state assessment scores as one of the criteria on which schools were matched.

opened recently,[4] while "mature" schools (schools that had been open long enough to graduate at least one cohort prior to implementation) were matched with other mature schools.[5] We had 13 separate matching pools, which are summarized in Table 2.1.

Composite Index of Outcome Measures

We wanted to match EXCELerator schools with comparison schools that had similar outcomes—and similar outcome *trajectories*—in the years prior to the implementation year. We also wanted to have a single set of comparison schools, rather than a different set of comparison schools for each outcome measure to be examined in the impact analyses. We thus decided to combine multiple outcomes for a given school within year to create an annual composite index to use in the matching process.

The composition of the index for high schools differed slightly in each locale (i.e., the state of Florida, the state of Colorado, and the district of Chicago), based on the data available from each state or district. Data on the number of students taking AP exams, the SAT, and the PSAT/NMSQT (Preliminary SAT/National Merit Scholarship Qualifying Test; P/N) were provided by the College Board for high schools in all three locales; we calculated percentages by dividing these participation numbers by enrollment figures.[6] Middle schools, necessarily, were matched on separate, grade-appropriate outcomes. (See Table 2.2.) Within each locale and each year, the individual measures were standardized across all schools in that jurisdiction and then averaged together to form the index.

[4] "Recently opened" schools were matched with other schools that opened in the same year, or, in the case of pool 10, the previous year (see discussion later in this chapter). One of the EXCELerator middle schools, however, was a brand new school in the 2008–09 school year. Given that this school had no pre-EXCELerator history or data, it was omitted from our analysis, leaving 44 EXCELerator middle schools.
[5] To be considered "mature," high schools were required to have been open for at least four years prior to the implementation year, and middle schools were required to have been open for at least three years.
[6] In Florida, however, we used the state-reported SAT percentages rather than those calculated from the numbers provided by the College Board; they were nearly identical (with correlations of .98 or .99 depending on the year).

Table 2.1. EXCELerator Matching Pools

Pool	Description	Number of EXCEL. Schools	Starting Compar. Pool	Compar. Schools Missing Data[a]	Compar. Schools Already Selected[b]	Final Compar. Pool
	Chicago Cohort 1 (2006–07)					
1	• Open since 2002–03 or earlier • Grades 9–12	2	48	7	8 (pool 4)	33
2	• Open since 2002–03 or earlier • Grades 7–12	1	4	1	0	3
3	• Opened in 2004–05 • Grades 9–12	1	5	2	0	3
	Chicago Cohort 2 (2007–08)					
4	• Open since 2003–04 or earlier • Grades 9–12	4	49	8	0	41
	Colorado Cohort 2 (2007–08)					
5	• Open since 2003–04 or earlier • Grades 9–12	4	197	21	0	176
	Florida Cohort 1 (2006–07)					
6	• Open since 2002–03 or earlier • Grades 9–12	8	297	21	13 (pool 7) 35 (pool 9)	228
	Florida Cohort 2 (2007–08)					
7	• Open since 2003–04 or earlier • Grades 9–12	7	307	21	0	286
8	• Open since 2003–04 or earlier • Grades 6–12	1	37	11	0	26
	Florida Cohort 3 (2008–09), High Schools					
9	• Open since 2004–05 or earlier • Grades 9–12	19	315	18	14 (pool 7)	283
10	• Opened in 2006–07 • Grades 9–12	2	15[c]	2	0	13
	Florida Cohort 3 (2008–09), Middle Schools					
11	• Open since 2005–06 or earlier • Grades 6–8	41	419	6	0	413
12	• Open since 2005–06 or earlier • Grades K–8	2	60	19	0	41
13	• Opened in 2006–07 • Grades 6–8	1	11	2	0	9

[a]See "Exclusion of Schools With Missing Data." [b]See discussion later in this chapter. [c]This includes 10 schools that opened in the 2005–06 school year as well as 5 that opened in the 2006–07 school year; see discussion later in this chapter.

Table 2.2. Measures Included in the Composite Outcome Index for Each Locale

Chicago	Colorado	Florida High Schools	Florida Middle Schools
• Graduation rate • The percentage of students taking at least one AP exam • The percentage of 10th and 11th graders taking P/N • The percentage of 12th graders taking the SAT • Average reading score on EXPLORE test (9th grade) • Average mathematics score on EXPLORE test (9th grade) • Average English score on EXPLORE test (9th grade) • Average reading score on PLAN test (10th grade) • Average mathematics score on PLAN test (10th grade) • Average English score on PLAN test (10th grade) • Average reading score on PSAE[a] (11th grade) • Average mathematics score on PSAE (11th grade) • Average English score on PSAE (11th grade) • Average ACT reading score • Average ACT mathematics score	• Graduation rate • The percentage of students taking at least one AP exam • The percentage of 10th and 11th graders taking P/N • The percentage of 12th graders taking the SAT • The percentage proficient or advanced in reading on CSAP[a] (9th grade) • The percentage proficient or advanced in mathematics on CSAP (9th grade) • The percentage proficient or advanced in reading on CSAP (10th grade) • The percentage proficient or advanced in mathematics on CSAP (10th grade) • Average ACT reading score • Average ACT mathematics score • Average ACT English score	• Graduation rate • The percentage of students taking at least one AP exam • The percentage of 10th and 11th graders taking P/N • The percentage of 12th graders taking the SAT plus the percentage of 12th graders taking the ACT • Average reading score on FCAT (9th grade) • Average mathematics score on FCAT (9th grade) • Average reading score on FCAT (10th grade) • Average mathematics score on FCAT (10th grade) • Average ACT score • The percentage of previous year graduates continuing their education	• Average reading score on FCAT (6th grade) • Average mathematics score on FCAT (6th grade) • Average reading score on FCAT (7th grade) • Average mathematics score on FCAT (7th grade) • Average reading score on FCAT (8th grade) • Average mathematics score on FCAT (8th grade)

Note. For the SAT, P/N, and AP, we elected to include participation outcomes but not performance outcomes in the composite index because some schools had no participants and thus no scores.
[a]PSAE is the Prairie State Achievement Examination. CSAP is the Colorado Student Assessment Program.

We calculated Cronbach's alpha for the index in each locale in each year to gauge the reliability of the scale; the reliabilities were very high, ranging from .93 to .99. (See Table 2.3.) An alpha of 1 would indicate perfect reliability, so, clearly, the various outcome measures were highly correlated with one another. We also conducted factor analyses to see whether the measures included in each year's index loaded on a single factor; they typically did, further bolstering our confidence in the suitability of a single composite. As a specification check, we did some additional factor analyses that included selected school demographics as well as the outcome measures; in most cases these models resulted in two or more factors, with the outcome variables and the demographic variables generally loading on separate factors. This suggests that the outcome composite was not simply a proxy for school demographics.

Table 2.3. Alpha Reliabilities of the Composite Index

Year (Spring)	Chicago	Colorado	Florida High Schools	Florida Middle Schools
2004	.99	not needed	.94	not needed
2005	.99	.95	.94	not needed
2006	.99	.96	.94	.99
2007	.99	.96	.93	.99
2008	.98	.95	.93	.99

Exclusion of Schools With Missing Data

For each pool, we conducted an analysis of schools missing data on the state- or locally-reported outcomes for the years of interest.[7] Fortunately, none of the EXCELerator schools was missing any outcome data. Among the potential comparison schools that were missing data, many appeared to be special or unusual schools (despite their CCD classification as regular), while others were very small schools that likely would have been inappropriate matches for the EXCELerator schools. Several other schools were missing data because, even though they had been open since the required year, they did not have the full complement of grade levels until later. For these reasons, we elected to simply exclude schools missing data from the potential comparison pools.[8] The number of schools excluded in each matching pool due to missing data is shown in Table 2.1.

Matching Method

To select the comparison schools from among the identified candidate pool, we used a regression-based approach that took advantage of the availability of multiple years of preimplementation data. This was a three-stage process, executed separately for each pool.[9]

[7] Missing data were not an issue for the SAT, P/N, and AP outcomes used in the index, which were obtained from the College Board. Because these outcomes were all participation percentages, nonparticipation was recorded as 0 percent.

[8] The schools in pools 3, 10, and 13 were recently opened schools; obviously these schools were "missing" data in the years before they opened, and, for some measures, after they opened as well, due to the gradual building up of the included grade levels. These types of "missing" data were permitted in these pools.

[9] There was overlap in the potential comparison pools for pools 1 and 4 and for pools 6, 7, and 9. In each case, we determined the selection order randomly: matching for pool 4 preceded matching for pool 1, and matching for pools

The first stage consisted of a regression analysis. Namely, the outcome index value for the year immediately *preceding* EXCELerator implementation was regressed on the outcome index values for the two years previous to that, controlling for school enrollment size, the percentage of black students, the percentage of Hispanic students, and urbanicity. For instance, for pool 4, in which the EXCELerator schools adopted the program in the 2007–08 school year, the index of outcomes for the year *prior* to adoption—the 2006–07 school year—were regressed on the indexes of outcomes for the two years prior to that (2005–06 and 2004–05), as well as on the demographics from the 2005–06 school year. The schools included in this regression included the schools that later adopted EXCELerator and all other potential comparison schools in the pool; no distinctions were made at this point between EXCELerator and non-EXCELerator schools.

In the second stage, the parameters established in stage 1 were used to *calculate a predicted outcome index value* for the first year of implementation, using the outcome indexes for the two previous years and the control variables.[10] To continue with the example of pool 4, the parameters yielded by stage 1 for the 2005–06 and 2004–05 outcome indexes were applied, respectively, to the outcome indexes for the 2006–07 and 2005–06 school years, and the parameters established for the 2005–06 demographics were applied to the 2006–07 demographics. Using this linear combination, we calculated a predicted (not actual) outcome index value for each school in the 2007–08 school year.

Again, in this second stage, all EXCELerator and potential comparison schools within the relevant pool were included, with no distinction between the two groups. For the EXCELerator schools, the predicted outcome values were estimates of the outcome index values they *would have had if they had not adopted the program.*

Appendix A provides the equations that model the stage 1 and stage 2 processes. It also contains the stage 1 regression results for each pool. In these stage 1 regressions, the one-year-prior composite index value was always far and away the most powerful predictor. The two-years-prior score was also significant for some of the pools.

Stage 3 was the actual identification and selection of the comparison schools. After we calculated the hypothetical implementation-year outcome index values for each school in stage 2, we used these values to identify comparison schools that, on the basis of the prior years' outcome indexes, were *predicted* to have performed similarly to how the EXCELerator schools were *predicted* to have performed in the first year of implementation, sans the program.

6, 7, and 9 was in the order 7, 9, 6. Schools that were selected for an earlier pool were removed from the later pool so that they could not be selected again.

[10] Parameters included the intercept and the coefficients for the one-year-previous outcome index, the two-year-previous outcome index, and each demographic control variable.

Specifically, within each pool, we ranked all the schools on their predicted values, located each EXCELerator school, and then selected its nearest-above and nearest-below neighbors.[11] This selection was done serially in a random order for each EXCELerator school to resolve "competitions" for the same comparison school. In two pools, the lowest or highest ranked school was an EXCELerator school, so it did not have the required two neighbors. In the first of these cases (pool 2) we "borrowed" a suitable match from another pool (pool 1) that differed only in terms of the grade span. In the second case (pool 10), we expanded the comparison pool to include schools that had opened in the 2005–06 school year as well as those that had opened in the 2006–07 school year and reran the analyses.

Some of the pools required modifications to the procedure. Pools 10 and 13 had only two years of data prior to the implementation year, so we used only one prior-year score in the regression, rather than two.[12] Pool 2, with only four schools (one EXCELerator plus three potential comparison schools), was too small for the regression, so we selected the matches simply based on the actual prior-year (spring 2006) index. Pool 3, too, had only four schools, and, in addition, the schools in pool 3 were missing data on most of the outcome measures because they had not yet been open long enough to have outcomes pertaining to the upper grade levels.[13] Thus, for pool 3, we selected the matches simply based on schools' actual 9th- and 10th-grade test score averages in 2005–06. Finally, in pool 5 (Denver), one of the EXCELerator schools was initially matched with two town/rural schools that seemed like poor matches in terms of enrollment size and demographics. For better face validity, we decided to disallow those matches and instead took the next-nearest schools that were not classified as town or rural.[14]

Similarity Between EXCELerator Schools and the Selected Comparison Schools

After we selected the comparison schools, we conducted *t*-tests on each demographic and outcome variable, comparing the EXCELerator schools to the comparison schools, as a check on the overall similarity of the two groups in the preimplementation years. Separate *t*-tests were done for each variable in each preimplementation year in each locale but not for each pool.[15]

Appendix B contains the results of all the *t*-tests. In all three locales, the EXCELerator schools and the selected comparison schools were very similar on nearly every variable; very few of the *t*-tests revealed statistically significant differences between the two groups. The following is a brief summary of the findings.

[11] Selection of nearest-above and nearest-below neighbors (as opposed to, say, the two nearest neighbors, regardless of whether they were above or below) helped enhance the overall balance, or similarity, between the selected comparison schools and the EXCELerator schools on the preimplementation measures.
[12] Also, for schools in pool 10, the composite index was composed solely of FCAT scores because several of the schools were missing data on the other outcomes due to the gradual building up of the included grade levels.
[13] All four schools opened in 2004–05 with only a 9th grade and added the upper grades, one by one, in successive years.
[14] Effectively this meant that in Colorado, we disallowed matches to schools classified as being in rural areas or towns because none of the other three EXCELerator schools had been matched to town/rural schools. Viewed this way, the potential pool consisted of 80 schools rather than 176.
[15] In any given *t*-test for any given year, we omitted EXCELerator schools that had already implemented the program in that year or earlier years, along with their matched comparison schools. This was because we wanted to check the balance between the two groups only in the preimplementation years.

Chicago. There were no significant differences between EXCELerator and comparison schools, even at the $p < .10$ level. However, it is worth noting that the sample size was small (12 schools total in the 2006–07 year comparisons, 24 schools total in in the 2005–06 and 2004–05 year comparisons, and 21 schools total in the 2003–04 year comparisons).

Colorado. There were no significant differences between EXCELerator and comparison schools at $p < .05$, although as with Chicago, the sample size was quite small (12 schools total in all years). The only significant difference at $p < .10$ was for city location; all four EXCELerator schools were classified as being located in a city (not surprising, as all were in Denver), while only half of the comparison schools were so classified, with the rest being classified as suburban.

Florida High Schools. The *N*'s on these comparisons were much larger, ranging from 63 to 111 depending on the year and the variable. Accordingly, differences were more likely to register as significant. The significant differences were as follows:

- There were highly significant differences in urbanicity, with the EXCELerator schools much more likely to be classified as being in a city and much less likely to have a town/rural classification.
- In 2005–06 and earlier years, the EXCELerator schools had marginally significantly higher percentages of black students than did the comparison schools. This may be attributable to the presence of the Duval County EXCELerator schools in the comparisons for the earlier years. Duval County has one of the highest percentages of black students in all of Florida, particularly among the larger counties.
- The EXCELerator schools were significantly lower on the percentage of previous-year graduates continuing their education in 2007–08 ($p < .05$), 2006–07 ($p < .01$), and 2005–06 ($p < .10$).
- The EXCELerator schools were significantly higher on the percentage of students taking at least one AP exam in 2007–08 ($p < .05$) and 2006–07 ($p < .10$).
- The EXCELerator schools were significantly higher on the percentage of students taking P/N in all years.

Florida Middle Schools. There were no significant differences between the groups at $p < .05$. The only significant difference at $p < .10$ was for city location; 36 percent of the EXCELerator schools were classified as being located in a city, while only 21 percent of the comparison schools were.

We did not deem any of the identified differences serious enough to warrant reselection of the comparison schools. However, it is worth noting that—as shown by the *t*-tests—although the schools were very well matched on the outcome index, they were not necessarily perfectly matched on each individual outcome measure constituting the index.

Impact Analysis Strategy

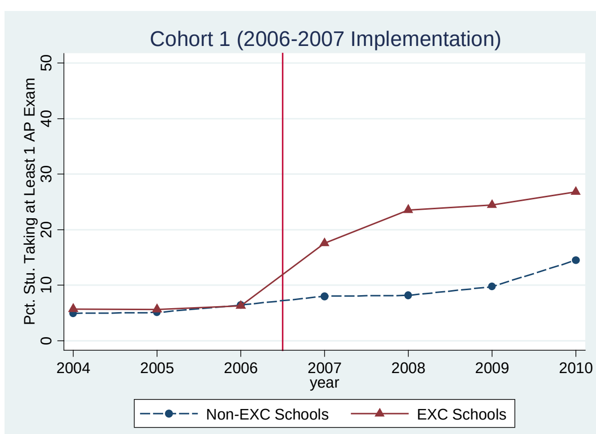
With the comparison schools selected and finalized, we were able to conduct the actual analyses of EXCELerator impact. We conducted separate analyses for individual outcome measures, not for the composite index used in the comparison group selection. Also, unlike in the comparison group selection, schools in all the locales were combined together; we did not do separate analyses for each locale or any of the separate selection pools, although we did do separate analyses for the high schools and the middle schools.

Time-Series Graphs

We began by examining the descriptive statistics for each outcome in each year, disaggregated by group (EXCELerator schools versus comparison schools) and (for the high schools) by cohort. We used these descriptive statistics to construct time-series graphs that reveal at a glance how each group is performing over time. A vertical line represents the time of EXCELerator implementation for the program schools so that we can easily see how each group performed in the preimplementation years and in the postimplementation years.

The general pattern we would hope to see in such graphs, if the program is having the desired effect, is similarity of the two trend lines on the left side of the vertical line (suggesting that we were successful in selecting comparison schools that were similar to the treatment schools prior to implementation) but then, on the right side of the line, a divergence between the groups, particularly a sharp uptick for the treatment schools while the comparison schools hold steady, continuing on their preimplementation trajectory. A near-perfect example is shown in Figure 2.1, which was our finding for the percentage of students taking at least one AP exam for the 2006–07 EXCELerator cohort and their comparison schools. (See Chapter 4.)

Figure 2.1. Example of a Time-Series Graph



As useful and illustrative as the descriptive-based time-series graphs are, they do not provide a statistical test of whether any differences we see between EXCELerator and non-EXCELerator (or pre-EXCELerator) schools are statistically significant (i.e., unlikely to have occurred by chance). They also do not summarize the effects of the program across all the cohorts—either overall or by years of implementation. In addition, they do not account for basic differences among individual schools, which also may be related the outcomes of interest. Using a single statistical model, however, we can accomplish all of these things.

Statistical Analysis: Dosage Model

The statistical model we used for the high schools analysis is one that gauges the effects of the EXCELerator program based on the amount of time that schools have been participating in the program—in a sense, the "dosage" of EXCELerator that schools have had. Three different cohorts of high schools adopted the EXCELerator program: the first cohort in the 2006–07 school year, the second cohort in the 2007–08 school year, and the third cohort in the 2008–09 school year. Thus, schools in these different cohorts can be expected to be at different stages of maturity of program implementation, and we would be unlikely to see the same impact across all three cohorts without taking into account how long they have been participating in the program. We therefore employed a regression analysis technique that could statistically model the effects of the program after one year of implementation, after two years, and after three years.

The general equation for this model is in Appendix C. Each record in the data is a school in a particular year. Aside from inclusion of first-year, second-year, and third-year effects terms, two other things are noteworthy about the model. The first is the inclusion of terms for each school year; these represent systematic variation over time in the outcome of interest across the schools in the sample. The second is the inclusion of fixed effects for each school. These capture (and control for) characteristics of individual schools that remain more or less stable over time, such as (in most cases) schools' general demographic composition and achievement level.

Statistical Analysis: Level-of-Implementation Model

The dosage model was well suited for the analysis of the EXCELerator high schools. The middle schools, however, all implemented EXCELerator in the 2008–09 school year, so all had the same "dosage" as of any given postimplementation year; in particular, by the 2009–10 school year, all had experienced the program for two years. We did examine the first-year and second-year effects of the program for these middle schools. However, we also had data on the *extent* to which schools were implementing EXCELerator in the 2008–09 and 2009–10 school years, so we were able to use these data to distinguish the effects displayed by higher implementers versus lower implementers.

Our data on the level of implementation in the 2008–09 school year came from the "proxy measure" administered to the EXCELerator district coaches in the summer of 2009; coaches rated each EXCELerator school on the degree of EXCELerator implementation along several different dimensions.[16] We averaged each school's ratings across the dimensions, statistically adjusted the ratings to account for severity differences among raters, and thereby arrived at an implementation rating for each school. Schools at or above the median rating were designated as high implementers, while schools below the median rating were designated as low implementers.

---

[16] We refer to this measure as the "proxy" measure because it was in lieu of a canceled survey of school staff members.

We had two separate sources of data on the level of implementation in the 2009–10 school year. The first was the proxy measure, which we administered again in the summer of 2010. However, for this second year of proxy measure data, we were unable to make adjustments for severity differences among raters and could use only unadjusted implementation ratings. Again, we divided at the median to designate “high” and “low” implementers.

The second source of data on the 2009–10 implementation was the survey administered to all EXCELerator schools in the spring of 2010. The results of this survey were summarized in Stancavage et al. 2011. We constructed a school-level implementation index from survey responses to questions about professional development (principal and counselor), course offerings, English and mathematics curriculum, familiarity with the College Board Standards for College Success, and attitudes/perceptions about the school’s culture of college readiness. As with the proxy measure-based index, we designated schools as high or low implementing based on where their survey index values fell in relation to the median. Appendix D provides further detail on the construction and characteristics of each of the implementation indexes.

Our analysis looked at the effects for high implementer middle schools and low implementer middle schools as compared with nonimplementer (and preimplementer) middle schools. Appendix C contains the general equation for this model. As with the dosage model, we included fixed effects for years and for schools. We ran two separate sets of analyses: one using the implementation ratings derived from the proxy measure for both years, and one using proxy measure ratings for 2008–09 and survey index ratings for 2009–10.

We also had 2009 and 2010 implementation data for the high schools. However, we had no data on level of implementation in the 2006–07 or 2007–08 school years for schools that adopted EXCELerator prior to the 2008–09 school year. Hence, in level-of-implementation analyses for the high schools, postimplementation data pertaining to 2006–07 (for cohort 1) and 2007–08 (for cohorts 1 and 2) had to be excluded, causing a substantial loss of data.

In early work, we nevertheless conducted some of these analyses (Holtzman & Stancavage 2010). However, we found that the results from the high school level-of-implementation analyses were typically quite consistent with results from the dosage analysis; this was not surprising given that schools’ 2009 implementation ratings were positively correlated with their amount of time in the program. (In other words, schools that implemented EXCELerator earlier generally had higher 2009 implementation ratings than did schools that implemented EXCELerator more recently.) Accordingly, the effects for high implementers tended to be similar to the third-year effects, while the effects for low implementers tended to be similar to first-year effects. Because of this, and because the level-of-implementation models do not use all the available data, we elected not to continue these models in our Year 2 high school analyses.

Balancing the Data

Results from the analyses are more interpretable if the analyses always include intact “trios” of each EXCELerator school plus its two comparison schools. Data with all the trios intact are considered to be “balanced,” whereas if any of the schools are missing data, then those schools would drop out of the analysis, jeopardizing the balance. Even though, prior to matching, we had screened out the sample schools that were missing data on state- and locally-reported outcomes, our data set still had some missing values. This was most common for the schools' average SAT scores because schools that had no one take the test in a given year could not, by definition, have an average score for that year. Such records (for a school in a particular year) would thereby be omitted from the analyses. To keep the data "balanced" for any given outcome analysis, we also dropped the companion schools' records for those years. For instance, if either an EXCELerator school or a comparison school had no one take the SAT in 2006 and thus had no average SAT score in 2006, we excluded from the SAT score analysis the 2006 SAT scores for the two schools matched to the school with the missing data. Accordingly, none of the three schools in the trio (EXCELerator school plus its two comparison schools) would have 2006 data for the SAT score analysis, though they could still be part of the overall SAT score analyses if all members of the trio had average SAT scores for other years.

We also required schools to have at least some preimplementation year data on an outcome to be included in the analysis of that outcome. That is, if any school was missing data on an outcome in *every* preimplementation year, then that school was dropped entirely from the analysis of that outcome, along with its two companion schools. There were few such cases, usually associated with the recently opened schools.

Summary

In summary, we selected two comparison schools for each EXCELerator school using a regression-based method and then conducted a CITS analysis to detect the effects of the EXCELerator program for schools that adopted it. Subsequent chapters present the results of the CITS analyses for each of the individual outcome measures.

Chapter 3
Graduation and Dropout Rates

In recent years, high school graduation rates and dropout rates have become increasingly prominent topics in discussions of educational policy and improvement. Mounting evidence on the importance of graduating from high school in improving students' life chances and the costs to the nation of dropouts (as well as increasing attention to how graduation and dropout rates are calculated and new evidence that some localities' graduation rates may be lower than previously believed) have been drivers of the new dialogue on graduation and dropout rates (Richmond, 2009). The new emphasis on the importance of "college and career readiness" has also drawn attention to high school graduation and dropout rates.

Clearly, graduation and dropout rates are strongly relevant to CRS goals—perhaps more so than any other outcome except college enrollment and persistence. Moreover, the centrality of these outcomes is reflected by their placement at the top of the list of EXCELerator's stated objectives:

- Increase the graduation rate.
- Reduce the dropout rate.

For this reason, graduation and dropout rates are the first outcomes examined in our evaluation of EXCELerator effectiveness. The rate data that we used in the analysis were obtained from publicly available data files found on the websites of the Illinois, Colorado, and Florida departments of education; in other words, they are the state-reported data on school-level graduation and dropout rates. The analyses have been adjusted, as described later, to take account of possible differences in the methods by which the different jurisdictions calculated these rates at each point in time.

Cohort-Specific Time-Series Graphs

We first present the time-series graphs for the EXCELerator and the comparison schools, which graphically depict how schools in the two groups have changed over time, particularly between the preimplementation and postimplementation periods. Each point on the graph is the mean across all schools in the group in a particular year.

Figure 3.1 presents the graduation rate graphs, and Figure 3.2 presents the dropout rate graphs.[17] The descriptive statistics from which these graphs were constructed, including not only the means but also the *N*'s and standard deviations, are in Appendix E.

[17] To save space, particularly on the graphs, our convention throughout this report is to refer to the years of outcomes by the calendar year in which the school year concludes because most of the outcomes we examine come from the spring of the school year. (Graduation occurs in the spring; AP exams are administered in the spring, and so forth.) For example, the 2007 graduation rate is the graduation rate for the 2006–07 school year. However, we refer to the cohorts by the full school year because program implementation began in the fall. Cohort 1 implemented EXCELerator in 2006–07; cohort 2 implemented EXCELerator in 2007–08, and cohort 3 implemented EXCELerator in 2008–09.

Figure 3.1. Graduation Rates Over Time for EXCELerator Schools and Comparison Schools, by Cohort

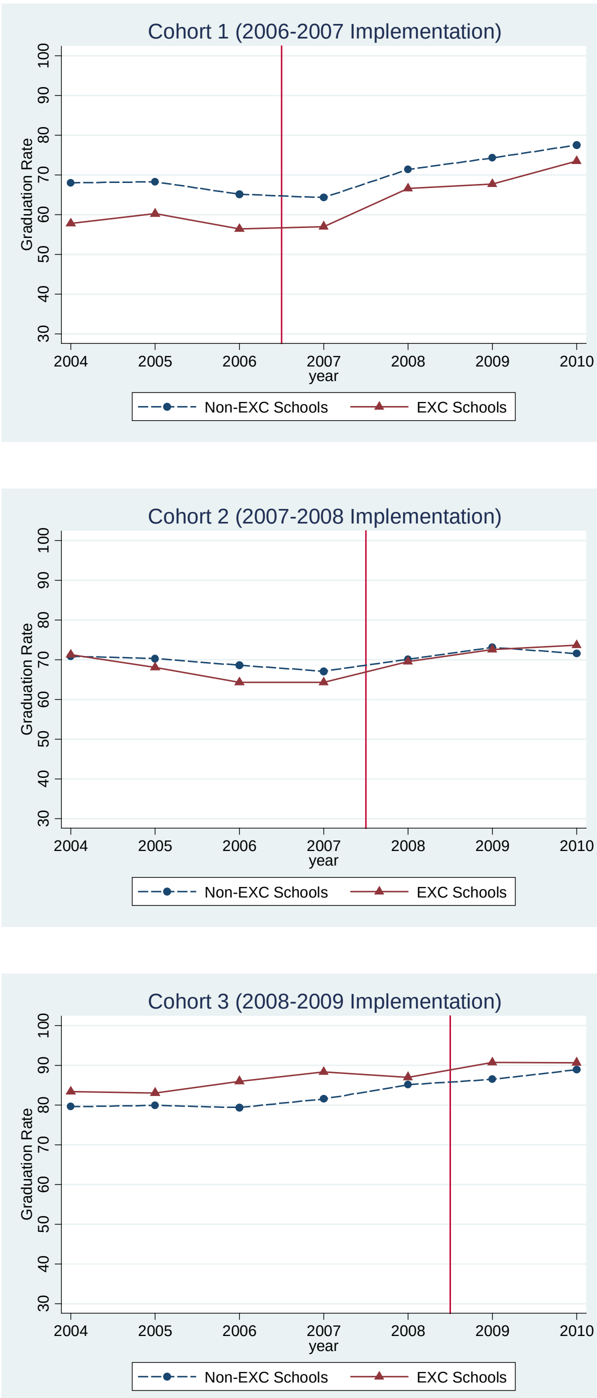
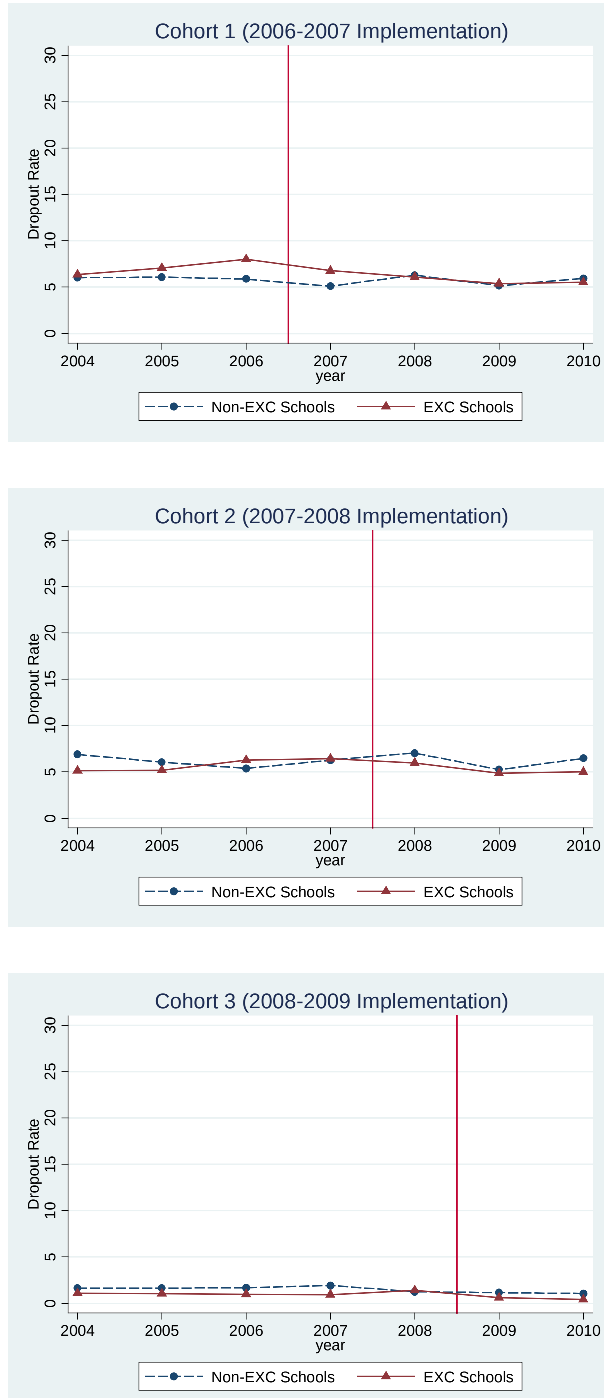


Figure 3.2. Dropout Rates Over Time for EXCELerator Schools and Comparison Schools, by Cohort



The graph labeled Cohort 1 in Figure 3.1 illustrates the graduation rate trajectories for the first cohort of EXCELerator schools and associated comparison schools. For this particular cohort, the comparison schools have somewhat higher graduation rates than the EXCELerator schools during the preimplementation years.[18] The trends for the two sets of schools seem to follow similar paths from 2004 onward, but the gap narrows in the years following implementation (represented by the vertical line). Between 2004 and 2010, the mean graduation rate for the comparison schools grows nearly 10 points, but the EXCELerator schools' mean graduation rate grows nearly 16 points over this period. Moreover, the EXCELerator schools end up, in 2010, with a higher graduation rate (73 percent) than the comparison schools start with in 2004.

The graph labeled Cohort 2 shows the graduation rate trajectories for the second cohort of EXCELerator and comparison schools. Although the two groups of schools start out in 2004 at the same place (71 percent), the EXCELerator schools lose ground, in relation to the comparison schools, in 2005, 2006, and 2007—all preimplementation years. In the three years following implementation, however, the EXCELerator schools regain ground and then surpass the comparison schools in 2010 (74 percent graduating at EXCELerator schools versus 72 percent graduating at comparison schools).

The graduation rate trajectories for the third cohort and comparisons are provided in the graph labeled Cohort 3. The graduation rates for this cohort of EXCELerator schools rise steadily throughout the period of analysis, with an increase from 83 percent to 87 percent during the five-year preimplementation period and a further increase to 91 percent in the two years following implementation. During the same time span, the comparison schools show similar increases, although the timing of the increases appears to lag by a year or two. One may note, however, that the graduation rates in this graph are considerably higher than in the previous two graphs for both groups. Recall that this cohort consists of the Hillsborough districtwide EXCELerator implementation and includes schools that were historically higher performing than those targeted for cohorts 1 and 2. The generally higher performance of the cohort 3 schools (and their comparisons) will be seen in most of the outcomes discussed throughout this report.

Looking next at the *dropout rate trajectories* (Figure 3.2), we see that the cohort 1 EXCELerator schools appear to be on a slight upward trend for dropout rates in the preimplementation years (while the cohort 1 comparison schools hold steady) but the trend reverses following implementation. In 2010, the EXCELerator schools, for the first time, have a marginally lower dropout rate than the comparison schools: 5.6 percent compared to 5.9 percent.

The trend for cohort 2 shows the EXCELerator dropout rate rising during the preimplementation years and falling in the three years following implementation. However, the mean rate in 2010 is essentially unchanged from the mean rate in 2004. During this same period, the comparison

[18] As discussed in Chapter 2, comparison schools were matched to EXCELerator schools based on preimplementation values for the composite outcome index. This strategy does not guarantee that triplets of matched schools will have exactly the same values on each individual outcome variable in the years prior to implementation, although there were, in fact, very few statistically significant differences between the total group of EXCELerator schools and the total group of comparison schools on any of these measures.

schools show no clear pattern of increase or decline in dropout rates, and they also end up in 2010 very close to where they began in 2004.

Cohort 3 shows slight decreases in the dropout rates for both groups of schools, despite the fact that rates for both groups are quite low at the start of the comparison period. For EXCELerator schools, the decline seems timed with the two years of postimplementation, whereas the decline appears to start a year earlier for the comparison group.

Statistical Analysis of the Effects of EXCELerator Dosage

The statistical results analyzing the effects of EXCELerator dosage on graduation rate and dropout rate are presented in Table 3.1.[19] Note that these results focus on the impact of successive years of EXCELerator implementation, but, unlike Figures 3.1 and 3.2, they do not disaggregate by cohort.

Table 3.1. EXCELerator Dosage Results for Graduation Rate and Dropout Rate, Coefficients (Robust SE)

Variable	Graduation Rate	Dropout Rate
[state × year effects suppressed; see Appendix F]		
EXCELerator, first-year effect	**-0.49** **(1.32)**	**0.04** **(0.43)**
EXCELerator, second-year effect	**0.09** **(1.40)**	**-0.39** **(0.48)**
EXCELerator, third-year effect	**4.18*** **(1.87)**	**-1.19** **(0.78)**
EXCELerator, fourth-year effect	**8.03**** **(2.45)**	**-2.49**** **(0.82)**
Constant	73.57*** (0.51)	4.23*** (0.21)
Sigma_u	11.32	3.98
Sigma_e	5.86	2.09
Rho	0.79	0.78
N (schools)	144	147
N (observations)	975	1,008

*$p < .05$; **$p < .01$; ***$p < .001$

[19] Because the different states may have different ways of calculating their graduation and dropout rates, and because states may have changed their calculation methods during the period under study, we augment the basic regression equation described in Appendix C for the statistical analysis. Instead of including a set of dummy variables indicating the year, which represent systematic variation in the outcome by year, we include a set of year × state dummy variables, so as to represent systematic variation over time *within each state.* Accordingly, there are 3 states × 7 years = 21 of these variables, although one year in each state must be omitted as the reference. Because these are not the main variables of interest, we suppress them from the tables of coefficients presented in this chapter.

For the graduation rate, there appears to be no effect of EXCELerator in the first two years of implementation; that is, schools in the first and second year of EXCELerator implementation have graduation rates that are no different than schools that are not in the program. Starting in the third year of implementation, however, we see statistically significant positive effects for participation: a 4.2 percentage point advantage over non-EXCELerator schools in the third year and an 8.0 percentage point advantage in the fourth year. It appears, then, that after taking into account the school and state × year fixed effects, the EXCELerator program is associated with increased graduation rates starting in the third year of implementation.[20]

For dropout rate (second column of Table 3.1), we again see no significant effect in the first year of implementation. In the second and third years of implementation, we see increasingly negative but still nonsignificant effects. (Unlike with most outcome indicators, the goal with dropout rates is a decrease, so a negative coefficient indicates change in the desired direction.) In the fourth year, the decrease is 2.5 percentage points, a statistically significant decline. So, there is some evidence that the EXCELerator program is helping schools reduce their dropout rates, especially when the program has been in place for four years.

Summary of Findings

The EXCELerator program appears to be having the desired effects in raising graduation rates and lowering dropout rates. These effects are most evident after three or four years of EXCELerator participation, although there may be some confounding between cohort effects and dosage effects. EXCELerator schools in the large third cohort (which had reached their second year of implementation in 2010) were quite high achieving prior to entering the program. These schools continued to make modest improvements in mean graduation and dropout rates during the years of program implementation, but program impact was not evident because similar improvements were also seen for schools in the cohort 3 comparison group.

[20] The year 1 report found a significant positive effect on graduation rates starting in the *second* year after implementation. The results this year probably reflect the influence of the large third cohort of EXCELerator schools, which now has two years of postimplementation data and, as can be seen in Figure 3.1, has had mean graduation rates that track much the same as the graduation rates for its comparison schools.

Chapter 4
Advanced Placement Exam: Participation and Performance

AP courses are one of the major avenues by which students can be exposed to rigorous, college-level work while they are still in high school. Several research studies have shown that participation in AP courses and success on AP exams are strong predictors of college performance (Dougherty, Mellor, & Jian, 2006; Geiser & Santelices, 2004; Hargrove, Godin, & Dodd, 2008). Accordingly, AP course and exam participation is a key element of the EXCELerator program. Numerous AP-related resources have been provided to EXCELerator schools and students, such as the payment of AP exam fees for students and the provision of AP-related professional development for teachers. Accordingly, five of the program's nine "end of project" objectives pertain to AP courses and examinations:

1. Increase the number of AP courses offered in each school.
2. Increase the representation of underrepresented groups in AP courses until student participation in AP courses reflects the demographic distribution of each school.
3. Increase the percentage of graduating seniors in each school who have completed at least one AP course and exam.
4. Increase the percentage of graduating seniors who score a 3 or higher on at least one AP exam.
5. Increase the percentage of graduating seniors in each school who take AP courses who score a 3 or higher on at least three AP exams.

For this analysis, we obtained from the College Board data on AP exam participation and scores for all students at EXCELerator and comparison schools from 2004 to 2010. From these data, we computed school-level counts of students (a) taking, (b) scoring 3 or higher, and (c) scoring 2 or higher on each of the following:

- Any AP exam in any subject area
- Any AP English exam (English language and/or English literature)
- Any AP calculus exam (AB and/or BC)
- Any AP STEM exam (any biology, calculus, chemistry, computer science, environmental science, physics, or statistics AP exam)

We converted these counts to percentages by dividing each count by total school enrollment in Grades 9–12. Our impact analysis then focused on school percentages taking and passing AP exams in each area.

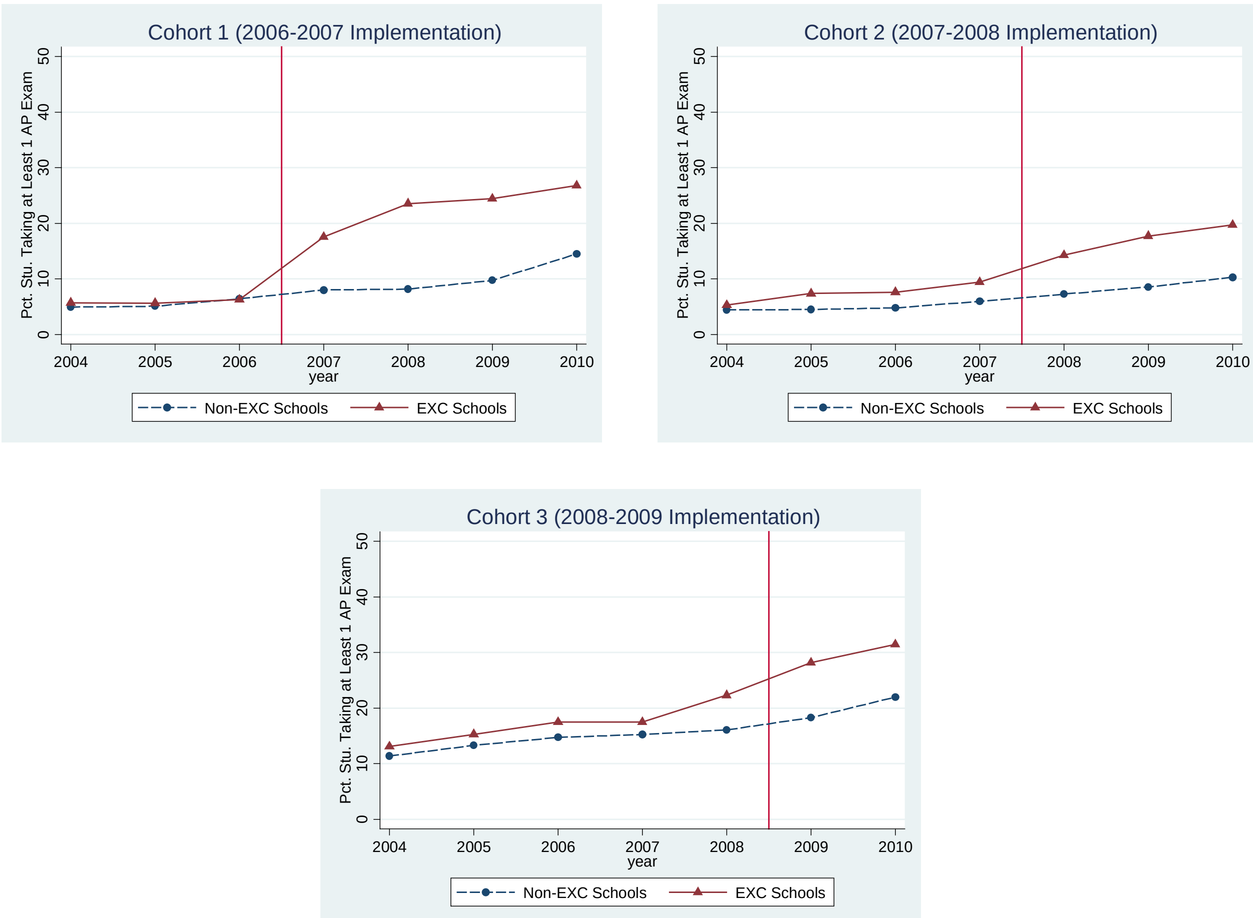
The Percentage of Students Participating in AP Exams

We first look at results pertaining to the school percentages of students *taking* AP exams.

Cohort-Specific Time-Series Graphs

Figure 4.1 presents the time-series graphs for the three EXCELerator cohorts on the schoolwide percentages of students taking at least one AP exam in any subject area. (See Appendix E for the descriptive statistics from which these graphs, and all others in this chapter, were constructed.)

Figure 4.1. The Percentage of the Whole School (Grades 9–12) Taking at Least One AP Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort



For cohort 1, we see that the two groups of schools are identical prior to implementation, but after implementation, the EXCELerator schools display an enormous increase. The comparison schools, by contrast, continue on their preimplementation trajectory until the final study year (2010), when they also experience a sharper uptick in AP exam takers.

From the last preimplementation year (2006) to the first postimplementation year (2007), the mean percentage of cohort 1 students in EXCELerator schools taking at least one AP exam goes from 6 percent to 18 percent—almost tripling the rate. Exam-taking rates continue to rise, although not so steeply, during successive years of implementation—ending at a mean AP participation rate of 27 percent in 2010. Comparison group schools, by contrast, have a 2010 participation rate of 14 percent.

The second EXCELerator cohort also displays an upward divergence from the comparison group, although the rate increases (5 points in the first postimplementation year, 3 points in the second year, and 2 points in the third year) are not as large as for the first cohort. Even so, the rate more than doubles from 2007 (last preimplementation year) to 2010 (third postimplementation year).

The third EXCELerator cohort also displays a divergence from the comparison group, but, interestingly, this divergence appears to begin in 2008, the year prior to implementation. Because all the schools in this cohort are in Hillsborough, which already had four schools in the second EXCELerator cohort, this may reflect a general district commitment to college readiness strategies during this period. In any case, the EXCELerator-comparison group gap increases further in the first year after implementation and then stabilizes, with the two groups of schools maintaining their relative positions (almost 10 points difference in participation rates) in 2010.

Figure 4.2 is similar to Figure 4.1 except that the outcome is the percentage of students taking any AP English exam. In terms of the pre-post differences for the EXCELerator schools, and the postimplementation differences between the EXCELerator schools and the comparison schools, the three graphs more or less mirror those in Figure 4.1. In other words, after the implementation of EXCELerator, program schools experienced growth in the percentages of students taking AP English exams, compared to both the years before implementation and the comparison schools. (The percentages in Figure 4.2, however, are lower, as would be expected because we are now looking at a subset of AP exams instead of all AP exams: The vertical scale axis goes up to only 25 percent.)

Figure 4.3 shows the percentage of students taking any AP calculus exam. The vertical axis scale maximum is only 5, so the percentages depicted are actually very small—about 1 or 2 percent for the first two cohorts and about 2 or 3 percent for the third cohort.[21] Unsurprisingly, very low percentages of students take AP calculus, particularly when we are looking at percentages of the whole school enrollment.

That said, the graphs in Figure 4.3 follow a somewhat different pattern than those in Figures 4.1 and 4.2. For the first two cohorts, there is evidence of only a modest divergence from the comparison group in postimplementation AP calculus exam taking. For the third cohort, both program and comparison schools show modest gains from the preimplementation period but do not diverge from one another. It is also interesting that, for EXCELerator schools in all three cohorts (and comparison schools in cohort 3), the uptick in AP calculus exam taking seems to occur in 2010. If these upticks represent a real trend (and not just random variation in the trend lines), there may have been some other secular influence on AP calculus exam taking in that particular year.

[21] We selected such a low maximum for this set of graphs so as to highlight the changes over time and the differences between the two groups.

Figure 4.2. The Percentage of the Whole School (Grades 9–12) Taking at Least One AP English Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort

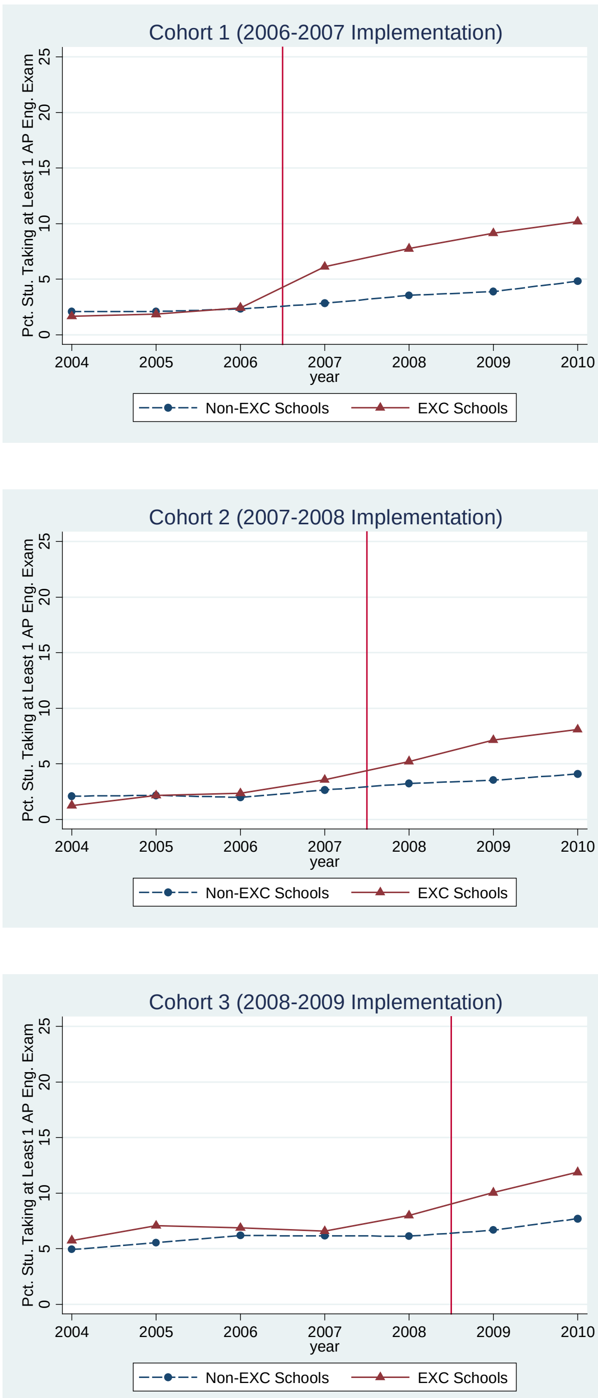
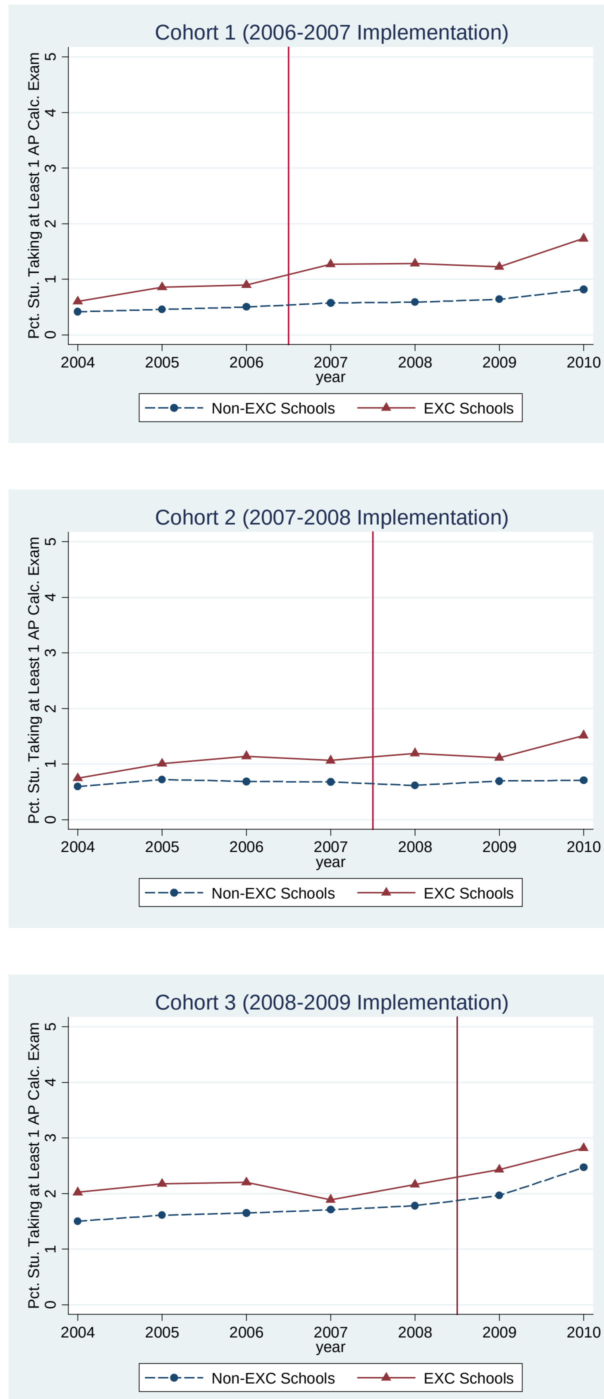
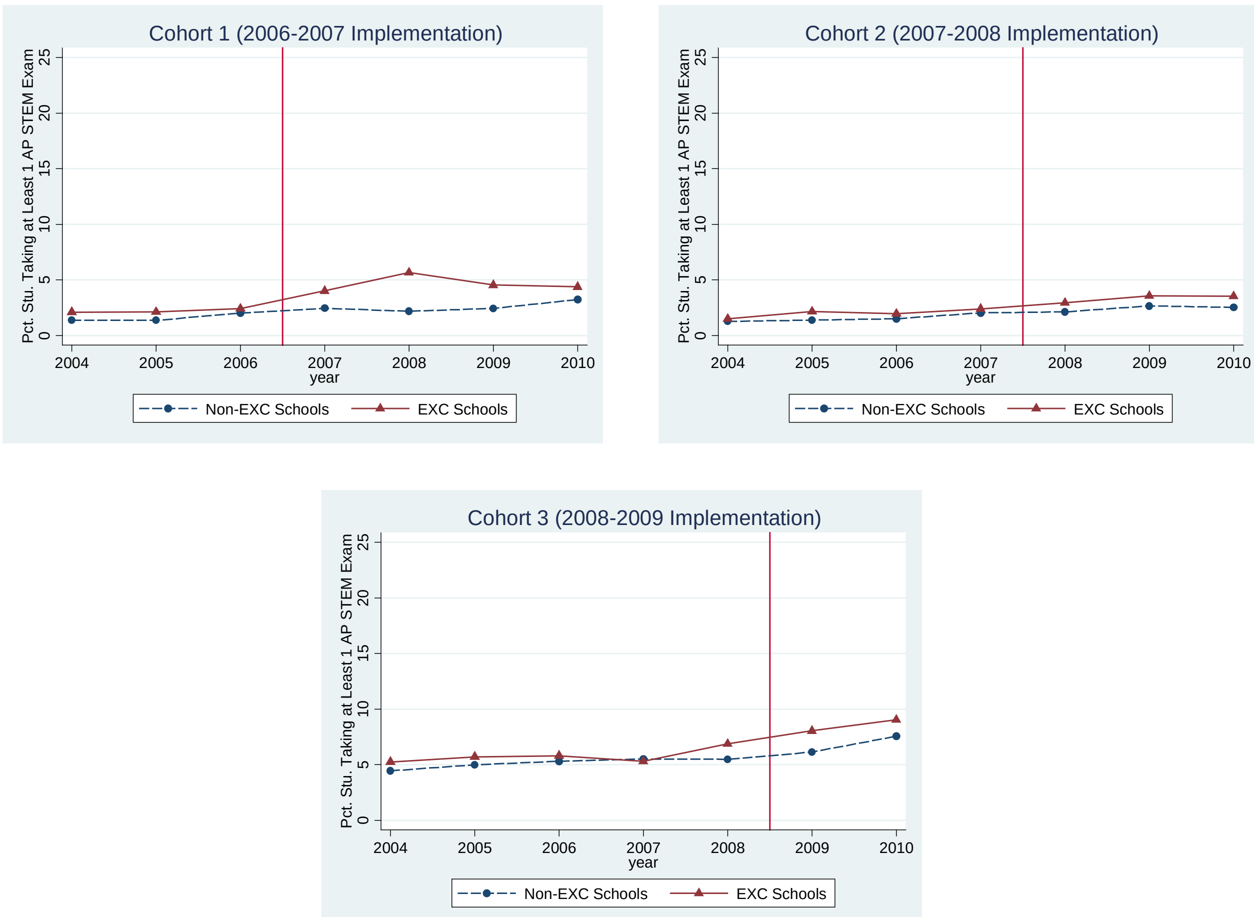


Figure 4.3. The Percentage of the Whole School (Grades 9–12) Taking at Least One AP Calculus Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort



Finally, Figure 4.4 shows the percentage of students taking any AP STEM exam. The Figure 4.4 vertical axis scale maximum is back to 25, as in Figure 4.2. All cohorts show modest upward trends in taking AP STEM exams, but only cohort 1 EXCELerator schools appear to have a point of inflection associated with program implementation, and these schools have a rate peak in 2008 that is not sustained (although 2009 and 2010 rates do not fall to preimplementation levels).

Figure 4.4. The Percentage of the Whole School (Grades 9–12) Taking at Least One AP STEM Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort



Statistical Analysis of the Effects of EXCELerator Dosage

The results of the statistical analysis of the first-, second-, third-, and fourth-year effects of EXCELerator on AP exam participation are generally consistent with the patterns seen in the time-series graphs. The first column in Table 4.1 shows highly significant, large increases in the percentage of students taking at least one AP exam in any subject area in the first, second, third, and fourth years of EXCELerator implementation. The first-year increase is 6.5 percentage points, and about 2 additional points are added in the second year (making a cumulative total effect of 8.6 points for second-year schools). There are no additional gains for third-year schools (cumulative total effect is 8.4 points), but fourth-year effects show another increase, for a cumulative total effect of 11.0 points. Put simply, a school in its fourth year of EXCELerator could expect, on average, to have about 11 percent more students taking at least one AP exam than if it had not joined the EXCELerator program.

Table 4.1. EXCELerator Dosage Results for the Percentage Taking AP Exams, Coefficients (Robust SE)

	Any Subject	English	Calculus	STEM
Yr2005	1.08*** (0.26)	0.46*** (0.12)	0.15** (0.05)	0.29* (0.12)
Yr2006	2.13*** (0.3)	0.68*** (0.15)	0.18** (0.06)	0.54** (0.16)
Yr2007	3.81*** (0.41)	1.27*** (0.21)	0.23*** (0.06)	0.99*** (0.18)
Yr2008	5.17*** (0.49)	1.65*** (0.24)	0.27*** (0.08)	1.23*** (0.20)
Yr2009	6.48*** (0.56)	2.00*** (0.29)	0.35*** (0.09)	1.62*** (0.24)
Yr2010	9.08*** (0.70)	2.68*** (0.35)	0.66*** (0.12)	2.35*** (0.31)
EXCELerator, first-year effect	**6.50*** (0.88)**	**2.36*** (0.41)**	**0.22† (0.13)**	**0.96** (0.30)**
EXCELerator, second-year effect	**8.62*** (1.12)**	**3.67*** (0.49)**	**0.19 (0.15)**	**1.49*** (0.39)**
EXCELerator, third-year effect	**8.42*** (1.74)**	**4.40*** (0.75)**	**0.10 (0.16)**	**0.29 (0.48)**
EXCELerator, fourth-year effect	**10.96*** (2.19)**	**5.46*** (1.24)**	**0.34 (0.47)**	**-0.22 (1.05)**
Constant	7.66*** (0.33)	3.19*** (0.16)	0.99*** (0.05)	2.73*** (0.13)
Sigma_u	7.48	3.56	1.12	3.26
Sigma_e	3.85	1.84	0.61	1.56
Rho	0.79	0.79	0.77	0.81
N (schools)	147	147	147	147
N (observations)	1,008	1,008	1,008	1,008

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

For the percentage of students taking any English AP exam (second column in Table 4.1), the EXCELerator first-, second-, third-, and fourth-year effects again are all highly significantly positive (although lower than for the effects on taking any AP exam, as would be expected). The benefit of being an EXCELerator school in the first year of the program is 2.4 percentage points; by the second year, the benefit is 3.7 points; by the third year, it is 4.4 points; and by the fourth year, it is 5.5 points.

For the percentage of students taking any calculus AP exam (third column in Table 4.1), all of the effects are positive, but only the first-year effect, at .22 percentage points, is even marginally significant. Finally, for the percentage of students taking any AP STEM exam (fourth column in Table 4.1), a somewhat more perplexing pattern emerges. There are statistically significant positive first-year and second-year effects (effects of 1.0 and 1.5, respectively), but the effects become nonsignificant in the third year and negative (but still nonsignificant) in the fourth year.

The Percentage of Students Scoring 3 or Higher on AP Exams

Of course, schools are not just interested in increasing the percentage of students in the school *taking* AP courses and exams; they also want to increase the percentage of students in the school who *pass* the exams (i.e., score at least a 3). In interpreting the graphs that follow, keep in mind that we calculated these percentages as the number of students passing the exams divided by the total school enrollment in Grades 9–12.[22]

Cohort-Specific Time-Series Graphs

The graphs in Figure 4.5 suggest that the EXCELerator program is not having much of an impact on the percentage of students scoring 3 or higher on any AP exam in cohort 1, In cohort 2, and particularly in cohort 3, there does appear to be a slight increase for the EXCELerator schools in the postimplementation period, as well as a slight widening of the gap with the comparison schools. A similar pattern for the percentage of students scoring 3 or higher on any AP English exam can be seen in the three cohort graphs in Figure 4.6.

The graphs in Figure 4.7 do not show any increase in the percentage of EXCELerator or comparison students scoring 3 or higher on any AP calculus exam. Given that there was, effectively, no impact of the EXCELerator program on the percentage of students *taking* calculus exams, it would only be possible to see increases in the percentage of EXCELerator students scoring 3 or higher on the exams if the EXCELerator schools were increasing pass rates within successive, similarly sized, cohorts of exam takers.

The percentage of students scoring 3 or higher on any AP STEM exam are shown in Figure 4.8. Again, the graphs do not show increases in the percentage of students scoring 3 or higher in cohort 1 or cohort 2, and the modest increases in cohort 3 EXCELerator schools are matched by similar modest increases in the cohort 3 comparison schools.

[22] Another perspective is gained by looking at the passing rates among students taking the exams (i.e., the number of students scoring 3 or higher divided by the number of students taking the exam). However, for that analysis, schools that had no one taking the exam in a given year would have to be omitted from the analysis for that year. Because many EXCELerator schools and comparison schools indeed had no exam takers in one or more years (particularly in the preimplementation years), the resulting data loss would be substantial. Thus, we elected not to pursue this analysis.

Figure 4.5. The Percentage of the Whole School (Grades 9–12) Scoring 3 or Higher on any AP Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort

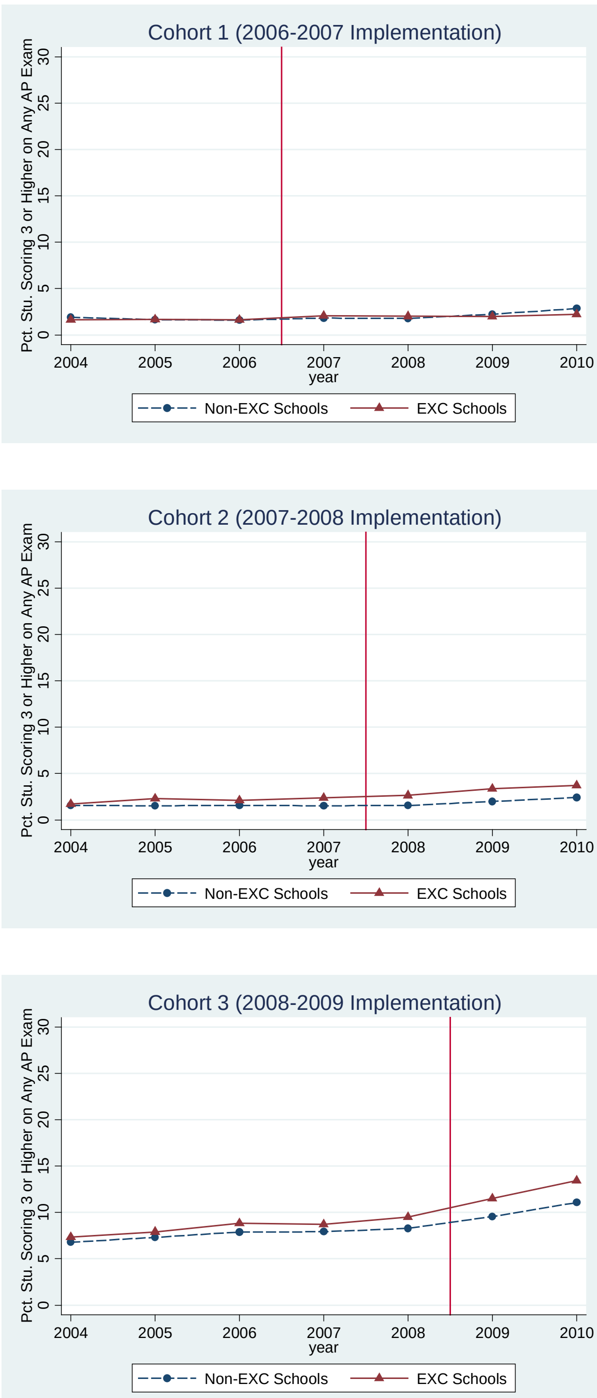


Figure 4.6. The Percentage of the Whole School (Grades 9–12) Scoring 3 or Higher on any AP English Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort

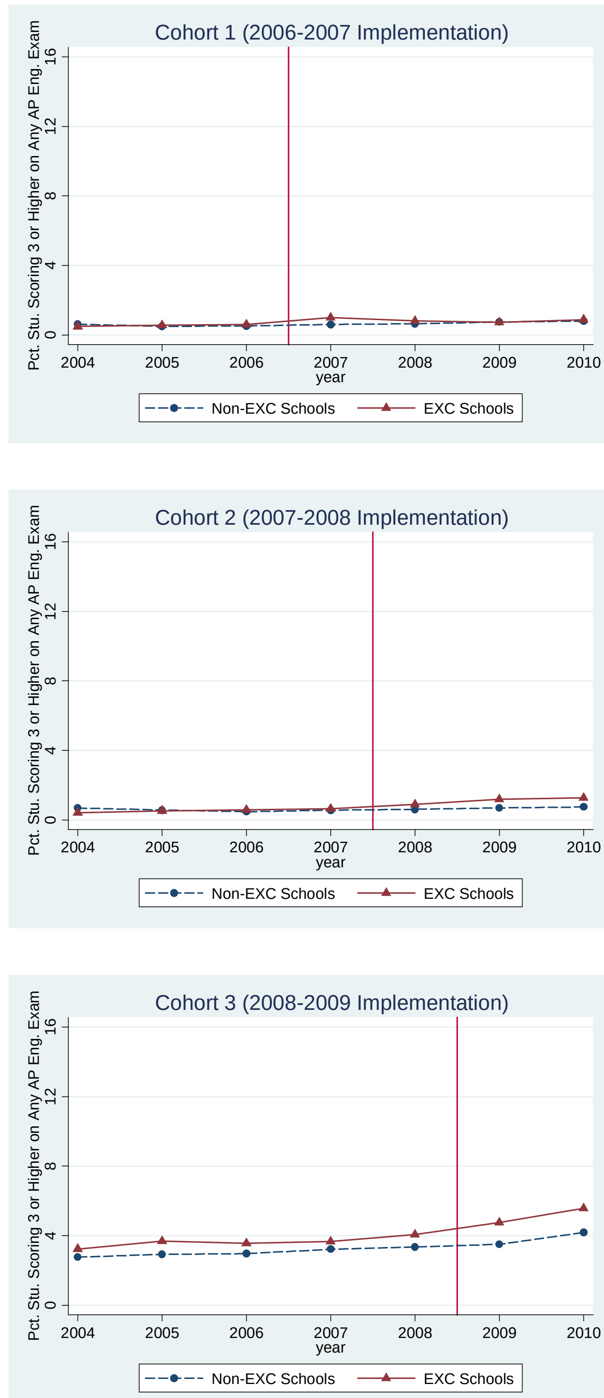


Figure 4.7. The Percentage of the Whole School (Grades 9-12) Scoring 3 or Higher on any AP Calculus Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort

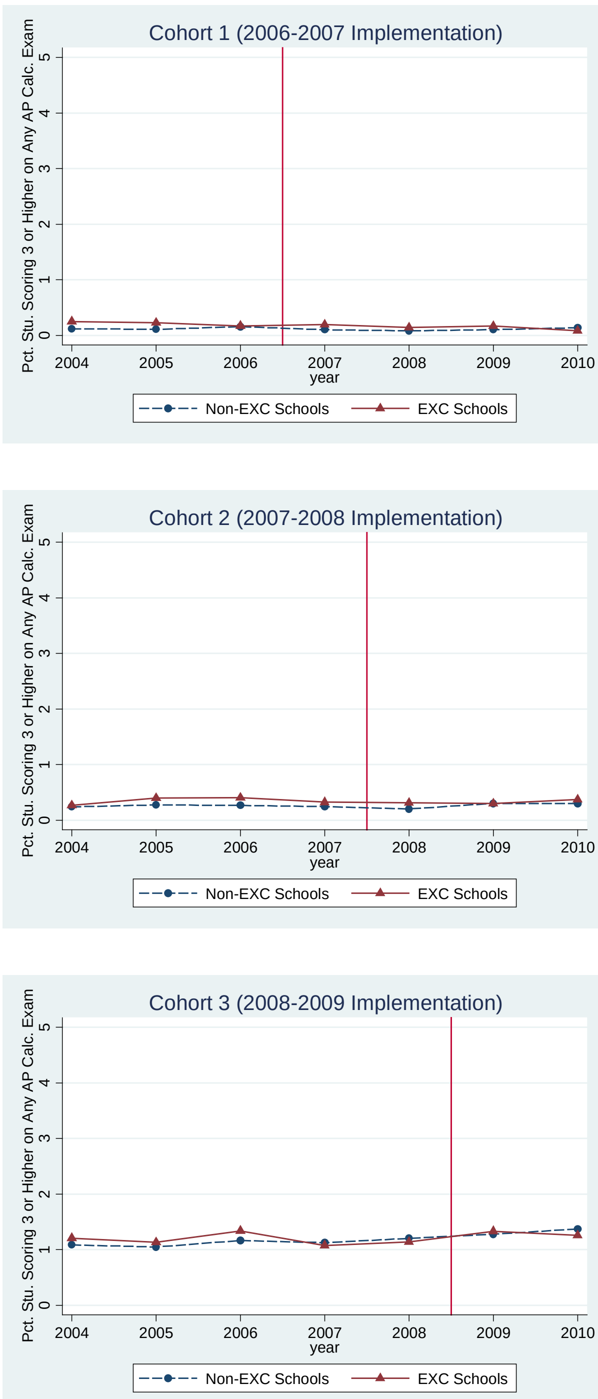
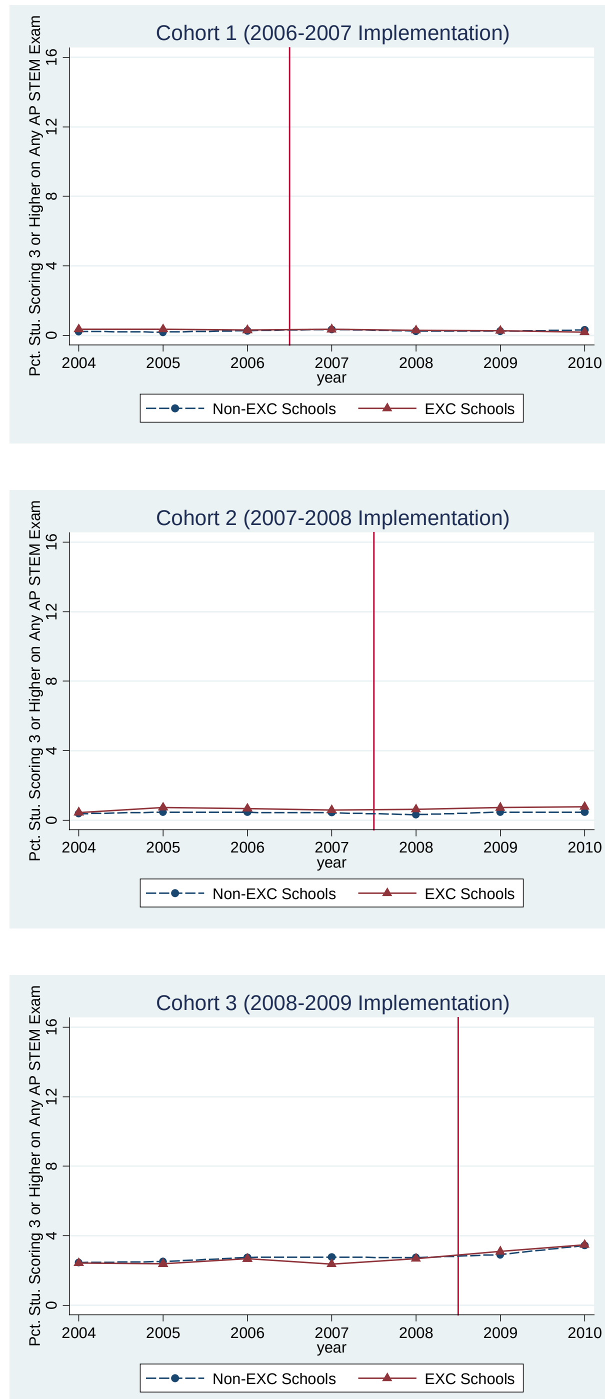


Figure 4.8. The Percentage of the Whole School (Grades 9–12) Scoring 3 or Higher on any AP STEM Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort



Statistical Analysis of the Effects of EXCELerator Dosage

Table 4.2 presents the results of the statistical analysis of the effects of EXCELerator dosage on the percentage of students scoring 3 or higher on AP exams. As noted earlier, these percentages were calculated as the number of students passing the exams divided by the total school enrollment in Grades 9–12.

Table 4.2. EXCELerator Dosage Results for the Percentage Scoring 3 or Higher on AP Exams, Coefficients (Robust SE)

	Any Subject	English	Calculus	STEM
Yr2005	0.28** (0.10)	0.10† (0.05)	0.00 (0.03)	0.06 (0.04)
Yr2006	0.54*** (0.13)	0.08 (0.06)	0.07† (0.04)	0.17** (0.06)
Yr2007	0.84*** (0.18)	0.31** (0.10)	0.04 (0.04)	0.22** (0.07)
Yr2008	0.96*** (0.22)	0.37** (0.12)	0.06 (0.05)	0.20* (0.09)
Yr2009	1.85*** (0.31)	0.54*** (0.14)	0.15* (0.06)	0.36** (0.12)
Yr2010	3.05*** (0.38)	0.97*** (0.18)	0.20** (0.07)	0.65*** (0.15)
EXCELerator, first-year effect	**0.95** (0.32)**	**0.52** (0.16)**	**0.01 (0.07)**	**0.18 (0.11)**
EXCELerator, second-year effect	**1.16** (0.42)**	**0.67** (0.22)**	**-0.09 (0.08)**	**0.19 (0.15)**
EXCELerator, third-year effect	**-0.66† (0.40)**	**-0.02 (0.19)**	**-0.14† (0.08)**	**-0.24† (0.14)**
EXCELerator, fourth-year effect	**-1.64*** (0.41)**	**-0.35 (0.23)**	**-0.29** (0.09)**	**-0.59*** (0.17)**
Constant	3.72*** (0.16)	1.48*** (0.08)	0.56*** (0.03)	1.15*** (0.06)
Sigma_u	5.05	2.30	0.88	1.96
Sigma_e	1.53	0.77	0.35	0.61
Rho	0.92	0.90	0.87	0.91
N (schools)	147	147	147	147
N (observations)	1,008	1,008	1,008	1,008

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

For the percentage of students scoring 3 or higher on any AP exam (in any subject), we see a statistically significant positive effect for schools in their first or second year of EXCELerator (effects of 1.0 and 1.2 respectively). However, the third- and fourth-year effects turn negative, and these effects are marginally significant in year 3 and significant in year 4.

The pattern of effects may represent some confounding of dosage and cohort because, as noted earlier, schools in the large third cohort tend to be less disadvantaged than schools in the earlier cohorts, and cohort 3 contributes only to the first- and second-year effects. Alternatively, the results could indicate a substantive explanation, such as a decline in course quality by the later years of implementation, perhaps related to the observed influxes of students into AP courses in EXCELerator schools. For instance, courses might be larger than teachers can manage; some of the class sections might be taught by less experienced teachers; or some of the students who would not previously have taken the course are underprepared, requiring additional attention or remediation from the teacher at the expense of the other students. However, this is all speculation; we have no data with which to investigate these hypotheses.

It is interesting that the negative third- and fourth-year effects are not visible in Figure 4.5. Although the statistical results generally mirror what we see in the graphs, it is important to keep in mind that the regressions are not simple expressions of the descriptive data. In particular, the inclusion of the fixed effects for year and, even more importantly, for school, allow for the possibility of differing results.

The results for the percentage of students scoring 3 or higher on any AP English exam, any AP calculus exam, and any AP STEM exam (second through fourth columns in Table 4.2) are all similar to the results for all subject areas: positive effects in the early years that turn negative in the later years of implementation. There is some variation with regard to which coefficients reach statistical significance, and the downturn for AP calculus starts in the second year of implementation rather than the third.

The Percentage of Students Scoring 2 or Higher on AP Exams

Finally, because so few students in either the EXCELerator schools or the comparison schools scored a 3 or higher on any of the AP exams, we look for differences across the two groups using a lower standard: scoring a 2 or higher. Even though most colleges will not award credit for a score of 2, this score does indicate some level of mastery of AP content.

Cohort-Specific Time-Series Graphs

For all three cohorts, the graphs in Figure 4.9 show postimplementation increases in the percentage of EXCELerator students scoring 2 or higher on any AP exam, and these increases cause the trend lines for EXCELerator schools to diverge from those of the comparison schools. In cohort 1, however, the uptick in students scoring 2 or higher is not sustained, so the EXCELerator and comparison school trend lines essentially reconverged in 2010. By 2010, the mean percentage of students in EXCELerator schools scoring 2 or higher on any AP exam is about 7 percent for cohort 1, 8 percent for cohort 2, and 21 percent for cohort 3, again highlighting the differences between cohort 3 and the earlier cohorts.

For the percentage of students scoring 2 or higher on any AP English exam, the graphs in Figure 4.10 suggest sustained postimplementation increases for the EXCELerator schools in all three cohorts, although cohort 1 schools lose some ground after the first year of implementation and do not pick up again until the fourth year.

Figure 4.9. The Percentage of the Whole School (Grades 9–12) Scoring 2 or Higher on any AP Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort

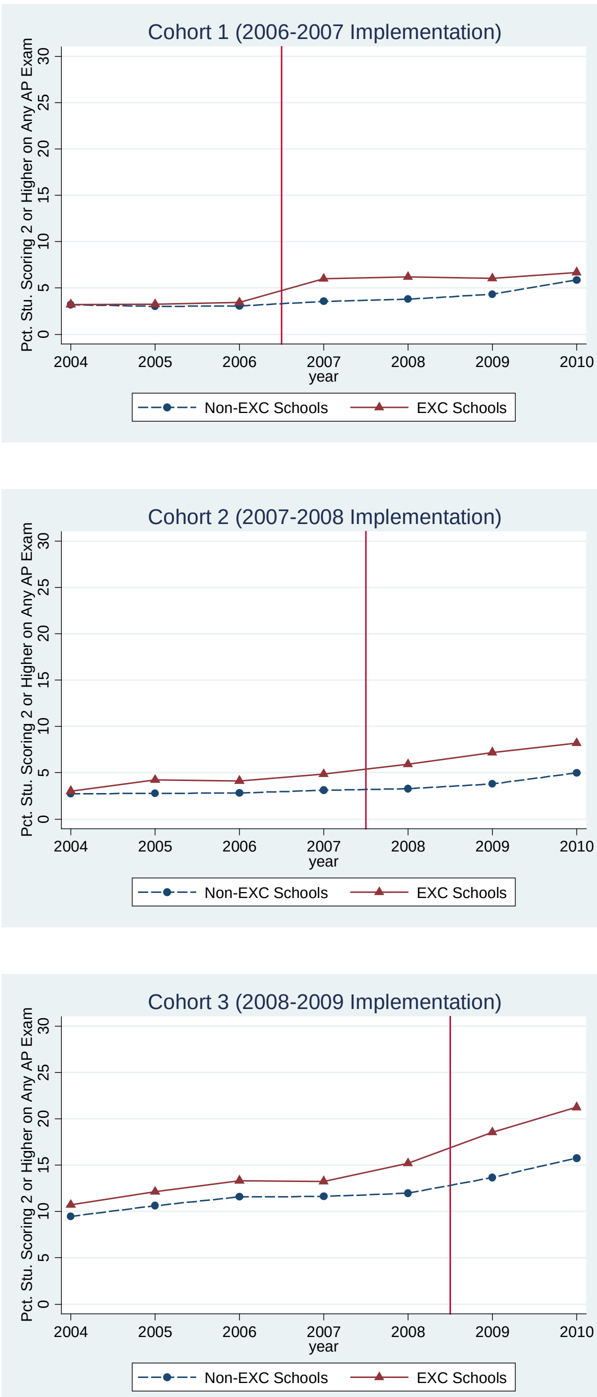
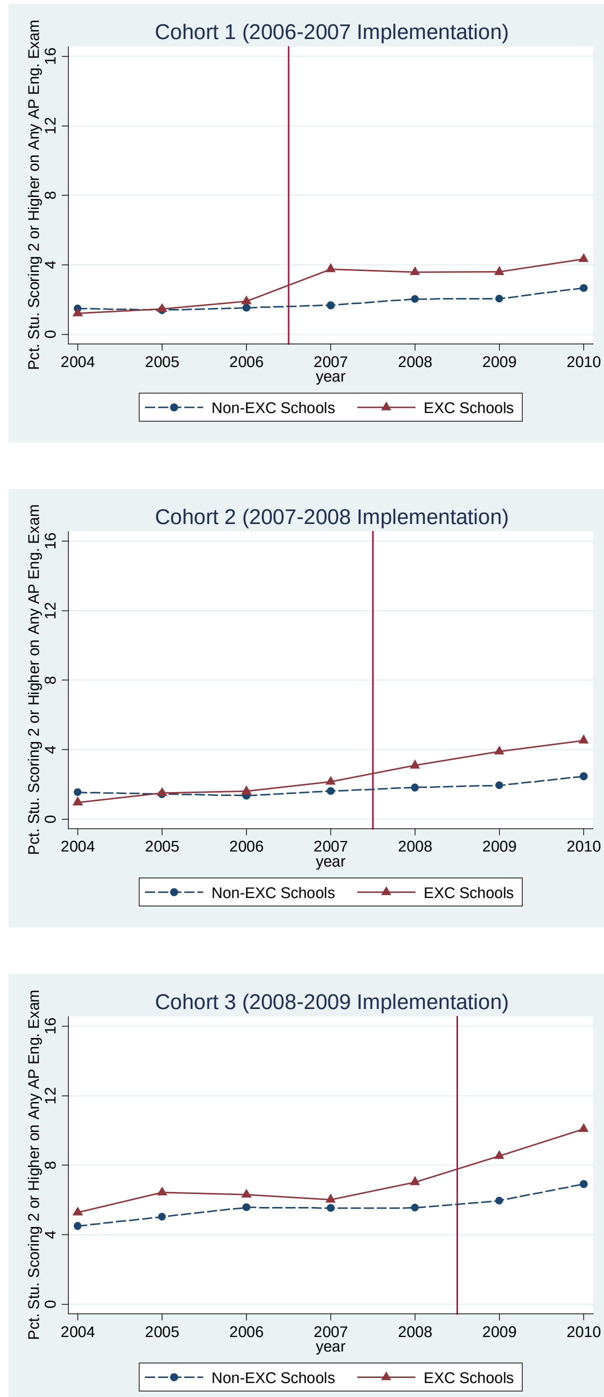


Figure 4.10. The Percentage of the Whole School (Grades 9–12) Scoring 2 or Higher on any AP English Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort



Even with the lowered standard of scoring 2 or higher, there is little evidence of EXCELerator program impact on student AP scores in calculus or STEM. (See Figures 4.11 and 4.12.) Modest increases in STEM scores for cohort 3 may be an exception.

Statistical Analysis of the Effects of EXCELerator Dosage

Table 4.3 presents the results of the statistical analysis of the effects of EXCELerator dosage on the percentage of students scoring 2 or higher on AP exams. Although the effects are somewhat more positive than they were when the criterion was scoring 3 or higher, the basic pattern of results is unchanged from the pattern seen in Table 4.2. That is, the strongest positive effects are seen for scores on any AP exam and any AP English exam. Effects for scoring 2 or higher on any AP English exam are positive for all four years, although the fourth-year effect is not statistically significant. There are also significant, or marginally significant, positive effects for scoring a 2 or higher on any AP STEM exam in the first two years; the STEM effects turn negative in years 3 and 4. Effects for calculus are negative in all but the first year, where they are close to zero.

Figure 4.11. The Percentage of the Whole School (Grades 9-12) Scoring 2 or Higher on any AP Calculus Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort

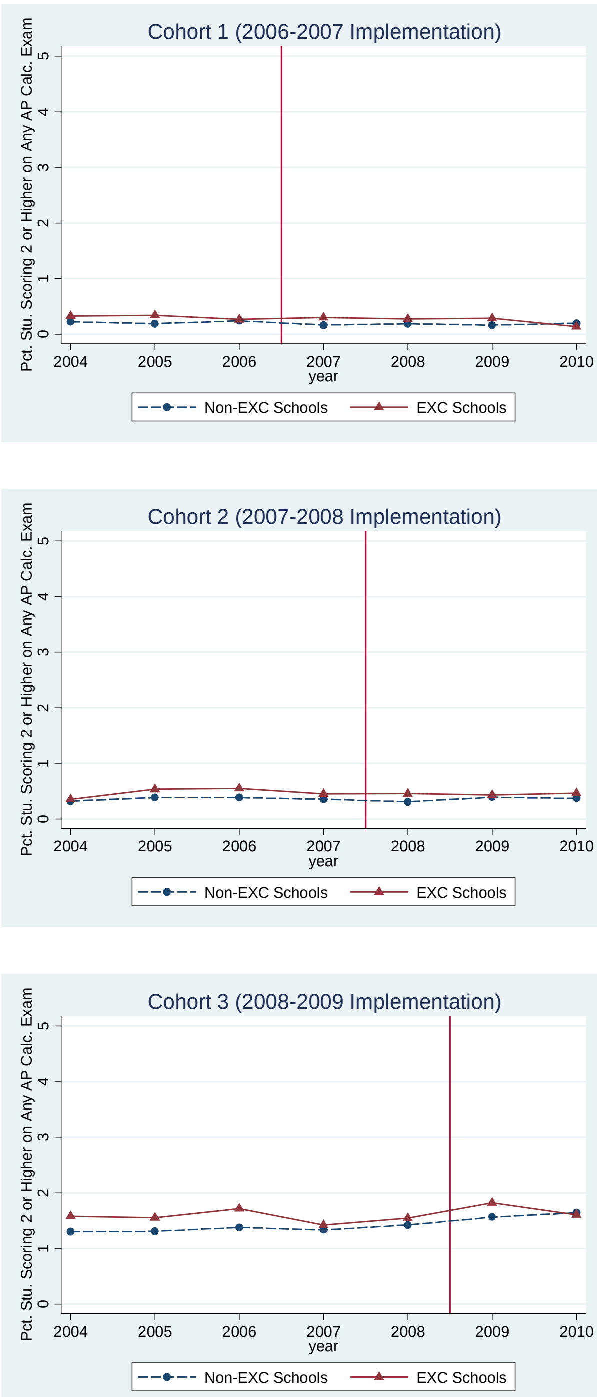


Figure 4.12. The Percentage of the Whole School (Grades 9–12) Scoring 2 or Higher on any AP STEM Exam, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort

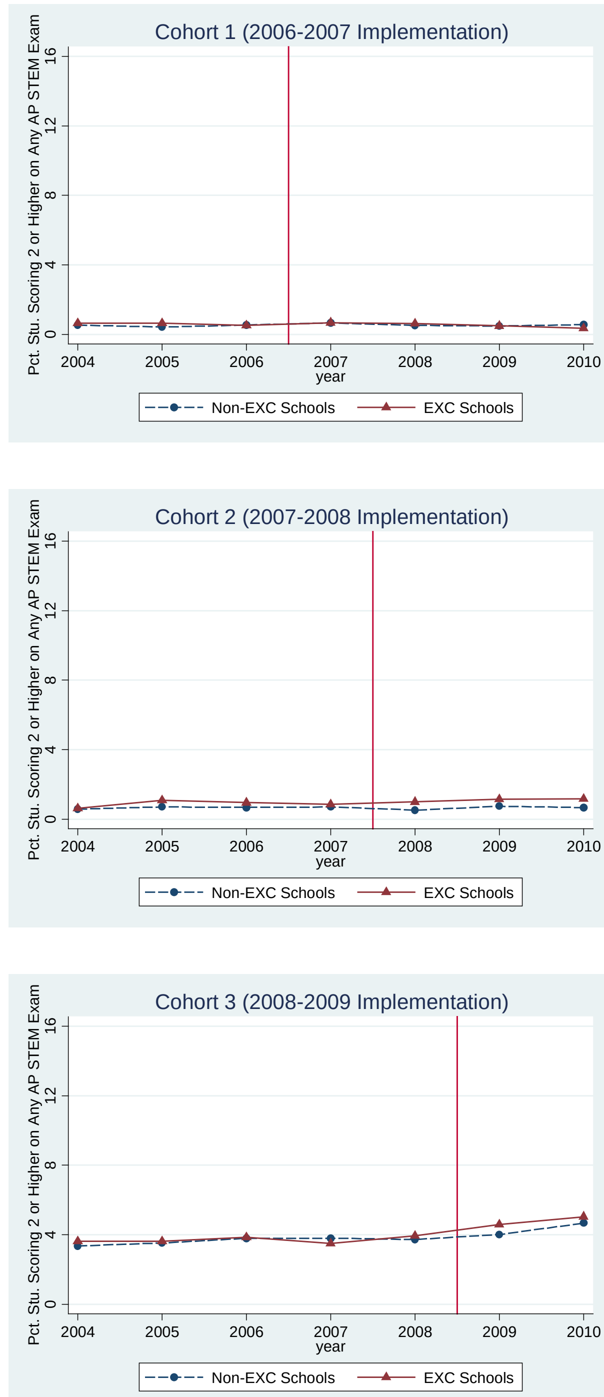


Table 4.3. EXCELerator Dosage Results for the Percentage Scoring 2 or Higher on AP Exams, Coefficients (Robust SE)

	Any Subject	English	Calculus	STEM
Yr2005	0.70*** (0.15)	0.37*** (0.09)	0.04 (0.04)	0.13* (0.06)
Yr2006	1.14*** (0.19)	0.55*** (0.12)	0.08† (0.05)	0.22** (0.08)
Yr2007	1.75*** (0.26)	0.83*** (0.16)	0.05 (0.04)	0.32** (0.10)
Yr2008	2.04*** (0.30)	0.96*** (0.19)	0.09 (0.06)	0.27* (0.12)
Yr2009	3.10*** (0.40)	1.18*** (0.23)	0.20** (0.07)	0.49** (0.16)
Yr2010	5.05*** (0.48)	2.04*** (0.28)	0.23** (0.08)	0.84*** (0.20)
EXCELerator, first-year effect	**2.49*** (0.47)**	**1.63*** (0.29)**	**0.06 (0.08)**	**0.33* (0.14)**
EXCELerator, second-year effect	**2.86*** (0.59)**	**2.04*** (0.35)**	**-0.10 (0.10)**	**0.35† (0.19)**
EXCELerator, third-year effect	**0.68 (0.59)**	**1.46*** (0.37)**	**-0.16† (0.09)**	**-0.27 (0.17)**
EXCELerator, fourth-year effect	**-0.54 (0.80)**	**1.23 (0.77)**	**-0.34** (0.10)**	**-0.78*** (0.22)**
Constant	5.63*** (0.22)	2.68*** (0.13)	0.72*** (0.04)	1.68*** (0.09)
Sigma_u	6.62	3.41	1.01	2.58
Sigma_e	2.09	1.29	0.41	0.80
Rho	0.91	0.87	0.86	0.91
N (schools)	147	147	147	147
N (observations)	1,008	1,008	1,008	1,008

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Summary of Findings

The EXCELerator program clearly seems to be increasing the percentage of students who take AP exams, both overall and for AP English specifically. We see large postimplementation increases for the EXCELerator schools and no similar increases for the comparison schools. However, the EXCELerator schools are having less success in increasing the percentage of students in the school who score well (whether measured as 3 or higher or 2 or higher) on the exams, and, in fact, may even be decreasing these percentages as time goes on. More attention to the pre-AP preparation of students (through vertical teaming and related activities), might help reverse this trend, as might strengthening the professional development for AP teachers to assist them in handling larger or more diverse classes.

Chapter 5
SAT Participation and Performance

The SAT Reasoning Test is one of the most well-known assessments used to inform the college admissions process. According to the College Board's website, "nearly every college in America uses the test as a common and objective scale for evaluating a student's college readiness" (College Board, n.d.). As such, the EXCELerator program places substantial emphasis on encouraging students to take and perform well on the SAT. For example, for the grant-funded schools, the College Board paid the fees for all 11th-grade students to take the SAT once per year and provided the schools with student study guides as well as teacher guides for the SAT Readiness Program.

One of the EXCELerator end-of-project objectives is related to the SAT:

- Increase the number of students taking the SAT in each school, with no loss in performance.

For this analysis, we obtained from the College Board data on SAT participation and scores for all students in the yearly senior cohorts at EXCELerator and comparison schools from 2004 to 2010. Using these data in conjunction with the schools' 12th-grade enrollments, we calculated the following outcome variables for each school: (a) the percentage of seniors who took the SAT at some point during high school; (b) school average scores on the SAT critical reading and mathematics sections of the SAT; and (c) the percentage of seniors who scored at least 500 on either the critical reading or mathematics sections of the SAT.[23]

Our analyses thereby address the following questions:

- What is the effect of the EXCELerator program on the percentage of senior class members taking the SAT one or more times during high school?
- What is the effect of the EXCELerator program on school average scores on the critical reading and mathematics sections of the SAT?
- What is the effect of the EXCELerator program on the percentage of senior class members who score at least 500 on either the critical reading or mathematics sections of the SAT?

The Percentage of Seniors Taking the SAT

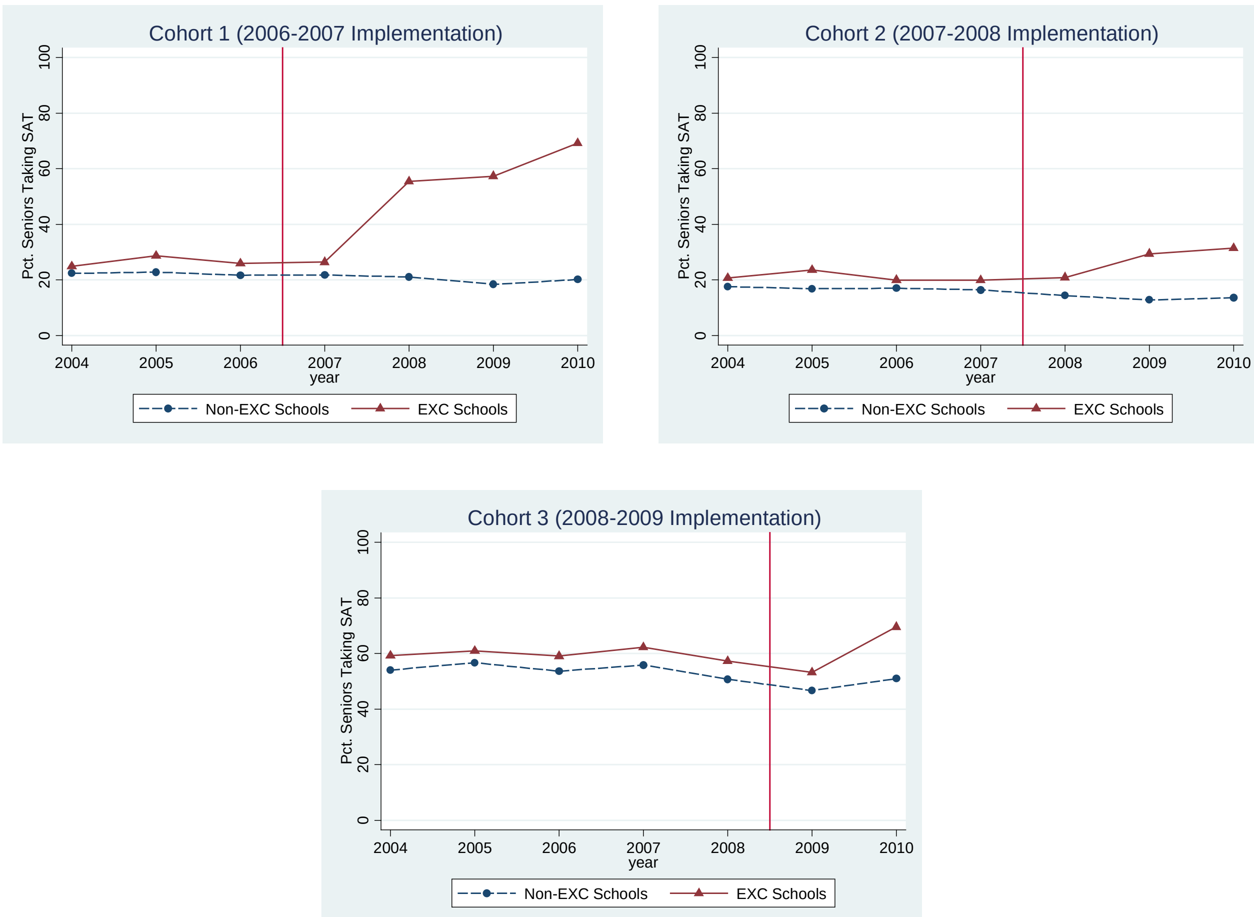
We first look at the results pertaining to the school percentages of senior class members *who have taken* the SAT. In the interest of brevity, we refer to seniors as "taking" the SAT, although it is possible that some of the students took the SAT prior to their senior year.

[23] The school average scores were calculated from students' most recent scores.

Cohort-Specific Time-Series Graphs

Figure 5.1 presents the time-series graphs for each EXCELerator cohort and their comparison schools on the percentage of seniors taking the SAT. (See Appendix E for the descriptive statistics from which these graphs, and all others in this chapter, were constructed.)

Figure 5.1. The Percentage of Seniors Taking the SAT, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort



For cohort 1, the EXCELerator and comparison schools have very similar percentages in the preimplementation years and in the first year after implementation. However, in the second year after implementation, the EXCELerator schools display an enormous increase in SAT participation, jumping from 26 percent up to 55 percent; they then show a slight increase in the third year (to 57 percent), and another large increase in the fourth year (to 69 percent). The comparison schools, meanwhile, display no increases in the postimplementation period.

Looking at cohort 2, the EXCELerator schools and comparison schools are again similar throughout the preimplementation period as well as in the first postimplementation year. In the second and third postimplementation years, the EXCELerator schools again show increases, although not nearly as steep as the increases seen for the first cohort.

For cohort 3, the pattern is also similar. That is, there are comparable—and essentially flat—participation rates for EXCELerator and comparison schools in the preimplementation period and in the first postimplementation year, followed by a 17-point increase in participation for program schools in the second postimplementation year.

Thus, none of the three cohorts show any increase in SAT-taking rates in the first year of implementation, but all show such increases starting with the second year of implementation.

Statistical Analysis of the Effects of EXCELerator Dosage

The results of the statistical analysis of the first- second-, third-, and fourth-year effects of EXCELerator on SAT participation are consistent with the patterns seen in the time-series graphs (Table 5.1). The first-year effect is close to zero and nonsignificant. The second- third-, and fourth-year effects, however, are all highly significant. The cumulative effect at four years is 43 points, meaning that schools in their fourth year of EXCELerator have an average of 43 percent more seniors who have taken the SAT at some point during high school than non- or pre-EXCELerator schools.

School Average Scores on SAT Critical Reading and Mathematics

We also examined the effect of participation in the EXCELerator program on schools' average scores on the critical reading and mathematics portions of the SAT. One limitation of this analysis is that only schools that had any students taking the SAT could be included. (That is, a school cannot have an average score if no one took the test.) Moreover, to preserve balance in our study sample, if any school in a trio of EXCELerator school plus two comparison schools lacked an SAT score in a given year (pre- or post-), all three schools in the trio were removed for that year. We also required schools to have data in at least one preimplementation year for the whole trio to be included in the analysis. As a result of these constraints, 12 schools that were included in the percentage-taking analysis of the SAT are excluded entirely from the SAT scores analyses; for the 132 schools that remain, the average number of years of data is 6.3 (out of a possible 7).[24]

Cohort-Specific Time-Series Graphs

Figures 5.2 and 5.3 present the trajectories for mean scores on the SAT critical reading and mathematics sections, respectively, for each EXCELerator cohort and its comparison schools. As the top graph in Figure 5.2 shows, schools in the first EXCELerator cohort show a decline in the average critical reading score starting in the second year of implementation (2008), relative to both the comparison schools and their own earlier performance. This decline continues in the third and fourth years of implementation, although the rate of decline is not as sharp after the second year. (Mean scores for program schools were 460, 428, 420, and 416, respectively, for the four years following implementation.)

[24] The 144 schools in the analysis of SAT participation averaged 6.8 years of data. (The average is not 7 because some of the schools were not open in all 7 years.)

Table 5.1. EXCELerator Dosage Results for the Percentage of Seniors Taking the SAT, Coefficients (Robust SE)

	Percentage Taking SAT
Yr2005	1.31** (0.47)
Yr2006	-0.58 (0.64)
Yr2007	0.42 (0.70)
Yr2008	-0.60 (0.82)
Yr2009	-4.34*** (0.88)
Yr2010	-3.83*** (1.00)
EXCELerator, first-year effect	**-0.39** **(1.03)**
EXCELerator, second-year effect	**17.52***** **(2.18)**
EXCELerator, third-year effect	**22.21***** **(3.46)**
EXCELerator, fourth-year effect	**42.51***** **(4.09)**
Constant	35.09*** (0.49)
Sigma_u	23.87
Sigma_e	6.76
Rho	0.93
N (schools)	144
N (observations)	975

*$p < .05$. **$p < .01$. ***$p < .001$.

Figure 5.2. School Average Scores, SAT Critical Reading, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort

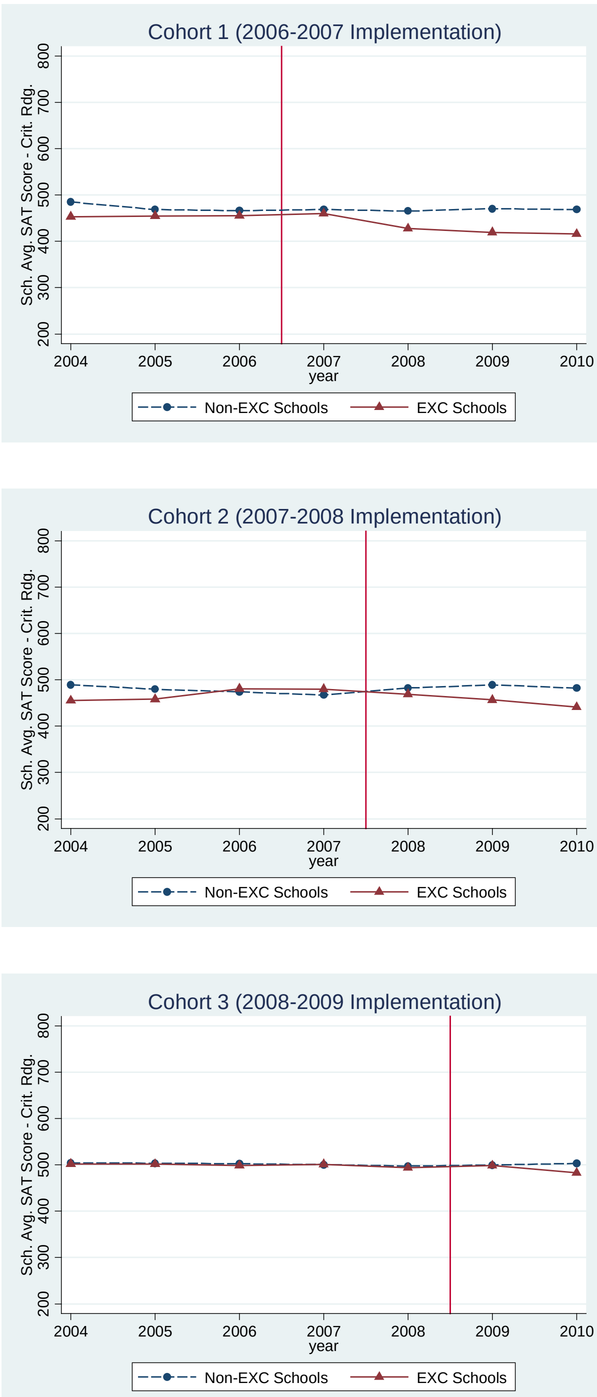
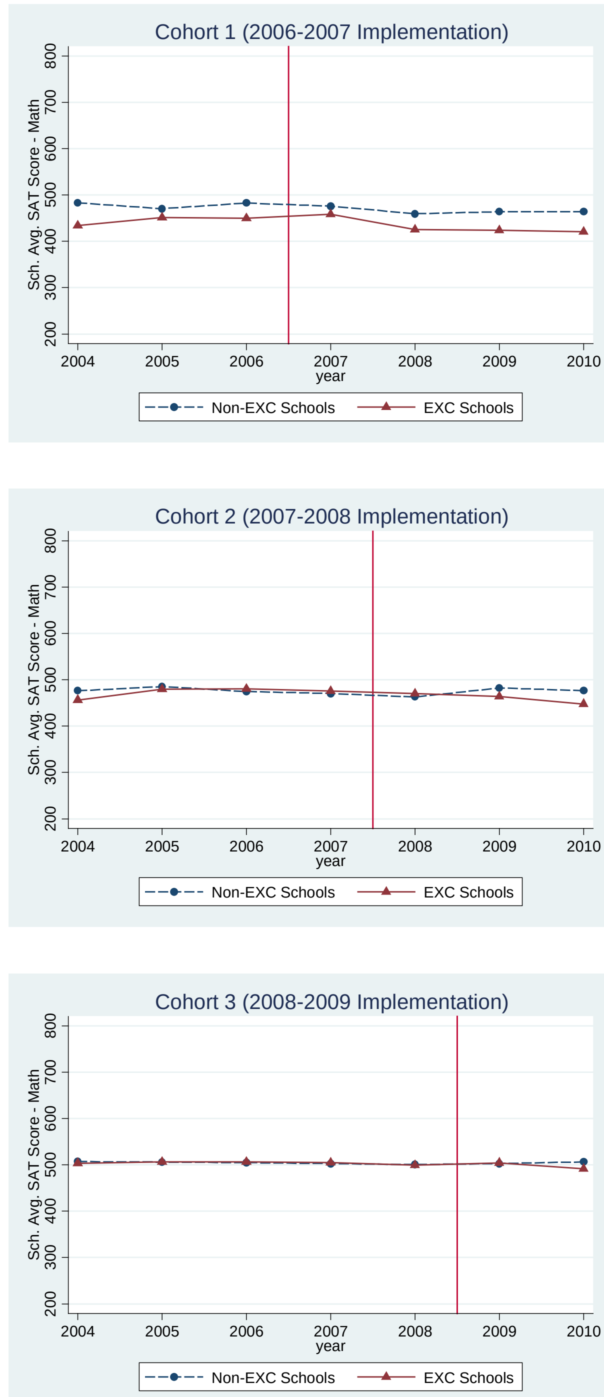


Figure 5.3. School Average Scores, SAT Mathematics, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort



In the Figure 5.2 graph for cohort 2, we see some score increases for the EXCELerator schools during the preimplementation period, followed by declines after implementation. The mean critical reading score for the program schools in cohort 2 was 441 in 2010, which was almost 40 points lower than the mean score in 2007, the last year before implementation.

In the bottom graph in Figure 5.2, we see that the average scores for the cohort 3 EXCELerator schools and their comparison schools are nearly identical throughout the first year of implementation, but the program schools again exhibit a 17-point decline in average critical reading scores in the second year of implementation.

For the average SAT mathematics score (Figure 5.3), the score trajectories are not as dramatic as for critical reading. The first EXCELerator cohort exhibits a small decline from 2007 (first implementation year) to 2008 (second implementation year), but the comparison schools also have a slight decline. The score trajectories for both groups are essentially flat for 2009 and 2010.

Average scores for the EXCELerator schools in the second cohort, meanwhile, decline slightly in the second postimplementation year and somewhat more in the third postimplementation year. Meanwhile, scores for the comparison schools increase somewhat, reversing a dip in their scores in the years just prior to implementation.

The score trajectory for the EXCELerator schools in third cohort dips slightly in the second year postimplementation, just as we saw for critical reading.

Thus, the graphs seem to suggest negative effects of EXCELerator on school average SAT scores, particularly for critical reading, starting in the second year of implementation. Recall that we saw large increases in the percentage of seniors taking the SAT during this same time frame, so perhaps some of these “new takers” did not perform as well, on average, as the students in the historical test-taker pool.

Statistical Analysis of the Effects of EXCELerator Dosage

For the statistical analysis examining the impact of EXCELerator on school average SAT scores, we conducted two rounds of analysis for each subject area: the second round controlled for the percentage of students taking the test in each school, while the first round did not. To the extent that changes in scores—especially declines—might be a function of expanding (and likely diversifying) the pool of test takers, the inclusion of the control variable for participation rate in the second round of analyses helps to mitigate the confound.

Table 5.2 presents the score analysis results for critical reading (two left-hand columns) and mathematics (two right-hand columns). Within each pair of columns, the one on the left shows the results without controlling for participation rate, and the one on the right introduces this control.

Table 5.2. EXCELerator Dosage Results for School Average SAT Scores, Coefficients (Robust SE)

	Critical Reading, Mean Score		Mathematics, Mean Score	
Yr2005	-3.62 (3.17)	-3.33 (3.19)	4.55 (4.32)	4.95 (4.35)
Yr2006	-4.89† (2.83)	-5.01† (2.82)	2.48 (2.76)	2.31 (2.75)
Yr2007	-5.27 (3.61)	-5.12 (3.63)	0.52 (2.74)	0.73 (2.75)
Yr2008	-5.26† (3.08)	-5.48† (3.09)	-4.03 (2.71)	-4.33 (2.72)
Yr2009	-1.59 (4.07)	-2.59 (4.32)	1.74 (3.57)	0.39 (3.77)
Yr2010	-0.37 (3.26)	-1.24 (3.44)	2.90 (3.13)	1.73 (3.31)
EXCELerator, first-year effect	**4.42 (3.55)**	**4.40 (3.54)**	**6.44† (3.52)**	**6.42† (3.48)**
EXCELerator, second-year effect	**-15.68*** (4.12)**	**-12.04* (4.92)**	**-9.82* (3.78)**	**-4.89 (4.67)**
EXCELerator, third-year effect	**-28.87*** (5.95)**	**-23.46*** (6.89)**	**-19.27** (5.96)**	**-11.94† (6.82)**
EXCELerator, fourth-year effect	**-35.09*** (10.11)**	**-26.29* (11.40)**	**-20.05† (10.38)**	**-8.12 (11.72)**
Percentage Taking		**-0.21 (0.14)**		**-0.28* (0.13)**
Constant	488.44*** (2.13)	496.73*** (6.05)	484.81*** (2.05)	496.05*** (5.90)
Sigma_u	36.80	37.47	40.93	42.22
Sigma_e	24.84	24.82	24.40	24.34
Rho	0.69	0.70	0.74	0.75
N (schools)	132	132	132	132
N (observations)	837	837	837	837

$^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

For critical reading, the first round of statistical analysis produces statistically significant negative second-, third-, and fourth-year EXCELerator effects (16, 29, and 35 score points, respectively) but no first-year effect, just as the time-series graphs suggested. (See the first column of Table 5.2.) When we add in the control variable (second column of Table 5.2), the negative second-, third-, and fourth-year effects decline in magnitude (to 12, 23, and 26 score points, respectively); however, the effects remain statistically significant. To summarize: over the four years of implementation, EXCELerator schools have experienced increasing declines in average SAT critical reading scores, but these declines are at least partially associated with increasing percentages of test takers during the same time period.

The regression results for the mathematics scores, on the other hand, tell a somewhat different story. (See the last two columns of Table 5.2.) The first-year effect of EXCELerator on average mathematics scores is borderline-significant *positive* in both models, and the fourth-year effect, while negative, is only marginally significant, even without the control for participation; when the control variable is added, only the third-year negative effect (and the first-year positive effect) remain marginally significant.

Perhaps students in the EXCELerator schools are persisting in mathematics courses into Grade 12 at a higher rate than students in the comparison schools; if so, this could be having a positive effect on their SAT mathematics scores (Bozick & Ingels, 2008). Critical reading scores, on the other hand, might be less sensitive to course taking, or there might be less variation in course-taking patterns for this subject area, given that many schools require four years of English for all students.

The Percentage of Seniors Scoring at Least 500 on the SAT

For a different perspective on SAT performance that has the advantage of allowing all schools to be included in the analysis, we also examined the percentage of seniors at each school who scored at least 500 on SAT critical reading or mathematics. These are percentages of *all seniors*, and therefore the denominators include students who did not take the SAT at all. School percentages can increase as a consequence of expanding their numbers of SAT test takers (as long as at least some of the new test takers achieve scores on the upper half of the SAT scale) and/or by improving performance among a fixed pool of SAT test takers. In the case of the EXCELerator schools, we know from the data presented earlier that these schools experienced large increases in the numbers of SAT test takers starting (in most cases) in the second year after implementation.

Cohort-Specific Time-Series Graphs

Figures 5.4 and 5.5 present the trajectories for the percentage of seniors scoring at least 500 on the critical reading and mathematics sections of the SAT, respectively, for each EXCELerator cohort and their comparison schools. Considering the cohort 1 graph in Figure 5.4 in conjunction with the cohort 1 graph of Figure 5.1, we see that, as EXCELerator schools in the first cohort increased their percentages of SAT test takers, they also increased their percentages of students scoring at least 500 in critical reading, although the increase in high scoring students is much more modest than the increase in total test takers. For example, between the first and second years of implementation, when participation rates for cohort 1 program schools nearly doubled from 26 percent to 55 percent (see Figure 5.1), the percentage of seniors scoring at least 500 increased from 8 percent to 11 percent. Similar patterns are seen for the second and third cohort schools and also for mathematics (see Figure 5.5).

Figure 5.4. The Percentage of Seniors Scoring at Least 500 on SAT Critical Reading, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort

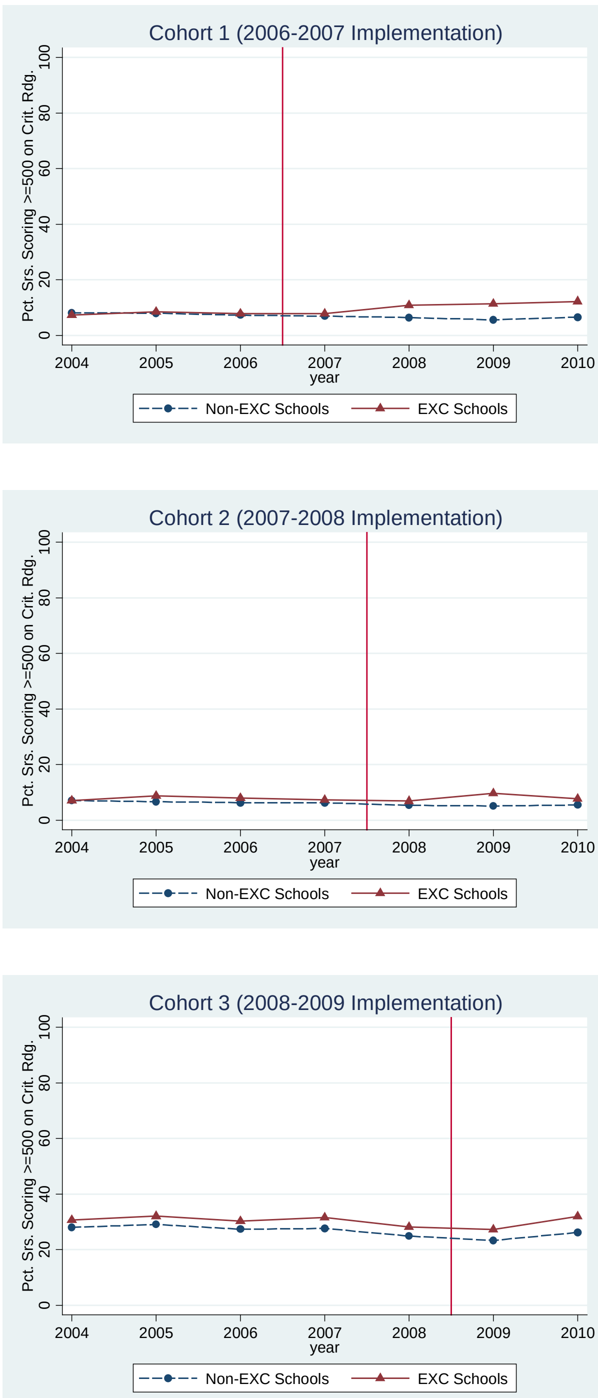
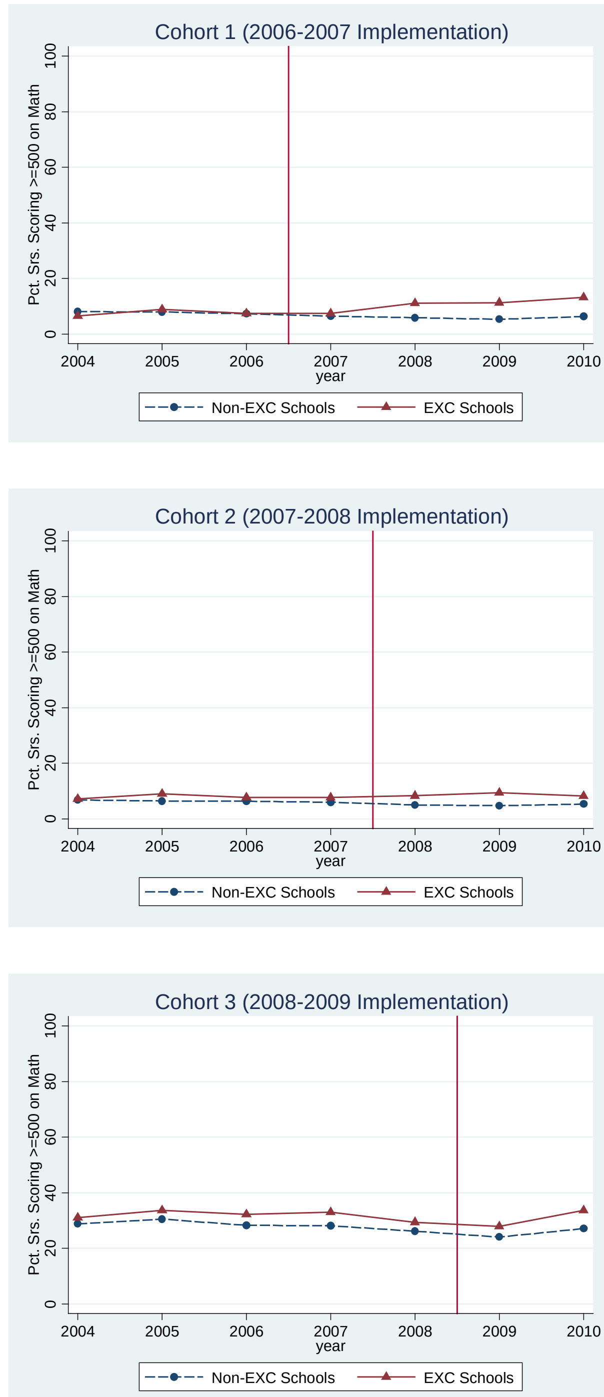


Figure 5.5. The Percentage of Seniors Scoring at Least 500 on SAT Mathematics, Over Time, for EXCELerator Schools and Comparison Schools, by Cohort



Statistical Analysis of the Effect of EXCELerator Dosage

For the statistical analysis examining the effect of the EXCELerator program on the percentage of seniors scoring at least 500, we again conducted two rounds of analysis for each subject area: the second round controlled for the percentage of students taking the test in each school, while the first round did not. Table 5.3 presents the score analysis results for critical reading (two left-hand columns) and mathematics (two right-hand columns). Within each pair of columns, the one on the left shows the results without controlling for participation rate, and the one on the right introduces this control.

Table 5.3. EXCELerator Dosage Results for the Percentage of Seniors Scoring at Least 500 on the SAT, Coefficients (Robust SE)

	Critical Reading, Percentage at Least 500		Mathematics, Percentage at Least 500	
Yr2005	0.48 (0.29)	0.03 (0.23)	0.91** (0.30)	0.46† (0.24)
Yr2006	-0.58 (0.37)	-0.38 (0.24)	-0.31 (0.40)	-0.11 (0.27)
Yr2007	-0.47 (0.44)	-0.62* (0.30)	-0.47 (0.46)	-0.62† (0.32)
Yr2008	-1.48*** (0.41)	-1.27*** (0.28)	-1.15* (0.45)	-0.94** (0.31)
Yr2009	-2.24*** (0.46)	-0.73† (0.39)	-2.36*** (0.47)	-0.86* (0.41)
Yr2010	-1.23* (0.59)	0.10 (0.48)	-1.02† (0.60)	0.31 (0.49)
EXCELerator, first-year effect	0.08 (0.49)	0.22 (0.39)	0.33 (0.54)	0.46 (0.39)
EXCELerator, second-year effect	3.83*** (0.94)	-2.26† (1.16)	4.00*** (0.91)	-2.07† (1.16)
EXCELerator, third-year effect	2.74** (0.87)	-4.99*** (1.42)	3.14*** (0.85)	-4.56** (1.49)
EXCELerator, fourth-year effect	4.90** (1.60)	-9.90*** (2.66)	6.18*** (1.46)	-8.55** (2.66)
Percent Taking		0.35*** (0.05)		0.35*** (0.05)
Constant	16.22*** (0.27)	4.01* (1.85)	16.40*** (0.29)	4.24* (1.90)
Sigma_u	13.29	6.78	14.09	7.54
Sigma_e	3.47	2.55	3.52	2.62
Rho	0.94	0.88	0.94	0.89
N (schools)	144	144	144	144
N (observations)	975	975	975	975

†*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

For both subject areas, the second-, third-, and fourth-year effects are all positive and highly significant before controlling for the percentage taking (first and third columns of Table 5.3). A school in the fourth year of program implementation, for example, would expect to have nearly 5 percent more seniors scoring at least 500 in critical reading and 6 percent more seniors scoring at least 500 in mathematics. When participation rate is added to the model, however, the coefficients for the EXCELerator year-effects turn negative (and significant).

Summary of Findings

The EXCELerator program clearly seems to be increasing the percentage of seniors who take the SAT, although the increases do not start until the second year of program implementation. The increases in percentage taking are accompanied by decreases in average scores, which is not surprising; when we control for the percentage taking, the magnitude of the score declines decreases substantially. The score declines are also more severe for critical reading than for mathematics. The large increases in participation also yield small but significant increases in the percentage of seniors scoring at least 500 on each section of the SAT test.

Chapter 6

State/Local Accountability Test Performance: High Schools

Improvement of students' state test scores is not among the objectives of the EXCELerator program. Despite their central role in school accountability programs, state tests have not typically been linked to college readiness, which is at the heart of EXCELerator. Moreover, EXCELerator was initially designed as a high school intervention, and state tests are typically given less prominence at this level. (The No Child Left Behind [NCLB] Act, for instance, requires testing in only one high school grade.)

Nevertheless, we elected to analyze the impact of the EXCELerator program on state and local accountability test scores. We were motivated by an interest in identifying an outcome measure that could be used to evaluate program impacts on middle school students and in the earlier grades of high school. Furthermore, we reasoned that a more rigorous curriculum—especially if experienced by a broader range of students, as EXCELerator intends—arguably ought to have a positive effect on state test scores, even if that is not an explicit goal or expectation of the program. On the other hand, there is some evidence that gains on high stakes tests may not generalize to other instruments, and the converse may also be true. Consider, for example, the research showing that states tend to show greater gains on their own tests than they do on the National Assessment of Educational Progress (NAEP; Center on Education Policy, 2010).

The grade levels covered and the specific tests used in our analyses are summarized in Table 6.1. Note that Florida has no 11th-grade test, and Chicago has no 10th-grade test. Accordingly, some schools are omitted from some analyses.

Table 6.1. State/Local Tests Used in Our Analysis

	Chicago	Colorado	Florida
Grade 9	PLAN[a]	CSAP	FCAT
Grade 10	—	CSAP	FCAT
Grade 11	PSAE	Colorado ACT (COACT)	—

[a]In Chicago, PLAN is actually administered to 10th graders in the fall. We therefore treat it as a 9th-grade (spring) measure. (Ninth graders also take a test in the fall [EXPLORE], but we did not use these data, on the grounds that the EXCELerator program could not be expected to have had much impact on newly entering 9th graders.) It is worth noting that PLAN is *not* part of Illinois' state accountability system, although it does figure into Chicago's local accountability system.

We conducted separate analyses for each subject area (reading and mathematics) at each grade level (9, 10, and 11). Our analysis focused on school average scale scores on these tests. For Florida, the data were available from the website of the Florida Department of Education. For Chicago, the PLAN data (used in our 9th-grade analysis) were available from the Chicago Public

Schools website[25]; the PSAE data (used in our 11th-grade analysis) were available from the website of the Illinois State Board of Education. For Colorado, the CSAP data were provided by staff at the Colorado Department of Education based on our request,[26] and the COACT data were available from the department's website.

As with all our other outcomes analyses, we wanted to pool the state/local test score analyses across the three different locales (Chicago, Colorado, and Florida), due to the relatively small numbers of schools involved in Chicago and Colorado. Because the tests used by the different locales are not scored on the same scale, however, it was necessary to standardize them before they could be combined for analysis. Within each locale within each year, using only the data for our sample, we standardized the scores to have a mean of 0 and a standard deviation of 1. This means that for all schools combined (EXCELerator plus comparison) within a locale, the expected trajectory over time remains flat at 0. Observed increases/decreases for a given school or group of schools therefore represent growth/decline only in relation to other schools in the sample—not necessarily absolute growth/decline.

Because nearly all students are mandated to take standardized tests, and because EXCELerator would not be expected to influence the percentages of students taking these tests, we did not examine the percentage taking these tests as its own outcome (as we did for AP and SAT); rather, we examine only average (standardized) scores. In the statistical analyses, we ran a set of regressions including a control for the percentage taking, but this control never substantively affected the EXCELerator effects, either in magnitude or in terms of statistical significance. In the interests of parsimony, the results presented in this chapter include only the models without the control for the percentage taking. However, Appendix F includes the results for both sets of models.

Cohort-Specific Time-Series Graphs

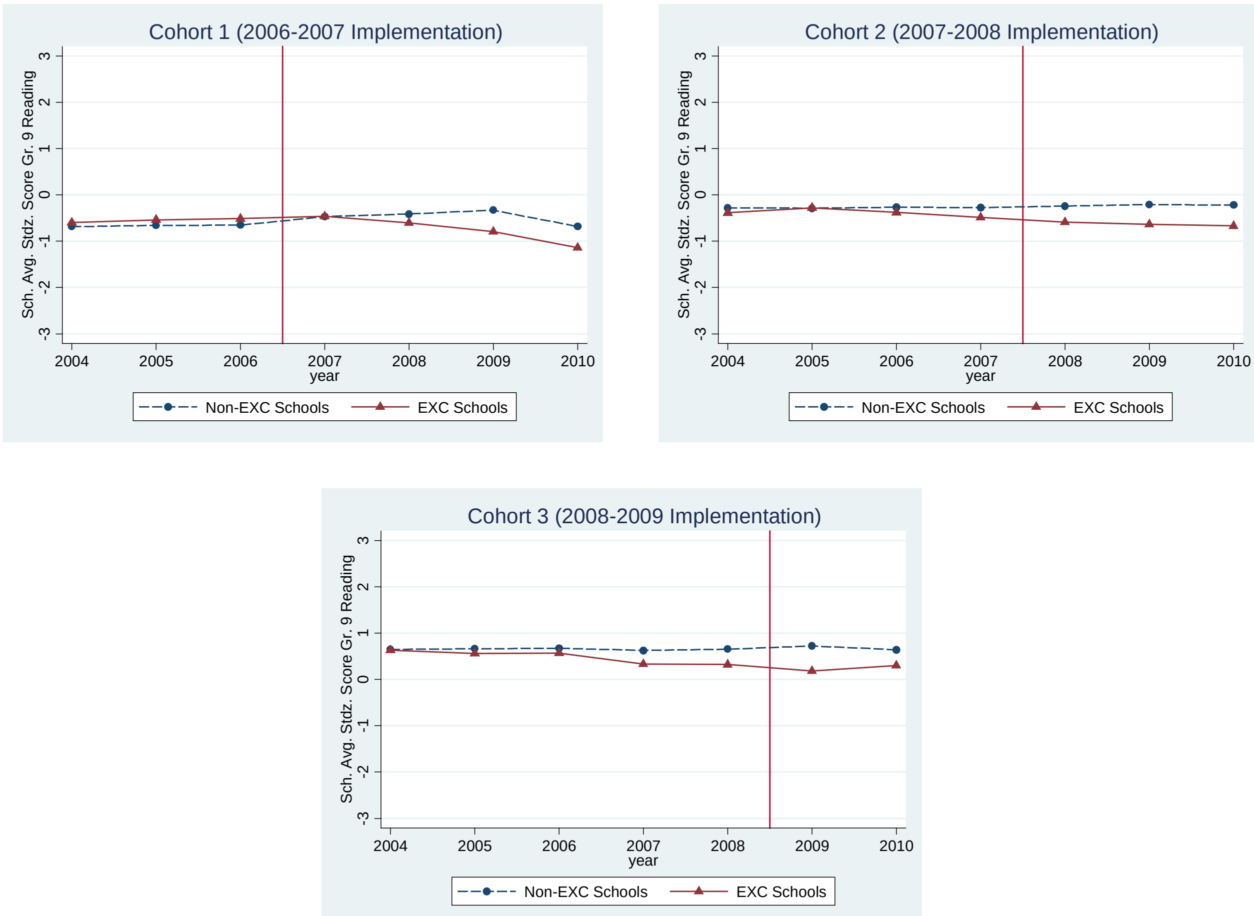
Figure 6.1 shows the cohort time-series graphs for average standardized scores in 9th-grade reading. It appears that *relative to the comparison schools,* the EXCELerator schools exhibit declines in average scores over time. (However, as noted earlier, the scores were standardized within the sample, so the appearance of a decline does not necessarily mean that the scores were actually declining; it means that the EXCELerator schools' average scores were not keeping pace with those of the comparison schools.) For the earliest cohort (2006–07 implementers), these divergences are most apparent in the third and fourth years of implementation. For the two later cohorts, it appears that the relatively lower performance of EXCELerator schools may have begun in the year or two *prior* to implementation, so possibly some factor other than EXCELerator may have been at work. For example, because EXCELerator schools are geographically clustered in fewer school districts than the comparison schools (except for the

[25] Because PLAN was actually a 10th-grade test administered in the fall, our "2010" data would have had to come from the fall of the 2010–11 year. At the time of our data collection, these data were not yet available, so our Chicago 9th-grade data go through only 2009.

[26] Colorado publicly reports only "percentage above cut" CSAP data. These, rather than the average scale scores, were used to select the comparison schools for Colorado, allowing us to limit our request for the average scale scores to only the selected schools, rather than every school in the state.

Chicago sample), there may have been some district-level policy choices related to curriculum or test preparation that disproportionately affected the EXCELerator schools.

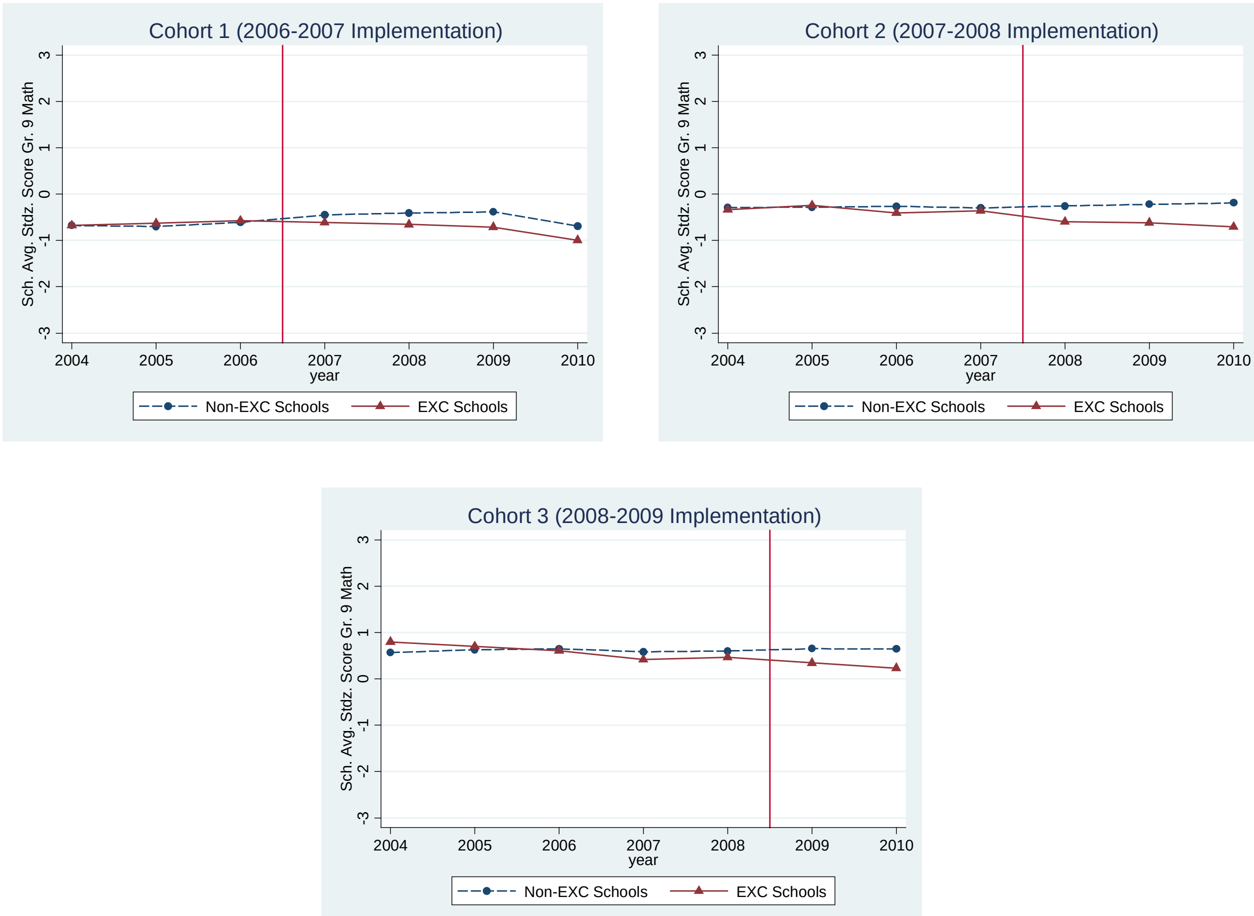
Figure 6.1. School Average Scores (Standardized), 9th-Grade Reading, State/Local Test, for EXCELerator Schools and Comparison Schools, by Cohort



Also, in this context, recall that the comparison schools were selected based on a composite index consisting of multiple different measures; consequently, the comparison schools did not exactly match the EXCELerator schools on every individual measure in the preimplementation years. In Florida, the comparison schools had somewhat higher FCAT scores than did the EXCELerator schools in 9th-grade reading in 2007–08, but the differences were not significant in the similarity analyses we conducted (see Appendix B).

A downward slope for the EXCELerator schools, but not for the comparison group schools, is also evident for 9th-grade mathematics (Figure 6.2). Here, the EXCELerator-comparison gap clearly does not appear until the postimplementation years, particularly for the 2006–07 and 2007–08 cohorts.

Figure 6.2. School Average Scores (Standardized), 9th-Grade Mathematics, State/Local Test, for EXCELerator Schools and Comparison Schools, by Cohort



Figures 6.3 and 6.4 show the graphs for 10th-grade reading and mathematics, respectively. In both subject areas, we see that the performance gaps between EXCELerator schools and the better-performing comparison schools widen as time goes on. One slight exception to the general pattern is seen in cohort 1, where 10th-grade scores in both subjects favor the EXCELerator schools in the first year of implementation. However, the score trajectories for EXCELerator and comparison schools cross over by the second year of implementation, and the pattern for the later years of implementation is consistent with the pattern for the other two cohorts.

Figure 6.3. School Average Scores (Standardized), 10th-Grade Reading, State/Local Test, for EXCELerator Schools and Comparison Schools, by Cohort

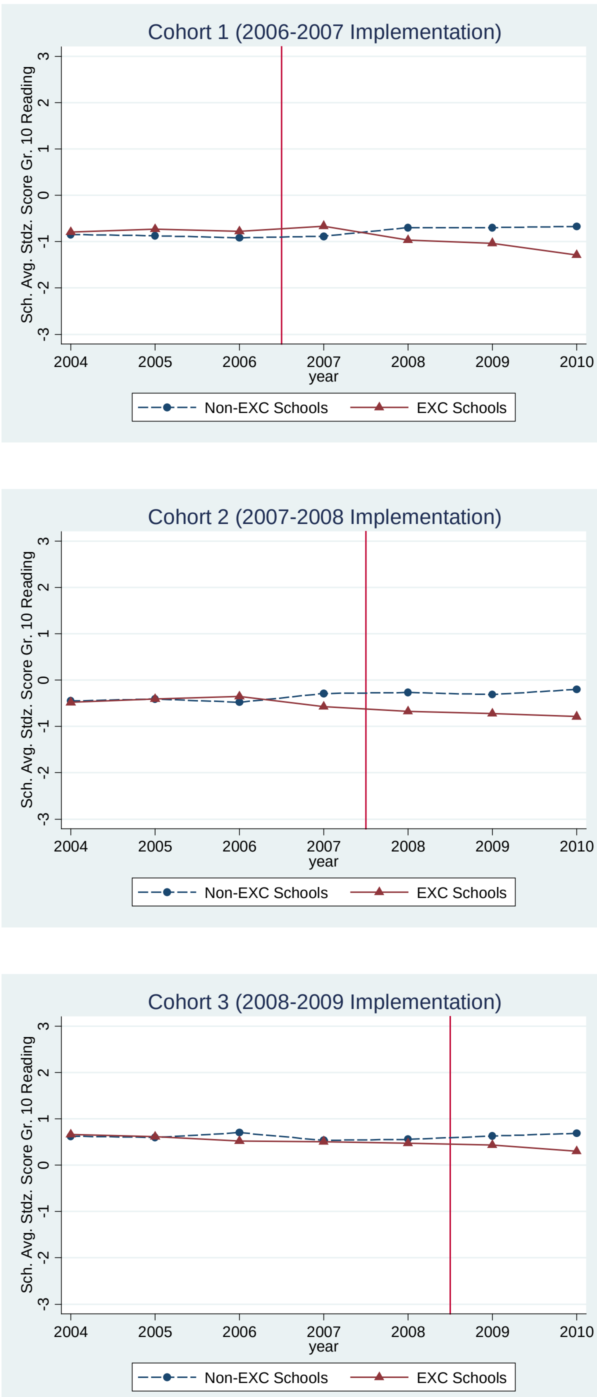
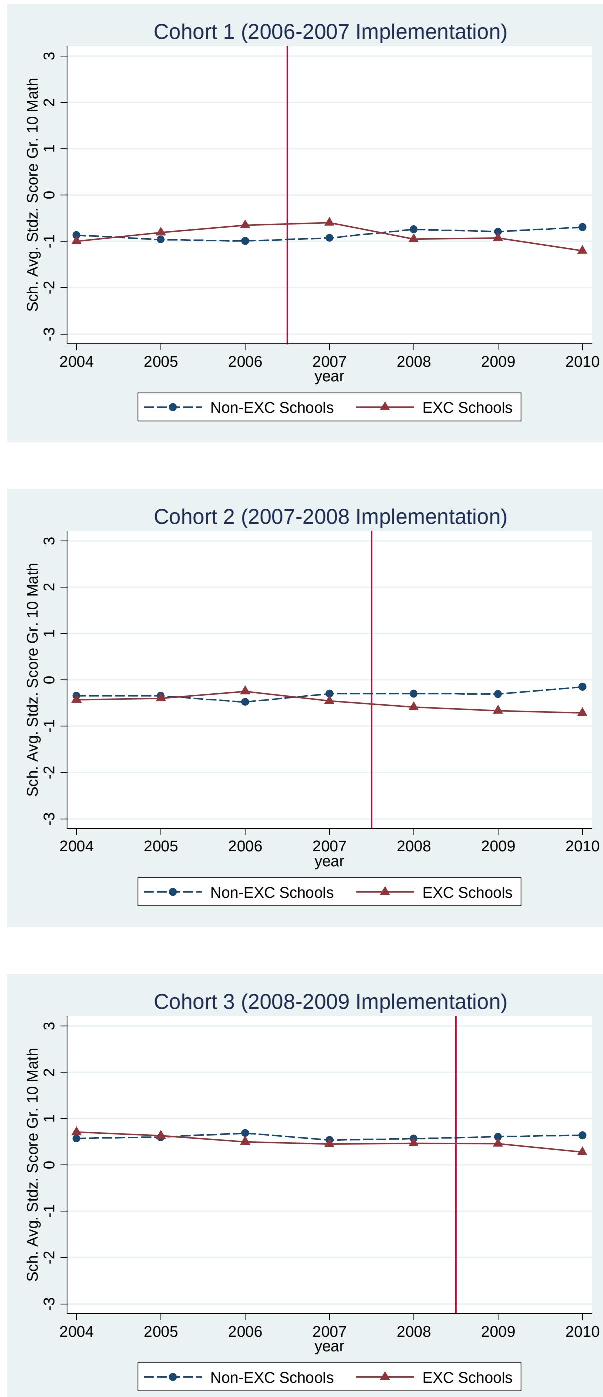


Figure 6.4. School Average Scores (Standardized), 10th-Grade Mathematics, State/Local Test, for EXCELerator Schools and Comparison Schools, by Cohort



For 11th grade (Figure 6.5 and 6.6), recall that Florida has no state test, so there are no data for cohort 3 (which is composed solely of Florida schools). Moreover, the averages depicted in the graphs are based on smaller numbers of schools. (See Appendix E.) Nevertheless, the data present a more positive picture for EXCELerator schools. For cohort 1, the graphs show that in both subject areas, the EXCELerator schools have a slight edge over the comparison schools in the preimplementation years. They lose this edge in the postimplementation years, but their performance does not fall below that of the comparison schools. Furthermore, EXCELerator schools in cohort 2 maintain their relative advantage over comparison schools through all three years of implementation, particularly for reading.

Figure 6.5. School Average Scores (Standardized), 11th-Grade Reading, State/Local Test, for EXCELerator Schools and Comparison Schools, by Cohort

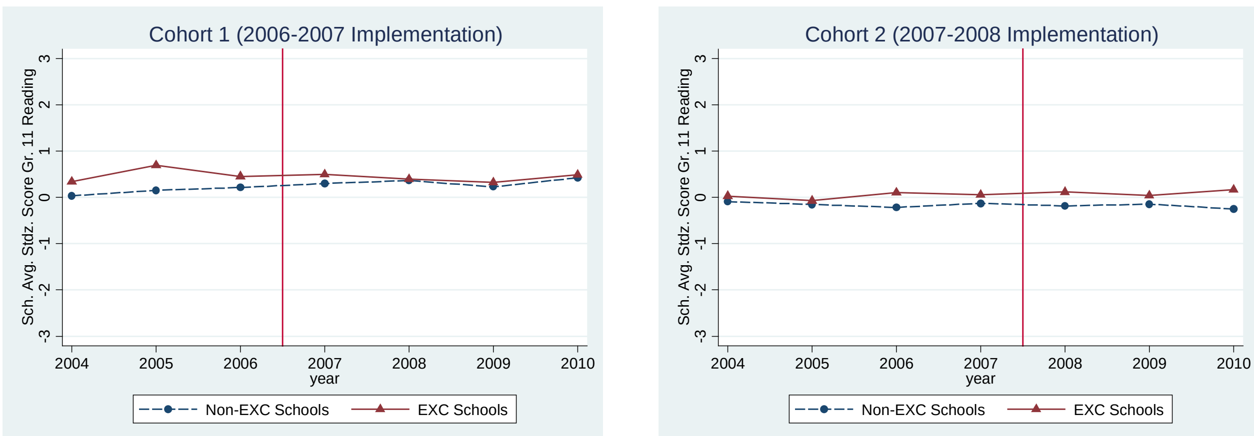
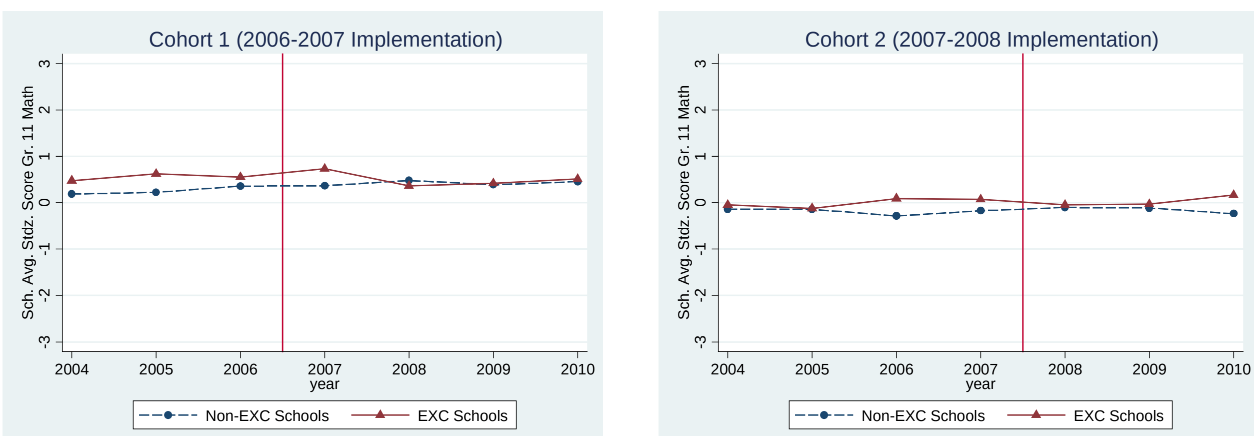


Figure 6.6. School Average Scores (Standardized), 11th-Grade Mathematics, State/Local Test, for EXCELerator Schools and Comparison Schools, by Cohort



Statistical Analysis of the Effects of EXCELerator Dosage

Table 6.2 presents the results of the statistical analysis of the effects of EXCELerator on state/local accountability test scores in Grades 9–11. As would be anticipated from the cohort graphs, the first-, second-, third-, and fourth-year effects for the 9th-grade and 10th-grade analyses are all negative and at least marginally statistically significant. The largest negative effects are the fourth-year effects on 10th-grade scores. For 10th-grade reading, the fourth-year effect is greater than three fourths of a standard deviation, and for mathematics, the fourth-year effect is about two thirds of a standard deviation. By contrast, none of the effects for the 11th-grade analyses are significant, and one half of the effects are positive, although rather small in magnitude. (Recall, however, that the 11th-grade analyses were based only on Colorado and Chicago schools—an *n* of 33—so statistical significance would have been more difficult to achieve.)

Table 6.2. EXCELerator Dosage Results for State/Local Test Scores (Standardized), Coefficients (Robust SE)

Variable	9th-Grade Reading	9th-Grade Math	10th-Grade Reading	10th-Grade Math	11th-Grade Reading	11th-Grade Math
Yr2005	0.01 (0.03)	0.01 (0.03)	-0.00 (0.03)	0.00 (0.04)	0.00 (0.07)	0.00 (0.06)
Yr2006	0.01 (0.04)	0.01 (0.04)	-0.00 (0.04)	0.00 (0.04)	0.00 (0.10)	0.00 (0.10)
Yr2007	0.05 (0.04)	0.06 (0.04)	0.05 (0.05)	0.05 (0.05)	0.05 (0.10)	0.07 (0.10)
Yr2008	0.08† (0.04)	0.10* (0.04)	0.07 (0.05)	0.07 (0.05)	0.03 (0.10)	0.08 (0.10)
Yr2009	0.12* (0.05)	0.14** (0.05)	0.13* (0.06)	0.12* (0.05)	0.01 (0.09)	0.07 (0.09)
Yr2010	0.14** (0.05)	0.15** (0.05)	0.19** (0.06)	0.18** (0.06)	0.03 (0.12)	0.05 (0.12)
EXCELerator, first-year effect	**-0.22***** **(0.05)**	**-0.25***** **(0.05)**	**-0.15*** **(0.07)**	**-0.11**† **(0.06)**	**0.04** **(0.16)**	**-0.05** **(0.17)**
EXCELerator, second-year effect	**-0.24***** **(0.06)**	**-0.34***** **(0.07)**	**-0.35***** **(0.07)**	**-0.35***** **(0.08)**	**-0.02** **(0.13)**	**-0.13** **(0.15)**
EXCELerator, third-year effect	**-0.34**** **(0.12)**	**-0.32**** **(0.10)**	**-0.47***** **(0.12)**	**-0.41**** **(0.12)**	**0.04** **(0.13)**	**0.05** **(0.16)**
EXCELerator, fourth-year effect	**-0.42***** **(0.09)**	**-0.21**† **(0.11)**	**-0.77***** **(0.16)**	**-0.67**** **(0.20)**	**0.04** **(0.13)**	**-0.05** **(0.14)**
Constant	-0.02 (0.03)	-0.03 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.00 (0.07)	-0.00 (0.07)
Sigma_u	0.94	0.94	0.93	0.93	0.95	0.94
Sigma_e	0.30	0.30	0.32	0.33	0.34	0.36
Rho	0.91	0.91	0.89	0.89	0.89	0.87
N (schools)	147	147	123	123	33	33
N (observations)	984	984	843	843	231	231

$^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Thus it would appear that the EXCELerator program is associated with state/local test performance that diverges in a negative direction from the performance of the comparison schools—at least for the 9th- and 10th-grade tests.

Summary of Findings

Following program implementation, EXCELerator schools do not appear to perform as well on state/local accountability tests for 9th and 10th graders as do their matched comparison schools. The negative effects are seen in both reading and mathematics and appear successively larger the longer EXCELerator has been in operation (up to four years) in most cases. The same pattern of relative disadvantage is *not* seen for the 11th-grade tests, but the small number of cases for which 11th-grade state/local test scores are available make the statistical analysis more difficult to interpret.

Chapter 7

State Accountability Test Performance: Middle Schools

As noted in Chapter 6, improvement of students' state test scores is not among the objectives of the EXCELerator program. Nevertheless, we elected to analyze the impact of the EXCELerator program on state test scores, in part because they were the *only* outcome available for analysis at the middle school level.

We examined EXCELerator effects on six grade-by-subject test outcomes applicable to the middle school grades (reading and mathematics tests for each of Grades 6, 7, and 8). Because all of the EXCELerator middle schools are in Florida, and FCAT was used in Florida throughout the period studied, no standardization of scores was necessary. In other words, the analysis used schools' actual FCAT averages in each grade and subject area.

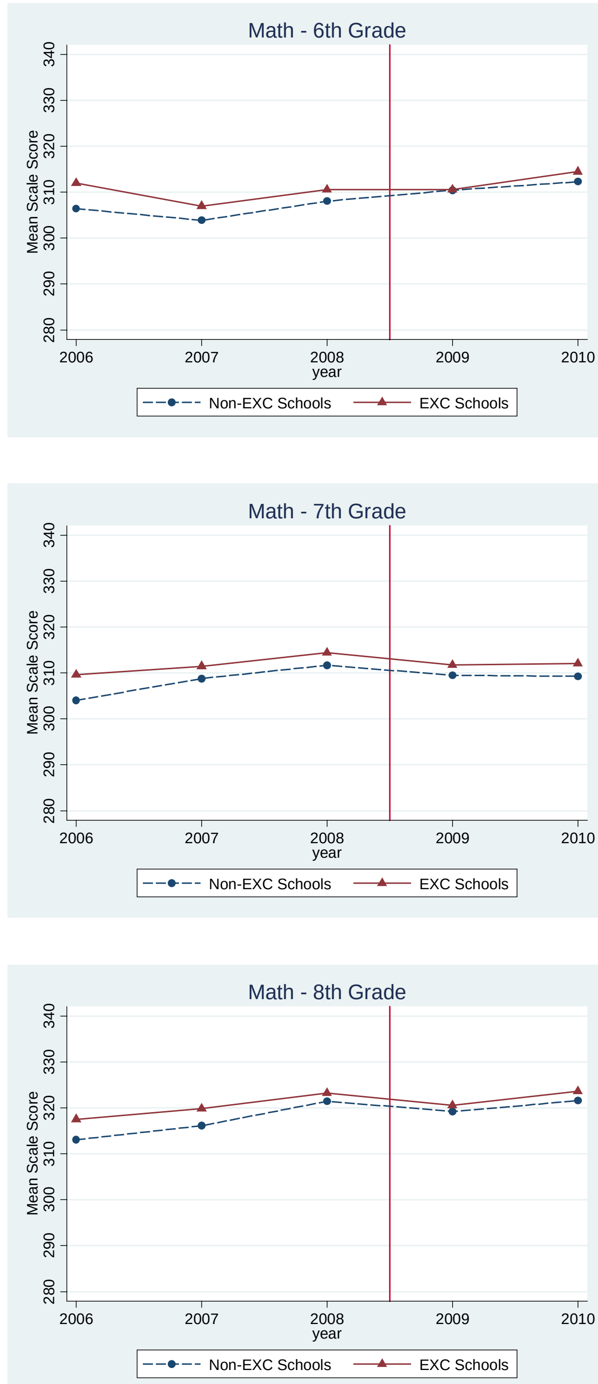
All of the EXCELerator middle schools implemented the program in the 2008–09 school year, so there are no separate cohorts within the middle school sample. Because we now have two years of postimplementation data, we can examine dosage results as they pertain to first- and second-year effects. In addition, because we have measures of program implementation for each year that the EXCELerator middle schools have been in operation, we can also analyze effects by the level of implementation.

Time-Series Graphs

Figure 7.1 shows time-series graphs for the reading scores at each grade level, and Figure 7.2 shows time-series graphs for the mathematics scores. In reading at all three grade levels, the EXCELerator and comparison schools appear to track fairly well with one another prior to implementation, while the EXCELerator schools appear to be improving their position relative to the comparison schools in the postimplementation period—particularly by the second year of implementation. This suggests a modest positive effect for EXCELerator on FCAT reading scores. In mathematics the EXCELerator and comparison schools again seem to track fairly well with one another in the preimplementation period. After implementation, the EXCELerator schools appear to lose ground, relative to the comparison schools, in the first year of implementation (particularly for sixth-grade scores), but recover by the second year of implementation. This suggests that there is only a transitory negative effect of EXCELerator on FCAT mathematics scores.

Figure 7.1. School Average State Test Scores in Reading for EXCELerator Middle Schools and Comparison Schools, by Grade Level

Figure 7.2. School Average State Test Scores in Mathematics for EXCELerator Middle Schools and Comparison Schools, by Grade Level



Statistical Analysis of the Effects of EXCELerator Dosage

Table 7.1 presents the results of the statistical analysis of the effects of EXCELerator on 6th-, 7th-, and 8th-grade test scores in reading and mathematics. For reading, the first-year effects at all three grade levels are negative but not significant, while the second-year effects are all positive but again not significant. For mathematics, all of the first- and second-year effects are negative, but the second-year effects are smaller (i.e., less negative). Only the first-year effect on 6th-grade mathematics scores is statistically significant, while the first-year effect on 8th-grade mathematics scores is marginally significant.

Table 7.1. EXCELerator Dosage Results for Grades 6–8 State Test Scores, Coefficients (Robust SE)

	Reading, 6th Grade	Reading, 7th Grade	Reading, 8th Grade	Math, 6th Grade	Math, 7th Grade	Math, 8th Grade
Yr2007	-3.42*** (0.66)	0.73 (0.63)	3.29*** (0.54)	-3.67*** (0.83)	3.52*** (0.65)	2.61*** (0.56)
Yr2008	-0.40 (0.75)	2.85*** (0.65)	9.11*** (0.77)	0.30 (0.92)	6.43*** (0.85)	7.29*** (0.73)
Yr2009	1.73* (0.76)	5.01*** (0.75)	11.31*** (0.80)	3.13** (1.06)	4.55*** (0.93)	5.58*** (0.90)
Yr2010	1.77 (1.07)	7.69*** (0.89)	11.27*** (0.78)	4.96*** (1.23)	4.32*** (1.07)	7.90*** (0.85)
EXCELerator, first-year effect	**-0.43 (1.07)**	**-1.09 (1.17)**	**-0.71 (1.05)**	**-3.72** (1.34)**	**-1.40 (1.17)**	**-2.01† (1.11)**
EXCELerator, second-year effect	**1.65 (1.43)**	**1.16 (1.43)**	**1.47 (1.19)**	**-1.61 (1.59)**	**-0.90 (1.46)**	**-1.26 (1.04)**
Constant	306.62*** (0.52)	308.79*** (0.48)	297.79*** (0.49)	308.53*** (0.64)	306.12*** (0.56)	314.72*** (0.51)
Sigma_u	22.29	20.72	18.45	25.49	21.40	17.94
Sigma_e	5.69	5.23	5.13	6.74	5.92	5.09
Rho	0.94	0.94	0.93	0.93	0.93	0.93
N (schools)	132	132	132	132	132	132
N (observations)	657	657	657	657	657	657

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

EXCELerator Level-of-Implementation Effects

As discussed in Chapter 2, we have data on the *extent* to which schools were implementing EXCELerator in both 2008–09 and 2009–10. For 2008–09, these data come from the proxy measure administered to the EXCELerator district coaches in the summer of 2009. For 2009–10, we again collected the proxy measure, but we also have implementation data from a survey administered to principals, counselors, and mathematics and reading department heads in EXCELerator schools. We constructed two different measures of implementation for 2009–10: one based on the proxy measure and one based on the survey.

For each measure of implementation, schools at or above the median rating were designated as high implementers, and schools below the median rating were designated as low implementers. We used these level-of-implementation classifications in our middle schools test score analyses to see whether the EXCELerator effects might differ for high implementers and low implementers (compared to non- or preimplementers). In the subsections that follow, we first present time-series graphs and statistical analyses in which schools are classified based on the proxy measure in each year. This has the advantage of a consistent metric across both years of the analysis.

We follow this with a second set of graphs and statistical analysis in which schools are classified by the proxy measure in 2008–09 and the survey-based measure in 2009–10. The survey-based measure may be more accurate because it is based on data from school-level respondents. Appendix D provides more detail on the construction and measurement characteristics of the two implementation measures.

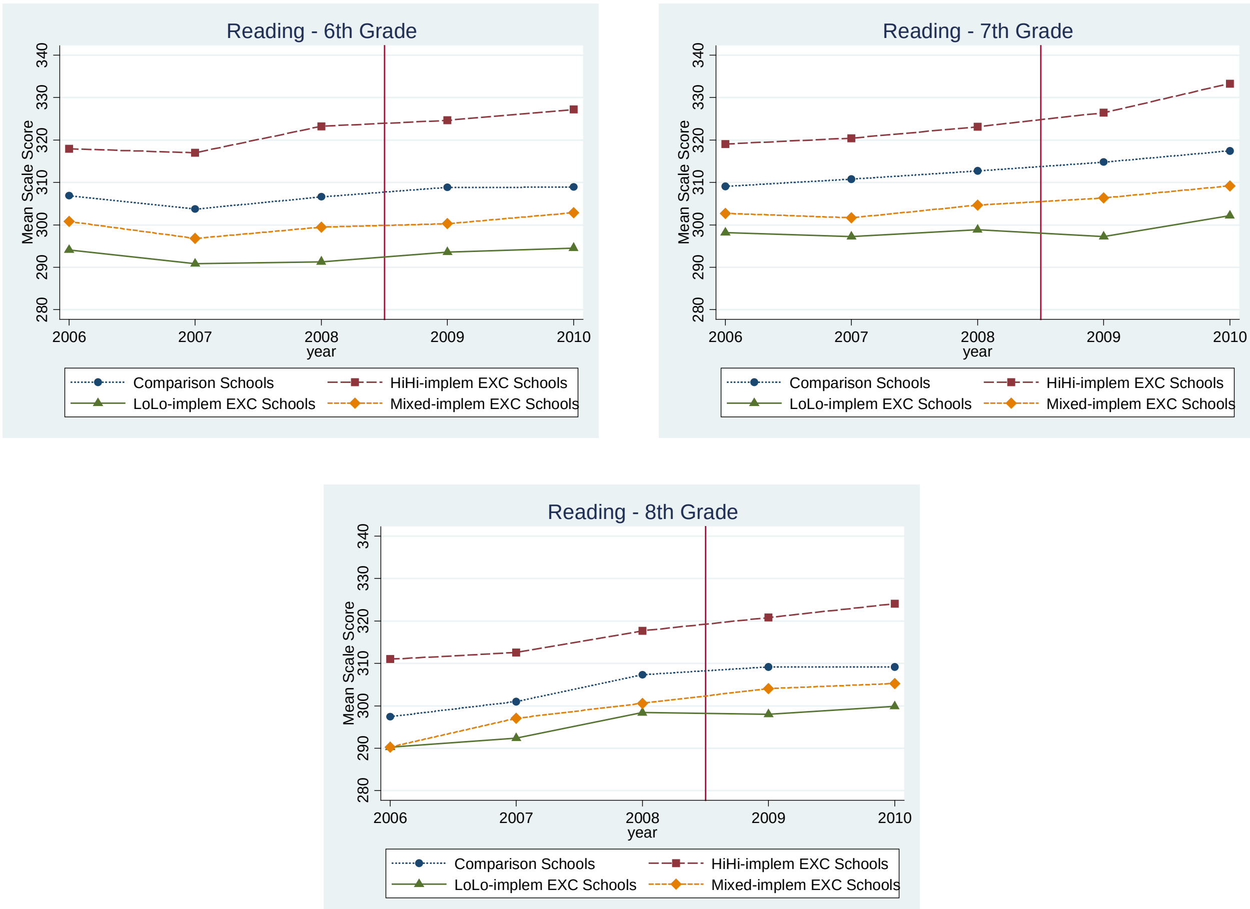
Time-Series Graphs Using Proxy Measure for Both Years

Figures 7.3 and 7.4 show the level-of-implementation time-series graphs for reading and mathematics, respectively, using the proxy measure of implementation for both 2008–09 and 2009–10. Each graph shows four trend lines: (1) consistently high-implementing EXCELerator schools, which are schools classified as high implementers in both years of implementation ($n = 16$); (2) consistently low-implementing EXCELerator schools, which are schools classified as low implementers in both years of implementation ($n = 13$); (3) mixed implementing EXCELerator schools, which are schools classified as high implementers in one year and low implementers in the other year ($n = 15$); and (4) comparison schools ($n = 88$).

According to the graphs, the EXCELerator schools that were rated as being consistently high implementers have much higher achievement levels than schools that were rated as being mixed implementers or consistently low implementers. This is true in both the preimplementation and the postimplementation years, so it is not a function of the EXCELerator program itself. It may be that lower-achieving schools have had a more difficult time implementing EXCELerator, or perhaps higher-achieving schools were already behaving in some EXCELerator-like ways that made implementation easier or more successful.

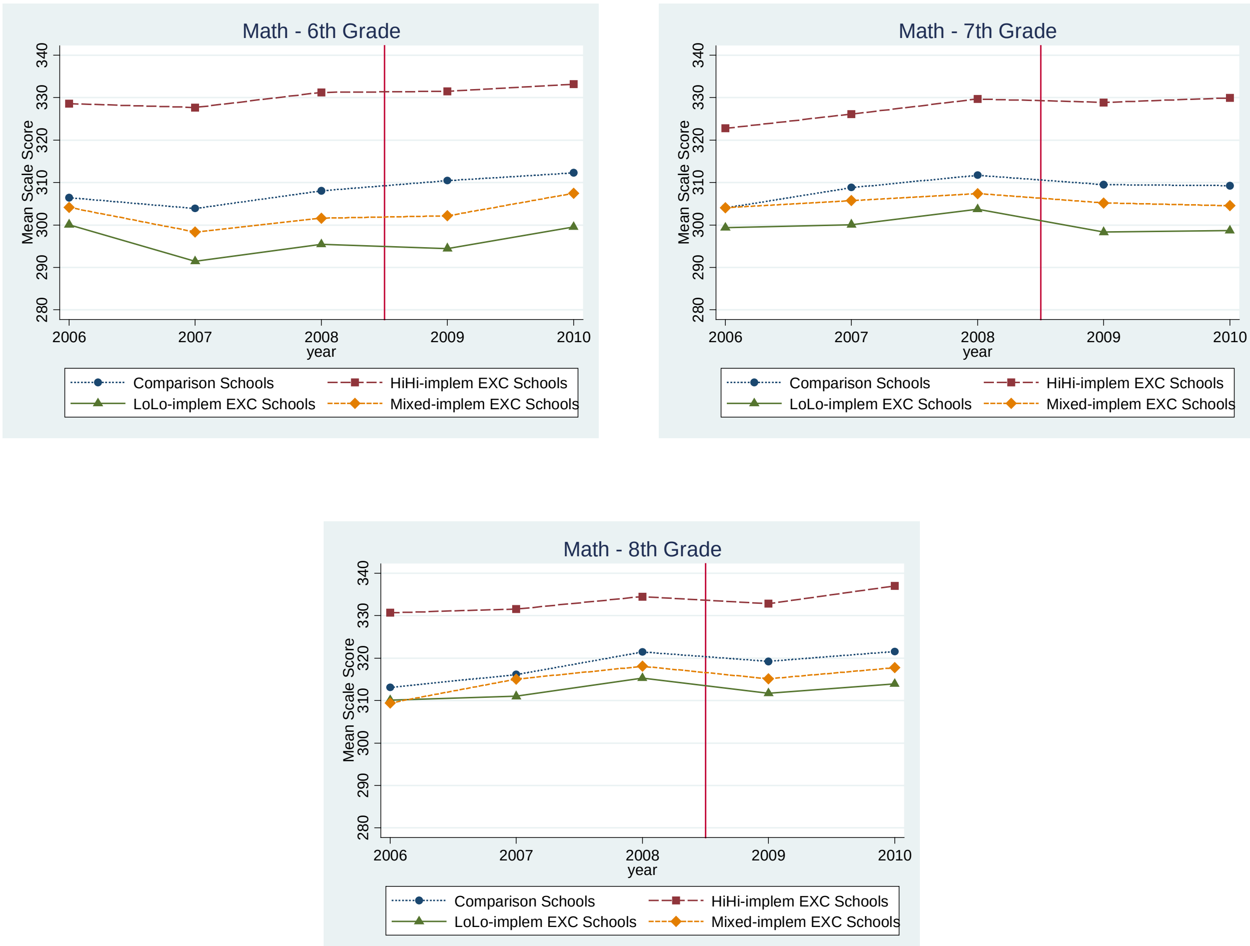
When comparing postimplementation score averages for EXCELerator schools to preimplementation averages and comparison school averages, the graphs suggest that implementation may be changing the trajectory of school average FCAT scores for some grades and subjects. This pattern, while variable, is not restricted to just the consistently high-implementing EXCELerator schools. For example, there appear to be sharper gains between the first and second years of implementation for both consistently high- and low-implementing EXCELerator schools in seventh-grade reading. Because there are year-to-year variations of similar magnitude in many of the trend lines, however, more years of data will be needed to give a clearer picture of post-implementation score trajectories.

Figure 7.3. School Average State Test Scores in Reading for Consistently High-Implementing EXCELerator Schools, Consistently Low-Implementing EXCELerator Schools, Mixed-Implementing EXCELerator Schools, and Comparison Schools, by Grade Level: 2009 Proxy Measure and 2010 Proxy Measure



Note. High-Implementing = high in both 2009 and 2010; Low-Implementing = low in both 2009 and 2010; Mixed-Implementing = low in one year and high in the other

Figure 7.4. School Average State Test Scores in Mathematics for Consistently High-Implementing EXCELerator Schools, Consistently Low-Implementing EXCELerator Schools, Mixed-Implementing EXCELerator Schools, and Comparison Schools, by Grade Level: 2009 Proxy Measure and 2010 Proxy Measure



Note. High-Implementing = high in both 2009 and 2010; Low-Implementing = low in both 2009 and 2010; Mixed-Implementing = low in one year and high in the other

Statistical Analysis of EXCELerator Level-of-Implementation Effects Using Proxy Measure for Both Years

For the statistical analysis, we did not create a category of mixed implementers. Rather, each school was analyzed as either high or low implementing in a given year and could therefore contribute to the low-implementing effect in one year and the high-implementing effect in the other. One downside of this approach is that it does not take account the cumulative effect of consistently high (or low) implementation.

Looking at the results of the level-of-implementation effects analysis using the proxy measure for both years (Table 7.2), we see that being a high-implementing EXCELerator school is associated with modest positive effects on FCAT *reading* scores at all grade levels, relative to the comparison schools or relative to the high-implementing schools' own preimplementation performance. For example, high-implementing schools have average sixth-grade reading scores that are about two score points higher than they would have been if the schools had not adopted the EXCELerator program. Effects for *mathematics* are positive at Grade 7 but negative for Grades 6 and 8. None of the positive or negative effects for high-implementing schools reach the level of statistical significance. By contrast, all six effects for low-implementing EXCELerator schools are negative, and the mathematics effects are statistically significant or marginally significant.

Table 7.2. EXCELerator Level-of-Implementation Results for Grades 6–8 State Test Scores, Using the Proxy Measure for both 2009 and 2010, Coefficients (Robust SE)

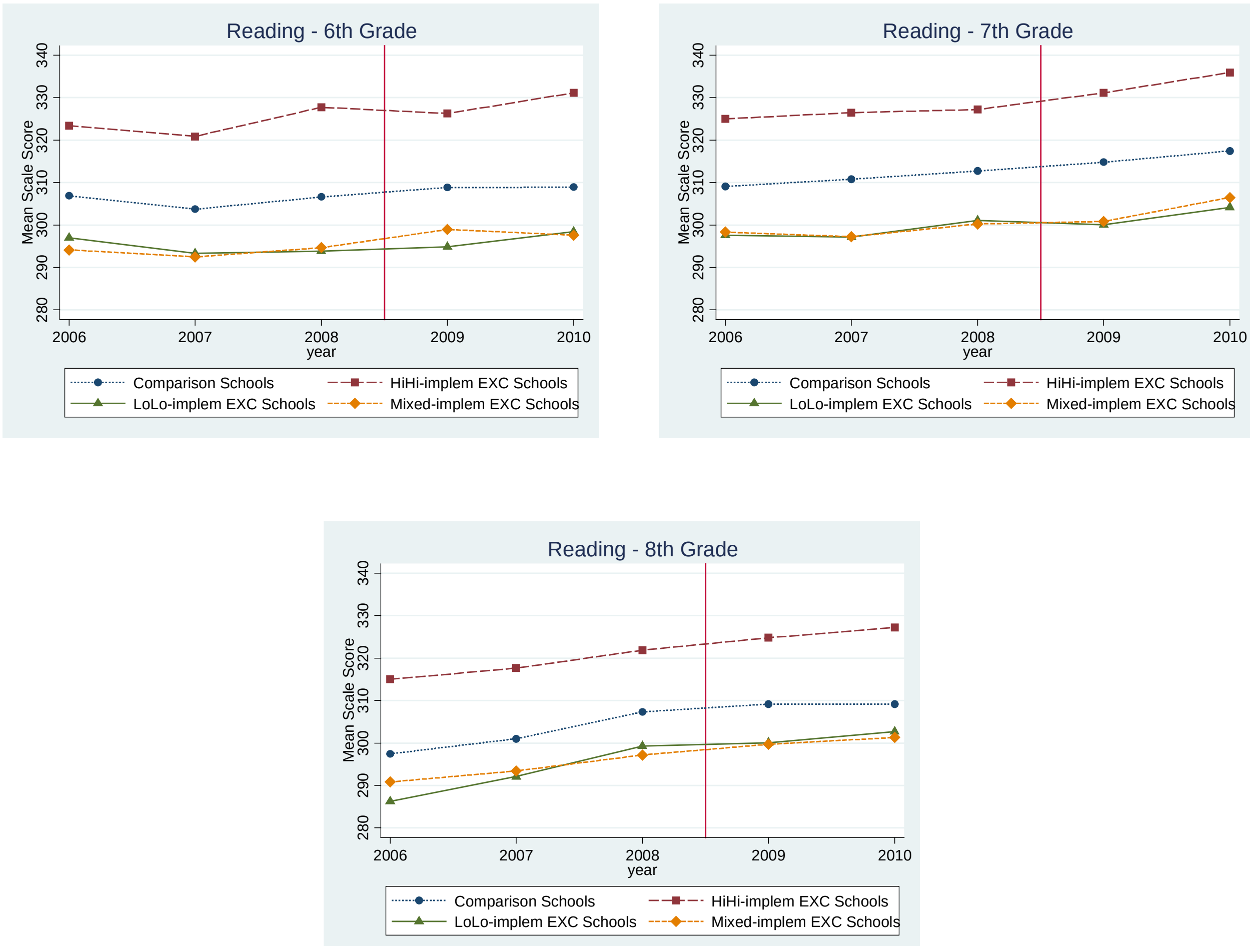
	Reading, 6th Grade	Reading, 7th Grade	Reading, 8th Grade	Math, 6th Grade	Math, 7th Grade	Math, 8th Grade
Yr2007	-3.42*** (0.66)	0.72 (0.63)	3.29*** (0.54)	-3.67*** (0.83)	3.52*** (0.65)	2.61*** (0.56)
Yr2008	-0.41 (0.75)	2.85*** (0.65)	9.11*** (0.77)	0.30 (0.92)	6.43*** (0.85)	7.29*** (0.73)
Yr2009	1.37† (0.79)	4.62*** (0.74)	10.94*** (0.79)	2.78* (1.08)	4.45*** (0.92)	5.45*** (0.88)
Yr2010	2.12* (1.00)	8.08*** (0.85)	11.64*** (0.75)	5.31*** (1.16)	4.42*** (1.02)	8.03*** (0.83)
EXCELerator, low-implementing effect	**-1.03** **(1.17)**	**-1.94** **(1.49)**	**-0.92** **(1.09)**	**-3.02*** **(1.42)**	**-3.23*** **(1.43)**	**-2.19†** **(1.18)**
EXCELerator, high-implementing effect	**2.04** **(1.28)**	**1.76** **(1.25)**	**1.51** **(1.05)**	**-2.35** **(1.58)**	**0.67** **(1.27)**	**-1.15** **(0.99)**
Constant	306.62*** (0.52)	308.79*** (0.48)	297.79*** (0.49)	308.53*** (0.64)	306.12*** (0.56)	314.72*** (0.51)
Sigma_u	22.21	20.62	18.39	25.47	21.29	17.92
Sigma_e	5.68	5.20	5.13	6.75	5.88	5.09
Rho	0.94	0.94	0.93	0.93	0.93	0.93
N (schools)	132	132	132	132	132	132
N (observations)	657	657	657	657	657	657

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Time-Series Graphs Using Proxy Measure for 2008–09 and Survey-Based Measure for 2009–10

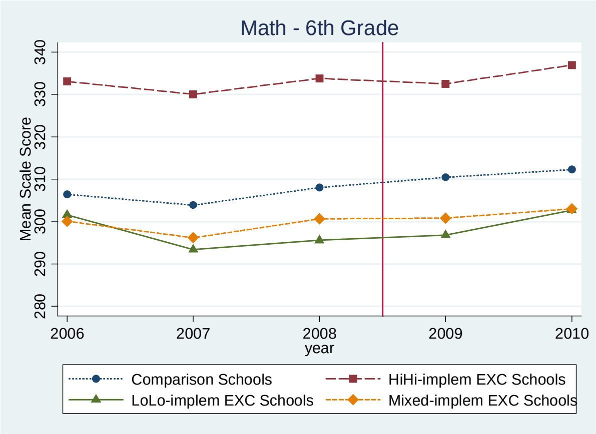
Figures 7.5 and 7.6 show a second set of level-of-implementation time-series graphs, this time using the proxy measure of implementation for 2008–09 and the survey-based measure for 2009–10. As before, each graph shows four trend lines: (1) consistently high-implementing EXCELerator schools, which are schools classified as high implementers in both years of implementation (n = 15); (2) consistently low-implementing EXCELerator schools, which are schools classified as low implementers in both years of implementation (n = 12); (3) mixed implementing EXCELerator schools, which are schools classified as high implementers in one year and low implementers in the other year (n = 17); and (4) comparison schools (n = 88).

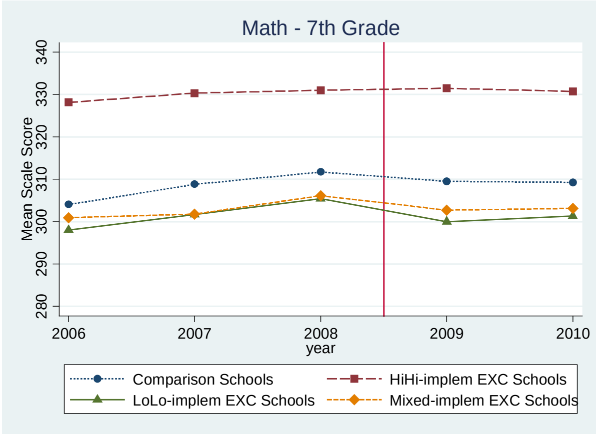
Figure 7.5. School Average State Test Scores in Reading for Consistently High-Implementing EXCELerator Schools, Consistently Low-Implementing EXCELerator Schools, Mixed-Implementing EXCELerator Schools, and Comparison Schools, by Grade Level: 2009 Proxy Measure and 2010 Survey Measure

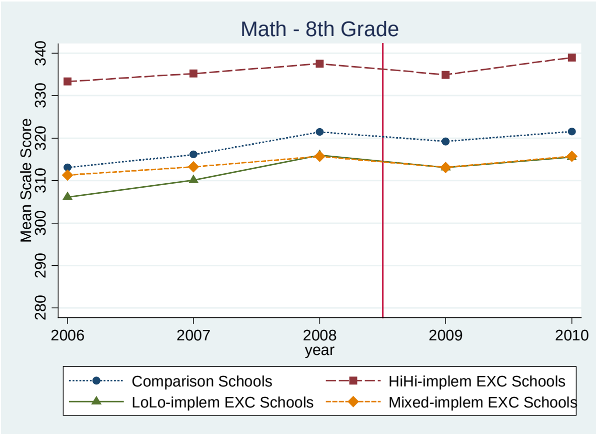


Note. High-Implementing = high in both 2009 and 2010; Low-Implementing = low in both 2009 and 2010; Mixed-Implementing = low in one year and high in the other

Figure 7.6. School Average State Test Scores in Mathematics for Consistently High-Implementing EXCELerator Schools, Consistently Low-Implementing EXCELerator Schools, Mixed-Implementing EXCELerator Schools, and Comparison Schools, by Grade Level: 2009 Proxy Measure and 2010 Survey Measure







Note. High-Implementing = high in both 2009 and 2010; Low-Implementing = low in both 2009 and 2010; Mixed-Implementing = low in one year and high in the other

Although some schools switch categories with this alternative metric, the patterns of results are not markedly different. The most noticeable differences are that the consistently high-implementing schools have even higher average scores, both pre- and postimplementation, and the score levels for mixed-implementing and consistently low-implementing schools are more similar. The graphs do not reveal anything different about how adopting the EXCELerator program may have influenced score levels in the postimplementation period.

Statistical Analysis of EXCELerator Level-of-Implementation Effects Using Proxy Measure for 2008–09 and Survey-Based Measure for 2009–10

Table 7.3 shows the results for the level-of-implementation effects analysis using the combination of proxy and survey-based measures. The effects are somewhat less consistent than the results based solely on the proxy measure, which suggests that the proxy measure and the survey-based measure may be picking up somewhat different constructs. In particular, when we classified schools based solely on the proxy measure (Table 7.2), the high-implementer EXCELerator effects were always more positive (or less negative) than the low-implementer EXCELerator effects, across all grades and both subjects. Here the pattern holds for Grades 6 and 7 but not Grade 8. Nevertheless, both level-of-implementation analyses yield the same general findings of modest positive effects in reading for high-implementer EXCELerator schools, but generally negative effects in mathematics. Once again, most of the effects do not reach the level of statistical significance.

Table 7.3. EXCELerator Level-of-Implementation Results for Grades 6–8 State Test Scores, Using the Proxy Measure in 2009 and the Survey Measure in 2010, Coefficients (Robust SE)

	Reading, 6th Grade	Reading, 7th Grade	Reading, 8th Grade	Math, 6th Grade	Math, 7th Grade	Math, 8th Grade
Yr2007	-3.42*** (0.66)	0.73 (0.63)	3.29*** (0.54)	-3.67*** (0.83)	3.52*** (0.65)	2.61*** (0.56)
Yr2008	-0.41 (0.75)	2.85*** (0.65)	9.11*** (0.77)	0.30 (0.92)	6.43*** (0.85)	7.29*** (0.73)
Yr2009	1.38† (0.79)	4.63*** (0.74)	10.95*** (0.79)	2.78* (1.08)	4.46*** (0.92)	5.46*** (0.87)
Yr2010	2.12* (1.01)	8.07*** (0.85)	11.63*** (0.75)	5.31*** (1.16)	4.41*** (1.03)	8.02*** (0.83)
EXCELerator, low-implementing effect	**-0.43 (1.22)**	**-0.44 (1.30)**	**0.64 (1.38)**	**-2.96* (1.47)**	**-1.52 (1.48)**	**-1.04 (1.22)**
EXCELerator, high-implementing effect	**1.51 (1.32)**	**0.46 (1.48)**	**0.15 (1.02)**	**-2.40 (1.54)**	**-0.82 (1.34)**	**-2.15* (0.99)**
Constant	306.62*** (0.52)	308.79*** (0.48)	297.79*** (0.49)	308.53*** (0.64)	306.12*** (0.56)	314.72*** (0.51)
Sigma_u	22.24	20.69	18.47	25.47	21.38	17.98
Sigma_e	5.69	5.24	5.15	6.75	5.92	5.09
Rho	0.94	0.94	0.93	0.93	0.93	0.93
N (schools)	132	132	132	132	132	132
N (observations)	657	657	657	657	657	657

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Summary of Findings

After two years of implementation, EXCELerator schools appear to be having a modest positive effect on FCAT scores in reading but a modest negative effect on FCAT scores in mathematics. In all cases, the second-year effects are more positive than the first-year effects, suggesting that the schools are trending in a positive direction. However, given the modest size of the effects (most of which are not statistically significant) and the short time series (with only two years of postimplementation data), it is not possible to know if this is a real trend. Furthermore, because all Hillsborough middle schools are in the EXCELerator program (and all entered at the same time), it is not possible to know whether the observed effects are actually due to EXCELerator rather than other, concurrent district initiatives. In terms of attributing causality, however, it is reassuring that the schools that are rated as high implementers of EXCELerator produce more positive effects than schools that are rated as low implementers.

Chapter 8
Conclusion

The EXCELerator program is designed to help underrepresented groups enter the pipeline to higher education. Initially launched in the 2006–07 school year, the program has among its goals increased graduation rates, decreased dropout rates, increased participation in AP exams, increased success on AP exams, and increased participation on the SAT. This report has examined the impact of the EXCELerator program on these and selected other outcomes through the 2009–10 school year, using a CITS approach in which the EXCELerator schools were examined over a seven-year period (which spanned up to five years of preimplementation performance and up to four years of postimplementation performance, depending on the year in which implementation occurred) and in relation to a group of comparison schools that closely resembled the EXCELerator schools on outcomes in the preimplementation years.

Major Findings

The major findings of our analysis of the impact of the EXCELerator program, through the 2009–10 school year, are as follows:

- The EXCELerator program is associated with increased graduation rates starting in the second year of program implementation, and the magnitude of the effect increases over time. The results are statistically significant for the third and fourth years of implementation.
- The EXCELerator program is associated with decreased dropout rates starting in the second year of program implementation, and the magnitude of the effect increases over time. The results are statistically significant for the fourth year of implementation.
- The EXCELerator program is associated with statistically significant increases in the percentage of students who take AP exams in all four years of program implementation. In the first two years of program implementation, there are also statistically significant increases in the percentage of students scoring 3 or higher on AP exams and in the percentage of students scoring 2 or higher on AP exams (out of all students enrolled in Grades 9–12 in each school). However, by the third year, the program is associated with a statistically significant *negative* effect on the percentage of students scoring 3 or higher on AP exams; the percentage of students scoring 2 or higher also decrease, although the effects on scores of 2 or higher do not become significantly negative.
- The EXCELerator program is associated with large and statistically significant increases in the percentage of seniors who take the SAT, starting in the second year of program implementation. At the same time, there are modest—but statistically significant—increases in the percentages of seniors scoring at least 500 on the SAT critical reading and mathematics sections (out of all seniors, not just test takers). These effects turn negative, however, when controlling for the percentage of students taking the SAT, and average SAT scores among test takers declines in both subject areas.
- Following program implementation, EXCELerator high schools do not appear to perform as well on state/local accountability tests as do their matched comparison schools. The

negative effects can be seen in both reading and mathematics in both Grades 9 and 10. There do not appear to be any negative (or positive) effects on Grade 11 scores, although it should be noted that the majority of EXCELerator schools are in jurisdictions that do not have 11th-grade tests.

- After two years of implementation, EXCELerator middle schools appear to be having a modest positive effect on state test scores in reading but a modest negative effect on state test scores in mathematics. In all cases, the second-year effects are more positive than the first-year effects, suggesting that the schools are trending in a positive direction, but most of the effects do not reach the level of statistical significance. Schools that are rated as high implementers of EXCELerator produce more positive effects than schools that are rated as low implementers.

In summary, then, the EXCELerator program, when examined in relation to both school-level outcomes prior to implementation and outcomes for similar nonprogram schools, appears to be having the desired effects on graduation rates, dropout rates, and participation in AP exams and SAT. Some of these positive effects do not appear until the program has been in place for two or more years. This is understandable and attests to the importance of a multiyear, longitudinal evaluation methodology.

Effects on AP and SAT performance, meanwhile, have generally not been positive. This pattern of findings may not be surprising given the increased participation rates. Even so, the findings suggest a need for increased attention to the question of how to prepare more students—and a wider range of students—for success on these exams.

The analysis also finds a negative effect of the program on 9th- and 10th-grade state/local accountability test scores. These results may suggest concerns with the quality of instruction at these grade levels, but they may also simply reflect a lack of alignment between EXCELerator curriculum and the material on state tests. For middle school students, the effects on state test scores are modest, but they suggest that the program may actually be enhancing performance, at least in reading.

Conclusion

Overall, there is evidence that the EXCELerator program is having success in meeting some but not all the desired outcomes. There may be enough positive evidence to warrant continuation of the program in the current set of schools—or even implementation in a new set of schools—but some modifications will be required to make the program maximally successful.

References

Bozick, R., and Ingels, S. J. (2008). *Mathematics coursetaking and achievement at the end of high school: Evidence from the Education Longitudinal Study of 2002* (NCES 2008-319). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.

Center on Education Policy. (2010). *Rising scores on state tests and NAEP: State test score trends through 2008–09, Part 1*. Washington, DC: Author. Retrieved August 26, 2011, from http://www.cepdc.org/document/docWindow.cfm?fuseaction=document.viewDocument&documentid=314&documentFormatId=4670

College Board. (n.d.). *The SAT®: What is the SAT®?* Retrieved August 25, 2011, from http://tinyurl.com/3oxqylo

Dougherty, C., Mellor, L., & Jian, S. (2006). *The relationship between Advanced Placement and college graduation.* Austin, TX: National Center for Educational Accountability. Retrieved August 26, 2011, from http://www.nc4ea.org/files/relationship_between_ap_and_college_graduation_02-09-06.pdf

Geiser, S., & Santelices, V. (2004). *The role of Advanced Placement and honors courses in college admissions.* Berkeley, CA: University of California–Berkeley, Center for Studies in Higher Education.

Hargrove, L., Godin, D., & Dodd, B. (2008). *College outcomes comparisons by AP and non-AP high school experiences* (Research Report No. 2008-3). New York: College Board.

Holtzman, D., and Stancavage, F. (2010). *College readiness systems longitudinal evaluation: EXCELerator program impact, year 1 report.* San Mateo, CA: American Institutes for Research.

Richmond, E. (2009). *Every student counts: The role of federal policy in improving graduation rate accountability.* Washington, DC: Alliance for Excellent Education. Retrieved August 26, 2011, from http://www.all4ed.org/files/ESC_FedPolicyGRA.pdf

Stancavage, F., Nakashima, N. A., Holtzman, D. J., and Shkolnik, J. (2011). *College readiness systems longitudinal evaluation: Program implementation, year 2 report.* San Mateo, CA: American Institutes for Research.

Appendix A
Selection of Comparison Schools

As described in Chapter 2, we employed a three-stage process for selecting the comparison schools. In stage 1, the outcome index value for the year immediately *preceding* implementation of EXCELerator was regressed on the outcome index values for the two years previous to that, controlling for school enrollment size, the percentage of black students, the percentage of Hispanic students, and urbanicity. In stage 2, the parameters established in stage 1 were used to *calculate a predicted outcome index value* for the first year of implementation, using the outcome indexes for the two previous years and the control variables. Stage 3 was the actual identification and selection of the comparison schools; we ranked all the schools on their predicted values, located each EXCELerator school, and then selected its nearest-above and nearest-below neighbors.

The equations for stage 1 and stage 2 are provided in this appendix. (There are no equations for stage 3.) The stage 1 regression results for each pool are also provided.

Stage 1 Equation

The general form for the stage 1 regression is as follows:

$$Y_{t=ImpYear\ minus\ 1} = \beta_0 + \beta_1 Y_{t=ImpYear\ minus\ 2} + \beta_2 Y_{t=ImpYear\ minus\ 3} + \beta_3 City + \beta_4 TownRural + \beta_5 African\ American_{t=ImpYear\ minus\ 2} + \beta_6 Hispanic_{t=1ImpYear\ minus\ 2} + \beta_7 Enrollment_{t=1ImpYear\ minus\ 2} + \varepsilon_{t=1ImpYear\ minus\ 1}$$

where

- $Y_{t=ImpYear\ minus\ 1}$ is the outcome composite in the year prior to (EXCELerator) implementation.
- $Y_{t=ImpYear\ minus\ 2}$ is the outcome composite in the year two years prior to (EXCELerator) implementation.
- $Y_{t=ImpYear\ minus\ 3}$ is the outcome composite in the year three years prior to (EXCELerator) implementation.
- *City* is a dummy variable equal to 1 if a school is classified as being in a city.
- *TownRural* is a dummy variable equal to 1 if a school is classified as being in a town or rural area.[27]
- $African\ American_{t=ImpYear\ minus\ 2}$ is the percentage of school enrollment that was African American in the year two years prior to (EXCELerator) implementation.

[27] The city and town/rural designations come from NCES/CCD. Their classification scheme changed in 2006–07, which was the latest year available at the time of our data collection, so all the values on these variables are from 2006–07. (In other words, these variables do not have varying years as the other terms in the equations do.) The reference group is schools classified as being located in a suburb.

- $Hispanic_{t=ImpYear\ minus\ 2}$ is the percentage of school enrollment that was Hispanic in the year two years prior to (EXCELerator) implementation.
- $Enrollment_{t=ImpYear\ minus\ 2}$ is the number of students enrolled in Grades 9–12 in the year two years prior to (EXCELerator) implementation.[28]
- $\varepsilon_{t=ImpYear\ minus\ 1}$ is a random error term.

As a more concrete example, here is the equation used in the matching for schools that implemented EXCELerator in the 2007–08 school year (Cohort 2):

$$Y_{t=2006\text{–}07} = \beta_0 + \beta_1 Y_{t=2005\text{–}06} + \beta_2 Y_{t=2004\text{–}05} + \beta_3 City + \beta_4 TownRural + \beta_5 African\ American_{t=2005\text{–}06} + \beta_6 Hispanic_{t=2005\text{–}06} + \beta_7 Enrollment_{t=2005\text{–}06} + \varepsilon_{t=1005\text{–}06}$$

Stage 2 Equation

The general form for the stage 2 calculation is as follows:

$$\hat{Y}_{t=ImpYear} = \hat{\beta}_0 + \hat{\beta}_1 Y_{t=ImpYear\ minus\ 1} + \hat{\beta}_2 Y_{t=ImpYear\ minus\ 2} + \hat{\beta}_3 City + \hat{\beta}_4 TownRural + \hat{\beta}_5 African\ American_{t=ImpYear\ minus\ 1} + \hat{\beta}_6 Hispanic_{t=ImpYear\ minus\ 1} + \hat{\beta}_7 Enrollment_{t=ImpYear\ minus\ 1}$$

In this equation, all of the $\hat{\beta}$ parameters are those generated by the stage 1 regression (the "hats" signify that they are the parameter *estimates*). Bear in mind that this equation is not for another regression but rather for a prediction calculation based on the stage 1 regression. (Note that there is no error term.) The terms are as follows:

- $\hat{Y}_{t=ImpYear}$ is the *estimated* (calculated) outcome composite in the year of (EXCELerator) implementation (*not* the actual outcome composite in that year; note the "hat"); these are then used to select two comparison schools for each EXCELerator school.
- $Y_{t=ImpYear\ minus\ 1}$ is the outcome composite in the year prior to (EXCELerator) implementation.
- $Y_{t=ImpYear\ minus\ 2}$ is the outcome composite in the year two years prior to (EXCELerator) implementation.
- *City* is a dummy variable equal to 1 if a school is classified as being in a city.
- *TownRural* is a dummy variable equal to 1 if a school is classified as being in a town or rural area.
- $African\ American_{t=ImpYear\ minus\ 1}$ is the percentage of school enrollment that was African American in the year prior to (EXCELerator) implementation.

[28] The demographic and enrollment variables are those from the year prior to the outcome being regressed/predicted so as to avoid any potential problems with endogeneity. For example, the implementation of EXCELerator may have had an impact on school demographics.

- *Hispanic*$_{t=ImpYear\ minus\ 1}$ is the percentage of school enrollment that was Hispanic in the year prior to (EXCELerator) implementation.
- *Enrollment*$_{t=ImpYear\ minus\ 1}$ is the number of students enrolled in Grades 9–12 in the year prior to (EXCELerator) implementation.

Again to provide a more concrete example, here is the stage 2 equation used in the matching for schools that implemented EXCELerator in the 2007–08 school year (cohort 2):

$$\hat{Y}_{t=2007-08} = \hat{\beta}_0 + \hat{\beta}_1 Y_{t=2006-07} + \hat{\beta}_2 Y_{t=2005-06} + \hat{\beta}_3 City + \hat{\beta}_4 TownRural + \hat{\beta}_5 African\ American_{t=2005-06} + \hat{\beta}_6 Hispanic_{t=2005-06} + \hat{\beta}_7 Enrollment_{t=2005-06}$$

Stage 1 Regression Results

Table A.1. Pools 1 and 6 (2006–07 Cohort), Coefficients (SE)

	Pool 1 (Chicago)	Pool 6 (Florida)
Composite 2004–05	0.764* (0.30)	0.805*** (0.06)
Composite 2003–04	0.298 (0.30)	0.199*** (0.06)
City	0.000 (0.00)	-0.006 (0.02)
TownRural	0.000 (0.00)	0.012 (0.02)
African American 2004–05	0.004† (0.00)	0.001† (0.00)
Hispanic 2004–05	0.005* (0.00)	0.001 (0.00)
Enrollment 2004–05	0.000 (0.00)	0.000 (0.00)
Constant	-0.373† (0.19)	-0.025 (0.03)
R^2	0.992	0.977
R^2, adjusted	0.990	0.976
N	35	236

Note. Pools 2 and 3 (both in Chicago) belonged to the 2006–07 cohort but did not have enough schools for the regression.
†$p < .10$. *$p < .05$. **$p < .01$. *** $p < .001$.

Table A.2. Pools 4, 5, 7, and 8 (2007–08 Cohort), Coefficients (SE)

	Pool 4 (Chicago)	**Pool 5 (Colorado)**	**Pool 7 (Florida 9–12)**	**Pool 8 (Florida 6–12)**
Composite 2005–06	1.129*** (0.15)	0.683*** (0.07)	0.926*** (0.05)	1.019** (0.27)
Composite 2004–05	-0.183 (0.15)	0.292*** (0.07)	0.047 (0.05)	-0.048 (0.26)
City	0.000 (0.00)	-0.070† (0.04)	0.008 (0.02)	0.098 (0.29)
TownRural	0.000 (0.00)	0.022 (0.04)	-0.021 (0.02)	-0.047 (0.16)
African American 2005–06	-0.003† (0.00)	-0.091 (0.19)	0.000 (0.00)	-0.002 (0.00)
Hispanic 2005–06	-0.003† (0.00)	0.027 (0.10)	-0.001 (0.00)	0.002 (0.00)
Enrollment 2005–06	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Constant	0.269† (0.15)	-0.009 (0.05)	-0.029 (0.03)	0.095 (0.19)
R^2	0.989	0.964	0.977	0.933
R^2, adjusted	0.988	0.962	0.976	0.908
N	45	180	293	27

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Table A.3. Pools 9 and 10 (2008–09 Cohort, High Schools), Coefficients (SE)

	Pool 9 (Florida)	**Pool 10 (Florida new)**
Composite 2006–07	0.803*** (0.06)	1.019*** (0.11)
Composite 2005–06	0.205*** (0.06)	
City	-0.002 (0.02)	0.197 (0.26)
TownRural	0.018 (0.02)	0.073 (0.18)
African American 2006–07	0.001* (0.00)	0.003 (0.01)
Hispanic 2006–07	0.000 (0.00)	0.002 (0.00)
Enrollment 2006–07	0.000 (0.00)	0.000 (0.00)
Constant	-0.007 (0.03)	-0.174 (0.27)
R^2	0.970	0.963
R^2, adjusted	0.969	0.935
N	302	15

†$p < .10$. *$p <. 05$. **$p < .01$. ***$p < .001$.

Table A.4. Pools 11, 12, and 13 (2008–09 Cohort, Middle Schools), Coefficients (SE)

	Pool 11 (Florida 6–8)	**Pool 12 (Florida K–8)**	**Pool 13 (Florida new)**
Composite 2006–07	0.965*** (0.05)	1.120*** (0.16)	0.911*** (0.05)
Composite 2005–06	0.026 (0.04)	-0.268† (0.15)	
City	-0.031 (0.02)	-0.179 (0.11)	
TownRural	0.015 (0.02)	-0.044 (0.11)	-0.057 (0.09)
African American 2006–07	0.000 (0.00)	-0.003 (0.00)	0.006 (0.00)
Hispanic 2006–07	0.000 (0.00)	-0.002 (0.00)	0.004 (0.00)
Enrollment 2006–07	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Constant	0.034 (0.03)	0.313† (0.15)	-0.468 (0.30)
R^2	0.974	0.945	0.991
R^2, adjusted	0.973	0.934	0.980
N	454	43	10

†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Appendix B

Preimplementation Similarity of EXCELerator and Comparison Schools

Chicago

2006–07 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    52.65029    12.22893    34.58862    23.73348    81.56711
       1 |       4    48.99037     17.8994    35.79881   -7.973515    105.9543
---------+--------------------------------------------------------------------
combined |      12    51.43032    9.635396    33.37799    30.22296    72.63768
---------+--------------------------------------------------------------------
    diff |            3.659918    21.40614               -44.03593    51.35577
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.1710
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5662         Pr(|T| > |t|) = 0.8677          Pr(T > t) = 0.4338
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    32.19084    8.347249    23.60958    12.45273    51.92894
       1 |       4    44.47113    15.08723    30.17445   -3.543158    92.48542
---------+--------------------------------------------------------------------
combined |      12    36.28427    7.300648    25.29019    20.21565    52.35288
---------+--------------------------------------------------------------------
    diff |           -12.28029    15.77187                -47.4222    22.86161
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7786
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2271         Pr(|T| > |t|) = 0.4542          Pr(T > t) = 0.7729
```

Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    1157.875    159.7125    451.7352    780.2149    1535.535
       1 |       4      1793.5     549.537    1099.074      44.628    3542.372
---------+--------------------------------------------------------------------
combined |      12     1369.75    215.4932    746.4905    895.4526    1844.047
---------+--------------------------------------------------------------------
    diff |            -635.625    435.2734               -1605.474    334.2245
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.4603
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0875         Pr(|T| > |t|) = 0.1749          Pr(T > t) = 0.9125
```

2005–06 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16    48.58407    8.441021    33.76408    30.59246    66.57568
       1 |       8    50.86666    13.97656    39.53169    17.81734    83.91599
---------+--------------------------------------------------------------------
combined |      24    49.34493    7.130674    34.93302    34.59401    64.09586
---------+--------------------------------------------------------------------
    diff |           -2.282597    15.45875               -34.34208    29.77688
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.1477
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4420         Pr(|T| > |t|) = 0.8840          Pr(T > t) = 0.5580
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16    38.13678    7.329219    29.31688    22.51492    53.75865
       1 |       8    37.85607    11.17859    31.61782    11.42292    64.28923
---------+--------------------------------------------------------------------
combined |      24    38.04321    6.002779    29.40749    25.62552    50.46091
---------+--------------------------------------------------------------------
    diff |            .2807114    13.01987               -26.72084    27.28227
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.0216
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5085         Pr(|T| > |t|) = 0.9830          Pr(T > t) = 0.4915
```

Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16    1183.125     126.699    506.7959    913.0725    1453.177
       1 |       8    1644.125    334.2421    945.3795     853.768    2434.482
---------+--------------------------------------------------------------------
combined |      24    1336.792     142.711    699.1384    1041.571    1632.012
---------+--------------------------------------------------------------------
    diff |                -461    293.5214               -1069.726     147.726
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.5706
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0653         Pr(|T| > |t|) = 0.1306          Pr(T > t) = 0.9347
```

2004–05 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16    50.01584    8.493264    33.97306    31.91287     68.1188
       1 |       8    50.83738    14.30643    40.46469    17.00805     84.6667
---------+--------------------------------------------------------------------
combined |      24    50.28968    7.220375    35.37247     35.3532    65.22617
---------+--------------------------------------------------------------------
    diff |             -.82154    15.65999               -33.29837    31.65529
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.0525
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4793         Pr(|T| > |t|) = 0.9586          Pr(T > t) = 0.5207
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16    38.19551    7.422464    29.68986     22.3749    54.01612
       1 |       8    38.06314    11.34878    32.09921    11.22753    64.89875
---------+--------------------------------------------------------------------
combined |      24    38.15138    6.084389     29.8073    25.56487     50.7379
---------+--------------------------------------------------------------------
    diff |            .1323709    13.19699               -27.23651    27.50125
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.0100
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5040         Pr(|T| > |t|) = 0.9921          Pr(T > t) = 0.4960
```

Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16    1167.188     142.623     570.492    863.1938    1471.181
       1 |       8      1591.5    338.4133    957.1774    791.2797     2391.72
---------+--------------------------------------------------------------------
combined |      24    1308.625    149.0031    729.9629    1000.389    1616.861
---------+--------------------------------------------------------------------
    diff |           -424.3125     310.268               -1067.769    219.1439
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.3676
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0926         Pr(|T| > |t|) = 0.1853          Pr(T > t) = 0.9074
```

2003–04 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    49.35553    8.712812    32.60036    30.53265    68.17842
       1 |       7     43.1977    14.41955    38.15054    7.914337    78.48106
---------+--------------------------------------------------------------------
combined |      21    47.30292    7.355904    33.70899    31.95877    62.64707
---------+--------------------------------------------------------------------
    diff |            6.157832    15.94715               -27.21994     39.5356
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.3861
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6482         Pr(|T| > |t|) = 0.7037          Pr(T > t) = 0.3518
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14      35.968    7.037618    26.33235    20.76415    51.17185
       1 |       7    42.83091    11.50553    30.44077    14.67789    70.98393
---------+--------------------------------------------------------------------
combined |      21    38.25564    5.934915     27.1972    25.87562    50.63565
---------+--------------------------------------------------------------------
    diff |           -6.862908     12.8206               -33.69674    19.97092
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5353
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2993         Pr(|T| > |t|) = 0.5987          Pr(T > t) = 0.7007
```

Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14      1318.5     129.332    483.9159    1039.095    1597.905
       1 |       7    1756.429    300.6045    795.3246    1020.876    2491.981
---------+--------------------------------------------------------------------
combined |      21    1464.476    135.7036    621.8721    1181.403    1747.549
---------+--------------------------------------------------------------------
    diff |           -437.9286    277.7362               -1019.237      143.38
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.5768
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0657         Pr(|T| > |t|) = 0.1314          Pr(T > t) = 0.9343
```

2006–07 EXPLORE Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     12.7875    .3587864    1.014801     11.9391     13.6359
       1 |       4       12.95    .6958209    1.391642    10.73559    15.16441
---------+--------------------------------------------------------------------
combined |      12    12.84167    .3148974    1.090836    12.14858    13.53475
---------+--------------------------------------------------------------------
    diff |              -.1625    .6987153               -1.719335    1.394335
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.2326
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4104         Pr(|T| > |t|) = 0.8208          Pr(T > t) = 0.5896
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8      13.275    .5827123    1.648159     11.8971     14.6529
       1 |       4       13.15    .8210765    1.642153    10.53697    15.76303
---------+--------------------------------------------------------------------
combined |      12    13.23333    .4534937    1.570948     12.2352    14.23147
---------+--------------------------------------------------------------------
    diff |                .125    1.008185               -2.121377    2.371377
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.1240
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5481         Pr(|T| > |t|) = 0.9038          Pr(T > t) = 0.4519
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     12.3625    .4535328    1.282784    11.29007    13.43493
       1 |       4      12.575    .8045444    1.609089    10.01458    15.13542
---------+--------------------------------------------------------------------
combined |      12    12.43333    .3834321    1.328248     11.5894    13.27726
---------+--------------------------------------------------------------------
    diff |              -.2125    .8504319                -2.10738     1.68238
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.2499
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4039         Pr(|T| > |t|) = 0.8077          Pr(T > t) = 0.5961
```

2005–06 EXPLORE Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16    12.86875    .3143404    1.257362    12.19875    13.53875
       1 |       8      13.075    .4122023    1.165884     12.1003     14.0497
---------+--------------------------------------------------------------------
combined |      24     12.9375    .2461893    1.206076    12.42822    13.44678
---------+--------------------------------------------------------------------
    diff |             -.20625      .53217               -1.309903     .897403
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3876
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3510         Pr(|T| > |t|) = 0.7021          Pr(T > t) = 0.6490
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16      13.375    .3988003    1.595201    12.52498    14.22502
       1 |       8       13.65    .4092676    1.157584    12.68224    14.61776
---------+--------------------------------------------------------------------
combined |      24    13.46667    .2947405    1.443928    12.85695    14.07638
---------+--------------------------------------------------------------------
    diff |               -.275     .636597               -1.595221    1.045221
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4320
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3350         Pr(|T| > |t|) = 0.6700          Pr(T > t) = 0.6650
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16     12.6375    .3414278    1.365711    11.90976    13.36524
       1 |       8     12.9125    .4465893    1.263145    11.85648    13.96852
---------+--------------------------------------------------------------------
combined |      24    12.72917    .2676711    1.311315    12.17545    13.28289
---------+--------------------------------------------------------------------
    diff |               -.275    .5776096               -1.472889    .9228889
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4761
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3193         Pr(|T| > |t|) = 0.6387          Pr(T > t) = 0.6807
```

2004–05 EXPLORE Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16     13.0375    .3274746    1.309898      12.3395     13.7355
       1 |       8       13.45    .3746427     1.05965     12.56411    14.33589
---------+--------------------------------------------------------------------
combined |      24      13.175    .2500181    1.224834      12.6578     13.6922
---------+--------------------------------------------------------------------
    diff |              -.4125    .5351096                -1.522249    .6972495
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7709
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2245         Pr(|T| > |t|) = 0.4490          Pr(T > t) = 0.7755
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16    13.55625    .3794699     1.51788     12.74743    14.36507
       1 |       8      14.025    .3658405    1.034753     13.15992    14.89008
---------+--------------------------------------------------------------------
combined |      24     13.7125    .2798364    1.370913     13.13361    14.29139
---------+--------------------------------------------------------------------
    diff |             -.46875    .5986802                -1.710337    .7728367
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7830
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2210         Pr(|T| > |t|) = 0.4420          Pr(T > t) = 0.7790
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16    12.73125    .3637443    1.454977     11.95595    13.50655
       1 |       8     13.1625    .4435802    1.254634      12.1136     14.2114
---------+--------------------------------------------------------------------
combined |      24      12.875    .2815749     1.37943     12.29252    13.45748
---------+--------------------------------------------------------------------
    diff |             -.43125    .6037745                -1.683402    .8209017
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7143
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2413         Pr(|T| > |t|) = 0.4826          Pr(T > t) = 0.7587
```

2003–04 EXPLORE Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    13.07857    .3270209      1.2236    12.37209    13.78506
       1 |       7    13.61429    .4743058    1.254895     12.4537    14.77487
---------+--------------------------------------------------------------------
combined |      21    13.25714    .2683789    1.229866    12.69731    13.81697
---------+--------------------------------------------------------------------
    diff |           -.5357143    .5710313               -1.730897    .6594681
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.9382
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1800         Pr(|T| > |t|) = 0.3599          Pr(T > t) = 0.8200
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    13.46429    .4443302    1.662532    12.50437     14.4242
       1 |       7    14.11429    .4447731    1.176759    13.02597    15.20261
---------+--------------------------------------------------------------------
combined |      21    13.68095    .3317069    1.520072    12.98902    14.37288
---------+--------------------------------------------------------------------
    diff |                -.65    .7063678               -2.128445    .8284447
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.9202
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1845         Pr(|T| > |t|) = 0.3690          Pr(T > t) = 0.8155
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    12.77857     .379586    1.420281    11.95853    13.59862
       1 |       7    13.27143    .5083654    1.345008     12.0275    14.51535
---------+--------------------------------------------------------------------
combined |      21    12.94286    .3016282    1.382234    12.31367    13.57204
---------+--------------------------------------------------------------------
    diff |           -.4928571    .6466617               -1.846336    .8606213
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7622
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2277         Pr(|T| > |t|) = 0.4553          Pr(T > t) = 0.7723
```

2006–07 Grade 10 PLAN Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     14.3875    .4033066    1.140723    13.43383    15.34117
       1 |       4       14.25    .8108637    1.621727    11.66947    16.83053
---------+--------------------------------------------------------------------
combined |      12    14.34167    .3593889     1.24496    13.55066    15.13268
---------+--------------------------------------------------------------------
    diff |               .1375    .7984066               -1.641461    1.916461
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.1722
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5666         Pr(|T| > |t|) = 0.8667          Pr(T > t) = 0.4334
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8       14.25     .438341    1.239816    13.21349    15.28651
       1 |       4       14.25    .6946222    1.389244     12.0394     16.4606
---------+--------------------------------------------------------------------
combined |      12       14.25    .3540887    1.226599    13.47066    15.02934
---------+--------------------------------------------------------------------
    diff |                   0    .7877976               -1.755322    1.755322
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.0000
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5000         Pr(|T| > |t|) = 1.0000          Pr(T > t) = 0.5000
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     14.0875    .4090221    1.156889    13.12032    15.05468
       1 |       4      14.025    .8711821    1.742364    11.25251    16.79749
---------+--------------------------------------------------------------------
combined |      12    14.06667    .3742332    1.296382    13.24298    14.89035
---------+--------------------------------------------------------------------
    diff |               .0625    .8323817               -1.792162    1.917162
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.0751
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5292         Pr(|T| > |t|) = 0.9416          Pr(T > t) = 0.4708
```

2005–06 Grade 10 PLAN Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16       14.75    .2641023    1.056409    14.18708    15.31292
       1 |       8      15.075    .4565984    1.291455    13.99532    16.15468
---------+--------------------------------------------------------------------
combined |      24    14.85833    .2291222    1.122465    14.38436    15.33231
---------+--------------------------------------------------------------------
    diff |               -.325    .4921111               -1.345576    .6955759
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.6604
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2579         Pr(|T| > |t|) = 0.5158          Pr(T > t) = 0.7421
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16       14.65    .2806243    1.122497    14.05186    15.24814
       1 |       8     14.9125    .3856523    1.090789    14.00058    15.82442
---------+--------------------------------------------------------------------
combined |      24     14.7375    .2235916    1.095371    14.27497    15.20003
---------+--------------------------------------------------------------------
    diff |              -.2625    .4817294               -1.261546    .7365456
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5449
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2956         Pr(|T| > |t|) = 0.5913          Pr(T > t) = 0.7044
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      16    14.25625    .3486843    1.394737    13.51305    14.99945
       1 |       8     14.7125    .5044224    1.426722    13.51973    15.90527
---------+--------------------------------------------------------------------
combined |      24    14.40833    .2840517    1.391564    13.82073    14.99594
---------+--------------------------------------------------------------------
    diff |             -.45625    .6083799               -1.717953    .8054526
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7499
Ho: diff = 0                                     degrees of freedom =       22

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2306         Pr(|T| > |t|) = 0.4612          Pr(T > t) = 0.7694
```

2004–05 Grade 10 PLAN Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    14.43571    .2988269    1.118108    13.79014    15.08129
       1 |       7        14.6     .486484    1.287116    13.40962    15.79038
---------+--------------------------------------------------------------------
combined |      21    14.49048    .2503241    1.147129    13.96831    15.01264
---------+--------------------------------------------------------------------
    diff |           -.1642857    .5435072               -1.301859     .973288
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3023
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3829         Pr(|T| > |t|) = 0.7657          Pr(T > t) = 0.6171
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    14.86429    .3085961    1.154661     14.1976    15.53097
       1 |       7    15.12857    .3234592    .8557926     14.3371    15.92005
---------+--------------------------------------------------------------------
combined |      21    14.95238    .2291412    1.050057     14.4744    15.43036
---------+--------------------------------------------------------------------
    diff |           -.2642857      .49501               -1.300354    .7717821
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5339
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2998         Pr(|T| > |t|) = 0.5996          Pr(T > t) = 0.7002
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    14.47857    .3392264    1.269269    13.74572    15.21143
       1 |       7    14.85714    .4545312    1.202577    13.74495    15.96934
---------+--------------------------------------------------------------------
combined |      21    14.60476    .2685478    1.230641    14.04458    15.16494
---------+--------------------------------------------------------------------
    diff |           -.3785714    .5779863               -1.588311    .8311679
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.6550
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2602         Pr(|T| > |t|) = 0.5203          Pr(T > t) = 0.7398
```

2003–04 Grade 10 PLAN Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    15.04286    .3514044    1.314835    14.28369    15.80202
       1 |       7    15.31429    .2840427    .7515064    14.61926    16.00931
---------+--------------------------------------------------------------------
combined |      21    15.13333    .2497936    1.144698    14.61227    15.65439
---------+--------------------------------------------------------------------
    diff |           -.2714286      .54008               -1.401829    .8589718
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5026
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3105         Pr(|T| > |t|) = 0.6210          Pr(T > t) = 0.6895
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    14.29286    .3693571    1.382008    13.49491     15.0908
       1 |       7    14.78571    .2595129    .6866066    14.15071    15.42072
---------+--------------------------------------------------------------------
combined |      21    14.45714    .2618225    1.199821    13.91099     15.0033
---------+--------------------------------------------------------------------
    diff |           -.4928571    .5585076               -1.661827    .6761127
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.8825
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1943         Pr(|T| > |t|) = 0.3886          Pr(T > t) = 0.8057
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14        14.1    .4375255    1.637071    13.15478    15.04522
       1 |       7    14.68571    .4272997    1.130529    13.64015    15.73128
---------+--------------------------------------------------------------------
combined |      21    14.29524     .324072    1.485085    13.61924    14.97124
---------+--------------------------------------------------------------------
    diff |           -.5857143    .6924016               -2.034927    .8634989
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.8459
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2041         Pr(|T| > |t|) = 0.4081          Pr(T > t) = 0.7959
```

2006–07 PSAE Average Scores (Reading and Mathematics)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8      145.75    1.829813    5.175492    141.4232    150.0768
       1 |       4         147    2.483277    4.966555    139.0971    154.9029
---------+--------------------------------------------------------------------
combined |      12    146.1667    1.418671    4.914419    143.0442    149.2891
---------+--------------------------------------------------------------------
    diff |               -1.25    3.131493               -8.227402    5.727402
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3992
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3491         Pr(|T| > |t|) = 0.6982          Pr(T > t) = 0.6509
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     143.875    1.903357    5.383507    139.3743    148.3757
       1 |       4       145.5    2.466441    4.932883    137.6507    153.3493
---------+--------------------------------------------------------------------
combined |      12    144.4167    1.464004    5.071459    141.1944    147.6389
---------+--------------------------------------------------------------------
    diff |              -1.625    3.216413               -8.791615    5.541615
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5052
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3122         Pr(|T| > |t|) = 0.6244          Pr(T > t) = 0.6878
```

2005–06 PSAE Average Scores (Reading and Mathematics)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14         148      1.5967    5.974304    144.5505    151.4495
       1 |       7    149.4286    1.849802    4.894117    144.9023    153.9549
---------+--------------------------------------------------------------------
combined |      21    148.4762    1.212277    5.555349    145.9474     151.005
---------+--------------------------------------------------------------------
    diff |           -1.428571    2.617999               -6.908107    4.050964
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5457
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2958         Pr(|T| > |t|) = 0.5916          Pr(T > t) = 0.7042
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    144.9286    1.545871     5.78412    141.5889    148.2682
       1 |       7    146.5714    1.461525    3.866831    142.9952    150.1477
---------+--------------------------------------------------------------------
combined |      21    145.4762     1.13099    5.182847     143.117    147.8354
---------+--------------------------------------------------------------------
    diff |           -1.642857    2.432494               -6.734125     3.44841
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.6754
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2538         Pr(|T| > |t|) = 0.5076          Pr(T > t) = 0.7462
```

2004–05 PSAE Average Scores (Reading and Mathematics)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14       148.5    1.629906     6.09855    144.9788    152.0212
       1 |       7    150.4286    1.688295    4.466809    146.2975    154.5597
---------+--------------------------------------------------------------------
combined |      21    149.1429    1.215546     5.57033    146.6073    151.6784
---------+--------------------------------------------------------------------
    diff |           -1.928571    2.608288               -7.387782    3.530639
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7394
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2344         Pr(|T| > |t|) = 0.4687          Pr(T > t) = 0.7656
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    144.7143    1.645602    6.157279    141.1592    148.2694
       1 |       7    146.4286    1.377664    3.644957    143.0575    149.7996
---------+--------------------------------------------------------------------
combined |      21    145.2857     1.18149    5.414267    142.8212    147.7503
---------+--------------------------------------------------------------------
    diff |           -1.714286    2.541175               -7.033027    3.604456
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.6746
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2540         Pr(|T| > |t|) = 0.5081          Pr(T > t) = 0.7460
```

2003–04 PSAE Average Scores (Reading and Mathematics)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14         148    1.456324    5.449065    144.8538    151.1462
       1 |       7         149    1.447494    3.829708    145.4581    152.5419
---------+--------------------------------------------------------------------
combined |      21    148.3333    1.067559    4.892171    146.1064    150.5602
---------+--------------------------------------------------------------------
    diff |                  -1    2.312113               -5.839307    3.839307
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4325
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3351         Pr(|T| > |t|) = 0.6702          Pr(T > t) = 0.6649
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    145.7857    1.604179    6.002289    142.3201    149.2513
       1 |       7         147    1.214986     3.21455     144.027     149.973
---------+--------------------------------------------------------------------
combined |      21    146.1905     1.13099    5.182847    143.8313    148.5497
---------+--------------------------------------------------------------------
    diff |           -1.214286    2.445705               -6.333205    3.904633
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4965
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3126         Pr(|T| > |t|) = 0.6252          Pr(T > t) = 0.6874
```

2006–07 ACT Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8      15.875    .4499008    1.272512    14.81115    16.93885
       1 |       4      16.175    .5482928    1.096586    14.43009    17.91991
---------+--------------------------------------------------------------------
combined |      12      15.975    .3391444    1.174831    15.22855    16.72145
---------+--------------------------------------------------------------------
    diff |                 -.3    .7485611               -1.967898    1.367898
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4008
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3485         Pr(|T| > |t|) = 0.6970          Pr(T > t) = 0.6515
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     16.1375    .4161634    1.177088    15.15343    17.12157
       1 |       4        16.4    .3696846    .7393691     15.2235     17.5765
---------+--------------------------------------------------------------------
combined |      12      16.225    .2954516    1.023474    15.57472    16.87528
---------+--------------------------------------------------------------------
    diff |              -.2625     .652076               -1.715416    1.190416
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4026
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3479         Pr(|T| > |t|) = 0.6957          Pr(T > t) = 0.6521
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     15.5375    .5984914    1.692789    14.12229    16.95271
       1 |       4        16.2    .5244044    1.048809    14.53111    17.86889
---------+--------------------------------------------------------------------
combined |      12    15.75833    .4310766    1.493293    14.80954    16.70713
---------+--------------------------------------------------------------------
    diff |              -.6625    .9359237               -2.747868    1.422868
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7079
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2476         Pr(|T| > |t|) = 0.4952          Pr(T > t) = 0.7524
```

2005–06 ACT Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    16.60714    .5349812    2.001716    15.45139     17.7629
       1 |       7    17.08571    .7001458    1.852412    15.37252    18.79891
---------+--------------------------------------------------------------------
combined |      21    16.76667    .4190314    1.920243    15.89258    17.64075
---------+--------------------------------------------------------------------
    diff |           -.4785714    .9053591                -2.37351    1.416367
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5286
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3016         Pr(|T| > |t|) = 0.6032          Pr(T > t) = 0.6984
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    16.39286    .4234168    1.584281    15.47812    17.30759
       1 |       7    16.81429    .4272997    1.130529    15.76872    17.85985
---------+--------------------------------------------------------------------
combined |      21    16.53333    .3129227    1.433992    15.88059    17.18608
---------+--------------------------------------------------------------------
    diff |           -.4214286    .6741566               -1.832455    .9895974
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.6251
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2697         Pr(|T| > |t|) = 0.5393          Pr(T > t) = 0.7303
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14        15.8    .6412556    2.399359    14.41465    17.18535
       1 |       7    16.61429    .7781016    2.058663    14.71034    18.51823
---------+--------------------------------------------------------------------
combined |      21    16.07143    .4960867    2.273355    15.03661    17.10625
---------+--------------------------------------------------------------------
    diff |           -.8142857    1.063414               -3.040036    1.411465
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7657
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2266         Pr(|T| > |t|) = 0.4532          Pr(T > t) = 0.7734
```

2004–05 ACT Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    16.44286    .5534819     2.07094    15.24713    17.63858
       1 |       7    16.45714    .6505884    1.721295    14.86521    18.04908
---------+--------------------------------------------------------------------
combined |      21    16.44762    .4184222    1.917451    15.57481    17.32043
---------+--------------------------------------------------------------------
    diff |           -.0142857    .9106601               -1.920319    1.891748
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.0157
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4938         Pr(|T| > |t|) = 0.9876          Pr(T > t) = 0.5062
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    16.19286    .4335471    1.622185    15.25624    17.12948
       1 |       7    16.48571    .4636442    1.226687    15.35122    17.62021
---------+--------------------------------------------------------------------
combined |      21    16.29048    .3223356    1.477127     15.6181    16.96286
---------+--------------------------------------------------------------------
    diff |           -.2928571    .6983158               -1.754449    1.168735
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4194
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3398         Pr(|T| > |t|) = 0.6796          Pr(T > t) = 0.6602
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    15.37857    .6714081    2.512179    13.92808    16.82906
       1 |       7    15.71429     .801614    2.120871    13.75281    17.67576
---------+--------------------------------------------------------------------
combined |      21    15.49048    .5107373    2.340492     14.4251    16.55586
---------+--------------------------------------------------------------------
    diff |           -.3357143    1.108912               -2.656694    1.985265
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3027
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3827         Pr(|T| > |t|) = 0.7654          Pr(T > t) = 0.6173
```

2003–04 ACT Average Scores (Reading, Mathematics, and English)

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    16.10714    .4543398    1.699984     15.1256    17.08868
       1 |       7    16.42857    .6159446    1.629636    14.92141    17.93573
---------+--------------------------------------------------------------------
combined |      21    16.21429    .3585211     1.64295    15.46642    16.96215
---------+--------------------------------------------------------------------
    diff |           -.3214286    .7768035               -1.947297     1.30444
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4138
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3418         Pr(|T| > |t|) = 0.6837          Pr(T > t) = 0.6582
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    16.26429    .3869587    1.447867    15.42831    17.10026
       1 |       7    16.47143    .3962408    1.048355    15.50186    17.44099
---------+--------------------------------------------------------------------
combined |      21    16.33333    .2847165    1.304735    15.73943    16.92724
---------+--------------------------------------------------------------------
    diff |           -.2071429    .6178403               -1.500297    1.086012
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3353
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3705         Pr(|T| > |t|) = 0.7411          Pr(T > t) = 0.6295
```

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    14.93571     .545975    2.042851    13.75621    16.11522
       1 |       7        15.2    .7690439    2.034699    13.31822    17.08178
---------+--------------------------------------------------------------------
combined |      21    15.02381    .4348456    1.992713    14.11674    15.93088
---------+--------------------------------------------------------------------
    diff |           -.2642857    .9444663               -2.241076    1.712505
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.2798
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3913         Pr(|T| > |t|) = 0.7826          Pr(T > t) = 0.6087
```

Graduation Rates

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8        67.2     4.72259     13.3575    56.03285    78.36715
       1 |       4      64.525    4.235244    8.470488    51.04656    78.00344
---------+--------------------------------------------------------------------
combined |      12    66.30833    3.352169    11.61226    58.93026    73.68641
---------+--------------------------------------------------------------------
    diff |               2.675    7.409978               -13.83546    19.18546
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.3610
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6372         Pr(|T| > |t|) = 0.7256          Pr(T > t) = 0.3628
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    72.05714    3.237566    12.11386    65.06281    79.05148
       1 |       7    74.62857    2.423566    6.412154    68.69832    80.55882
---------+--------------------------------------------------------------------
combined |      21    72.91429    2.281001    10.45286     68.1562    77.67237
---------+--------------------------------------------------------------------
    diff |           -2.571429    4.929261               -12.88849    7.745634
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5217
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3040         Pr(|T| > |t|) = 0.6079          Pr(T > t) = 0.6960
```

2004–05

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    72.97857    3.327263    12.44948    65.79046    80.16669
       1 |       7    78.18571    4.088743     10.8178    68.18092    88.19051
---------+--------------------------------------------------------------------
combined |      21    74.71429    2.601989    11.92381    69.28663    80.14194
---------+--------------------------------------------------------------------
    diff |           -5.207143    5.535611               -16.79331    6.379025
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.9407
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1793         Pr(|T| > |t|) = 0.3587          Pr(T > t) = 0.8207
```

2003–04

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    70.14286     3.28178     12.2793      63.053    77.23271
       1 |       7    74.08571      4.7276    12.50805    62.51769    85.65374
---------+--------------------------------------------------------------------
combined |      21    71.45714    2.659848    12.18895     65.9088    77.00549
---------+--------------------------------------------------------------------
    diff |           -3.942857    5.717862               -15.91048    8.024765
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.6896
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2494         Pr(|T| > |t|) = 0.4988          Pr(T > t) = 0.7506
```

The Percentage of 12th Graders Taking the SAT

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    .8550882    .4774258    1.350364   -.2738445    1.984021
       1 |       4     .074184     .074184     .148368   -.1619025    .3102705
---------+--------------------------------------------------------------------
combined |      12    .5947868    .3309375    1.146401   -.1336016    1.323175
---------+--------------------------------------------------------------------
    diff |            .7809043    .6936432               -.7646291    2.326438
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   1.1258
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.8567         Pr(|T| > |t|) = 0.2865          Pr(T > t) = 0.1433
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    1.706583    .8219684    3.075524   -.0691718    3.482338
       1 |       7    1.092124    .5956524    1.575948   -.365385     2.549633
---------+--------------------------------------------------------------------
combined |      21    1.501763    .5765841     2.64224      .29903    2.704497
---------+--------------------------------------------------------------------
    diff |            .6144592    1.246951                -1.99544    3.224358
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.4928
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6861         Pr(|T| > |t|) = 0.6278          Pr(T > t) = 0.3139
```

2004–05

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    1.534364    .5302973    1.984191    .3887262    2.680001
       1 |       7     1.86432    .7572689    2.003545    .0113503    3.717291
---------+--------------------------------------------------------------------
combined |      21    1.644349    .4247531    1.946463    .7583299    2.530369
---------+--------------------------------------------------------------------
    diff |           -.3299566    .9213405               -2.258344    1.598431
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3581
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3621         Pr(|T| > |t|) = 0.7242          Pr(T > t) = 0.6379
```

2003–04

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    1.930486    .9040182    3.382526   -.0225265    3.883499
       1 |       7     1.86233    .9293979    2.458956   -.4118244    4.136485
---------+--------------------------------------------------------------------
combined |      21    1.907767    .6637551    3.041708    .5231986    3.292336
---------+--------------------------------------------------------------------
    diff |            .0681558    1.444531               -2.955282    3.091594
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.0472
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5186         Pr(|T| > |t|) = 0.9629          Pr(T > t) = 0.4814
```

The Percentage of 9–12th Graders Taking at Least One AP Exam

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    7.863967    1.730149      4.8936    3.772815    11.95512
       1 |       4     8.15417    1.196414    2.392827    4.346648    11.96169
---------+--------------------------------------------------------------------
combined |      12    7.960701    1.183961     4.10136    5.354821    10.56658
---------+--------------------------------------------------------------------
    diff |           -.2902032    2.632547               -6.155883    5.575477
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.1102
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4572         Pr(|T| > |t|) = 0.9144          Pr(T > t) = 0.5428
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    6.909514    1.393691    5.214715    3.898628    9.920401
       1 |       7    7.515738    1.344187    3.556385    4.226631    10.80485
---------+--------------------------------------------------------------------
combined |      21    7.111589    1.013145    4.642815    4.998205    9.224973
---------+--------------------------------------------------------------------
    diff |           -.6062243    2.200648               -5.212233    3.999785
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.2755
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3930         Pr(|T| > |t|) = 0.7859          Pr(T > t) = 0.6070
```

2004–05

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    5.295404    .9948065    3.722225    3.146255    7.444553
       1 |       7     6.99444    1.013307    2.680958    4.514967    9.473913
---------+--------------------------------------------------------------------
combined |      21    5.861749    .7507315    3.440284    4.295751    7.427748
---------+--------------------------------------------------------------------
    diff |           -1.699036    1.586739               -5.020119    1.622047
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.0708
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1488         Pr(|T| > |t|) = 0.2977          Pr(T > t) = 0.8512
```

2003-04

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14     5.42614    1.092874     4.08916     3.06513    7.787151
       1 |       7    6.004013    1.292629    3.419974    2.841064    9.166962
---------+--------------------------------------------------------------------
combined |      21    5.618765    .8296753     3.80205    3.888092    7.349437
---------+--------------------------------------------------------------------
    diff |           -.5778726    1.800856               -4.347108    3.191362
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3209
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3759         Pr(|T| > |t|) = 0.7518          Pr(T > t) = 0.6241
```

The Percentage of 10th and 11th Graders Taking the PSAT

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    5.010185    2.782914     7.87127   -1.570361    11.59073
       1 |       4    4.052399    3.558959    7.117919   -7.273798     15.3786
---------+--------------------------------------------------------------------
combined |      12    4.690923    2.110829    7.312124    .0450207    9.336825
---------+--------------------------------------------------------------------
    diff |            .9577862     4.68652               -9.484431        11.4
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.2044
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5789         Pr(|T| > |t|) = 0.8422          Pr(T > t) = 0.4211
```

2005-06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    16.98063    4.199533    15.71321    7.908087    26.05317
       1 |       7    16.85161    11.47439    30.35839   -11.22521    44.92844
---------+--------------------------------------------------------------------
combined |      21    16.93762     4.56165    20.90411    7.422187    26.45306
---------+--------------------------------------------------------------------
    diff |            .1290138    9.928063               -20.65066    20.90869
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.0130
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5051         Pr(|T| > |t|) = 0.9898          Pr(T > t) = 0.4949
```

2004-05

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    5.792334    2.583065    9.664943    .2119623    11.37271
       1 |       7     8.01653    2.671707    7.068672    1.479098    14.55396
---------+--------------------------------------------------------------------
combined |      21    6.533733     1.91313    8.767062    2.543014    10.52445
---------+--------------------------------------------------------------------
    diff |           -2.224196    4.132406               -10.87342     6.42503
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5382
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2983         Pr(|T| > |t|) = 0.5967          Pr(T > t) = 0.7017
```

2003-04

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      14    6.850053    2.107998    7.887407    2.295999    11.40411
       1 |       7    10.78286    5.587741    14.78377   -2.889846    24.45557
---------+--------------------------------------------------------------------
combined |      21    8.160989    2.284672    10.46968    3.395248    12.92673
---------+--------------------------------------------------------------------
    diff |            -3.93281    4.889883               -14.16745    6.301833
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.8043
Ho: diff = 0                                     degrees of freedom =       19

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2156         Pr(|T| > |t|) = 0.4312          Pr(T > t) = 0.7844
```

Colorado

2006–07 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    .1292063     .050685    .1433587    .0093554    .2490572
       1 |       4    .1407142    .0692882    .1385764   -.0797918    .3612203
---------+--------------------------------------------------------------------
combined |      12    .1330423    .0391022     .135454    .0469789    .2191056
---------+--------------------------------------------------------------------
    diff |            -.011508    .0869207               -.2051794    .1821635
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.1324
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4486         Pr(|T| > |t|) = 0.8973          Pr(T > t) = 0.5514
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    .5727172    .0875037    .2474977    .3658039    .7796305
       1 |       4    .5899387    .1728192    .3456384    .0399509    1.139927
---------+--------------------------------------------------------------------
combined |      12    .5784577    .0772626    .2676454     .408404    .7485115
---------+--------------------------------------------------------------------
    diff |           -.0172215    .1718121               -.4000427    .3655997
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.1002
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4611         Pr(|T| > |t|) = 0.9221          Pr(T > t) = 0.5389
```

Grades 9–12 Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    1428.875    229.6132    649.4443     885.926    1971.824
       1 |       4     1335.25    91.22899     182.458    1044.919    1625.581
---------+--------------------------------------------------------------------
combined |      12    1397.667    152.6457    528.7801    1061.696    1733.638
---------+--------------------------------------------------------------------
    diff |              93.625    338.3222               -660.2038    847.4538
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.2767
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6062         Pr(|T| > |t|) = 0.7876          Pr(T > t) = 0.3938
```

2005–06 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    .1307787    .0534073    .1510587    .0044905    .2570669
       1 |       4    .1390763    .0649079    .1298158   -.0674896    .3456423
---------+--------------------------------------------------------------------
combined |      12    .1335446    .0399309    .1383247    .0456573    .2214319
---------+--------------------------------------------------------------------
    diff |           -.0082976    .0888019               -.2061606    .1895654
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.0934
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4637         Pr(|T| > |t|) = 0.9274          Pr(T > t) = 0.5363
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    .5526581    .0876691    .2479658    .3453535    .7599627
       1 |       4    .5701081    .1726986    .3453972     .020504    1.119712
---------+--------------------------------------------------------------------
combined |      12    .5584748    .0773186    .2678396    .3882976    .7286519
---------+--------------------------------------------------------------------
    diff |             -.01745    .1719346               -.4005441    .3656442
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.1015
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4606         Pr(|T| > |t|) = 0.9212          Pr(T > t) = 0.5394
```

Grades 9–12 Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     1450.75    211.8438    599.1846    949.8191    1951.681
       1 |       4     1290.25    75.81708    151.6342    1048.966    1531.534
---------+--------------------------------------------------------------------
combined |      12     1397.25    141.7111    490.9016    1085.346    1709.154
---------+--------------------------------------------------------------------
    diff |               160.5    311.1752               -532.8417    853.8417
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.5158
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6914         Pr(|T| > |t|) = 0.6172          Pr(T > t) = 0.3086
```

Urbanicity

City

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8          .5    .1889822    .5345225     .053128     .946872
       1 |       4           1           0           0           1           1
---------+--------------------------------------------------------------------
combined |      12    .6666667    .1421338     .492366    .3538323    .9795011
---------+--------------------------------------------------------------------
    diff |                 -.5    .2738613               -1.110201     .110201
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.8257
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0489         Pr(|T| > |t|) = 0.0979          Pr(T > t) = 0.9511
```

TownRural

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8           0           0           0           0           0
       1 |       4           0           0           0           0           0
---------+--------------------------------------------------------------------
combined |      12           0           0           0           0           0
---------+--------------------------------------------------------------------
    diff |                   0           0                       0           0
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =        .
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) =      .         Pr(|T| > |t|) =      .          Pr(T > t) =      .
```

2006–07 CSAP Percentage Proficient/Advanced

Reading Grade 9

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8      39.125    5.282848    14.94215    26.63305    51.61695
       1 |       4       34.75    10.06127    20.12254    2.730546    66.76945
---------+--------------------------------------------------------------------
combined |      12    37.66667    4.629178    16.03594    27.47791    47.85542
---------+--------------------------------------------------------------------
    diff |               4.375    10.20593               -18.36522    27.11522
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.4287
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6614         Pr(|T| > |t|) = 0.6772          Pr(T > t) = 0.3386
```

Reading Grade 10

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8      43.875    5.767636    16.31334    30.23671    57.51329
       1 |       4       34.75     8.18917    16.37834    8.688407    60.81159
---------+--------------------------------------------------------------------
combined |      12    40.83333    4.678826    16.20793    30.53531    51.13136
---------+--------------------------------------------------------------------
    diff |               9.125     10.0018               -13.16039    31.41039
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.9123
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.8085         Pr(|T| > |t|) = 0.3831          Pr(T > t) = 0.1915
```

Mathematics Grade 9

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8      11.875    2.408597    6.812541    6.179573    17.57043
       1 |       4        13.5    4.974937    9.949874    -2.33247    29.33247
---------+--------------------------------------------------------------------
combined |      12    12.41667    2.182778    7.561365    7.612404    17.22093
---------+--------------------------------------------------------------------
    diff |              -1.625    4.829111               -12.38493     9.13493
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3365
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3717         Pr(|T| > |t|) = 0.7434          Pr(T > t) = 0.6283
```

Mathematics Grade 10

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8      10.375    3.406598    9.635315    2.319675    18.43032
       1 |       4        8.25     2.49583     4.99166    .3071555    16.19284
---------+--------------------------------------------------------------------
combined |      12    9.666667    2.362373    8.183502    4.467118    14.86622
---------+--------------------------------------------------------------------
    diff |               2.125    5.212815               -9.489875    13.73988
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.4076
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6539         Pr(|T| > |t|) = 0.6921          Pr(T > t) = 0.3461
```

2005–06 CSAP Percentage Proficient/Advanced

Reading Grade 9

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8       39.75    5.595757    15.82719    26.51814    52.98186
       1 |       4        37.5    10.04573    20.09146    5.530008    69.46999
---------+--------------------------------------------------------------------
combined |      12          39    4.749801    16.45379    28.54576    49.45424
---------+--------------------------------------------------------------------
    diff |                2.25    10.54366               -21.24274    25.74274
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.2134
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5823         Pr(|T| > |t|) = 0.8353          Pr(T > t) = 0.4177
```

Reading Grade 10

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8       37.75    5.502435    15.56324    24.73881    50.76119
       1 |       4       41.75    9.860485    19.72097    10.36954    73.13046
---------+--------------------------------------------------------------------
combined |      12    39.08333    4.691156    16.25064    28.75817     49.4085
---------+--------------------------------------------------------------------
    diff |                  -4    10.36023               -27.08403    19.08403
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3861
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3538         Pr(|T| > |t|) = 0.7075          Pr(T > t) = 0.6462
```

Mathematics Grade 9

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8       15.25    3.379296    9.558093    7.259234    23.24077
       1 |       4       13.25    3.591077    7.182154    1.821591    24.67841
---------+--------------------------------------------------------------------
combined |      12    14.58333    2.469383    8.554194    9.148257    20.01841
---------+--------------------------------------------------------------------
    diff |                   2    5.457506               -10.16008    14.16008
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.3665
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6392         Pr(|T| > |t|) = 0.7217          Pr(T > t) = 0.3608
```

Mathematics Grade 10

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8       8.625     2.83434    8.016724    1.922851    15.32715
       1 |       4       10.75    4.190764    8.381527    -2.58688    24.08688
---------+--------------------------------------------------------------------
combined |      12    9.333333    2.257423    7.819943    4.364778    14.30189
---------+--------------------------------------------------------------------
    diff |              -2.125    4.977292                -13.2151    8.965098
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4269
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3392         Pr(|T| > |t|) = 0.6785          Pr(T > t) = 0.6608
```

2006–07 COACT Scores (English, Mathematics, and Reading)

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     13.0125    .8540737    2.415685    10.99294    15.03206
       1 |       4      12.975    1.276959    2.553919    8.911146    17.03885
---------+--------------------------------------------------------------------
combined |      12          13    .6765554    2.343657    11.51091    14.48909
---------+--------------------------------------------------------------------
    diff |               .0375    1.505194               -3.316282    3.391282
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.0249
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5097         Pr(|T| > |t|) = 0.9806          Pr(T > t) = 0.4903
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8       14.95    .7669513    2.169266    13.13645    16.76355
       1 |       4      15.275    .8035079    1.607016    12.71788    17.83212
---------+--------------------------------------------------------------------
combined |      12    15.05833    .5571108    1.929889    13.83214    16.28453
---------+--------------------------------------------------------------------
    diff |               -.325    1.235225               -3.077253    2.427253
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.2631
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3989         Pr(|T| > |t|) = 0.7978          Pr(T > t) = 0.60
```

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     14.6625    .7718108    2.183011    12.83746    16.48754
       1 |       4        14.9    1.004158    2.008316    11.70432    18.09568
---------+--------------------------------------------------------------------
combined |      12    14.74167    .5878129    2.036244     13.4479    16.03543
---------+--------------------------------------------------------------------
    diff |              -.2375    1.305643               -3.146653    2.671653
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.1819
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4296         Pr(|T| > |t|) = 0.8593          Pr(T > t) = 0.5704
```

2005–06 COACT Scores (English, Mathematics, and Reading)

English

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8       13.25    .8791229    2.486535     11.1712     15.3288
       1 |       4      13.975    1.429671    2.859341     9.42515    18.52485
---------+--------------------------------------------------------------------
combined |      12    13.49167    .7240938    2.508335    11.89795    15.08539
---------+--------------------------------------------------------------------
    diff |               -.725     1.59461               -4.278013    2.828013
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4547
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3295         Pr(|T| > |t|) = 0.6591          Pr(T > t) = 0.6705
```

Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8     14.8875    .7978627    2.256696    13.00085    16.77415
       1 |       4        15.6    .9495613    1.899123    12.57807    18.62193
---------+--------------------------------------------------------------------
combined |      12      15.125    .6019067    2.085066    13.80021    16.44979
---------+--------------------------------------------------------------------
    diff |              -.7125    1.320067               -3.653794    2.228794
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5397
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3006         Pr(|T| > |t|) = 0.6012          Pr(T > t) = 0.6994
```

Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8        14.8    .8952254     2.53208    12.68313    16.91687
       1 |       4        15.7    1.257643    2.515287    11.69762    19.70238
---------+--------------------------------------------------------------------
combined |      12        15.1    .7072139    2.449861    13.54343    16.65657
---------+--------------------------------------------------------------------
    diff |                 -.9    1.547498                -4.34804     2.54804
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5816
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2869         Pr(|T| > |t|) = 0.5737          Pr(T > t) = 0.7131
```

Graduation Rates

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8      64.325    3.543392    10.02222    55.94621    72.70379
       1 |       4      68.575    4.351126    8.702252    54.72778    82.42223
---------+--------------------------------------------------------------------
combined |      12    65.74167    2.722617    9.431423    59.74923    71.73411
---------+--------------------------------------------------------------------
    diff |               -4.25    5.906466               -17.41043    8.910427
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7196
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2441         Pr(|T| > |t|) = 0.4883          Pr(T > t) = 0.7559
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8       69.85    4.417619    12.49491    59.40399    80.29601
       1 |       4      62.725    8.433799     16.8676    35.88489    89.56511
---------+--------------------------------------------------------------------
combined |      12      67.475    3.971282    13.75692    58.73427    76.21573
---------+--------------------------------------------------------------------
    diff |            7.124999    8.543435               -11.91096    26.16096
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.8340
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7881         Pr(|T| > |t|) = 0.4238          Pr(T > t) = 0.2119
```

The Percentage of 12th Graders Taking the SAT

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    5.172107    2.454642    6.942777    -.632199    10.97641
       1 |       4    7.126844    4.824731    9.649462   -8.227604    22.48129
---------+--------------------------------------------------------------------
combined |      12    5.823686    2.179346    7.549477    1.026977     10.6204
---------+--------------------------------------------------------------------
    diff |           -1.954736    4.809176               -12.67025    8.760776
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4065
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3465         Pr(|T| > |t|) = 0.6930          Pr(T > t) = 0.6535
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    4.929987    2.183062    6.174632   -.2321344    10.09211
       1 |       4     8.49662    4.846185    9.692371   -6.926105    23.91934
---------+--------------------------------------------------------------------
combined |      12    6.118865    2.100922    7.277806    1.494768    10.74296
---------+--------------------------------------------------------------------
    diff |           -3.566633    4.536141               -13.67379     6.54052
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7863
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2250         Pr(|T| > |t|) = 0.4499          Pr(T > t) = 0.7750
```

The Percentage of 9–12th Graders Taking at Least One AP Exam

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    6.917057    1.697597    4.801528    2.902879    10.93124
       1 |       4    7.498803      1.0772      2.1544    4.070672    10.92693
---------+--------------------------------------------------------------------
combined |      12    7.110973    1.155388     4.00238    4.567982    9.653964
---------+--------------------------------------------------------------------
    diff |           -.5817456    2.563984               -6.294658    5.131167
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.2269
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4125         Pr(|T| > |t|) = 0.8251          Pr(T > t) = 0.5875
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    5.483719    2.032881    5.749854    .6767205    10.29072
       1 |       4    8.049588    1.989021    3.978042    1.719635    14.37954
---------+--------------------------------------------------------------------
combined |      12    6.339009    1.498627    5.191398    3.040552    9.637465
---------+--------------------------------------------------------------------
    diff |           -2.565869       3.234               -9.771671    4.639933
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7934
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2230         Pr(|T| > |t|) = 0.4460          Pr(T > t) = 0.7770
```

The Percentage of 10th and 11th Graders Taking the PSAT

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    6.432259    2.039338     5.76812     1.60999    11.25453
       1 |       4    5.737814    2.321425    4.642849   -1.649996    13.12562
---------+--------------------------------------------------------------------
combined |      12    6.200777    1.504671    5.212333    2.889018    9.512536
---------+--------------------------------------------------------------------
    diff |            .6944452    3.340471               -6.748588    8.137479
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.2079
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5803         Pr(|T| > |t|) = 0.8395          Pr(T > t) = 0.4197
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |       8    7.588879    1.900383    5.375094    3.095189    12.08257
       1 |       4     8.51708    1.864522    3.729044     2.58334    14.45082
---------+--------------------------------------------------------------------
combined |      12     7.89828    1.365861    4.731483    4.892039    10.90452
---------+--------------------------------------------------------------------
    diff |           -.9282007    3.024641               -7.667521    5.811119
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3069
Ho: diff = 0                                     degrees of freedom =       10

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3826         Pr(|T| > |t|) = 0.7652          Pr(T > t) = 0.6174
```

Florida High Schools
2007–08 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    20.47619    2.581496    16.73001    15.26275    25.68963
       1 |      21    21.91905    3.011586    13.80082    15.63699    28.20111
---------+--------------------------------------------------------------------
combined |      63    20.95714     1.98006    15.71624    16.99906    24.91523
---------+--------------------------------------------------------------------
    diff |           -1.442857      4.2306               -9.902464    7.016749
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3411
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3671         Pr(|T| > |t|) = 0.7342          Pr(T > t) = 0.6329
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    19.38571    2.390796    15.49413     14.5574    24.21403
       1 |      21    24.63333     2.57613    11.80531    19.25962    30.00705
---------+--------------------------------------------------------------------
combined |      63    21.13492    1.825435    14.48894    17.48593    24.78391
---------+--------------------------------------------------------------------
    diff |           -5.247619    3.845691               -12.93755    2.442316
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.3645
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0887         Pr(|T| > |t|) = 0.1774          Pr(T > t) = 0.9113
```

Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    2214.167    134.7605    873.3482    1942.012    2486.321
       1 |      21    2066.571    92.17857    422.4153     1874.29    2258.853
---------+--------------------------------------------------------------------
combined |      63    2164.968    94.85739    752.9072    1975.351    2354.585
---------+--------------------------------------------------------------------
    diff |            147.5952    201.9835               -256.2957    551.4861
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.7307
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7661         Pr(|T| > |t|) = 0.4677          Pr(T > t) = 0.2339
```

2006–07 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      58    23.38635    2.820226     21.4782    17.73894    29.03375
       1 |      29    26.15952    3.470756    18.69059    19.04999    33.26904
---------+--------------------------------------------------------------------
combined |      87    24.31074    2.200368    20.52367    19.93655    28.68492
---------+--------------------------------------------------------------------
    diff |           -2.773169    4.685418               -12.08903    6.542697
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5919
Ho: diff = 0                                     degrees of freedom =       85

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2778         Pr(|T| > |t|) = 0.5555          Pr(T > t) = 0.7222
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      58    18.15846    2.012303    15.32524    14.12889    22.18802
       1 |      29    23.13644    2.658138    14.31451     17.6915    28.58139
---------+--------------------------------------------------------------------
combined |      87    19.81778    1.618674    15.09799    16.59997     23.0356
---------+--------------------------------------------------------------------
    diff |           -4.977989      3.4114               -11.76077    1.804789
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.4592
Ho: diff = 0                                     degrees of freedom =       85

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0741         Pr(|T| > |t|) = 0.1482          Pr(T > t) = 0.9259
```

Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      58    2000.345    113.4834    864.2638    1773.098    2227.591
       1 |      29    1958.966    98.42856     530.054    1757.344    2160.587
---------+--------------------------------------------------------------------
combined |      87    1986.552    82.13614    766.1149     1823.27    2149.833
---------+--------------------------------------------------------------------
    diff |            41.37931    175.2015               -306.9683    389.7269
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.2362
Ho: diff = 0                                     degrees of freedom =       85

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5931         Pr(|T| > |t|) = 0.8139          Pr(T > t) = 0.4069
```

2005–06 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    25.73339    2.767023    23.15058    20.21332    31.25345
       1 |      35    35.19083    4.336654    25.65599    26.37769    44.00397
---------+--------------------------------------------------------------------
combined |     105    28.88587    2.372139    24.30719    24.18182    33.58991
---------+--------------------------------------------------------------------
    diff |           -9.457443    4.969825               -19.31392    .3990336
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.9030
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0299         Pr(|T| > |t|) = 0.0598          Pr(T > t) = 0.9701
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    16.95121    1.878949    15.72041    13.20281    20.69961
       1 |      35    17.94524    2.348427    13.89348    13.17266    22.71782
---------+--------------------------------------------------------------------
combined |     105    17.28256    1.471279    15.07612    14.36495    20.20016
---------+--------------------------------------------------------------------
    diff |           -.9940321    3.134638               -7.210847    5.222783
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3171
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3759         Pr(|T| > |t|) = 0.7518          Pr(T > t) = 0.6241
```

Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    2031.114     105.923     886.215    1819.804    2242.425
       1 |      35    2041.543    88.48807    523.5025    1861.713    2221.372
---------+--------------------------------------------------------------------
combined |     105     2034.59    76.26312    781.4645    1883.358    2185.823
---------+--------------------------------------------------------------------
    diff |           -10.42857    162.5587               -332.8254    311.9683
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.0642
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4745         Pr(|T| > |t|) = 0.9490          Pr(T > t) = 0.5255
```

2004–05 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    25.36111    2.751754    23.02283    19.87151    30.85071
       1 |      35    34.59386    4.263439    25.22285     25.9295    43.25821
---------+--------------------------------------------------------------------
combined |     105    28.43869    2.347804    24.05783    23.78291    33.09448
---------+--------------------------------------------------------------------
    diff |           -9.232743    4.921183               -18.99275    .5272625
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.8761
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0317         Pr(|T| > |t|) = 0.0635          Pr(T > t) = 0.9683
```

Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    15.94879    1.846725    15.45081    12.26467     19.6329
       1 |      35    17.20165    2.284092    13.51287    12.55982    21.84348
---------+--------------------------------------------------------------------
combined |     105    16.36641    1.442333    14.77952    13.50621    19.22661
---------+--------------------------------------------------------------------
    diff |           -1.252859    3.071988               -7.345423    4.839704
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4078
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3421         Pr(|T| > |t|) = 0.6842          Pr(T > t) = 0.6579
```

Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    2015.971    106.2307      888.79    1804.047    2227.896
       1 |      35    1986.171    85.80433    507.6252    1811.796    2160.547
---------+--------------------------------------------------------------------
combined |     105    2006.038    76.12907    780.0908    1855.071    2157.005
---------+--------------------------------------------------------------------
    diff |                29.8    162.2496               -291.9839    351.5839
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.1837
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5727         Pr(|T| > |t|) = 0.8546          Pr(T > t) = 0.4273
```

2003–04 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    24.96763    2.727077    22.81636    19.52726      30.408
       1 |      35    33.84699    4.223087    24.98412    25.26465    42.42934
---------+--------------------------------------------------------------------
combined |     105    27.92742    2.324088    23.81482    23.31867    32.53617
---------+--------------------------------------------------------------------
    diff |           -8.879358    4.876141               -18.55003    .7913179
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.8210
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0358         Pr(|T| > |t|) = 0.0715          Pr(T > t) = 0.9642
```

Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    15.23033    1.793576    15.00614    11.65224    18.80842
       1 |      35    16.34032    2.192631    12.97178    11.88436    20.79628
---------+--------------------------------------------------------------------
combined |     105    15.60033    1.396212    14.30691    12.83159    18.36907
---------+--------------------------------------------------------------------
    diff |           -1.109991    2.974145               -7.008507    4.788525
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3732
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3549         Pr(|T| > |t|) = 0.7098          Pr(T > t) = 0.6451
```

Enrollment

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70      1992.6    108.3434    906.4661    1776.461    2208.739
       1 |      35    1921.714    80.13447    474.0819    1758.861    2084.567
---------+--------------------------------------------------------------------
combined |     105    1968.971    76.82746    787.2472     1816.62    2121.323
---------+--------------------------------------------------------------------
    diff |            70.88571    163.6159               -253.6078    395.3792
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.4332
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6671         Pr(|T| > |t|) = 0.6657          Pr(T > t) = 0.3329
```

Urbanicity

City

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      74    .2027027     .047052     .404757    .1089281    .2964773
       1 |      37    .5405405     .083059    .5052279    .3720892    .7089919
---------+--------------------------------------------------------------------
combined |     111    .3153153    .0443018    .4667486    .2275195    .4031111
---------+--------------------------------------------------------------------
    diff |           -.3378378    .0886896               -.5136178   -.1620579
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -3.8092
Ho: diff = 0                                     degrees of freedom =      109

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0001         Pr(|T| > |t|) = 0.0002          Pr(T > t) = 0.9999
```

TownRural

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      74    .3918919    .0571363     .491505    .2780194    .5057644
       1 |      37    .1351351     .056978    .3465835    .0195784    .2506918
---------+--------------------------------------------------------------------
combined |     111    .3063063    .0439507     .463049    .2192064    .3934062
---------+--------------------------------------------------------------------
    diff |            .2567568    .0903738                .0776389    .4358746
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   2.8411
Ho: diff = 0                                     degrees of freedom =      109

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9973         Pr(|T| > |t|) = 0.0054          Pr(T > t) = 0.0027
```

2007–08 FCAT Average Scale Scores Grades 9 and 10 (Reading and Mathematics)

Grade 9 Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    322.0714    2.044622    13.25067    317.9422    326.2006
       1 |      21     316.381    2.780439    12.74157    310.5811    322.1808
---------+--------------------------------------------------------------------
combined |      63    320.1746    1.670432    13.25864    316.8355    323.5137
---------+--------------------------------------------------------------------
    diff |            5.690476    3.497362               -1.302932    12.68388
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   1.6271
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9456         Pr(|T| > |t|) = 0.1089          Pr(T > t) = 0.0544
```

Grade 10 Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    314.3333    2.662526    17.25514    308.9563    319.7104
       1 |      21    312.5714    3.819481    17.50306    304.6041    320.5387
---------+--------------------------------------------------------------------
combined |      63     313.746    2.169113     17.2168      309.41     318.082
---------+--------------------------------------------------------------------
    diff |            1.761905    4.633459               -7.503269    11.02708
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.3803
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6475         Pr(|T| > |t|) = 0.7051          Pr(T > t) = 0.3525
```

Grade 9 Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    317.2619    2.101949    13.62218    313.0169    321.5069
       1 |      21    314.9524    2.715455    12.44378     309.288    320.6167
---------+--------------------------------------------------------------------
combined |      63    316.4921    1.661262    13.18586    313.1712    319.8129
---------+--------------------------------------------------------------------
    diff |            2.309524     3.54051               -4.770164    9.389211
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.6523
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7417         Pr(|T| > |t|) = 0.5166          Pr(T > t) = 0.2583
```

Grade 10 Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    332.3095    1.750556     11.3449    328.7742    335.8448
       1 |      21    331.0476    2.320177    10.63239    326.2078    335.8874
---------+--------------------------------------------------------------------
combined |      63    331.8889    1.391237     11.0426    329.1078    334.6699
---------+--------------------------------------------------------------------
    diff |            1.261905    2.970962               -4.678901     7.20271
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.4247
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6637         Pr(|T| > |t|) = 0.6725          Pr(T > t) = 0.3363
```

2006–07 FCAT Average Scale Scores Grades 9 and 10 (Reading and Mathematics)

Grade 9 Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      58    311.2931    2.071179    15.77363    307.1456    315.4406
       1 |      29    306.6552    2.827676     15.2275    300.8629    312.4474
---------+--------------------------------------------------------------------
combined |      87    309.7471    1.678935    15.66007    306.4095    313.0847
---------+--------------------------------------------------------------------
    diff |            4.637931    3.546953               -2.414361    11.69022
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   1.3076
Ho: diff = 0                                     degrees of freedom =       85

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9027         Pr(|T| > |t|) = 0.1945          Pr(T > t) = 0.0973
```

Grade 10 Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      58    301.0862     2.44037     18.5853    296.1995     305.973
       1 |      29    300.4138    3.266684    17.59163    293.7223    307.1053
---------+--------------------------------------------------------------------
combined |      87    300.8621    1.946983    18.16025    296.9916    304.7325
---------+--------------------------------------------------------------------
    diff |            .6724138    4.153759               -7.586372      8.9312
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.1619
Ho: diff = 0                                     degrees of freedom =       85

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5641         Pr(|T| > |t|) = 0.8718          Pr(T > t) = 0.4359
```

Grade 9 Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      58    305.7241    2.264002    17.24213    301.1906    310.2577
       1 |      29     302.931    2.981441    16.05555    296.8238    309.0382
---------+--------------------------------------------------------------------
combined |      87    304.7931    1.802693     16.8144    301.2095    308.3767
---------+--------------------------------------------------------------------
    diff |            2.793103     3.83457               -4.831048    10.41726
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.7284
Ho: diff = 0                                     degrees of freedom =       85

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7658         Pr(|T| > |t|) = 0.4684          Pr(T > t) = 0.2342
```

Grade 10 Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      58     323.931    1.699055    12.93962    320.5287    327.3333
       1 |      29    323.1724     2.17751    11.72625     318.712    327.6328
---------+--------------------------------------------------------------------
combined |      87    323.6782    1.338518    12.48487    321.0173     326.339
---------+--------------------------------------------------------------------
    diff |            .7586207    2.854895               -4.917675    6.434916
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.2657
Ho: diff = 0                                     degrees of freedom =       85

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6045         Pr(|T| > |t|) = 0.7911          Pr(T > t) = 0.3955
```

2005–06 FCAT Average Scale Scores Grades 9 and 10 (Reading and Mathematics)

Grade 9 Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    305.3571    2.118638     17.7258    301.1306    309.5837
       1 |      35    304.5429     2.60489    15.41074    299.2491    309.8366
---------+--------------------------------------------------------------------
combined |     105    305.0857    1.651124    16.91899    301.8115      308.36
---------+--------------------------------------------------------------------
    diff |            .8142857    3.518611               -6.164048     7.79262
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.2314
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5913         Pr(|T| > |t|) = 0.8174          Pr(T > t) = 0.4087
```

Grade 10 Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    296.5429    2.348136    19.64591    291.8585    301.2273
       1 |      35    296.0286    2.555431    15.11813    290.8353    301.2218
---------+--------------------------------------------------------------------
combined |     105    296.3714    1.775095    18.18931    292.8513    299.8915
---------+--------------------------------------------------------------------
    diff |            .5142857    3.783441               -6.989278    8.017849
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.1359
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5539         Pr(|T| > |t|) = 0.8921          Pr(T > t) = 0.4461
```

Grade 9 Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    301.9857    2.172432    18.17587    297.6518    306.3196
       1 |      35    301.2571    2.970822    17.57562    295.2197    307.2946
---------+--------------------------------------------------------------------
combined |     105    301.7429    1.746531    17.89662    298.2794    305.2063
---------+--------------------------------------------------------------------
    diff |            .7285714    3.722202               -6.653538    8.110681
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.1957
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5774         Pr(|T| > |t|) = 0.8452          Pr(T > t) = 0.4226
```

Grade 10 Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    322.8429    1.751265    14.65214    319.3492    326.3365
       1 |      35    323.3429    1.813554    10.72913    319.6573    327.0284
---------+--------------------------------------------------------------------
combined |     105    323.0095    1.309762    13.42106    320.4122    325.6068
---------+--------------------------------------------------------------------
    diff |                 -.5    2.791444               -6.036171    5.036171
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.1791
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4291         Pr(|T| > |t|) = 0.8582          Pr(T > t) = 0.5709
```

2004–05 FCAT Average Scale Scores Grades 9 and 10 (Reading and Mathematics)

Grade 9 Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    300.2571    2.230755    18.66383    295.8069    304.7074
       1 |      35    299.4286    2.706446    16.01155    293.9284    304.9287
---------+--------------------------------------------------------------------
combined |     105     299.981    1.732261     17.7504    296.5458    303.4161
---------+--------------------------------------------------------------------
    diff |            .8285714    3.691574               -6.492794    8.149937
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.2244
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5886         Pr(|T| > |t|) = 0.8229          Pr(T > t) = 0.4114
```

Grade 10 Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    294.6429    2.340837    19.58485     289.973    299.3127
       1 |      35    295.7429    2.809152    16.61916     290.034    301.4517
---------+--------------------------------------------------------------------
combined |     105    295.0095     1.81278    18.57547    291.4147    298.6043
---------+--------------------------------------------------------------------
    diff |                -1.1    3.862589               -8.760534    6.560534
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.2848
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3882         Pr(|T| > |t|) = 0.7764          Pr(T > t) = 0.6118
```

Grade 9 Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    299.9857    2.295778    19.20786    295.4058    304.5657
       1 |      35    301.4571    3.068502     18.1535    295.2212    307.6931
---------+--------------------------------------------------------------------
combined |     105    300.4762    1.833555    18.78834    296.8402    304.1122
---------+--------------------------------------------------------------------
    diff |           -1.471429    3.905702               -9.217468    6.274611
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3767
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3536         Pr(|T| > |t|) = 0.7071          Pr(T > t) = 0.6464
```

Grade 10 Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    320.9286    1.763128    14.75139    317.4112    324.4459
       1 |      35    321.9429    2.155292    12.75088    317.5628    326.3229
---------+--------------------------------------------------------------------
combined |     105    321.2667    1.372364    14.06254    318.5452    323.9881
---------+--------------------------------------------------------------------
    diff |           -1.014286    2.923613               -6.812583    4.784012
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.3469
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3647         Pr(|T| > |t|) = 0.7294          Pr(T > t) = 0.6353
```

2003–04 FCAT Average Scale Scores Grades 9 and 10 (Reading and Mathematics)

Grade 9 Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    295.2286    2.303312    19.27089    290.6336    299.8236
       1 |      35    294.5143    2.910535    17.21896    288.5994    300.4292
---------+--------------------------------------------------------------------
combined |     105    294.9905    1.808532    18.53193    291.4041    298.5769
---------+--------------------------------------------------------------------
    diff |            .7142857    3.854411               -6.93003    8.358601
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.1853
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5733         Pr(|T| > |t|) = 0.8533          Pr(T > t) = 0.4267
```

Grade 10 Reading

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    298.0429    2.155683    18.03574    293.7424    302.3433
       1 |      35    298.0571    2.985383    17.66176    291.9901    304.1242
---------+--------------------------------------------------------------------
combined |     105    298.0476     1.73972    17.82683    294.5977    301.4975
---------+--------------------------------------------------------------------
    diff |           -.0142857    3.708375              -7.368974    7.340402
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.0039
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4985         Pr(|T| > |t|) = 0.9969          Pr(T > t) = 0.5015
```

Grade 9 Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70       295.6    2.415049    20.20575    290.7821    300.4179
       1 |      35       298.2      3.5108    20.77017    291.0652    305.3348
---------+--------------------------------------------------------------------
combined |     105    296.4667    1.984282    20.33284    292.5318    300.4016
---------+--------------------------------------------------------------------
    diff |                -2.6    4.221916              -10.97318    5.773175
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.6158
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2697         Pr(|T| > |t|) = 0.5394          Pr(T > t) = 0.7303
```

Grade 10 Mathematics

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    321.2714    1.699339    14.21769    317.8813    324.6615
       1 |      35    321.8857     2.47025     14.6142    316.8656    326.9059
---------+--------------------------------------------------------------------
combined |     105    321.4762    1.393936    14.28359     318.712    324.2404
---------+--------------------------------------------------------------------
    diff |           -.6142857    2.970688               -6.505945    5.277373
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.2068
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4183         Pr(|T| > |t|) = 0.8366          Pr(T > t) = 0.5817
```

ACT Mean Scores

2007–08

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    19.91664    .2616085    1.695417    19.38832    20.44497
       1 |      21    19.64591    .3259736    1.493799    18.96594    20.32588
---------+--------------------------------------------------------------------
combined |      63     19.8264    .2045982    1.623948    19.41741    20.23538
---------+--------------------------------------------------------------------
    diff |            .2707359    .4361862               -.6014723    1.142944
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.6207
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7314         Pr(|T| > |t|) = 0.5371          Pr(T > t) = 0.2686
```

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      54    19.78704    .2382244    1.750584    19.30922    20.26485
       1 |      27    19.26667    .3366502    1.749286    18.57467    19.95866
---------+--------------------------------------------------------------------
combined |      81    19.61358    .1951792    1.756613    19.22516      20.002
---------+--------------------------------------------------------------------
    diff |            .5203704     .412516               -.3007221    1.341463
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   1.2615
Ho: diff = 0                                     degrees of freedom =       79

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.8946         Pr(|T| > |t|) = 0.2109          Pr(T > t) = 0.1054
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70       19.57     .218837    1.830922    19.13343    20.00657
       1 |      35    19.37714    .3336602    1.973961    18.69906    20.05522
---------+--------------------------------------------------------------------
combined |     105    19.50571    .1827388    1.872515    19.14334    19.86809
---------+--------------------------------------------------------------------
    diff |            .1928574    .3890609               -.5787532    .9644679
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.4957
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6894         Pr(|T| > |t|) = 0.6212          Pr(T > t) = 0.3106
```

2004–05

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    19.87714    .2037147    1.704399    19.47074    20.28354
       1 |      35        19.5    .2936298    1.737137    18.90327    20.09673
---------+--------------------------------------------------------------------
combined |     105    19.75143    .1674967    1.716331    19.41928    20.08358
---------+--------------------------------------------------------------------
    diff |            .3771428    .3550957               -.3271058    1.081391
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   1.0621
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.8547         Pr(|T| > |t|) = 0.2907          Pr(T > t) = 0.1453
```

2003–04

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      68    20.03235    .1994774    1.644933    19.63419    20.43051
       1 |      34        19.5    .2992563    1.744949    18.89116    20.10884
---------+--------------------------------------------------------------------
combined |     102     19.8549    .1672556    1.689199    19.52311    20.18669
---------+--------------------------------------------------------------------
    diff |             .532353    .3525759               -.1671476    1.231854
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   1.5099
Ho: diff = 0                                     degrees of freedom =      100

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9329         Pr(|T| > |t|) = 0.1342          Pr(T > t) = 0.0671
```

Sum of the Percentage of 12th Graders Taking the SAT and the ACT

2007–08

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    102.6452    3.154059    20.44064    96.27549     109.015
       1 |      21    105.2381    4.480245    20.53106    95.89247    114.5837
---------+--------------------------------------------------------------------
combined |      63    103.5095    2.562841    20.34192    98.38648    108.6326
---------+--------------------------------------------------------------------
    diff |           -2.592857    5.470925               -13.53265    8.346935
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.4739
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3186         Pr(|T| > |t|) = 0.6372          Pr(T > t) = 0.6814
```

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      54    96.63333    3.120644    22.93196    90.37411    102.8926
       1 |      27    97.14444    4.490932    23.33557     87.9132    106.3757
---------+--------------------------------------------------------------------
combined |      81     96.8037    2.546916    22.92224    91.73518    101.8722
---------+--------------------------------------------------------------------
    diff |           -.5111107    5.436607               -11.33241    10.31019
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.0940
Ho: diff = 0                                     degrees of freedom =       79

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4627         Pr(|T| > |t|) = 0.9253          Pr(T > t) = 0.5373
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    81.68571    2.373107    19.85484    76.95149    86.41993
       1 |      35    82.21143    3.401759    20.12508    75.29822    89.12463
---------+--------------------------------------------------------------------
combined |     105    81.86095    1.937151    19.84989    78.01951    85.70239
---------+--------------------------------------------------------------------
    diff |           -.5257137    4.128893               -8.714399    7.662971
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.1273
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.4495         Pr(|T| > |t|) = 0.8989          Pr(T > t) = 0.5505
```

2004–05

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    80.57571    2.614446    21.87402    75.36004    85.79139
       1 |      35    82.83429    3.367254    19.92095     75.9912    89.67737
---------+--------------------------------------------------------------------
combined |     105    81.32857    2.066352    21.17381    77.23092    85.42623
---------+--------------------------------------------------------------------
    diff |           -2.258572    4.398997               -10.98295    6.465801
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5134
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3044         Pr(|T| > |t|) = 0.6088          Pr(T > t) = 0.6956
```

2003–04

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      69    78.98406      2.6337    21.87716    73.72859    84.23952
       1 |      35    74.82857    4.192602    24.80377    66.30818    83.34896
---------+--------------------------------------------------------------------
combined |     104    77.58558    2.242408    22.86817    73.13829    82.03287
---------+--------------------------------------------------------------------
    diff |            4.155487    4.751004               -5.268107    13.57908
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.8747
Ho: diff = 0                                     degrees of freedom =      102

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.8081         Pr(|T| > |t|) = 0.3838          Pr(T > t) = 0.1919
```

The Percentage of Previous Year Graduates Continuing Education

2007–08

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      38    68.68684    1.414446    8.719229     65.8209    71.55278
       1 |      19    63.64737    1.943882    8.473184    59.56342    67.73131
---------+--------------------------------------------------------------------
combined |      57    67.00702    1.177658    8.891124    64.64788    69.36615
---------+--------------------------------------------------------------------
    diff |            5.039474    2.427483                .1746882    9.904259
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   2.0760
Ho: diff = 0                                     degrees of freedom =       55

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9787         Pr(|T| > |t|) = 0.0426          Pr(T > t) = 0.0213
```

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      54    63.25556     1.32507     9.73724     60.5978    65.91331
       1 |      27    55.83704    1.867553    9.704089    51.99823    59.67585
---------+--------------------------------------------------------------------
combined |      81    60.78272     1.14289    10.28601    58.50829    63.05714
---------+--------------------------------------------------------------------
    diff |            7.418519    2.292521                 2.85537    11.98167
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   3.2360
Ho: diff = 0                                     degrees of freedom =       79

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9991         Pr(|T| > |t|) = 0.0018          Pr(T > t) = 0.0009
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    60.94714    1.241724    10.38901    58.46997    63.42432
       1 |      35    56.97143    1.587623    9.392506    53.74499    60.19787
---------+--------------------------------------------------------------------
combined |     105    59.62191    .9952055    10.19782    57.64838    61.59543
---------+--------------------------------------------------------------------
    diff |            3.975715     2.08489               -.1591726    8.110602
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   1.9069
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9703         Pr(|T| > |t|) = 0.0593          Pr(T > t) = 0.0297
```

2004–05

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      68    57.60588    1.215422    10.02263    55.17989    60.03188
       1 |      34    54.14706    1.738344     10.1362    50.61037    57.68375
---------+--------------------------------------------------------------------
combined |     102    56.45294     1.00436    10.14354    54.46056    58.44532
---------+--------------------------------------------------------------------
    diff |            3.458823    2.113075               -.7334572    7.651104
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   1.6369
Ho: diff = 0                                     degrees of freedom =      100

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.9476         Pr(|T| > |t|) = 0.1048          Pr(T > t) = 0.0524
```

2003–04

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      66    59.12273     1.35059    10.97224    56.42541    61.82004
       1 |      34    56.82941    2.624394    15.30271    51.49004    62.16878
---------+--------------------------------------------------------------------
combined |     100      58.343    1.258149    12.58149    55.84656    60.83944
---------+--------------------------------------------------------------------
    diff |            2.293316    2.659399               -2.984176    7.570807
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.8623
Ho: diff = 0                                     degrees of freedom =       98

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.8047         Pr(|T| > |t|) = 0.3906          Pr(T > t) = 0.1953
```

Graduation Rates

2007–08

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    85.11833    1.379314    8.938977    82.33275    87.90391
       1 |      21    87.00476    1.282436    5.876859    84.32965    89.67988
---------+--------------------------------------------------------------------
combined |      63    85.74714     1.01407    8.048931    83.72005    87.77424
---------+--------------------------------------------------------------------
    diff |           -1.886429    2.155236                -6.19609    2.423233
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.8753
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1924         Pr(|T| > |t|) = 0.3849          Pr(T > t) = 0.8076
```

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      54    77.64259    1.385567    10.18179     74.8635    80.42169
       1 |      27    80.54444    2.844394    14.77991    74.69771    86.39118
---------+--------------------------------------------------------------------
combined |      81    78.60988    1.322036    11.89833    75.97894    81.24081
---------+--------------------------------------------------------------------
    diff |           -2.901852    2.803208               -8.481498    2.677793
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.0352
Ho: diff = 0                                     degrees of freedom =       79

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1519         Pr(|T| > |t|) = 0.3037          Pr(T > t) = 0.8481
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    72.52429    1.584159    13.25402    69.36398     75.6846
       1 |      35        71.7    3.144391    18.60247    65.30983    78.09017
---------+--------------------------------------------------------------------
combined |     105    72.24952    1.479493    15.16029    69.31563    75.18341
---------+--------------------------------------------------------------------
    diff |            .8242856    3.152631               -5.428215    7.076786
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.2615
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6029         Pr(|T| > |t|) = 0.7943          Pr(T > t) = 0.3971
```

2004–05

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    73.72429    1.575044    13.17776    70.58216    76.86641
       1 |      35    71.21714    2.703302    15.99295    65.72337    76.71091
---------+--------------------------------------------------------------------
combined |     105    72.88857    1.380963    14.15066    70.15007    75.62707
---------+--------------------------------------------------------------------
    diff |            2.507143    2.933267               -3.310301    8.324587
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.8547
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.8027         Pr(|T| > |t|) = 0.3947          Pr(T > t) = 0.1973
```

2003–04

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      69    73.14493    1.923875     15.9809     69.3059    76.98396
       1 |      34    71.12941    2.728621    15.91046    65.57799    76.68083
---------+--------------------------------------------------------------------
combined |     103    72.47961    1.567466    15.90804    69.37055    75.58867
---------+--------------------------------------------------------------------
    diff |            2.015516    3.343728               -4.617541    8.648573
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.6028
Ho: diff = 0                                     degrees of freedom =      101

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7260         Pr(|T| > |t|) = 0.5480          Pr(T > t) = 0.2740
```

The Percentage of 9–12th Graders Taking at Least One AP Exam

2007–08

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    16.05803    1.468147    9.514682    13.09305    19.02301
       1 |      21    22.30107    1.617748    7.413454    18.92651    25.67563
---------+--------------------------------------------------------------------
combined |      63    18.13904    1.171052    9.294935    15.79814    20.47994
---------+--------------------------------------------------------------------
    diff |            -6.24304    2.373468               -10.98908   -1.496997
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -2.6303
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0054         Pr(|T| > |t|) = 0.0108          Pr(T > t) = 0.9946
```

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      54    12.89539    1.221518    8.976285    10.44534    15.34544
       1 |      27    16.47624     1.22302    6.354999    13.96229     18.9902
---------+--------------------------------------------------------------------
combined |      81    14.08901    .9255668    8.330101    12.24707    15.93094
---------+--------------------------------------------------------------------
    diff |           -3.580853    1.934301               -7.430983    .2692766
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.8512
Ho: diff = 0                                     degrees of freedom =       79

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0339         Pr(|T| > |t|) = 0.0679          Pr(T > t) = 0.9661
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    10.15507    .9187165    7.686534     8.32228    11.98786
       1 |      35    12.66941    1.206431    7.137342    10.21765    15.12117
---------+--------------------------------------------------------------------
combined |     105    10.99318    .7385413    7.567796    9.528628    12.45774
---------+--------------------------------------------------------------------
    diff |            -2.51434    1.554653               -5.597629    .5689478
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.6173
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0544         Pr(|T| > |t|) = 0.1089          Pr(T > t) = 0.9456
```

2004–05

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    9.250471    .8924886    7.467095    7.470005    11.03094
       1 |      35    11.22831    1.114053    6.590825    8.964287    13.49234
---------+--------------------------------------------------------------------
combined |     105    9.909752    .7042174    7.216081    8.513263    11.30624
---------+--------------------------------------------------------------------
    diff |           -1.977843    1.488401               -4.929735    .9740489
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.3288
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0934         Pr(|T| > |t|) = 0.1868          Pr(T > t) = 0.9066
```

2003–04

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    8.063609    .8084617    6.764076    6.450772    9.676446
       1 |      35     9.33574      1.0958     6.48284    7.108807    11.56267
---------+--------------------------------------------------------------------
combined |     105    8.487653    .6506987    6.667678    7.197293    9.778013
---------+--------------------------------------------------------------------
    diff |           -1.272131    1.381349               -4.011712     1.46745
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.9209
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1796         Pr(|T| > |t|) = 0.3592          Pr(T > t) = 0.8204
```

The Percentage of 10th and 11th Graders Taking the PSAT

2007–08

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      42    49.09617    2.654817    17.20518    43.73466    54.45768
       1 |      21    62.19625    2.070555    9.488477    57.87714    66.51535
---------+--------------------------------------------------------------------
combined |      63    53.46286     2.04531    16.23414    49.37435    57.55138
---------+--------------------------------------------------------------------
    diff |           -13.10008    4.039815               -21.17818   -5.021966
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -3.2427
Ho: diff = 0                                     degrees of freedom =       61

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0010         Pr(|T| > |t|) = 0.0019          Pr(T > t) = 0.9990
```

2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      54    44.96424    2.644211    19.43091    39.66062    50.26786
       1 |      27     59.5808    1.919715    9.975132    55.63477    63.52683
---------+--------------------------------------------------------------------
combined |      81    49.83643     2.02009    18.18081    45.81632    53.85654
---------+--------------------------------------------------------------------
    diff |           -14.61656    3.986419               -22.55133   -6.681792
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -3.6666
Ho: diff = 0                                     degrees of freedom =       79

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0002         Pr(|T| > |t|) = 0.0004          Pr(T > t) = 0.9998
```

2005–06

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70    43.57148    2.419433    20.24243    38.74485    48.39812
       1 |      35    52.53348    2.205547    13.04819    48.05127    57.01569
---------+--------------------------------------------------------------------
combined |     105    46.55881    1.814065    18.58864    42.96145    50.15617
---------+--------------------------------------------------------------------
    diff |           -8.961999    3.764671               -16.42834   -1.495663
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -2.3806
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0096         Pr(|T| > |t|) = 0.0191          Pr(T > t) = 0.9904
```

2004–05

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70     42.8632    2.363396    19.77359    38.14835    47.57804
       1 |      35    53.11159    2.014485    11.91785    49.01767    57.20552
---------+--------------------------------------------------------------------
combined |     105    46.27933    1.771222    18.14963    42.76693    49.79173
---------+--------------------------------------------------------------------
    diff |           -10.2484    3.637978               -17.46347   -3.033327
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -2.8171
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0029         Pr(|T| > |t|) = 0.0058          Pr(T > t) = 0.9971
```

2003–04

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      70     39.8058    2.379364    19.90719     35.0591     44.5525
       1 |      35    53.11916    2.194757    12.98435    48.65888    57.57945
---------+--------------------------------------------------------------------
combined |     105    44.24359    1.846002    18.91589     40.5829    47.90428
---------+--------------------------------------------------------------------
    diff |          -13.31336    3.709826               -20.67093     -5.9558
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -3.5887
Ho: diff = 0                                     degrees of freedom =      103

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0003         Pr(|T| > |t|) = 0.0005          Pr(T > t) = 0.9997
```

Florida Middle Schools

2007–08 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    27.97045       2.775    26.03181    22.45484    33.48607
       1 |      44    25.21364    2.836029    18.81209    19.49424    30.93303
---------+--------------------------------------------------------------------
combined |     132    27.05152    2.074213    23.83089    22.94823     31.1548
---------+--------------------------------------------------------------------
    diff |            2.756818    4.410339               -5.968509    11.48215
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.6251
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7335         Pr(|T| > |t|) = 0.5330          Pr(T > t) = 0.2665
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    22.21023    2.313926    21.70655    17.61105    26.80941
       1 |      44    27.72727    2.042509    13.54847    23.60816    31.84638
---------+--------------------------------------------------------------------
combined |     132    24.04924    1.696667    19.49322    20.69283    27.40565
---------+--------------------------------------------------------------------
    diff |           -5.517045    3.580443               -12.60052    1.566432
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.5409
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0629         Pr(|T| > |t|) = 0.1258          Pr(T > t) = 0.9371
```

Enrollment 2007–08

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    979.2955    42.81916    401.6793    894.1877    1064.403
       1 |      44    966.7955    44.82598    297.3419    876.3953    1057.196
---------+--------------------------------------------------------------------
combined |     132    975.1288    32.12304    369.0656    911.5818    1038.676
---------+--------------------------------------------------------------------
    diff |                12.5    68.39605               -122.8134    147.8134
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.1828
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5724         Pr(|T| > |t|) = 0.8553          Pr(T > t) = 0.4276
```

2006–07 Demographics

The Percentage of Black Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88     27.4623    2.735537    25.66161    22.02513    32.89948
       1 |      44    24.92775    2.739103    18.16916    19.40382    30.45168
---------+--------------------------------------------------------------------
combined |     132    26.61745    2.035917     23.3909    22.58992    30.64498
---------+--------------------------------------------------------------------
    diff |            2.534551    4.329708               -6.031259    11.10036
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.5854
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7203         Pr(|T| > |t|) = 0.5593          Pr(T > t) = 0.2797
```

The Percentage of Hispanic Students

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    21.91279    2.325655    21.81658     17.2903    26.53528
       1 |      44    26.83931    1.997014    13.24669    22.81195    30.86667
---------+--------------------------------------------------------------------
combined |     132    23.55497    1.694758    19.47129    20.20233     26.9076
---------+--------------------------------------------------------------------
    diff |            -4.92652    3.582966               -12.01499     2.16195
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.3750
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0858         Pr(|T| > |t|) = 0.1715          Pr(T > t) = 0.9142
```

Enrollment 2006–07

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    1015.023    42.40182    397.7644    930.7445    1099.301
       1 |      44    984.2727    43.34952    287.5482    896.8501    1071.695
---------+--------------------------------------------------------------------
combined |     132    1004.773    31.67392    363.9057    942.1142    1067.431
---------+--------------------------------------------------------------------
    diff |               30.75    67.39453                -102.582     164.082
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.4563
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6755         Pr(|T| > |t|) = 0.6490          Pr(T > t) = 0.3245
```

Urbanicity

City

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    .2159091    .0441122    .4138094    .1282313    .3035869
       1 |      44    .3636364    .0733588    .4866071    .2156943    .5115784
---------+--------------------------------------------------------------------
combined |     132    .2651515    .0385665    .4430954    .1888578    .3414453
---------+--------------------------------------------------------------------
    diff |           -.1477273    .0810975                -.308169    .0127144
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.8216
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0354         Pr(|T| > |t|) = 0.0708          Pr(T > t) = 0.9646
```

TownRural

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    .2386364    .0456988    .4286927    .1478051    .3294677
       1 |      44    .1818182    .0588179    .3901537    .0632006    .3004357
---------+--------------------------------------------------------------------
combined |     132     .219697     .036175    .4156186    .1481343    .2912597
---------+--------------------------------------------------------------------
    diff |            .0568182    .0768719               -.0952637       .2089
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.7391
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7694         Pr(|T| > |t|) = 0.4612          Pr(T > t) = 0.2306
```

2007–08 Mathematics

Grade 8

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    321.4545    1.901706    17.83958    317.6747    325.2344
       1 |      44    323.2273    2.412499    16.00271     318.362    328.0925
---------+--------------------------------------------------------------------
combined |     132    322.0455    1.497776    17.20814    319.0825    325.0084
---------+--------------------------------------------------------------------
    diff |           -1.772727    3.185668               -8.075191    4.529736
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5565
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2894         Pr(|T| > |t|) = 0.5788          Pr(T > t) = 0.7106
```

Grade 7

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    311.6932    2.184081    20.48849    307.3521    316.0343
       1 |      44    314.4091    3.062996    20.31762     308.232    320.5862
---------+--------------------------------------------------------------------
combined |     132    312.5985    1.775116    20.39453    309.0869    316.1101
---------+--------------------------------------------------------------------
    diff |           -2.715909    3.772532               -10.17941    4.747594
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.7199
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2364         Pr(|T| > |t|) = 0.4729          Pr(T > t) = 0.7636
```

Grade 6

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    308.0455    2.801277    26.27831    302.4776    313.6133
       1 |      44    310.5682    4.197855    27.84542    302.1024     319.034
---------+--------------------------------------------------------------------
combined |     132    308.8864    2.326631    26.73096    304.2837     313.489
---------+--------------------------------------------------------------------
    diff |           -2.522727    4.949534               -12.31479    7.269334
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.5097
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.3056         Pr(|T| > |t|) = 0.6111          Pr(T > t) = 0.6944
```

2007–08 ELA

Grade 8

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    307.3295     1.91974    18.00876    303.5139    311.1452
       1 |      44    306.1591    2.678105    17.76454    300.7582      311.56
---------+--------------------------------------------------------------------
combined |     132    306.9394    1.555242    17.86837    303.8628     310.016
---------+--------------------------------------------------------------------
    diff |            1.170455     3.31024                -5.37846    7.719369
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.3536
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6379         Pr(|T| > |t|) = 0.7242          Pr(T > t) = 0.3621
```

Grade 7

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    312.7159    2.211218    20.74306    308.3209    317.1109
       1 |      44    309.6591    3.178606    21.08448    303.2488    316.0694
---------+--------------------------------------------------------------------
combined |     132     311.697     1.81277    20.82715    308.1109    315.2831
---------+--------------------------------------------------------------------
    diff |            3.056818    3.850908               -4.561742    10.67538
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.7938
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.7856         Pr(|T| > |t|) = 0.4288          Pr(T > t) = 0.2144
```

Grade 6

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    306.5795    2.465526    23.12869     301.679      311.48
       1 |      44    305.7045    3.870059    25.67107    297.8998    313.5093
---------+--------------------------------------------------------------------
combined |     132    306.2879    2.081208    23.91126    302.1708     310.405
---------+--------------------------------------------------------------------
    diff |                .875    4.431193               -7.891586    9.641586
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   0.1975
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.5781         Pr(|T| > |t|) = 0.8438          Pr(T > t) = 0.4219
```

2006–07 Mathematics

Grade 8

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88     316.125    2.191213     20.5554    311.7697    320.4803
       1 |      44    319.8636    2.582383    17.12959    314.6558    325.0715
---------+--------------------------------------------------------------------
combined |     132    317.3712    1.696815    19.49492    314.0145    320.7279
---------+--------------------------------------------------------------------
    diff |           -3.738636    3.598397               -10.85764    3.380362
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -1.0390
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1504         Pr(|T| > |t|) = 0.3007          Pr(T > t) = 0.8496
```

Grade 7

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88    308.7955    2.411937    22.62597    304.0015    313.5894
       1 |      44    311.4773    2.970875    19.70655    305.4859    317.4686
---------+--------------------------------------------------------------------
combined |     132    309.6894     1.88509    21.65804    305.9602    313.4186
---------+--------------------------------------------------------------------
    diff |           -2.681818    4.007335               -10.60985    5.246214
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.6692
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2523         Pr(|T| > |t|) = 0.5045          Pr(T > t) = 0.7477
```

Grade 6

```
Two-sample t test with equal variances
------------------------------------------------------------------------------
   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      88     303.875     2.83925    26.63453    298.2317    309.5183
       1 |      44    306.9773    4.159669    27.59212    298.5885     315.366
---------+--------------------------------------------------------------------
combined |     132    304.9091    2.340653    26.89205    300.2787    309.5395
---------+--------------------------------------------------------------------
    diff |           -3.102273    4.976903               -12.94848    6.743935
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -0.6233
Ho: diff = 0                                     degrees of freedom =      130

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.2671         Pr(|T| > |t|) = 0.5342          Pr(T > t) = 0.7329
```

2006–07 ELA

Grade 8

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	88	301.0227	2.116943	19.85868	296.8151	305.2304
1	44	301.3182	2.659455	17.64083	295.9549	306.6815
combined	132	301.1212	1.66077	19.0808	297.8358	304.4066
diff		-.2954545	3.536455		-7.291907	6.700998

diff = mean(0) - mean(1)   t = -0.0835
Ho: diff = 0   degrees of freedom = 130

Ha: diff < 0   Pr(T < t) = 0.4668
Ha: diff != 0   Pr(|T| > |t|) = 0.9335
Ha: diff > 0   Pr(T > t) = 0.5332

Grade 7

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	88	310.7727	2.183086	20.47916	306.4336	315.1118
1	44	307.1818	3.084825	20.46241	300.9607	313.403
combined	132	309.5758	1.781336	20.46599	306.0519	313.0997
diff		3.590909	3.780193		-3.887751	11.06957

diff = mean(0) - mean(1)   t = 0.9499
Ho: diff = 0   degrees of freedom = 130

Ha: diff < 0   Pr(T < t) = 0.8280
Ha: diff != 0   Pr(|T| > |t|) = 0.3439
Ha: diff > 0   Pr(T > t) = 0.1720

Grade 6

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	88	303.7159	2.399111	22.50566	298.9474	308.4844
1	44	302.3864	3.303886	21.9155	295.7234	309.0493
combined	132	303.2727	1.935374	22.23576	299.4441	307.1014
diff		1.329545	4.119659		-6.820707	9.479798

diff = mean(0) - mean(1)   t = 0.3227
Ho: diff = 0   degrees of freedom = 130

Ha: diff < 0   Pr(T < t) = 0.6263
Ha: diff != 0   Pr(|T| > |t|) = 0.7474
Ha: diff > 0   Pr(T > t) = 0.3737

Appendix C
Impact Analysis Equations

As described in Chapter 2, we employed two separate models in the statistical analyses of EXCELerator impact. The first model gauges the effects of the EXCELerator program based on the amount of time that schools have been participating in the program—in a sense, the "dosage" of EXCELerator that schools have had. (As of the 2009–10 school year, maximum dosage for the high schools could have been four years, three years, two years, one year, or, for comparison schools, zero years. Maximum dosage for all middle schools was two years.) The second model, which was only for the middle schools analysis, examines outcomes as a function of the *extent* to which schools were implementing EXCELerator (high implementer, low implementer, or comparison school). This appendix provides the equations for each model type.

Dosage Model (High Schools)

The general form for the high-schools dosage model regression is as follows:

$$Outcome_{st} = \pi_0 + \pi_1 Yr2005_{st} + \pi_2 Yr2006_{st} + \pi_3 Yr2007_{st} + \pi_4 Yr2008_{st} + \pi_5 Yr2009_{st} + \pi_6 Yr2010_{st} + \pi_7 EXC1YR_{st} + \pi_8 EXC2YR_{st} + \pi_9 EXC3YR_{st} + \pi_{10} EXC4YR_{st} + \theta_s + \upsilon_{st}$$

where

- $Outcome_{st}$ is the outcome for school *s* in year *t*. This might be a schoolwide percentage (e.g., the percentage of students taking any AP exam) or a school average score (e.g., school average SAT mathematics score).
- $Yr2005_{st}$ is a dummy variable equal to 1 for year 2005 (spring), 0 otherwise. $Yr2006_{st}$ through $Yr2010_{st}$ are defined similarly. The reference year is 2004.
- $EXC1YR_{st}$ is a dummy variable equal to 1 if school *s* is in its first year of EXCELerator in year *t*, 0 otherwise. (This is *not* a cohort indicator.)
- $EXC2YR_{st}$ is a dummy variable equal to 1 if school *s* is in its second year of EXCELerator in year *t*, 0 otherwise.
- $EXC3YR_{st}$ is a dummy variable equal to 1 if school *s* is in its third year of EXCELerator in year *t*, 0 otherwise.
- $EXC4YR_{st}$ is a dummy variable equal to 1 if school *s* is in its fourth year of EXCELerator in year *t*, 0 otherwise.
- θ_s is a fixed effect for school *s*.
- υ_{st} is a random error term for school *s* in year *t*, independently and identically distributed across years.

The terms $Yr2005_{st}$ through $Yr2010_{st}$ are fixed effects that represent systematic variation in the percentages by year across schools in the sample.

The key terms in the model are the indicator variables for $EXC1YR_{st}$, $EXC2YR_{st}$, $EXC3YR_{st}$, and $EXC4YR_{st}$. For example, the coefficient π_6 provides an estimate of whether the EXCELerator schools in their first year of implementation had a different outcome in that year than would be expected based on their preimplementation outcomes and on the outcomes in the comparison schools.

We conducted these regressions for each outcome measure using STATA 10's xtreg, fe command, specifying the option for robust standard errors. This command executes the analysis including the school fixed effects, but the output does not include the coefficients for each school.

For some analyses, we modified the equation. In particular, in examining score-related outcomes, we typically ran two models: one including a control for the percentage of students taking the exam (not shown in the previous equation), and another without this control. Also, for some of the analyses, we used locale × year terms instead of the year terms. Such modifications are noted in the body of the report as applicable.

Dosage Model (Middle Schools)

The general form for the middle-schools dosage model regression is as follows:

$$Outcome_{st} = \pi_0 + \pi_1 Yr2007_{st} + \pi_2 Yr2008_{st} + \pi_3 Yr2009_{st} + \pi_4 Yr2010_{st} + \pi_5 EXC1YR_{st} + \pi_6 EXC2YR_{st} + \theta_s + \upsilon_{st}$$

where

- $Outcome_{st}$ is the outcome for school s in year t.
- $Yr2007_{st}$ is a dummy variable equal to 1 for year 2007 (spring), 0 otherwise. $Yr2008_{st}$, $Yr2009_{st}$, and $Yr2010_{st}$ are defined similarly. The reference year is 2006.
- $EXC1YR_{st}$ is a dummy variable equal to 1 if school s is in its first year of EXCELerator in year t, 0 otherwise. This can be coded 1 only for EXCELerator schools in $t = 2009$.
- $EXC2YR_{st}$ is a dummy variable equal to 1 if school s is in its second year of EXCELerator in year t, 0 otherwise. This can be coded 1 only for EXCELerator schools in $t = 2010$.
- θ_s is the fixed effect for school s.
- υ_{st} is a random error term for school s in year t, independently and identically distributed across years.

Level-of-Implementation Model (Middle Schools Only)

The general form for the level-of-implementation model regression for the middle schools is as follows:

$$Outcome_{st} = \pi_0 + \pi_1 Yr2007_{st} + \pi_2 Yr2008_{st} + \pi_3 Yr2009_{st} + \pi_4 Yr2010_{st} + \pi_5 LOWIMP_{st} + \pi_6 HIGHIMP_{st} + \theta_s + \upsilon_{st}$$

where

- $Outcome_{st}$ is the outcome for school *s* in year *t*.
- $Yr2007_{st}$ is a dummy variable equal to 1 for year 2007 (spring), 0 otherwise. $Yr2008_{st}$, $Yr2009_{st}$, and $Yr2010_{st}$ are defined similarly. The reference year is 2006.
- $LOWIMP_{st}$ is a dummy variable equal to 1 if school *s* is an EXCELerator school classified as a low implementer in year *t*, 0 otherwise. This can be coded 1 only in t = 2009 or t = 2010.
- $HIGHIMP_{st}$ is a dummy variable equal to 1 if school *s* is an EXCELerator school classified as a high implementer in year *t*, 0 otherwise. This can be coded 1 only in t = 2009 or t = 2010.
- θ_s is the fixed effect for school *s*.
- υ_{st} is the random error term for school *s* in year *t*, independently and identically distributed across years.

Appendix D
Implementation Measures

2009–10 Proxy Measure

As part of evaluating the CRS implementation, AIR conducted a survey of principals, school counselors, and English and mathematics department chairs to study program implementation. In 2009, the survey could be administered in College Board schools only, so we constructed a much shorter rating instrument to be completed by EXCELerator district coaches/directors. This instrument, which became known as the "proxy implementation measure," was completed by district coaches/directors in all four EXCELerator districts (Chicago, Denver, Duval County, and Hillsborough County) in the spring and summer of 2009.

For the middle schools, which are the only schools to which we apply the proxy implementation measure in this report, the implementation index used to classify the schools as high or low implementers was an average of the four dimension ratings supplied by the coaches/directors:

- Participation in professional development related to the EXCELerator program and its goals
- Programs and supports for all students to aspire to and pursue college
- Coherent pre-AP curriculum
- Overall holistic rating of EXCELerator implementation

To obtain a measure of interrater reliability, we solicited two sets of ratings per school where it was possible to do so without unduly burdening the raters. After analysis, we determined to base the proxy measure on the responses of the primary rater, but used information from the secondary raters to adjust for primary rater severity. The details of the 2009 proxy measure are documented in Appendix D of the EXCELerator Program Impact Year 1 Report (Holtzman & Stancavage, 2010).

We decided to readminister the proxy measure in the spring of 2010. Once again, the instrument was completed by EXCELerator district coaches/directors. There was only partial overlap with the raters who completed the 2009 measure. Furthermore, it was not possible to solicit multiple ratings per school, so no adjustments could be made for rater severity.

2010 Survey-Based Measure

In 2010, the implementation survey was administered to all EXCELerator schools, as well as all College Board schools. Respondents answered questions about the programs offered in their schools and about their perceptions of the attitudes and actions of their colleagues, as well as themselves. For example, department chairs answered questions about the extent to which teachers in their departments used SpringBoard and the extent to which teachers in their departments were familiar with the College Board Standards for College Success. Detailed results from the 2010 survey can be found in Stancavage et al. 2011.

A second implementation measure for middle schools was constructed from selected survey responses. The topics covered paralleled the topics surveyed in the proxy measure to the extent possible. They included the following:

- Participation in professional development related to the EXCELerator program and its goals
- Programs and supports for all students to aspire to and pursue college
- Use of SpringBoard curriculum in reading and mathematics
- Familiarity with College Board Standards for College Success
- Attitudes and expectations related to the school's role in fostering college readiness

Correlations Among Measures

Correlations between the 2009 and 2010 proxy measures were higher than correlations between either of the proxy measures and the survey measure. See Table D-1.

Table D.1. Correlations Among Implementation Measures

	2009 Proxy	2010 Proxy	Survey-Based
2009 Proxy		.53***	.21
2010 Proxy			.19
Survey-Based			

***$p < .001$.

Appendix E
Outcomes Descriptives

Chapter 3

Graduation Rate

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	68.00	13.73	11	57.77	12.22	32	70.85	12.88	16	71.26	14.63	32	79.58	10.54	16	83.36	7.50
2005	22	68.26	13.54	11	60.22	13.51	32	70.29	13.29	16	68.07	17.38	38	79.91	9.50	19	83.05	6.48
2006	22	65.13	12.59	11	56.37	14.29	32	68.60	11.89	16	64.29	14.21	38	79.38	10.38	19	86.00	6.79
2007	22	64.30	13.41	11	56.99	11.98	32	67.09	10.11	16	64.29	10.83	38	81.53	8.11	19	88.34	5.69
2008	22	71.36	10.50	11	66.59	7.75	32	70.08	12.10	16	69.51	9.86	42	85.12	8.94	21	87.00	5.88
2009	22	74.26	9.37	11	67.70	10.28	32	73.11	12.83	16	72.55	9.86	42	86.48	7.92	21	90.74	4.39
2010	22	77.52	10.59	11	73.46	6.01	32	71.54	16.24	16	73.64	10.78	42	88.90	5.71	21	90.68	3.49

Dropout Rate

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	6.02	4.14	11	6.35	5.13	32	6.89	6.93	16	5.13	3.33	38	1.64	1.50	19	1.08	0.72
2005	24	6.08	4.33	12	7.07	4.63	32	6.06	4.92	16	5.18	2.67	38	1.65	1.54	19	1.04	0.87
2006	24	5.87	4.28	12	8.02	4.50	32	5.38	3.60	16	6.28	2.90	38	1.66	1.49	19	0.98	0.52
2007	24	5.11	4.54	12	6.78	4.34	32	6.28	4.65	16	6.43	2.85	42	1.93	1.54	21	0.94	0.63
2008	24	6.29	6.17	12	6.10	3.80	32	7.03	5.59	16	5.98	4.30	42	1.26	0.93	21	1.41	0.94
2009	24	5.15	4.66	12	5.39	3.60	32	5.24	4.33	16	4.86	4.62	42	1.15	0.95	21	0.61	0.52
2010	24	5.94	6.45	12	5.54	6.00	32	6.47	7.60	16	5.00	7.08	42	1.06	0.98	21	0.41	0.41

Chapter 4

The Percentage of the Whole School (Grades 9–12) Taking at Least One AP Exam

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	4.91	3.70	11	5.70	3.11	32	4.41	3.81	16	5.28	3.35	38	11.37	7.14	19	13.06	6.20
2005	24	5.07	4.01	12	5.64	2.74	32	4.48	3.67	16	7.35	3.68	38	13.29	7.55	19	15.27	5.93
2006	24	6.41	4.98	12	6.25	2.95	32	4.77	4.18	16	7.60	3.99	38	14.71	7.23	19	17.46	5.82
2007	24	8.00	5.28	12	17.55	8.57	32	5.95	4.15	16	9.42	2.79	42	15.23	8.81	21	17.49	7.07
2008	24	8.15	5.59	12	23.53	10.18	32	7.25	5.05	16	14.26	5.48	42	16.06	9.51	21	22.30	7.41
2009	24	9.72	6.61	12	24.42	10.13	32	8.53	5.40	16	17.71	6.60	42	18.26	10.58	21	28.16	7.75
2010	24	14.47	7.38	12	26.78	9.01	32	10.28	7.39	16	19.70	8.34	42	21.96	10.65	21	31.44	8.37

The Percentage of the Whole School (Grades 9–12) Taking AP English Exam

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	2.09	1.79	11	1.66	0.72	32	2.09	2.04	16	1.24	1.57	38	4.92	4.13	19	5.74	3.79
2005	24	2.08	2.07	12	1.84	1.04	32	2.15	2.11	16	2.14	1.86	38	5.53	3.83	19	7.06	4.34
2006	24	2.31	1.95	12	2.42	1.82	32	1.97	2.02	16	2.35	2.09	38	6.18	3.68	19	6.86	4.08
2007	24	2.82	2.26	12	6.11	2.96	32	2.64	2.23	16	3.55	2.60	42	6.15	4.69	21	6.57	4.48
2008	24	3.54	2.63	12	7.74	3.18	32	3.22	2.60	16	5.21	3.05	42	6.13	4.92	21	7.98	4.63
2009	24	3.88	3.35	12	9.12	4.20	32	3.51	2.72	16	7.12	3.03	42	6.66	4.87	21	10.04	4.54
2010	24	4.81	3.88	12	10.19	5.08	32	4.08	3.48	16	8.09	3.94	42	7.70	5.06	21	11.87	5.18

The **Percentage of the Whole School (Grades 9–12) Taking AP Calculus Exam**

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2004	22	0.42	0.51	11	0.60	0.43	32	0.59	0.88	16	0.74	0.54	38	1.50	1.02	19	2.02	1.46
2005	24	0.46	0.64	12	0.86	0.59	32	0.72	0.94	16	1.01	1.02	38	1.61	1.08	19	2.18	1.47
2006	24	0.50	0.75	12	0.90	0.48	32	0.69	0.91	16	1.14	1.23	38	1.65	1.12	19	2.20	1.83
2007	24	0.57	0.54	12	1.27	0.99	32	0.68	0.76	16	1.06	1.02	42	1.71	1.25	21	1.89	1.46
2008	24	0.59	0.53	12	1.28	0.76	32	0.62	0.76	16	1.19	0.98	42	1.78	1.37	21	2.16	1.31
2009	24	0.64	0.47	12	1.22	0.84	32	0.70	0.82	16	1.11	1.12	42	1.96	1.45	21	2.43	1.41
2010	24	0.82	0.77	12	1.73	1.38	32	0.71	0.83	16	1.51	1.25	42	2.47	1.83	21	2.82	1.77

The Percentage of the Whole School (Grades 9–12) Taking AP STEM Exam

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2004	22	1.37	1.54	11	2.10	2.01	32	1.26	1.47	16	1.50	0.89	38	4.44	3.53	19	5.25	3.71
2005	24	1.35	1.33	12	2.12	1.46	32	1.38	1.53	16	2.15	1.76	38	4.98	3.58	19	5.71	3.94
2006	24	2.01	2.54	12	2.40	1.82	32	1.50	1.60	16	1.96	1.94	38	5.31	3.99	19	5.80	4.42
2007	24	2.44	2.38	12	4.00	2.55	32	2.03	1.80	16	2.39	1.56	42	5.50	4.02	21	5.30	4.54
2008	24	2.18	2.25	12	5.65	3.12	32	2.12	1.86	16	2.95	1.46	42	5.47	4.15	21	6.87	3.67
2009	24	2.42	2.30	12	4.53	2.61	32	2.66	2.08	16	3.56	1.84	42	6.13	4.58	21	8.04	3.61
2010	24	3.23	2.77	12	4.36	3.10	32	2.52	2.03	16	3.53	2.19	42	7.55	5.44	21	9.03	4.02

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 3 on at Least One AP Exam

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	1.91	1.58	11	1.64	1.31	32	1.55	1.92	16	1.71	1.50	38	6.79	5.16	19	7.33	4.81
2005	24	1.65	1.43	12	1.66	1.36	32	1.52	1.99	16	2.30	1.92	38	7.31	5.16	19	7.90	4.71
2006	24	1.60	1.49	12	1.62	1.54	32	1.56	2.09	16	2.10	1.63	38	7.89	5.08	19	8.84	4.46
2007	24	1.82	1.53	12	2.08	2.23	32	1.53	1.63	16	2.39	1.83	42	7.92	6.01	21	8.71	4.93
2008	24	1.78	1.57	12	2.01	1.66	32	1.56	1.63	16	2.64	1.78	42	8.28	6.32	21	9.51	5.39
2009	24	2.24	1.87	12	1.98	1.43	32	1.99	1.74	16	3.36	2.41	42	9.55	7.15	21	11.51	5.91
2010	24	2.84	2.21	12	2.22	1.81	32	2.41	2.04	16	3.72	3.02	42	11.06	7.69	21	13.44	6.11

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 3 on at Least One AP English Exam

	2006–07 Cohort and Comparisons						2007–008 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	0.62	0.59	11	0.49	0.44	32	0.68	1.03	16	0.41	0.69	38	2.76	2.71	19	3.23	2.66
2005	24	0.50	0.58	12	0.56	0.60	32	0.57	0.93	16	0.53	0.76	38	2.92	2.30	19	3.69	2.97
2006	24	0.52	0.70	12	0.59	0.63	32	0.47	0.79	16	0.57	0.70	38	2.96	2.13	19	3.55	2.38
2007	24	0.60	0.71	12	1.00	1.07	32	0.56	0.80	16	0.64	0.73	42	3.21	2.81	21	3.66	2.89
2008	24	0.64	0.76	12	0.81	0.58	32	0.61	0.81	16	0.90	0.87	42	3.35	3.02	21	4.07	3.31
2009	24	0.75	0.90	12	0.73	0.63	32	0.69	0.84	16	1.19	1.17	42	3.50	3.02	21	4.75	2.85
2010	24	0.80	1.05	12	0.88	0.96	32	0.74	0.90	16	1.27	1.40	42	4.18	3.45	21	5.57	3.35

The Percentage of the Whole School (Grades 9-12) Scoring ≥ 3 on at Least One AP Calculus Exam

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	0.12	0.22	11	0.25	0.45	32	0.24	0.55	16	0.26	0.34	38	1.08	0.96	19	1.21	1.04
2005	24	0.11	0.23	12	0.22	0.37	32	0.27	0.48	16	0.40	0.61	38	1.05	1.09	19	1.13	0.91
2006	24	0.15	0.37	12	0.17	0.29	32	0.26	0.56	16	0.40	0.68	38	1.16	1.10	19	1.34	1.42
2007	24	0.10	0.16	12	0.20	0.31	32	0.24	0.38	16	0.32	0.48	42	1.12	1.12	21	1.07	1.04
2008	24	0.08	0.14	12	0.14	0.26	32	0.20	0.37	16	0.31	0.41	42	1.20	1.24	21	1.14	1.00
2009	24	0.10	0.15	12	0.17	0.25	32	0.30	0.48	16	0.30	0.41	42	1.28	1.36	21	1.33	1.11
2010	24	0.14	0.24	12	0.08	0.19	32	0.30	0.47	16	0.37	0.54	42	1.37	1.55	21	1.26	0.95

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 3 on at Least One AP STEM Exam

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	0.23	0.38	11	0.35	0.53	32	0.37	0.80	16	0.44	0.59	38	2.45	2.26	19	2.42	2.01
2005	24	0.18	0.30	12	0.35	0.51	32	0.46	0.79	16	0.73	0.99	38	2.51	2.41	19	2.38	1.58
2006	24	0.27	0.53	12	0.30	0.38	32	0.45	0.79	16	0.66	1.01	38	2.75	2.58	19	2.67	2.00
2007	24	0.34	0.54	12	0.34	0.46	32	0.42	0.61	16	0.58	0.82	42	2.77	2.70	21	2.36	1.91
2008	24	0.25	0.39	12	0.28	0.41	32	0.31	0.58	16	0.62	0.78	42	2.73	2.69	21	2.68	1.96
2009	24	0.24	0.30	12	0.27	0.35	32	0.46	0.66	16	0.72	0.82	42	2.91	3.06	21	3.09	2.03
2010	24	0.30	0.42	12	0.18	0.33	32	0.46	0.63	16	0.77	1.04	42	3.44	3.39	21	3.47	2.06

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 2 on at Least One AP Exam

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	3.20	2.60	11	3.23	2.16	32	2.74	2.79	16	3.02	2.74	38	9.46	6.33	19	10.73	5.67
2005	24	3.02	2.55	12	3.24	2.14	32	2.78	2.94	16	4.24	3.17	38	10.63	6.52	19	12.14	5.50
2006	24	3.06	2.70	12	3.45	2.71	32	2.82	3.09	16	4.13	2.87	38	11.58	6.35	19	13.34	5.18
2007	24	3.56	2.47	12	6.00	4.28	32	3.11	2.63	16	4.86	2.50	42	11.62	7.61	21	13.26	5.93
2008	24	3.79	2.79	12	6.19	3.60	32	3.28	2.64	16	5.92	3.17	42	11.98	8.07	21	15.21	6.35
2009	24	4.32	3.23	12	6.04	3.56	32	3.79	2.89	16	7.20	4.05	42	13.67	8.86	21	18.55	7.03
2010	24	5.86	3.56	12	6.69	4.65	32	4.99	3.61	16	8.21	4.82	42	15.78	9.29	21	21.25	8.05

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 2 on at Least One AP English Exam

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	1.49	1.25	11	1.21	0.71	32	1.54	1.65	16	0.97	1.44	38	4.50	3.84	19	5.28	3.59
2005	24	1.40	1.32	12	1.45	1.03	32	1.45	1.59	16	1.50	1.66	38	5.03	3.44	19	6.43	4.02
2006	24	1.53	1.51	12	1.90	1.67	32	1.35	1.53	16	1.60	1.62	38	5.56	3.31	19	6.31	3.79
2007	24	1.68	1.43	12	3.75	2.44	32	1.61	1.55	16	2.15	1.62	42	5.54	4.32	21	6.02	4.09
2008	24	2.03	1.53	12	3.57	1.83	32	1.83	1.57	16	3.09	2.02	42	5.54	4.52	21	7.03	4.33
2009	24	2.05	1.88	12	3.59	2.09	32	1.94	1.91	16	3.89	2.41	42	5.96	4.48	21	8.53	3.87
2010	24	2.66	2.21	12	4.33	3.52	32	2.46	2.20	16	4.53	2.83	42	6.92	4.77	21	10.09	4.87

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 2 on at Least One AP Calculus Exam

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2004	22	0.22	0.33	11	0.33	0.42	32	0.32	0.71	16	0.35	0.39	38	1.30	1.02	19	1.58	1.21
2005	24	0.19	0.37	12	0.34	0.46	32	0.38	0.63	16	0.53	0.74	38	1.31	1.13	19	1.55	1.09
2006	24	0.24	0.49	12	0.26	0.30	32	0.38	0.70	16	0.55	0.75	38	1.38	1.15	19	1.72	1.62
2007	24	0.16	0.27	12	0.30	0.40	32	0.35	0.51	16	0.45	0.59	42	1.33	1.23	21	1.42	1.15
2008	24	0.19	0.29	12	0.27	0.34	32	0.31	0.48	16	0.45	0.54	42	1.42	1.33	21	1.54	1.10
2009	24	0.16	0.21	12	0.29	0.34	32	0.39	0.60	16	0.43	0.54	42	1.56	1.47	21	1.82	1.33
2010	24	0.20	0.36	12	0.13	0.24	32	0.37	0.55	16	0.46	0.64	42	1.64	1.70	21	1.61	1.08

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 2 on at Least One AP STEM Exam

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2004	22	0.53	0.71	11	0.64	0.67	32	0.57	1.09	16	0.63	0.74	38	3.35	2.82	19	3.62	2.73
2005	24	0.42	0.66	12	0.64	0.71	32	0.70	1.10	16	1.09	1.39	38	3.52	3.01	19	3.62	2.23
2006	24	0.53	0.91	12	0.52	0.48	32	0.67	1.05	16	0.95	1.28	38	3.79	3.29	19	3.85	2.55
2007	24	0.66	0.94	12	0.67	0.81	32	0.70	0.91	16	0.86	1.13	42	3.80	3.37	21	3.50	2.47
2008	24	0.51	0.79	12	0.62	0.54	32	0.52	0.78	16	0.99	1.04	42	3.72	3.44	21	3.93	2.52
2009	24	0.48	0.55	12	0.49	0.48	32	0.74	0.94	16	1.14	1.20	42	4.01	3.83	21	4.59	2.57
2010	24	0.56	0.79	12	0.34	0.42	32	0.66	0.85	16	1.17	1.40	42	4.66	4.30	21	5.03	2.66

Chapter 5

The Percentage of Seniors Taking the SAT

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	22.31	16.97	11	24.87	18.46	32	17.56	18.44	16	20.68	17.39	32	54.02	18.09	16	59.25	9.26
2005	22	22.78	18.77	11	28.68	19.65	32	16.79	19.66	16	23.58	20.28	38	56.66	18.65	19	60.93	10.35
2006	22	21.65	17.81	11	25.88	17.49	32	16.96	19.51	16	19.93	18.28	38	53.61	18.39	19	59.03	10.36
2007	22	21.75	17.37	11	26.38	18.59	32	16.40	19.47	16	19.88	19.21	38	55.83	19.87	19	62.23	12.65
2008	22	21.03	16.61	11	55.45	15.09	32	14.32	17.61	16	20.85	19.53	42	50.75	17.62	21	57.27	14.10
2009	22	18.39	15.70	11	57.32	24.12	32	12.75	14.92	16	29.37	26.13	42	46.66	15.20	21	53.17	11.92
2010	22	20.09	16.94	11	69.19	18.05	32	13.56	16.44	16	31.37	25.14	42	50.92	19.25	21	69.52	12.98

SAT Critical Reading, Mean Score

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	20	485.00	61.03	10	453.40	40.32	26	489.54	39.65	13	455.31	42.48	32	503.97	29.19	16	502.19	27.79
2005	18	468.67	53.27	9	454.89	40.70	24	479.58	56.27	12	458.17	35.79	38	503.76	32.34	19	502.00	28.19
2006	20	466.15	43.91	10	455.10	40.98	26	474.23	47.27	13	480.92	40.10	38	502.45	29.75	19	498.63	27.68
2007	20	468.90	59.76	10	459.90	34.58	20	466.85	51.27	10	480.10	53.34	38	500.58	28.10	19	501.42	30.01
2008	18	465.28	48.28	9	427.67	24.82	20	482.35	63.12	10	469.10	33.17	42	497.45	30.44	21	494.10	29.08
2009	18	470.56	53.62	9	419.56	23.66	22	489.14	72.38	11	456.64	24.23	42	499.67	33.51	21	498.86	30.33
2010	16	468.63	49.43	8	416.13	26.61	18	482.06	40.22	9	441.44	29.61	42	503.24	37.02	21	482.71	31.16

SAT Mathematics, Mean Score

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	20	483.20	60.20	10	434.30	38.75	26	476.31	36.39	13	456.46	37.91	32	507.19	30.45	16	503.69	30.44
2005	18	470.56	48.89	9	451.33	43.97	24	485.46	85.86	12	479.75	46.69	38	506.08	32.99	19	506.47	29.20
2006	20	482.70	65.69	10	449.70	34.12	26	474.73	39.36	13	480.31	36.76	38	504.87	32.86	19	506.42	31.13
2007	20	476.10	78.84	10	458.70	40.18	20	470.65	48.08	10	475.70	37.69	38	502.95	33.54	19	504.89	30.70
2008	18	459.67	48.90	9	425.44	22.45	20	462.90	53.65	10	470.50	24.91	42	500.67	39.36	21	499.57	33.52
2009	18	463.83	55.61	9	423.78	26.10	22	482.45	53.95	11	464.18	25.51	42	503.00	38.36	21	504.43	30.98
2010	16	464.13	43.86	8	420.88	19.50	18	476.72	41.32	9	447.78	28.38	42	506.52	41.83	21	491.48	30.48

The Percentage of Seniors Scoring at Least 500 on SAT Critical Reading

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	22	8.14	6.05	11	7.26	6.72	32	7.05	7.28	16	6.99	6.97	32	27.99	11.94	16	30.65	9.65
2005	22	7.94	6.66	11	8.50	7.99	32	6.63	7.30	16	8.75	8.10	38	29.05	12.60	19	32.02	10.84
2006	22	7.25	5.90	11	7.81	6.60	32	6.28	7.32	16	7.92	7.94	38	27.34	11.57	19	30.24	11.20
2007	22	6.89	5.52	11	7.79	6.33	32	6.25	7.32	16	7.24	8.29	38	27.60	11.36	19	31.58	11.23
2008	22	6.41	4.79	11	10.84	7.33	32	5.30	6.75	16	6.84	6.76	42	24.86	11.35	21	28.11	10.98
2009	22	5.57	4.61	11	11.32	6.24	32	5.08	6.21	16	9.68	8.56	42	23.29	9.93	21	27.24	11.05
2010	22	6.55	5.59	11	12.19	7.47	32	5.45	7.12	16	7.63	7.72	42	26.16	12.97	21	31.96	12.98

The Percentage of Seniors Scoring at Least 500 on SAT Mathematics

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2004	22	8.05	5.93	11	6.52	6.53	32	6.76	7.50	16	7.16	7.86	32	28.75	12.68	16	30.99	9.96
2005	22	7.95	6.50	11	8.83	8.33	32	6.43	7.45	16	8.95	8.98	38	30.51	13.58	19	33.66	11.23
2006	22	7.27	5.58	11	7.37	6.18	32	6.32	7.45	16	7.66	8.01	38	28.26	12.51	19	32.16	11.46
2007	22	6.46	4.85	11	7.38	6.34	32	5.96	7.04	16	7.67	8.85	38	28.13	12.67	19	32.98	11.94
2008	22	5.86	4.34	11	11.04	6.65	32	4.98	6.43	16	8.27	8.27	42	26.12	12.89	21	29.38	12.64
2009	22	5.27	4.16	11	11.27	7.43	32	4.72	6.05	16	9.37	9.16	42	24.05	10.87	21	27.91	10.92
2010	22	6.31	5.01	11	13.22	7.84	32	5.30	6.98	16	8.19	8.75	42	27.08	13.99	21	33.62	13.13

Chapter 6

School Average State/Local Test Scores (Standardized), 9th-Grade Reading

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2004	22	-0.69	1.11	11	-0.59	1.10	32	-0.28	0.80	16	-0.39	0.75	38	0.65	0.74	19	0.63	0.58
2005	24	-0.66	1.02	12	-0.54	1.09	32	-0.29	0.84	16	-0.28	0.76	38	0.66	0.78	19	0.56	0.65
2006	24	-0.65	1.07	12	-0.51	0.85	32	-0.27	0.83	16	-0.38	0.90	38	0.67	0.75	19	0.57	0.68
2007	24	-0.47	1.10	12	-0.46	0.71	32	-0.27	0.82	16	-0.48	0.94	42	0.63	0.85	21	0.33	0.84
2008	24	-0.41	1.10	12	-0.60	0.94	32	-0.24	0.88	16	-0.59	0.85	42	0.65	0.77	21	0.32	0.74
2009	24	-0.33	0.99	12	-0.79	0.95	32	-0.21	0.84	16	-0.63	0.89	42	0.72	0.77	21	0.18	0.79
2010	16	-0.68	0.91	8	-1.14	0.67	24	-0.22	0.79	12	-0.67	0.99	42	0.64	0.76	21	0.30	0.80

School Average State/Local Test Scores (Standardized), 9th-Grade Mathematics

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2004	22	-0.68	1.11	11	-0.67	0.99	32	-0.29	0.88	16	-0.33	0.79	38	0.57	0.67	19	0.80	0.55
2005	24	-0.70	0.99	12	-0.63	1.06	32	-0.28	0.89	16	-0.24	0.70	38	0.63	0.73	19	0.70	0.61
2006	24	-0.61	1.03	12	-0.57	0.99	32	-0.26	0.86	16	-0.40	0.76	38	0.65	0.76	19	0.61	0.71
2007	24	-0.45	1.00	12	-0.61	0.82	32	-0.30	0.89	16	-0.36	0.88	42	0.59	0.88	21	0.42	0.82
2008	24	-0.41	1.01	12	-0.65	0.94	32	-0.25	0.90	16	-0.59	0.93	42	0.60	0.79	21	0.47	0.72
2009	24	-0.38	0.92	12	-0.71	0.91	32	-0.22	0.92	16	-0.62	0.79	42	0.65	0.84	21	0.35	0.81
2010	16	-0.69	0.89	8	-0.99	0.53	24	-0.19	0.82	12	-0.70	0.88	42	0.64	0.84	21	0.23	0.82

School Average State/Local Test Scores (Standardized), 10th-Grade Reading

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	16	-0.84	0.71	8	-0.80	0.70	24	-0.45	0.70	12	-0.48	0.94	38	0.63	0.85	19	0.66	0.69
2005	16	-0.87	0.93	8	-0.73	0.81	24	-0.41	0.84	12	-0.41	0.74	38	0.60	0.82	19	0.61	0.62
2006	16	-0.92	0.88	8	-0.78	0.52	24	-0.48	0.75	12	-0.35	0.80	38	0.70	0.81	19	0.52	0.66
2007	16	-0.88	0.89	8	-0.66	0.47	24	-0.29	0.84	12	-0.57	0.68	42	0.54	0.90	21	0.51	0.83
2008	16	-0.70	1.01	8	-0.97	0.65	24	-0.27	0.77	12	-0.68	0.84	42	0.56	0.82	21	0.47	0.83
2009	16	-0.70	0.84	8	-1.03	0.85	24	-0.31	0.76	12	-0.72	0.88	42	0.63	0.81	21	0.43	0.75
2010	16	-0.67	0.79	8	-1.29	0.68	24	-0.20	0.72	12	-0.79	0.86	42	0.69	0.80	21	0.30	0.75

School Average State/Local Test Scores (Standardized), 10th-Grade Mathematics

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons						2008–09 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	16	-0.86	0.74	8	-1.00	0.79	24	-0.34	0.84	12	-0.43	0.87	38	0.57	0.80	19	0.71	0.63
2005	16	-0.96	0.81	8	-0.81	0.86	24	-0.34	0.89	12	-0.40	0.62	38	0.60	0.81	19	0.63	0.61
2006	16	-0.99	0.92	8	-0.65	0.57	24	-0.48	0.78	12	-0.25	0.77	38	0.69	0.79	19	0.50	0.68
2007	16	-0.93	0.85	8	-0.59	0.44	24	-0.30	0.86	12	-0.45	0.63	42	0.54	0.93	21	0.45	0.85
2008	16	-0.74	0.92	8	-0.95	0.56	24	-0.30	0.80	12	-0.59	0.82	42	0.57	0.86	21	0.47	0.81
2009	16	-0.79	0.86	8	-0.93	0.67	24	-0.30	0.87	12	-0.66	0.74	42	0.61	0.84	21	0.46	0.70
2010	16	-0.69	0.76	8	-1.20	0.66	24	-0.15	0.73	12	-0.71	0.87	42	0.64	0.87	21	0.28	0.80

School Average State/Local Test Scores (Standardized), 11th-Grade Reading

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	6	0.03	1.41	3	0.34	1.06	16	-0.09	0.86	8	0.03	1.03
2005	6	0.15	1.36	3	0.69	0.90	16	-0.15	0.86	8	-0.07	1.00
2006	6	0.21	1.32	3	0.45	1.26	16	-0.22	0.93	8	0.10	0.79
2007	6	0.30	1.06	3	0.50	1.36	16	-0.13	1.02	8	0.06	0.92
2008	6	0.37	1.29	3	0.40	0.74	16	-0.18	1.07	8	0.12	0.81
2009	6	0.23	1.28	3	0.32	0.86	16	-0.14	1.02	8	0.04	1.05
2010	6	0.42	1.31	3	0.49	0.96	16	-0.25	1.02	8	0.17	0.78

School Average State/Local Test Scores (Standardized), 11th-Grade Mathematics

	2006–07 Cohort and Comparisons						2007–08 Cohort and Comparisons					
	Comparison			EXCELerator			Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2004	6	0.19	1.41	3	0.48	0.73	16	-0.14	0.93	8	-0.04	0.91
2005	6	0.22	1.34	3	0.62	0.65	16	-0.14	0.96	8	-0.12	0.90
2006	6	0.36	1.21	3	0.55	0.87	16	-0.28	1.01	8	0.09	0.74
2007	6	0.37	1.01	3	0.73	1.00	16	-0.17	1.07	8	0.07	0.85
2008	6	0.48	1.14	3	0.37	0.53	16	-0.10	1.16	8	-0.04	0.68
2009	6	0.39	1.12	3	0.42	0.75	16	-0.11	1.09	8	-0.03	0.94
2010	6	0.46	1.28	3	0.52	0.65	16	-0.24	1.03	8	0.17	0.82

Chapter 7

School Average State Test Scores, Reading Grade 6

	Comparison			EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	306.90	20.44	43	305.14	19.61
2007	88	303.72	22.51	44	302.39	21.92
2008	88	306.58	23.13	44	305.70	25.67
2009	88	308.85	22.18	44	307.14	23.62
2010	88	308.89	24.93	44	309.25	26.00

School Average State Test Scores, Reading Grade 7

	Comparison			EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	309.07	20.79	43	307.42	19.31
2007	88	310.77	20.48	44	307.18	20.46
2008	88	312.72	20.74	44	309.66	21.08
2009	88	314.77	21.08	44	310.95	22.78
2010	88	317.45	22.47	44	315.89	24.23

School Average State Test Scores, Reading Grade 8

	Comparison			EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	297.43	20.70	43	297.98	19.61
2007	88	301.02	19.86	44	301.32	17.64
2008	88	307.33	18.01	44	306.16	17.76
2009	88	309.18	18.52	44	308.36	19.06
2010	88	309.14	19.30	44	310.50	19.52

School Average State Test Scores, Mathematics Grade 6

	Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2006	86	306.43	26.99	43	312.00	22.67
2007	88	303.88	26.63	44	306.98	27.59
2008	88	308.05	26.28	44	310.57	27.85
2009	88	310.44	25.56	44	310.55	26.85
2010	88	312.27	25.99	44	314.48	25.53

School Average State Test Scores, Mathematics Grade 7

	Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2006	86	304.03	23.72	43	309.60	20.66
2007	88	308.80	22.63	44	311.48	19.71
2008	88	311.69	20.49	44	314.41	20.32
2009	88	309.50	22.54	44	311.77	22.49
2010	88	309.27	22.79	44	312.05	23.14

School Average State Test Scores, Mathematics Grade 8

	Comparison			EXCELerator		
Year	*N*	Mean	Std Dev	*N*	Mean	Std Dev
2006	86	313.06	21.26	43	317.53	18.65
2007	88	316.13	20.56	44	319.86	17.13
2008	88	321.45	17.84	44	323.23	16.00
2009	88	319.24	18.22	44	320.55	17.30
2010	88	321.56	17.57	44	323.61	17.10

School Average State Test Scores, Reading Grade 6, by Level of Implementation: 2009 and 2010 Proxy Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	306.90	20.44	16	317.94	19.95	13	294.08	16.79	14	300.79	13.34
2007	88	303.72	22.51	16	317.00	22.59	13	290.85	19.69	15	296.80	13.96
2008	88	306.58	23.13	16	323.25	22.92	13	291.31	22.67	15	299.47	20.85
2009	88	308.85	22.18	16	324.63	20.57	13	293.54	21.51	15	300.27	17.07
2010	88	308.89	24.93	16	327.19	23.89	13	294.54	22.22	15	302.87	20.70

School Average State Test Scores, Reading Grade 7, by Level of Implementation: 2009 and 2010 Proxy Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	309.07	20.79	16	319.06	20.08	13	298.15	16.44	14	302.71	14.63
2007	88	310.77	20.48	16	320.44	21.38	13	297.23	16.28	15	301.67	15.61
2008	88	312.72	20.74	16	323.13	20.98	13	298.85	18.81	15	304.67	15.74
2009	88	314.77	21.08	16	326.44	20.99	13	297.23	18.65	15	306.33	18.77
2010	88	317.45	22.47	16	333.31	21.40	13	302.15	20.26	15	309.20	19.77

School Average State Test Scores, Reading Grade 8, by Level of Implementation: 2009 and 2010 Proxy Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	297.43	20.70	16	311.00	19.29	13	290.23	16.07	14	290.29	15.56
2007	88	301.02	19.86	16	312.56	17.71	13	292.38	16.31	15	297.07	12.41
2008	88	307.33	18.01	16	317.69	18.12	13	298.38	16.71	15	300.60	11.71
2009	88	309.18	18.52	16	320.81	19.72	13	298.00	16.33	15	304.07	13.19
2010	88	309.14	19.30	16	324.06	18.84	13	299.85	16.13	15	305.27	14.91

School Average State Test Scores, Mathematics Grade 6, by Level of Implementation: 2009 and 2010 Proxy Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	306.43	26.99	16	328.56	21.19	13	300.08	19.79	14	304.14	15.30
2007	88	303.88	26.63	16	327.69	24.34	13	291.46	26.27	15	298.33	17.84
2008	88	308.05	26.28	16	331.25	22.78	13	295.46	24.95	15	301.60	22.47
2009	88	310.44	25.56	16	331.50	21.33	13	294.46	24.06	15	302.13	20.32
2010	88	312.27	25.99	16	333.19	23.43	13	299.54	21.11	15	307.47	19.27

School Average State Test Scores, Mathematics Grade 7, by Level of Implementation: 2009 and 2010 Proxy Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	304.03	23.72	16	322.75	20.31	13	299.38	18.26	14	304.07	15.66
2007	88	308.80	22.63	16	326.13	18.18	13	300.08	17.44	15	305.73	13.30
2008	88	311.69	20.49	16	329.69	18.43	13	303.69	18.83	15	307.40	13.20
2009	88	309.50	22.54	16	328.88	20.13	13	298.31	18.82	15	305.20	16.34
2010	88	309.27	22.79	16	329.94	19.16	13	298.69	19.53	15	304.53	18.22

School Average State Test Scores, Mathematics Grade 8, by Level of Implementation: 2009 and 2010 Proxy Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	313.06	21.26	16	330.69	17.84	13	310.08	15.85	14	309.43	13.61
2007	88	316.13	20.56	16	331.56	15.97	13	311.00	16.31	15	315.07	12.07
2008	88	321.45	17.84	16	334.50	15.09	13	315.31	15.57	15	318.07	10.14
2009	88	319.24	18.22	16	332.81	16.89	13	311.69	15.28	15	315.13	11.74
2010	88	321.56	17.57	16	337.00	16.19	13	313.92	13.98	15	317.73	11.00

School Average Stat Test Scores, Reading Grade 6, by Level of Implementation: 2009 Proxy, 2010 Survey Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	306.90	20.44	15	323.40	15.02	12	297.00	16.61	16	294.13	12.15
2007	88	303.72	22.51	15	320.87	19.64	12	293.33	20.97	17	292.47	12.84
2008	88	306.58	23.13	15	327.73	19.12	12	293.83	26.41	17	294.65	16.77
2009	88	308.85	22.18	15	326.27	20.06	12	294.83	23.64	17	298.94	15.33
2010	88	308.89	24.93	15	331.13	21.83	12	298.42	25.31	17	297.59	16.65

School Average State Test Scores, Reading Grade 7, by Level of Implementation: 2009 Proxy, 2010 Survey Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	309.07	20.79	15	325.00	14.32	12	297.58	18.52	16	298.31	11.26
2007	88	310.77	20.48	15	326.47	15.99	12	297.17	17.77	17	297.24	12.48
2008	88	312.72	20.74	15	327.20	18.06	12	301.08	21.08	17	300.24	12.89
2009	88	314.77	21.08	15	331.13	17.37	12	300.08	22.40	17	300.82	14.38
2010	88	317.45	22.47	15	335.93	21.46	12	304.17	24.16	17	306.47	14.13

School Average State Test Scores, Reading Grade 8, by Level of Implementation: 2009 Proxy, 2010 Survey Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	297.43	20.70	15	315.00	16.88	12	286.25	18.43	16	290.81	10.36
2007	88	301.02	19.86	15	317.67	13.00	12	292.08	17.60	17	293.41	9.72
2008	88	307.33	18.01	15	321.87	14.13	12	299.25	18.72	17	297.18	8.92
2009	88	309.18	18.52	15	324.80	16.78	12	300.08	18.12	17	299.71	10.95
2010	88	309.14	19.30	15	327.20	17.53	12	302.67	18.66	17	301.29	10.90

School Average State Test Scores, Mathematics Grade 6, by Level of Implementation: 2009 Proxy, 2010 Survey Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	306.43	26.99	15	333.07	18.45	12	301.58	18.96	16	300.06	13.21
2007	88	303.88	26.63	15	330.07	24.38	12	293.42	28.46	17	296.18	14.41
2008	88	308.05	26.28	15	333.80	23.49	12	295.58	27.50	17	300.65	17.39
2009	88	310.44	25.56	15	332.53	23.53	12	296.83	27.00	17	300.82	16.03
2010	88	312.27	25.99	15	336.93	22.23	12	302.67	24.13	17	303.00	14.18

School Average State Test Scores, Mathematics Grade 7, by Level of Implementation: 2009 Proxy, 2010 Survey Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	304.03	23.72	15	328.13	15.51	12	298.00	21.02	16	300.94	10.74
2007	88	308.80	22.63	15	330.33	14.28	12	301.67	18.02	17	301.76	11.68
2008	88	311.69	20.49	15	331.00	18.52	12	305.42	20.13	17	306.12	11.78
2009	88	309.50	22.54	15	331.47	18.89	12	300.00	20.79	17	302.71	13.96
2010	88	309.27	22.79	15	330.73	20.89	12	301.33	23.74	17	303.12	13.09

School Average State Test Scores, Mathematics Grade 8, by Level of Implementation: 2009 Proxy, 2010 Survey Measures

	Comparison			High-High Implem. EXCELerator			Low-Low Implem. EXCELerator			Mixed Implem. EXCELerator		
Year	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**	***N***	**Mean**	**Std Dev**
2006	86	313.06	21.26	15	333.33	16.18	12	306.08	17.45	16	311.31	10.50
2007	88	316.13	20.56	15	335.20	12.75	12	310.08	17.91	17	313.24	9.32
2008	88	321.45	17.84	15	337.53	12.19	12	316.00	16.00	17	315.71	9.54
2009	88	319.24	18.22	15	334.93	15.84	12	313.08	17.00	17	313.12	9.60
2010	88	321.56	17.57	15	339.00	14.83	12	315.58	15.17	17	315.71	9.94

Appendix F
Full Regression Results

Chapter 3

Graduation Rate

```
Fixed-effects (within) regression               Number of obs      =       975
Group variable: sch_num                         Number of groups   =       144

R-sq:  within  = 0.4514                         Obs per group: min =         3
       between = 0.0720                                        avg =       6.8
       overall = 0.1634                                        max =         7

                                                F(22,143)          =     18.91
corr(u_i, Xb)  = -0.0882                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 144 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
grad_rate_~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 stateyear_2 |   3.257143    1.33554     2.44   0.016     .6171911    5.897096
 stateyear_3 |   1.457142   1.726454     0.84   0.400    -1.955525     4.86981
 stateyear_4 |  -5.463611   2.197116    -2.49   0.014    -9.806634   -1.120589
 stateyear_5 |   -.320321   2.537362    -0.13   0.900    -5.335904    4.695262
 stateyear_6 |  -3.533846   2.297563    -1.54   0.126    -8.075421    1.007729
 stateyear_7 |  -4.658124   2.444514    -1.91   0.059    -9.490176    .1739276
 stateyear_9 |  -3.908333   3.060466    -1.28   0.204    -9.957932    2.141266
stateyear_10 |        -11   2.856041    -3.85   0.000    -16.64551   -5.354485
stateyear_11 |  -12.73333   1.892146    -6.73   0.000    -16.47352   -8.993143
stateyear_12 |  -17.54565   2.566661    -6.84   0.000    -22.61915   -12.47215
stateyear_13 |  -12.77266   3.415725    -3.74   0.000    -19.52449   -6.020822
stateyear_14 |  -21.25154   4.095705    -5.19   0.000    -29.34749   -13.15559
stateyear_16 |    -.63214   .5640298    -1.12   0.264    -1.747053    .4827733
stateyear_17 |  -1.271188   .7007445    -1.81   0.072    -2.656344    .1139685
stateyear_18 |   .9936162   .6874653     1.45   0.151    -.3652911    2.352523
stateyear_19 |   6.065377   .9058921     6.70   0.000     4.274707    7.856046
stateyear_20 |   8.980762   1.041309     8.62   0.000     6.922414    11.03911
stateyear_21 |   10.85436   1.120682     9.69   0.000      8.63912    13.06961
      EXCEL1 |  -.4880497   1.322806    -0.37   0.713    -3.102831    2.126731
      EXCEL2 |   .0929806   1.404503     0.07   0.947    -2.683289     2.86925
      EXCEL3 |   4.179613   1.874237     2.23   0.027     .4748232    7.884402
      EXCEL4 |   8.034055   2.448048     3.28   0.001     3.195017    12.87309
       _cons |   73.57429   .5067311   145.19   0.000     72.57264    74.57594
-------------+----------------------------------------------------------------
     sigma_u |  11.321966
     sigma_e |  5.8620506
         rho |  .78859722   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Dropout Rate

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.2854                         Obs per group: min =         4
       between = 0.0069                                        avg =       6.9
       overall = 0.0425                                        max =         7

                                                F(22,146)          =     13.03
corr(u_i, Xb)  = -0.1035                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
dropout_ra~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 stateyear_2 |  -1.942803   1.085245    -1.79   0.075    -4.087623     .202016
 stateyear_3 |  -3.976137   1.728466    -2.30   0.023    -7.392184   -.5600896
 stateyear_4 |  -3.232594   1.576955    -2.05   0.042    -6.349202    -.115986
 stateyear_5 |   1.390355   1.381219     1.01   0.316    -1.339412    4.120122
 stateyear_6 |  -1.016798   1.345497    -0.76   0.451    -3.675965    1.642369
 stateyear_7 |   3.966332   1.421007     2.79   0.006      1.15793    6.774734
 stateyear_9 |       .725   .4307952     1.68   0.095    -.1264002      1.5764
stateyear_10 |          3   .8867352     3.38   0.001     1.247505    4.752495
stateyear_11 |   3.716667    .858543     4.33   0.000     2.019889    5.413444
stateyear_12 |   2.328752   .6203269     3.75   0.000     1.102772    3.554733
stateyear_13 |   .9375646   .7416513     1.26   0.208    -.5281948    2.403324
stateyear_14 |   .5227789   .8603032     0.61   0.544    -1.177478    2.223035
stateyear_16 |   .2152381   .1659408     1.30   0.197    -.1127183    .5431945
stateyear_17 |   .4361905   .1680504     2.60   0.010     .1040647    .7683163
stateyear_18 |   .2223005   .1788288     1.24   0.216     -.131127     .575728
stateyear_19 |  -.4173252   .2053676    -2.03   0.044    -.8232025   -.0114479
stateyear_20 |  -.7953158   .2462275    -3.23   0.002    -1.281947   -.3086851
stateyear_21 |  -1.005783   .2552521    -3.94   0.000    -1.510249   -.5013164
      EXCEL1 |   .0387426   .4298576     0.09   0.928    -.8108045    .8882897
      EXCEL2 |  -.3876937   .4777342    -0.81   0.418    -1.331862    .5564742
      EXCEL3 |  -1.193337   .7821573    -1.53   0.129     -2.73915    .3524765
      EXCEL4 |  -2.486474   .8245713    -3.02   0.003    -4.116112   -.8568359
       _cons |   4.230181   .2074022    20.40   0.000     3.820283    4.640079
-------------+----------------------------------------------------------------
     sigma_u |  3.9844061
     sigma_e |  2.0921696
         rho |  .78387172   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Chapter 4

The Percentage of the Whole School (Grades 9–12) Taking at Least One AP Exam

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.6192                         Obs per group: min =         4
       between = 0.0516                                        avg =       6.9
       overall = 0.2588                                        max =         7

                                                F(10,146)          =     45.94
corr(u_i, Xb)  = 0.0048                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstudent~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   1.081232   .2578434     4.19   0.000     .5716444     1.59082
      Yr2006 |   2.131911   .3040696     7.01   0.000     1.530965    2.732858
      Yr2007 |   3.805486   .4130232     9.21   0.000     2.989209    4.621763
      Yr2008 |   5.168735   .4870402    10.61   0.000     4.206175    6.131295
      Yr2009 |   6.475887   .5602519    11.56   0.000     5.368635    7.583138
      Yr2010 |   9.079289   .6997384    12.98   0.000     7.696364    10.46221
      EXCEL1 |   6.499852   .8798037     7.39   0.000     4.761056    8.238648
      EXCEL2 |    8.62402   1.124417     7.67   0.000     6.401783    10.84626
      EXCEL3 |   8.420982   1.737319     4.85   0.000     4.987439    11.85453
      EXCEL4 |   10.96407   2.194117     5.00   0.000     6.627738    15.30041
       _cons |   7.655657   .3254165    23.53   0.000     7.012521    8.298792
-------------+----------------------------------------------------------------
     sigma_u |    7.48158
     sigma_e |  3.8503251
         rho |  .79060446   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

The Percentage of the Whole School (Grades 9–12) Taking at Least One AP English Exam

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.4805                         Obs per group: min =         4
       between = 0.0171                                        avg =       6.9
       overall = 0.1549                                        max =         7

                                                F(10,146)          =     20.88
corr(u_i, Xb)  = -0.0323                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstudent~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .4584337    .121502     3.77   0.000     .2183037    .6985636
      Yr2006 |   .6785548   .1476432     4.60   0.000     .3867609    .9703488
      Yr2007 |   1.265054   .2099243     6.03   0.000      .850171    1.679937
      Yr2008 |   1.654704   .2402643     6.89   0.000     1.179859     2.12955
      Yr2009 |   2.001273   .2895618     6.91   0.000     1.428999    2.573547
      Yr2010 |   2.676145   .3456627     7.74   0.000     1.992996    3.359294
      EXCEL1 |   2.357319   .4115245     5.73   0.000     1.544005    3.170634
      EXCEL2 |   3.670902   .4892014     7.50   0.000     2.704071    4.637733
      EXCEL3 |   4.402658   .7490208     5.88   0.000     2.922334    5.882982
      EXCEL4 |   5.458072    1.23877     4.41   0.000     3.009835     7.90631
       _cons |   3.187983   .1586184    20.10   0.000     2.874499    3.501468
-------------+----------------------------------------------------------------
     sigma_u |  3.5605068
     sigma_e |  1.8418392
         rho |  .78889482   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

The Percentage of the Whole School (Grades 9–12) Taking at Least One AP Calculus Exam

Fixed-effects (within) regression		Number of obs =	1008
Group variable: sch_num		Number of groups =	147
R-sq:	within = 0.1363	Obs per group: min =	4
	between = 0.0002	avg =	6.9
	overall = 0.0314	max =	7
		F(10,146) =	5.49
corr(u_i, Xb) = 0.0000		Prob > F =	0.0000

(Std. Err. adjusted for 147 clusters in sch_num)

pctstudent~_	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Yr2005	.1504282	.0531551	2.83	0.005	.0453753	.255481
Yr2006	.1825629	.0554084	3.29	0.001	.0730567	.292069
Yr2007	.228037	.0589551	3.87	0.000	.1115214	.3445527
Yr2008	.2706429	.0794608	3.41	0.001	.1136009	.4276848
Yr2009	.3515068	.0943686	3.72	0.000	.1650019	.5380118
Yr2010	.6625204	.1195355	5.54	0.000	.4262769	.8987639
EXCEL1	.2223313	.1283965	1.73	0.085	-.0314244	.4760871
EXCEL2	.1948323	.1513552	1.29	0.200	-.1042979	.4939626
EXCEL3	.1045063	.1637233	0.64	0.524	-.2190676	.4280802
EXCEL4	.3366079	.4744696	0.71	0.479	-.601108	1.274324
_cons	.9886631	.0521029	18.98	0.000	.8856897	1.091636
sigma_u	1.1230933					
sigma_e	.60526561					
rho	.77492793	(fraction of variance due to u_i)				

The Percentage of the Whole School (Grades 9–12) Taking at Least One AP STEM Exam

Fixed-effects (within) regression		Number of obs =	1008
Group variable: sch_num		Number of groups =	147
R-sq:	within = 0.2875	Obs per group: min =	4
	between = 0.0014	avg =	6.9
	overall = 0.0642	max =	7
		F(10,146) =	13.98
corr(u_i, Xb) = 0.0007		Prob > F =	0.0000

(Std. Err. adjusted for 147 clusters in sch_num)

pctstudent~_	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Yr2005	.2929558	.1161033	2.52	0.013	.0634954	.5224161
Yr2006	.5356961	.1602502	3.34	0.001	.2189862	.8524059
Yr2007	.991168	.1793293	5.53	0.000	.6367513	1.345585
Yr2008	1.232104	.196797	6.26	0.000	.8431649	1.621043
Yr2009	1.622158	.242497	6.69	0.000	1.1429	2.101416
Yr2010	2.350893	.3126088	7.52	0.000	1.73307	2.968716
EXCEL1	.9610684	.2975445	3.23	0.002	.3730176	1.549119
EXCEL2	1.4911	.3879488	3.84	0.000	.7243793	2.257821
EXCEL3	.2889353	.4838262	0.60	0.551	-.6672726	1.245143
EXCEL4	-.2165523	1.052115	-0.21	0.837	-2.295896	1.862791
_cons	2.728905	.1338676	20.39	0.000	2.464337	2.993474
sigma_u	3.2646459					
sigma_e	1.5558533					
rho	.81491284	(fraction of variance due to u_i)				

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 3 on at Least One AP Exam

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.3531                         Obs per group: min =         4
       between = 0.0065                                        avg =       6.9
       overall = 0.0441                                        max =         7

                                                F(10,146)          =     14.75
corr(u_i, Xb)  = 0.0149                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstuden~1_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .2849189    .095094     3.00   0.003     .0969802    .4728575
      Yr2006 |   .5417201   .1314254     4.12   0.000     .2819782     .801462
      Yr2007 |   .8413537   .1847438     4.55   0.000      .476236    1.206471
      Yr2008 |   .9605237   .2248622     4.27   0.000     .5161182    1.404929
      Yr2009 |   1.845104    .310693     5.94   0.000     1.231067     2.45914
      Yr2010 |   3.047687   .3780342     8.06   0.000     2.300561    3.794813
      EXCEL1 |   .9464126   .3177401     2.98   0.003     .3184484    1.574377
      EXCEL2 |   1.160188   .4241741     2.74   0.007     .3218731    1.998502
      EXCEL3 |  -.6615437   .3952069    -1.67   0.096    -1.442609    .1195218
      EXCEL4 |  -1.643766   .4050734    -4.06   0.000    -2.444332   -.8432012
       _cons |   3.715469    .160016    23.22   0.000     3.399222    4.031716
-------------+----------------------------------------------------------------
     sigma_u |   5.051645
     sigma_e |  1.5315799
         rho |  .91581736   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 3 on at Least One AP English Exam

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.2232                         Obs per group: min =         4
       between = 0.0016                                        avg =       6.9
       overall = 0.0274                                        max =         7

                                                F(10,146)          =      7.40
corr(u_i, Xb)  = 0.0064                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstu_ge~1_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0967138   .0513822     1.88   0.062    -.0048351    .1982627
      Yr2006 |   .0808648   .0618061     1.31   0.193    -.0412855     .203015
      Yr2007 |   .3143666   .0954138     3.29   0.001      .125796    .5029373
      Yr2008 |   .3718185   .1228693     3.03   0.003     .1289862    .6146507
      Yr2009 |   .5379327   .1421076     3.79   0.000     .2570789    .8187865
      Yr2010 |   .9734887   .1838163     5.30   0.000     .6102041    1.336773
      EXCEL1 |   .5195583   .1614556     3.22   0.002     .2004662    .8386504
      EXCEL2 |   .6670365   .2155803     3.09   0.002     .2409754    1.093098
      EXCEL3 |  -.0171813   .1871133    -0.09   0.927    -.3869818    .3526192
      EXCEL4 |  -.3462128   .2280453    -1.52   0.131    -.7969091    .1044834
       _cons |   1.482818   .0764318    19.40   0.000     1.331762    1.633873
-------------+----------------------------------------------------------------
     sigma_u |  2.2971402
     sigma_e |  .77162493
         rho |  .89860714   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 3 on at Least One AP Calculus Exam

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.0372                         Obs per group: min =         4
       between = 0.0087                                        avg =       6.9
       overall = 0.0098                                        max =         7

                                                F(10,146)          =      2.40
corr(u_i, Xb)  = 0.0304                         Prob > F           =    0.0114

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstu_ge~1_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0040879   .0284075     0.14   0.886     -.052055    .0602309
      Yr2006 |   .0654341   .0368636     1.78   0.078    -.0074211    .1382894
      Yr2007 |   .0412374   .0355648     1.16   0.248    -.0290508    .1115257
      Yr2008 |   .0621273   .0498925     1.25   0.215    -.0364775     .160732
      Yr2009 |   .1502474   .0621922     2.42   0.017     .0273341    .2731607
      Yr2010 |   .2044328   .0728783     2.81   0.006     .0604001    .3484655
      EXCEL1 |   .0149295   .0684503     0.22   0.828     -.120352     .150211
      EXCEL2 |  -.0921406   .0826618    -1.11   0.267    -.2555089    .0712277
      EXCEL3 |  -.1394097   .0762274    -1.83   0.069    -.2900613     .011242
      EXCEL4 |  -.2921067   .0913614    -3.20   0.002    -.4726684    -.111545
       _cons |   .5637734    .031293    18.02   0.000     .5019276    .6256192
-------------+----------------------------------------------------------------
     sigma_u |  .88234466
     sigma_e |  .34856649
         rho |  .86500616   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 3 on at Least One AP STEM Exam

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.1161                         Obs per group: min =         4
       between = 0.0085                                        avg =       6.9
       overall = 0.0147                                        max =         7

                                                F(10,146)          =      4.95
corr(u_i, Xb)  = 0.0216                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstu_ge~1_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0647575   .0442424     1.46   0.145    -.0226808    .1521957
      Yr2006 |   .1681265   .0582424     2.89   0.004     .0530194    .2832336
      Yr2007 |     .22313   .0680905     3.28   0.001     .0885596    .3577003
      Yr2008 |   .2002402   .0897236     2.23   0.027     .0229154     .377565
      Yr2009 |   .3575786   .1233337     2.90   0.004     .1138286    .6013286
      Yr2010 |   .6459106   .1545435     4.18   0.000     .3404792     .951342
      EXCEL1 |   .1753528   .1086426     1.61   0.109    -.0393624    .3900681
      EXCEL2 |   .1883006   .1509874     1.25   0.214    -.1101027    .4867038
      EXCEL3 |  -.2443007   .1360508    -1.80   0.075     -.513184    .0245827
      EXCEL4 |  -.5861952   .1678453    -3.49   0.001    -.9179155   -.2544748
       _cons |   1.153403   .0623926    18.49   0.000     1.030093    1.276712
-------------+----------------------------------------------------------------
     sigma_u |  1.9641079
     sigma_e |  .61287448
         rho |  .91127205   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 2 on at Least One AP Exam

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.4861                         Obs per group: min =         4
       between = 0.0034                                        avg =       6.9
       overall = 0.0735                                        max =         7

                                                F(10,146)          =     22.91
corr(u_i, Xb)  = 0.0033                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 147 clusters in sch_num)
```

pctstuden~1_	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Yr2005	.6965615	.1492362	4.67	0.000	.4016191	.9915038
Yr2006	1.137562	.1947597	5.84	0.000	.7526497	1.522475
Yr2007	1.749897	.2553129	6.85	0.000	1.24531	2.254483
Yr2008	2.03502	.2977812	6.83	0.000	1.446502	2.623539
Yr2009	3.101784	.3977271	7.80	0.000	2.315738	3.88783
Yr2010	5.050001	.4765903	10.60	0.000	4.108094	5.991908
EXCEL1	2.492938	.4736755	5.26	0.000	1.556791	3.429084
EXCEL2	2.85996	.5866197	4.88	0.000	1.700597	4.019324
EXCEL3	.6794628	.5870756	1.16	0.249	-.4808015	1.839727
EXCEL4	-.5445053	.8013012	-0.68	0.498	-2.128153	1.039143
_cons	5.625709	.2196617	25.61	0.000	5.191581	6.059836
sigma_u	6.6175743					
sigma_e	2.0942242					
rho	.90896739	(fraction of variance due to u_i)				

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 2 on at Least One AP English Exam

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.3766                         Obs per group: min =         4
       between = 0.0013                                        avg =       6.9
       overall = 0.0606                                        max =         7

                                                F(10,146)          =     15.64
corr(u_i, Xb)  = -0.0204                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 147 clusters in sch_num)
```

pctstu_ge~1_	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Yr2005	.3745042	.0919897	4.07	0.000	.1927007	.5563077
Yr2006	.5515342	.1157084	4.77	0.000	.3228544	.7802139
Yr2007	.8334584	.1608169	5.18	0.000	.5156286	1.151288
Yr2008	.9606523	.1867953	5.14	0.000	.5914803	1.329824
Yr2009	1.180527	.228513	5.17	0.000	.7289068	1.632148
Yr2010	2.043723	.275556	7.42	0.000	1.499129	2.588317
EXCEL1	1.625397	.2865862	5.67	0.000	1.059004	2.191791
EXCEL2	2.035541	.3515174	5.79	0.000	1.340821	2.73026
EXCEL3	1.458984	.3720495	3.92	0.000	.7236856	2.194282
EXCEL4	1.230198	.7663418	1.61	0.111	-.2843579	2.744755
_cons	2.677067	.1276784	20.97	0.000	2.42473	2.929403
sigma_u	3.4098951					
sigma_e	1.2904528					
rho	.87472264	(fraction of variance due to u_i)				

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 2 on at Least One AP Calculus Exam

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.0372                         Obs per group: min =         4
       between = 0.0106                                        avg =       6.9
       overall = 0.0104                                        max =         7

                                                F(10,146)          =      2.37
corr(u_i, Xb)  = 0.0324                         Prob > F           =    0.0124

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstu_ge~1_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0356631   .0376505     0.95   0.345    -.0387472    .1100735
      Yr2006 |    .081165    .045036     1.80   0.074    -.0078418    .1701717
      Yr2007 |   .0484891   .0436814     1.11   0.269    -.0378404    .1348185
      Yr2008 |   .0914515   .0593842     1.54   0.126    -.0259123    .2088153
      Yr2009 |   .1970711    .073705     2.67   0.008     .0514046    .3427376
      Yr2010 |   .2250331   .0846391     2.66   0.009      .057757    .3923092
      EXCEL1 |    .060479   .0840928     0.72   0.473    -.1057174    .2266754
      EXCEL2 |  -.1020704   .0986853    -1.03   0.303    -.2971067     .092966
      EXCEL3 |  -.1586708   .0850304    -1.87   0.064    -.3267204    .0093787
      EXCEL4 |  -.3418872   .1043052    -3.28   0.001    -.5480303   -.1357441
       _cons |   .7200646   .0391755    18.38   0.000     .6426403    .7974889
-------------+----------------------------------------------------------------
     sigma_u |  1.0051461
     sigma_e |  .40832975
         rho |  .85834679   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

The Percentage of the Whole School (Grades 9–12) Scoring ≥ 2 on at Least One AP STEM Exam

```
Fixed-effects (within) regression               Number of obs      =      1008
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.1260                         Obs per group: min =         4
       between = 0.0089                                        avg =       6.9
       overall = 0.0158                                        max =         7

                                                F(10,146)          =      6.23
corr(u_i, Xb)  = 0.0222                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstu_ge~1_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .1277025    .063031     2.03   0.045     .0031315    .2522735
      Yr2006 |   .2177242   .0826103     2.64   0.009     .0544576    .3809908
      Yr2007 |   .3175126   .0982578     3.23   0.002     .1233212     .511704
      Yr2008 |   .2677735   .1198507     2.23   0.027     .0309071    .5046398
      Yr2009 |   .4920153   .1601464     3.07   0.003     .1755107    .8085199
      Yr2010 |   .8370631   .2010584     4.16   0.000     .4397022    1.234424
      EXCEL1 |   .3284154   .1404044     2.34   0.021     .0509278     .605903
      EXCEL2 |   .3486083   .1857331     1.88   0.063    -.0184646    .7156811
      EXCEL3 |  -.2705579   .1684489    -1.61   0.110    -.6034712    .0623554
      EXCEL4 |  -.7766086   .2207809    -3.52   0.001    -1.212948   -.3402692
       _cons |   1.683754   .0857511    19.64   0.000      1.51428    1.853228
-------------+----------------------------------------------------------------
     sigma_u |  2.5768339
     sigma_e |  .79613888
         rho |  .91286157   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Chapter 5

The Percentage of Seniors Taking the SAT

```
Fixed-effects (within) regression               Number of obs      =       975
Group variable: sch_num                         Number of groups   =       144

R-sq:  within  = 0.4200                         Obs per group: min =         3
       between = 0.0038                                        avg =       6.8
       overall = 0.0431                                        max =         7

                                                F(10,143)          =     26.19
corr(u_i, Xb)  = -0.0433                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 144 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstudent~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   1.306738   .4667827     2.80   0.006     .3840522    2.229424
      Yr2006 |  -.5837174   .6359932    -0.92   0.360     -1.84088    .6734454
      Yr2007 |   .4198973   .7010665     0.60   0.550    -.9658955     1.80569
      Yr2008 |  -.5971802   .8215674    -0.73   0.468    -2.221166    1.026806
      Yr2009 |  -4.340973   .8825581    -4.92   0.000    -6.085518   -2.596427
      Yr2010 |  -3.828478   .9990774    -3.83   0.000    -5.803346   -1.853609
      EXCEL1 |  -.3880858   1.027343    -0.38   0.706    -2.418826    1.642654
      EXCEL2 |   17.51947   2.184765     8.02   0.000     13.20086    21.83808
      EXCEL3 |   22.21165    3.45974     6.42   0.000     15.37281    29.05049
      EXCEL4 |   42.51319    4.09008    10.39   0.000     34.42836    50.59802
       _cons |   35.09018   .4897727    71.65   0.000     34.12205    36.05831
-------------+----------------------------------------------------------------
     sigma_u |  23.867322
     sigma_e |  6.7589536
         rho |   .9257581   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

SAT Critical Reading, Mean Score

Not Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       837
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.0546                         Obs per group: min =         3
       between = 0.1221                                        avg =       6.3
       overall = 0.0669                                        max =         7

                                                F(10,131)          =      5.78
corr(u_i, Xb)  = 0.1437                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
vmean_SAT_~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |  -3.621173   3.169554    -1.14   0.255    -9.891307    2.648961
      Yr2006 |  -4.889984   2.827691    -1.73   0.086    -10.48383    .7038635
      Yr2007 |  -5.274302   3.607429    -1.46   0.146    -12.41066    1.862053
      Yr2008 |  -5.256789   3.080616    -1.71   0.090    -11.35098    .8374036
      Yr2009 |  -1.594248   4.074471    -0.39   0.696    -9.654524    6.466029
      Yr2010 |  -.3713397    3.26423    -0.11   0.910    -6.828765    6.086086
      EXCEL1 |    4.42396   3.552014     1.25   0.215     -2.60277    11.45069
      EXCEL2 |  -15.67641   4.121978    -3.80   0.000    -23.83066   -7.522149
      EXCEL3 |  -28.86623   5.954738    -4.85   0.000    -40.64612   -17.08633
      EXCEL4 |  -35.08785   10.11488    -3.47   0.001    -55.09749   -15.07822
       _cons |   488.4357   2.125116   229.84   0.000     484.2317    492.6397
-------------+----------------------------------------------------------------
     sigma_u |  36.796427
     sigma_e |  24.839492
         rho |  .68695716   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       837
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.0577                         Obs per group: min =         3
       between = 0.0138                                        avg =       6.3
       overall = 0.0297                                        max =         7

                                                F(11,131)          =      6.23
corr(u_i, Xb)  = 0.0007                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
vmean_SAT_~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   -3.32586   3.186646    -1.04   0.299    -9.629807    2.978086
      Yr2006 |  -5.011608    2.82179    -1.78   0.078    -10.59378    .5705663
      Yr2007 |  -5.117202   3.632153    -1.41   0.161    -12.30247    2.068063
      Yr2008 |  -5.482284   3.086575    -1.78   0.078    -11.58827    .6236983
      Yr2009 |   -2.59177   4.317832    -0.60   0.549    -11.13347    5.949932
      Yr2010 |  -1.238397   3.439688    -0.36   0.719    -8.042921    5.566127
      EXCEL1 |   4.404008   3.539079     1.24   0.216    -2.597136    11.40515
      EXCEL2 |  -12.03871   4.920624    -2.45   0.016    -21.77288   -2.304546
      EXCEL3 |  -23.45779   6.889847    -3.40   0.001    -37.08755   -9.828024
      EXCEL4 |  -26.28751   11.39857    -2.31   0.023     -48.8366   -3.738416
pctstudent~_ |  -.2052284   .1371166    -1.50   0.137    -.4764777     .066021
       _cons |   496.7254   6.047092    82.14   0.000     484.7628     508.688
-------------+----------------------------------------------------------------
     sigma_u |  37.466993
     sigma_e |  24.816481
         rho |  .69506458   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

SAT Mathematics, Mean Score

Not Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       837
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.0373                         Obs per group: min =         3
       between = 0.1341                                        avg =       6.3
       overall = 0.0435                                        max =         7

                                                F(10,131)          =      4.54
corr(u_i, Xb)  = 0.1259                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
mmean_SAT_~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   4.549397   4.317096     1.05   0.294    -3.990849    13.08964
      Yr2006 |   2.475293   2.757312     0.90   0.371    -2.979328    7.929914
      Yr2007 |   .5213686   2.739241     0.19   0.849    -4.897504    5.940241
      Yr2008 |  -4.029145   2.708641    -1.49   0.139    -9.387483    1.329192
      Yr2009 |   1.740711   3.569541     0.49   0.627    -5.320693    8.802115
      Yr2010 |   2.902669   3.127237     0.93   0.355    -3.283753     9.08909
      EXCEL1 |   6.443823   3.524743     1.83   0.070    -.5289596     13.4166
      EXCEL2 |  -9.817593   3.776607    -2.60   0.010    -17.28862   -2.346564
      EXCEL3 |  -19.27147    5.95596    -3.24   0.002    -31.05378   -7.489159
      EXCEL4 |   -20.0506   10.38036    -1.93   0.056    -40.58544    .4842334
       _cons |   484.8128   2.054317   236.00   0.000     480.7488    488.8767
-------------+----------------------------------------------------------------
     sigma_u |  40.931275
     sigma_e |  24.398199
         rho |  .73783967   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       837
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.0434                         Obs per group: min =         3
       between = 0.0008                                        avg =       6.3
       overall = 0.0009                                        max =         7

                                                F(11,131)          =      5.02
corr(u_i, Xb)  = -0.1504                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
mmean_SAT_~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |    4.94979   4.345311     1.14   0.257    -3.646271    13.54585
      Yr2006 |   2.310392   2.750062     0.84   0.402    -3.129887    7.750672
      Yr2007 |   .7343683   2.746935     0.27   0.790    -4.699725    6.168462
      Yr2008 |  -4.334877   2.718406    -1.59   0.113    -9.712532    1.042779
      Yr2009 |    .388245   3.770535     0.10   0.918    -7.070773    7.847262
      Yr2010 |    1.72709   3.313252     0.52   0.603    -4.827314    8.281493
      EXCEL1 |    6.41677   3.478998     1.84   0.067    -.4655182    13.29906
      EXCEL2 |  -4.885516   4.669792    -1.05   0.297    -14.12348    4.352446
      EXCEL3 |  -11.93857   6.817658    -1.75   0.082    -25.42552    1.548387
      EXCEL4 |   -8.11887   11.72397    -0.69   0.490    -31.31169    15.07395
pctstudent~_ |  -.2782539   .1349938    -2.06   0.041    -.5453039    -.011204
       _cons |   496.0522   5.898211    84.10   0.000     484.3841    507.7203
-------------+----------------------------------------------------------------
     sigma_u |  42.219149
     sigma_e |  24.339168
         rho |   .7505549   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

The Percentage of Seniors Scoring at Least 500 on SAT Critical Reading

Not Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       975
Group variable: sch_num                         Number of groups   =       144

R-sq:  within  = 0.0957                         Obs per group: min =         3
       between = 0.0048                                        avg =       6.8
       overall = 0.0010                                        max =         7

                                                F(10,143)          =      9.47
corr(u_i, Xb)  = -0.0554                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 144 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstu_~500_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .4806414   .2940219     1.63   0.104    -.1005494    1.061832
      Yr2006 |  -.5786348   .3736745    -1.55   0.124    -1.317274    .1600046
      Yr2007 |  -.4747807    .441569    -1.08   0.284    -1.347627    .3980653
      Yr2008 |  -1.481669   .4143851    -3.58   0.000    -2.300781   -.6625569
      Yr2009 |  -2.237102   .4568338    -4.90   0.000    -3.140122   -1.334082
      Yr2010 |  -1.231257   .5871573    -2.10   0.038    -2.391887   -.0706281
      EXCEL1 |   .0821189   .4865584     0.17   0.866    -.8796572    1.043895
      EXCEL2 |   3.834969   .9445128     4.06   0.000     1.967958     5.70198
      EXCEL3 |   2.736181    .866979     3.16   0.002     1.022431    4.449932
      EXCEL4 |   4.895443   1.597674     3.06   0.003     1.737333    8.053552
       _cons |   16.21809   .2733436    59.33   0.000     15.67777     16.7584
-------------+----------------------------------------------------------------
     sigma_u |   13.28679
     sigma_e |  3.4688463
         rho |  .93618928   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       975
Group variable: sch_num                         Number of groups   =       144

R-sq:  within  = 0.5115                         Obs per group: min =         3
       between = 0.8132                                        avg =       6.8
       overall = 0.7921                                        max =         7

                                                F(11,143)          =     17.15
corr(u_i, Xb)  = 0.5180                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 144 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstu_~500_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0258716   .2299657     0.11   0.911    -.4286998    .4804429
      Yr2006 |    -.37549   .2364852    -1.59   0.115    -.8429483    .0919684
      Yr2007 |   -.620913   .2962319    -2.10   0.038    -1.206472   -.0353537
      Yr2008 |  -1.273839   .2785264    -4.57   0.000    -1.824399   -.7232777
      Yr2009 |  -.7263604   .3930808    -1.85   0.067     -1.50336    .0506395
      Yr2010 |   .1011263   .4833091     0.21   0.835     -.854227     1.05648
      EXCEL1 |   .2171802   .3907734     0.56   0.579    -.5552584    .9896189
      EXCEL2 |  -2.262142   1.161884    -1.95   0.053    -4.558829    .0345439
      EXCEL3 |  -4.993898   1.415204    -3.53   0.001    -7.791322   -2.196475
      EXCEL4 |  -9.899962   2.661681    -3.72   0.000    -15.16129   -4.638639
pctstudent~_ |   .3480192   .0525646     6.62   0.000     .2441151    .4519233
       _cons |   4.006032   1.849242     2.17   0.032     .3506509    7.661414
-------------+----------------------------------------------------------------
     sigma_u |  6.7837383
     sigma_e |  2.5510318
         rho |  .87610601   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

The Percentage of Seniors Scoring at Least 500 on SAT Mathematics

Not Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       975
Group variable: sch_num                         Number of groups   =       144

R-sq:  within  = 0.1132                         Obs per group: min =         3
       between = 0.0045                                        avg =       6.8
       overall = 0.0012                                        max =         7

                                                F(10,143)          =      9.92
corr(u_i, Xb)  = -0.0574                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 144 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstu_~500_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .9122266   .3020415     3.02   0.003     .3151836     1.50927
      Yr2006 |  -.3129622   .4016524    -0.78   0.437    -1.106905    .4809809
      Yr2007 |  -.4724623   .4634985    -1.02   0.310    -1.388656    .4437316
      Yr2008 |  -1.149173   .4530377    -2.54   0.012    -2.044689    -.253657
      Yr2009 |  -2.364717   .4669275    -5.06   0.000    -3.287689   -1.441745
      Yr2010 |  -1.018746   .6041331    -1.69   0.094    -2.212931    .1754392
      EXCEL1 |   .3296104   .5418078     0.61   0.544    -.7413769    1.400598
      EXCEL2 |   4.004938   .9100355     4.40   0.000     2.206078    5.803798
      EXCEL3 |   3.143765   .8522006     3.69   0.000     1.459227    4.828303
      EXCEL4 |   6.184891   1.458836     4.24   0.000     3.301221    9.068561
       _cons |   16.40448    .290339    56.50   0.000     15.83056    16.97839
-------------+----------------------------------------------------------------
     sigma_u |  14.086688
     sigma_e |  3.5165498
         rho |  .94133743   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       975
Group variable: sch_num                         Number of groups   =       144

R-sq:  within  = 0.5070                         Obs per group: min =         3
       between = 0.8066                                        avg =       6.8
       overall = 0.7846                                        max =         7

                                                F(11,143)          =     17.05
corr(u_i, Xb)  = 0.5523                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 144 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
pctstu_~500_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .4591642   .2419499     1.90   0.060    -.0190963    .9374246
      Yr2006 |  -.1105801     .27452    -0.40   0.688    -.6532216    .4320614
      Yr2007 |  -.6180459   .3201083    -1.93   0.055    -1.250802    .0147097
      Yr2008 |  -.9421232   .3103846    -3.04   0.003    -1.555658   -.3285884
      Yr2009 |  -.8596473   .4123835    -2.08   0.039    -1.674803   -.0444919
      Yr2010 |   .3086352   .4893809     0.63   0.529    -.6587202    1.275991
      EXCEL1 |   .4641646   .3949211     1.18   0.242    -.3164729    1.244802
      EXCEL2 |  -2.069282   1.163262    -1.78   0.077    -4.368693    .2301288
      EXCEL3 |  -4.557293   1.488819    -3.06   0.003     -7.50023   -1.614356
      EXCEL4 |  -8.554965   2.664016    -3.21   0.002    -13.82091   -3.289025
pctstudent~_ |   .3467125   .0541561     6.40   0.000     .2396626    .4537624
       _cons |    4.23827   1.899151     2.23   0.027      .484234    7.992306
-------------+----------------------------------------------------------------
     sigma_u |  7.5429268
     sigma_e |  2.6235314
         rho |  .89208119   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Chapter 6

Full Regression Results

School Average State/Local Test Scores (Standardized), 9th-Grade Reading

Not Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       984
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.0503                         Obs per group: min =         4
       between = 0.0395                                        avg =       6.7
       overall = 0.0330                                        max =         7

                                                F(10,146)          =      3.63
corr(u_i, Xb)  = 0.1026                         Prob > F           =    0.0002

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0108036    .026495     0.41   0.684    -.0415596    .0631668
      Yr2006 |   .0108036   .0365481     0.30   0.768    -.0614281    .0830354
      Yr2007 |   .0545273   .0421597     1.29   0.198    -.0287949    .1378494
      Yr2008 |   .0802417   .0449998     1.78   0.077    -.0086934    .1691768
      Yr2009 |   .1217048   .0512152     2.38   0.019     .0204859    .2229238
      Yr2010 |   .1413589   .0524753     2.69   0.008     .0376495    .2450682
      EXCEL1 |  -.2160018   .0536684    -4.02   0.000    -.3220692   -.1099345
      EXCEL2 |  -.2430007   .0626464    -3.88   0.000    -.3668116   -.1191898
      EXCEL3 |  -.3369231    .120288    -2.80   0.006    -.5746538   -.0991925
      EXCEL4 |  -.4183939   .0861199    -4.86   0.000    -.5885965   -.2481912
       _cons |  -.0246046   .0297699    -0.83   0.410    -.0834402    .0342309
-------------+----------------------------------------------------------------
     sigma_u |  .93728074
     sigma_e |  .30118313
         rho |  .90640665   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       984
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.0651                         Obs per group: min =         4
       between = 0.0331                                        avg =       6.7
       overall = 0.0032                                        max =         7

                                                F(11,146)          =      4.07
corr(u_i, Xb)  = -0.1584                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0094477   .0264604     0.36   0.722    -.0428473    .0617426
      Yr2006 |    .017226    .035934     0.48   0.632    -.0537921     .088244
      Yr2007 |   .0589432   .0418912     1.41   0.162    -.0238483    .1417347
      Yr2008 |   .0852146   .0447366     1.90   0.059    -.0032004    .1736295
      Yr2009 |   .1293623   .0516526     2.50   0.013     .0272789    .2314457
      Yr2010 |   .1689528    .052622     3.21   0.002     .0649535    .2729522
      EXCEL1 |  -.2144734    .053995    -3.97   0.000    -.3211862   -.1077606
      EXCEL2 |  -.2477454   .0625642    -3.96   0.000    -.3713938    -.124097
      EXCEL3 |  -.3564701   .1186454    -3.00   0.003    -.5909543   -.1219858
      EXCEL4 |  -.4267579   .0830931    -5.14   0.000    -.5909786   -.2625371
lcl_test_p~_ |  -.0063044   .0026908    -2.34   0.020    -.0116224   -.0009864
       _cons |   .5163313   .2357519     2.19   0.030     .0504041    .9822585
-------------+----------------------------------------------------------------
     sigma_u |  .96064339
     sigma_e |  .29900082
         rho |  .91167931   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State/Local Test Scores (Standardized), 9th-Grade Mathematics

Not Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       984
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.0644                         Obs per group: min =         4
       between = 0.0203                                        avg =       6.7
       overall = 0.0232                                        max =         7

                                                F(10,146)          =      3.57
corr(u_i, Xb)  = 0.0610                         Prob > F           =    0.0003

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0123722   .0270744     0.46   0.648    -.0411363    .0658806
      Yr2006 |   .0123722   .0371743     0.33   0.740     -.061097    .0858414
      Yr2007 |   .0614993    .042069     1.46   0.146    -.0216436    .1446421
      Yr2008 |   .0960304   .0444832     2.16   0.032     .0081163    .1839446
      Yr2009 |   .1400203   .0501634     2.79   0.006     .0408801    .2391605
      Yr2010 |   .1474773   .0543475     2.71   0.007     .0400679    .2548866
      EXCEL1 |  -.2480586   .0543156    -4.57   0.000    -.3554051   -.1407122
      EXCEL2 |  -.3403205   .0670847    -5.07   0.000    -.4729032   -.2077379
      EXCEL3 |  -.3220776   .1039141    -3.10   0.002    -.5274478   -.1167074
      EXCEL4 |  -.2056314   .1072744    -1.92   0.057    -.4176427    .0063799
       _cons |  -.0276047   .0304356    -0.91   0.366     -.087756    .0325466
-------------+----------------------------------------------------------------
     sigma_u |  .93948903
     sigma_e |  .30310666
         rho |  .90572356   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       984
Group variable: sch_num                         Number of groups   =       147

R-sq:  within  = 0.0711                         Obs per group: min =         4
       between = 0.0117                                        avg =       6.7
       overall = 0.0000                                        max =         7

                                                F(11,146)          =      3.66
corr(u_i, Xb)  = -0.0991                        Prob > F           =    0.0001

                              (Std. Err. adjusted for 147 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0116357   .0270266     0.43   0.667    -.0417783    .0650497
      Yr2006 |   .0172112   .0373706     0.46   0.646    -.0566461    .0910685
      Yr2007 |   .0648922   .0419554     1.55   0.124    -.0180261    .1478106
      Yr2008 |   .1000509   .0443719     2.25   0.026     .0123568     .187745
      Yr2009 |   .1455042    .050398     2.89   0.004     .0459003    .2451081
      Yr2010 |   .1669605   .0547345     3.05   0.003     .0587862    .2751348
      EXCEL1 |  -.2464511    .054935    -4.49   0.000    -.3550217   -.1378805
      EXCEL2 |  -.3435846   .0669539    -5.13   0.000    -.4759086   -.2112606
      EXCEL3 |  -.3358954   .1020875    -3.29   0.001    -.5376555   -.1341352
      EXCEL4 |    -.21256   .1075102    -1.98   0.050    -.4250373   -.0000827
lcl_test_p~_ |  -.0042693   .0022285    -1.92   0.057    -.0086737     .000135
       _cons |   .3381395   .1935583     1.75   0.083    -.0443986    .7206777
-------------+----------------------------------------------------------------
     sigma_u |  .95471991
     sigma_e |  .30219843
         rho |  .90893237   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State/Local Test Scores (Standardized), 10th-Grade Reading

Not Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       843
Group variable: sch_num                         Number of groups   =       123

R-sq:  within  = 0.0837                         Obs per group: min =         4
       between = 0.0500                                        avg =       6.9
       overall = 0.0450                                        max =         7

                                                F(10,122)          =      3.13
corr(u_i, Xb)  = 0.1022                         Prob > F           =    0.0013

                              (Std. Err. adjusted for 123 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |  -5.19e-09   .0336932    -0.00   1.000    -.0666991    .0666991
      Yr2006 |  -3.28e-09   .0357572    -0.00   1.000    -.0707849    .0707849
      Yr2007 |   .0470812   .0466232     1.01   0.315    -.0452141    .1393766
      Yr2008 |    .074638   .0514985     1.45   0.150    -.0273085    .1765844
      Yr2009 |   .1278951   .0556253     2.30   0.023     .0177791     .238011
      Yr2010 |   .1928728   .0603092     3.20   0.002     .0734846    .3122609
      EXCEL1 |  -.1527526    .066956    -2.28   0.024    -.2852987   -.0202065
      EXCEL2 |  -.3473081   .0719936    -4.82   0.000    -.4898266   -.2047895
      EXCEL3 |  -.4733273   .1158851    -4.08   0.000    -.7027335   -.2439212
      EXCEL4 |  -.7726225   .1610923    -4.80   0.000    -1.091521   -.4537243
       _cons |  -.0216796   .0315627    -0.69   0.493    -.0841612     .040802
-------------+----------------------------------------------------------------
     sigma_u |   .9290631
     sigma_e |  .32489528
         rho |  .89103408   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       843
Group variable: sch_num                         Number of groups   =       123

R-sq:  within  = 0.0840                         Obs per group: min =         4
       between = 0.0316                                        avg =       6.9
       overall = 0.0335                                        max =         7

                                                F(11,122)          =      2.83
corr(u_i, Xb)  = 0.0722                         Prob > F           =    0.0025

                              (Std. Err. adjusted for 123 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0017563   .0338669     0.05   0.959    -.0652867    .0687993
      Yr2006 |    .000464   .0355514     0.01   0.990    -.0699135    .0708415
      Yr2007 |   .0477109   .0464539     1.03   0.306    -.0442492    .1396711
      Yr2008 |   .0751667   .0514882     1.46   0.147    -.0267595    .1770928
      Yr2009 |   .1302838   .0558172     2.33   0.021     .0197881    .2407794
      Yr2010 |   .1959812   .0603165     3.25   0.001     .0765786    .3153838
      EXCEL1 |  -.1502088   .0663476    -2.26   0.025    -.2815505   -.0188671
      EXCEL2 |  -.3461308   .0719635    -4.81   0.000    -.4885898   -.2036718
      EXCEL3 |   -.472656   .1163083    -4.06   0.000    -.7028999   -.2424122
      EXCEL4 |  -.7768274   .1623515    -4.78   0.000    -1.098219   -.4554364
lcl_test_p~_ |  -.0011656   .0027726    -0.42   0.675    -.0066544    .0043231
       _cons |   .0813629    .249381     0.33   0.745    -.4123117    .5750375
-------------+----------------------------------------------------------------
     sigma_u |  .93268024
     sigma_e |  .32506054
         rho |  .89168816   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State/Local Test Scores (Standardized), 10th-Grade Mathematics

Not Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       843
Group variable: sch_num                         Number of groups   =       123

R-sq:  within  = 0.0689                         Obs per group: min =         4
       between = 0.0380                                        avg =       6.9
       overall = 0.0358                                        max =         7

                                                F(10,122)          =      2.77
corr(u_i, Xb)  = 0.0897                         Prob > F           =    0.0041

                              (Std. Err. adjusted for 123 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   1.59e-10   .0353288     0.00   1.000     -.069937     .069937
      Yr2006 |   4.46e-09   .0422527     0.00   1.000    -.0836433    .0836434
      Yr2007 |   .0462689   .0504488     0.92   0.361    -.0535996    .1461374
      Yr2008 |    .072396   .0483741     1.50   0.137    -.0233654    .1681574
      Yr2009 |   .1183803   .0538576     2.20   0.030     .0117638    .2249967
      Yr2010 |    .181037   .0586485     3.09   0.003     .0649366    .2971375
      EXCEL1 |  -.1123283   .0623214    -1.80   0.074    -.2356998    .0110431
      EXCEL2 |    -.34554    .078855    -4.38   0.000    -.5016413   -.1894387
      EXCEL3 |  -.4078687   .1249496    -3.26   0.001    -.6552189   -.1605184
      EXCEL4 |  -.6655428   .2006371    -3.32   0.001    -1.062724   -.2683616
       _cons |    -.02274   .0337606    -0.67   0.502    -.0895725    .0440926
-------------+----------------------------------------------------------------
     sigma_u |  .93215654
     sigma_e |  .33060938
         rho |  .88826364   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       843
Group variable: sch_num                         Number of groups   =       123

R-sq:  within  = 0.0729                         Obs per group: min =         4
       between = 0.0001                                        avg =       6.9
       overall = 0.0052                                        max =         7

                                                F(11,122)          =      2.57
corr(u_i, Xb)  = -0.0336                        Prob > F           =    0.0058

                              (Std. Err. adjusted for 123 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |    .005068   .0347404     0.15   0.884     -.063704      .07384
      Yr2006 |   .0013736   .0414492     0.03   0.974    -.0806793    .0834266
      Yr2007 |   .0492085   .0494449     1.00   0.322    -.0486725    .1470896
      Yr2008 |   .0748002   .0475852     1.57   0.119    -.0193994    .1689998
      Yr2009 |   .1263938   .0531528     2.38   0.019     .0211726    .2316151
      Yr2010 |   .1918355    .057779     3.32   0.001     .0774562    .3062148
      EXCEL1 |  -.1038855   .0615599    -1.69   0.094    -.2257494    .0179784
      EXCEL2 |  -.3410994   .0795046    -4.29   0.000    -.4984867    -.183712
      EXCEL3 |  -.4057855   .1264859    -3.21   0.002    -.6561771   -.1553939
      EXCEL4 |   -.678412   .2038748    -3.33   0.001    -1.082003   -.2748215
lcl_test_p~_ |  -.0040434   .0027007    -1.50   0.137    -.0093898    .0013029
       _cons |   .3341396   .2483762     1.35   0.181    -.1575458     .825825
-------------+----------------------------------------------------------------
     sigma_u |  .94503845
     sigma_e |   .3301183
         rho |  .89124765   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State/Local Test Scores (Standardized), 11th-Grade Reading

Not Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       231
Group variable: sch_num                         Number of groups   =        33

R-sq:  within  = 0.0063                         Obs per group: min =         7
       between = 0.0192                                        avg =       7.0
       overall = 0.0026                                        max =         7

                                                F(10,32)           =      0.19
corr(u_i, Xb)  = 0.0274                         Prob > F           =    0.9958

                               (Std. Err. adjusted for 33 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   6.49e-09   .0652926     0.00   1.000    -.1329966    .1329966
      Yr2006 |   1.81e-09   .1047125     0.00   1.000    -.2132925    .2132925
      Yr2007 |   .0477093   .1017678     0.47   0.642    -.1595849    .2550036
      Yr2008 |    .033403   .1022967     0.33   0.746    -.1749686    .2417747
      Yr2009 |   .0121105   .0902556     0.13   0.894    -.1717341    .1959551
      Yr2010 |   .0275599   .1242882     0.22   0.826    -.2256067    .2807266
      EXCEL1 |   .0416998   .1552973     0.27   0.790    -.2746304    .3580299
      EXCEL2 |  -.0219767   .1324985    -0.17   0.869    -.2918673    .2479138
      EXCEL3 |   .0432324   .1315638     0.33   0.745    -.2247543    .3112192
      EXCEL4 |   .0397971   .1345675     0.30   0.769    -.2343079    .3139021
       _cons |  -9.03e-10   .0673164    -0.00   1.000     -.137119     .137119
-------------+----------------------------------------------------------------
     sigma_u |  .95254603
     sigma_e |   .3414886
         rho |  .88611406   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       231
Group variable: sch_num                         Number of groups   =        33

R-sq:  within  = 0.0086                         Obs per group: min =         7
       between = 0.1693                                        avg =       7.0
       overall = 0.0213                                        max =         7

                                                F(11,32)           =      0.20
corr(u_i, Xb)  = -0.1864                        Prob > F           =    0.9968

                               (Std. Err. adjusted for 33 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0036928   .0673682     0.05   0.957    -.1335317    .1409174
      Yr2006 |   -.003342   .1023804    -0.03   0.974    -.2118841       .2052
      Yr2007 |   .0458438   .1028942     0.45   0.659    -.1637448    .2554324
      Yr2008 |   .0425941   .1038671     0.41   0.684    -.1689763    .2541645
      Yr2009 |   .0170637   .0905908     0.19   0.852    -.1674638    .2015911
      Yr2010 |   .0370463   .1246403     0.30   0.768    -.2168378    .2909304
      EXCEL1 |   .0372854     .152239     0.24   0.808    -.2728153    .3473861
      EXCEL2 |  -.0258579   .1286322    -0.20   0.842     -.287873    .2361573
      EXCEL3 |    .047481   .1368739     0.35   0.731     -.231322    .3262841
      EXCEL4 |   .0473719   .1436582     0.33   0.744    -.2452503     .339994
lcl_test_p~_ |  -.0016711   .0039122    -0.43   0.672    -.0096399    .0062978
       _cons |   .1365064   .3175543     0.43   0.670    -.5103305    .7833432
-------------+----------------------------------------------------------------
     sigma_u |   .9592165
     sigma_e |  .34201045
         rho |   .8872097   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State/Local Test Scores (Standardized), 11th-Grade Mathematics

Not Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       231
Group variable: sch_num                         Number of groups   =        33

R-sq:  within  = 0.0154                         Obs per group: min =         7
       between = 0.0131                                        avg =       7.0
       overall = 0.0002                                        max =         7

                                                F(10,32)           =      0.49
corr(u_i, Xb)  = -0.0305                        Prob > F           =    0.8831

                               (Std. Err. adjusted for 33 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   1.50e-08    .057977     0.00   1.000    -.1180953    .1180954
      Yr2006 |   5.31e-09   .0995963     0.00   1.000     -.202871     .202871
      Yr2007 |   .0708794    .103909     0.68   0.500    -.1407763    .2825351
      Yr2008 |   .0844119   .1008076     0.84   0.409    -.1209265    .2897502
      Yr2009 |   .0746641   .0920603     0.81   0.423    -.1128566    .2621847
      Yr2010 |    .049439   .1231036     0.40   0.691    -.2013149    .3001929
      EXCEL1 |  -.0478238   .1723309    -0.28   0.783    -.3988503    .3032027
      EXCEL2 |  -.1338612   .1496519    -0.89   0.378    -.4386922    .1709698
      EXCEL3 |    .046002    .155669     0.30   0.770    -.2710854    .3630894
      EXCEL4 |  -.0460728    .136876    -0.34   0.739    -.3248802    .2327346
       _cons |  -8.24e-09   .0685432    -0.00   1.000     -.139618     .139618
-------------+----------------------------------------------------------------
     sigma_u |  .94365295
     sigma_e |  .35680343
         rho |   .8749165   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Controlling for Percent Taking

```
Fixed-effects (within) regression               Number of obs      =       231
Group variable: sch_num                         Number of groups   =        33

R-sq:  within  = 0.0166                         Obs per group: min =         7
       between = 0.1289                                        avg =       7.0
       overall = 0.0056                                        max =         7

                                                F(11,32)           =      0.44
corr(u_i, Xb)  = -0.1264                        Prob > F           =    0.9248

                               (Std. Err. adjusted for 33 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
lcl_test_s~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2005 |   .0028371   .0589922     0.05   0.962    -.1173262    .1230003
      Yr2006 |  -.0025675     .09664    -0.03   0.979    -.1994168    .1942817
      Yr2007 |   .0694462   .1045482     0.66   0.511    -.1435115     .282404
      Yr2008 |    .091473   .1016554     0.90   0.375    -.1155923    .2985382
      Yr2009 |   .0784694   .0924162     0.85   0.402    -.1097763     .266715
      Yr2010 |    .056727   .1214828     0.47   0.644    -.1907253    .3041793
      EXCEL1 |  -.0512152   .1705768    -0.30   0.766    -.3986689    .2962385
      EXCEL2 |  -.1368429   .1457169    -0.94   0.355    -.4336585    .1599727
      EXCEL3 |    .049266   .1620646     0.30   0.763    -.2808487    .3793808
      EXCEL4 |  -.0402534   .1484081    -0.27   0.788    -.3425508     .262044
lcl_test_p~_ |  -.0012838   .0037959    -0.34   0.737    -.0090158    .0064481
       _cons |    .104872   .3071957     0.34   0.735    -.5208652    .7306093
-------------+----------------------------------------------------------------
     sigma_u |  .94802463
     sigma_e |  .35753593
         rho |  .87547818   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Chapter 7

School Average State Test Scores, 6th-Grade Reading

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.1376                         Obs per group: min =         4
       between = 0.0004                                        avg =       5.0
       overall = 0.0076                                        max =         5

                                                F(6,131)           =     15.22
corr(u_i, Xb)  = -0.0015                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
ELA_gr06_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |  -3.420014   .6587862    -5.19   0.000     -4.72325   -2.116778
      Yr2008 |  -.4048626   .7548602    -0.54   0.593    -1.898156    1.088431
      Yr2009 |   1.731998    .763114     2.27   0.025     .2223764     3.24162
      Yr2010 |   1.766089   1.067019     1.66   0.100    -.3447289    3.876907
        Exc1 |  -.4333088   1.070889    -0.40   0.686    -2.551782    1.685164
        Exc2 |   1.646237   1.434625     1.15   0.253    -1.191793    4.484266
       _cons |   306.6176   .5219845   587.41   0.000      305.585    307.6502
-------------+----------------------------------------------------------------
     sigma_u |  22.293882
     sigma_e |  5.6914158
         rho |  .93881443   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 7th-Grade Reading

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.2842                         Obs per group: min =         4
       between = 0.0114                                        avg =       5.0
       overall = 0.0197                                        max =         5

                                                F(6,131)           =     23.83
corr(u_i, Xb)  = 0.0034                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
ELA_gr07_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   .7252026   .6283833     1.15   0.251    -.5178896    1.968295
      Yr2008 |   2.846415   .6538641     4.35   0.000     1.552916    4.139914
      Yr2009 |   5.011137   .7476147     6.70   0.000     3.532177    6.490097
      Yr2010 |   7.692955   .8882234     8.66   0.000     5.935838    9.450073
        Exc1 |  -1.085076   1.165514    -0.93   0.354    -3.390741    1.220589
        Exc2 |   1.164924   1.432602     0.81   0.418    -1.669105    3.998953
       _cons |   308.7855   .4837617   638.30   0.000     307.8285    309.7425
-------------+----------------------------------------------------------------
     sigma_u |  20.720889
     sigma_e |   5.227022
         rho |  .94017268   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 8th-Grade Reading

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.5048                         Obs per group: min =         4
       between = 0.0080                                        avg =       5.0
       overall = 0.0574                                        max =         5

                                                F(6,131)           =     50.18
corr(u_i, Xb)  = 0.0036                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
ELA_gr08_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |     3.2892   .5397817     6.09   0.000     2.221383    4.357017
      Yr2008 |   9.107382   .7657123    11.89   0.000      7.59262    10.62214
      Yr2009 |   11.31492   .8025535    14.10   0.000     9.727281    12.90257
      Yr2010 |   11.26947   .7802481    14.44   0.000     9.725952    12.81299
        Exc1 |  -.7135327   1.046399    -0.68   0.497    -2.783559    1.356494
        Exc2 |   1.468286     1.1916     1.23   0.220    -.8889826    3.825554
       _cons |   297.7889   .4859123   612.84   0.000     296.8276    298.7501
-------------+----------------------------------------------------------------
     sigma_u |  18.451142
     sigma_e |  5.1339859
         rho |  .92814167   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 6th-Grade Mathematics

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.1731                         Obs per group: min =         4
       between = 0.0024                                        avg =       5.0
       overall = 0.0089                                        max =         5

                                                F(6,131)           =     15.17
corr(u_i, Xb)  = -0.0123                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
MTH_gr06_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |  -3.674551   .8283317    -4.44   0.000    -5.313188   -2.035913
      Yr2008 |    .302722   .9161329     0.33   0.742    -1.509608    2.115051
      Yr2009 |   3.132159   1.056655     2.96   0.004     1.041843    5.222476
      Yr2010 |   4.961705   1.228098     4.04   0.000     2.532234    7.391175
        Exc1 |  -3.715585   1.336896    -2.78   0.006    -6.360284   -1.070886
        Exc2 |  -1.613312   1.594708    -1.01   0.314    -4.768026    1.541401
       _cons |   308.5254   .6437226   479.28   0.000     307.2519    309.7988
-------------+----------------------------------------------------------------
     sigma_u |  25.486431
     sigma_e |  6.7384718
         rho |  .93466291   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 7th-Grade Mathematics

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.1345                         Obs per group: min =         4
       between = 0.0001                                        avg =       5.0
       overall = 0.0082                                        max =         5

                                                F(6,131)           =      9.99
corr(u_i, Xb)  = -0.0039                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
MTH_gr07_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   3.517354   .6496641     5.41   0.000     2.232163    4.802544
      Yr2008 |   6.426445   .8456143     7.60   0.000     4.753618    8.099271
      Yr2009 |   4.550998   .9299785     4.89   0.000     2.711279    6.390718
      Yr2010 |   4.323725   1.065781     4.06   0.000     2.215356    6.432095
        Exc1 |  -1.396388   1.166398    -1.20   0.233    -3.703802    .9110259
        Exc2 |  -.8963878   1.460138    -0.61   0.540    -3.784889    1.992113
       _cons |    306.117   .5618068   544.88   0.000     305.0056    307.2283
-------------+----------------------------------------------------------------
     sigma_u |  21.398332
     sigma_e |  5.9157337
         rho |  .92899776   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 8th-Grade Mathematics

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.2862                         Obs per group: min =         4
       between = 0.0004                                        avg =       5.0
       overall = 0.0222                                        max =         5

                                                F(6,131)           =     25.20
corr(u_i, Xb)  = -0.0058                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
MTH_gr08_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   2.611522   .5591991     4.67   0.000     1.505293    3.717751
      Yr2008 |   7.285765    .731436     9.96   0.000      5.83881     8.73272
      Yr2009 |   5.583912    .901846     6.19   0.000     3.799846    7.367979
      Yr2010 |   7.902094   .8547235     9.25   0.000     6.211247    9.592941
        Exc1 |   -2.00808   1.114087    -1.80   0.074     -4.21201    .1958499
        Exc2 |   -1.25808    1.03916    -1.21   0.228    -3.313786    .7976259
       _cons |   314.7186    .508645   618.74   0.000     313.7124    315.7248
-------------+----------------------------------------------------------------
     sigma_u |   17.94373
     sigma_e |  5.0901523
         rho |  .92552282   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 6th-Grade Reading, Level-of-Implementation Effect, Proxy-Proxy

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.1421                         Obs per group: min =         4
       between = 0.0792                                        avg =       5.0
       overall = 0.0168                                        max =         5

                                                F(6,131)           =     15.46
corr(u_i, Xb)  = 0.0401                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
ELA_gr06_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   -3.42042    .658783    -5.19   0.000     -4.72365    -2.11719
      Yr2008 |  -.4052682   .7546455    -0.54   0.592    -1.898137    1.087601
      Yr2009 |   1.373506    .786391     1.75   0.083    -.1821626    2.929175
      Yr2010 |   2.124035   1.004864     2.11   0.036     .1361739    4.111895
 imp_low_pp_ |  -1.033445   1.173531    -0.88   0.380     -3.35497     1.28808
imp_high_pp_ |   2.036278   1.283555     1.59   0.115    -.5028995    4.575455
       _cons |   306.6179   .5168186   593.28   0.000     305.5955    307.6403
-------------+----------------------------------------------------------------
     sigma_u |  22.205921
     sigma_e |  5.6763963
         rho |  .93866366   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 6th-Grade Reading, Level-of-Implementation Effect, Proxy-Survey

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.1375                         Obs per group: min =         4
       between = 0.0657                                        avg =       5.0
       overall = 0.0129                                        max =         5

                                                F(6,131)           =     15.28
corr(u_i, Xb)  = 0.0255                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
ELA_gr06_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |  -3.420269   .6588145    -5.19   0.000    -4.723561   -2.116977
      Yr2008 |  -.4051177   .7547831    -0.54   0.592    -1.898259    1.088023
      Yr2009 |   1.377921   .7852084     1.75   0.082    -.1754087     2.93125
      Yr2010 |   2.119823   1.005102     2.11   0.037     .1314913    4.108154
 imp_low_ps_ |  -.4251308    1.21932    -0.35   0.728    -2.837236    1.986974
imp_high_ps_ |   1.505897   1.324094     1.14   0.257    -1.113477    4.125271
       _cons |   306.6178   .5197549   589.93   0.000     305.5896     307.646
-------------+----------------------------------------------------------------
     sigma_u |  22.238422
     sigma_e |  5.6917155
         rho |  .93852158   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 7th-Grade Reading, Level-of-Implementation Effect, Proxy-Proxy

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.2916                         Obs per group: min =         4
       between = 0.0997                                        avg =       5.0
       overall = 0.0303                                        max =         5

                                                F(6,131)           =     25.32
corr(u_i, Xb)  = 0.0359                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
ELA_gr07_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   .7247141   .6282943     1.15   0.251    -.5182019     1.96763
      Yr2008 |   2.845926   .6537979     4.35   0.000     1.552558    4.139294
      Yr2009 |   4.621804   .7448227     6.21   0.000     3.148367    6.095241
      Yr2010 |   8.081631    .852008     9.49   0.000     6.396156    9.767106
 imp_low_pp_ |  -1.935211   1.491625    -1.30   0.197    -4.886001    1.015579
imp_high_pp_ |   1.762016   1.250377     1.41   0.161    -.7115282    4.235561
       _cons |   308.7859   .4779691   646.04   0.000     307.8404    309.7315
-------------+----------------------------------------------------------------
     sigma_u |  20.620837
     sigma_e |  5.1999872
         rho |  .94021151   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 7th-Grade Reading, Level-of-Implementation Effect, Proxy-Survey

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.2812                         Obs per group: min =         4
       between = 0.0747                                        avg =       5.0
       overall = 0.0220                                        max =         5

                                                F(6,131)           =     22.36
corr(u_i, Xb)  = 0.0125                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
ELA_gr07_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   .7250839   .6283579     1.15   0.251    -.5179579    1.968126
      Yr2008 |   2.846296   .6538692     4.35   0.000     1.552787    4.139805
      Yr2009 |   4.632654   .7398269     6.26   0.000       3.1691    6.096208
      Yr2010 |   8.071278   .8532742     9.46   0.000     6.383298    9.759258
 imp_low_ps_ |  -.4399757   1.299828    -0.34   0.736    -3.011346    2.131395
imp_high_ps_ |   .4583418   1.480117     0.31   0.757    -2.469682    3.386365
       _cons |   308.7856   .4832141   639.02   0.000     307.8297    309.7415
-------------+----------------------------------------------------------------
     sigma_u |  20.694169
     sigma_e |  5.2382357
         rho |  .93978527   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 8th-Grade Reading, Level-of-Implementation Effect, Proxy-Proxy

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.5057                         Obs per group: min =         4
       between = 0.0615                                        avg =       5.0
       overall = 0.0637                                        max =         5

                                                F(6,131)           =     52.37
corr(u_i, Xb)  = 0.0167                         Prob > F           =    0.0000

                               (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
ELA_gr08_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   3.288879   .5398075     6.09   0.000     2.221011    4.356747
      Yr2008 |   9.107061   .7657696    11.89   0.000     7.592186    10.62194
      Yr2009 |   10.94187   .7863859    13.91   0.000     9.386215    12.49753
      Yr2010 |   11.64209   .7466731    15.59   0.000     10.16499    13.11918
 imp_low_pp_ |  -.9196708   1.086738    -0.85   0.399    -3.069498    1.230156
imp_high_pp_ |   1.508254   1.053648     1.43   0.155    -.5761139    3.592622
       _cons |   297.7892    .485891   612.87   0.000     296.8279    298.7504
-------------+----------------------------------------------------------------
     sigma_u |   18.38902
     sigma_e |  5.1292376
         rho |  .92781455   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 8th-Grade Reading, Level-of-Implementation Effect, Proxy-Survey

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.5024                         Obs per group: min =         4
       between = 0.0014                                        avg =       5.0
       overall = 0.0557                                        max =         5

                                                F(6,131)           =     54.55
corr(u_i, Xb)  = 0.0005                         Prob > F           =    0.0000

                               (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
ELA_gr08_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   3.289264   .5398472     6.09   0.000     2.221318    4.357211
      Yr2008 |   9.107446   .7657654    11.89   0.000      7.59258    10.62231
      Yr2009 |   10.95317   .7858983    13.94   0.000     9.398474    12.50786
      Yr2010 |   11.63131   .7476392    15.56   0.000      10.1523    13.11032
 imp_low_ps_ |   .6367023   1.377992     0.46   0.645    -2.089294    3.362698
imp_high_ps_ |   .1512738   1.019559     0.15   0.882    -1.865658    2.168205
       _cons |   297.7888   .4854596   613.42   0.000     296.8285    298.7492
-------------+----------------------------------------------------------------
     sigma_u |  18.465323
     sigma_e |  5.1463413
         rho |  .92792322   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 6th-Grade Mathematics, Level-of-Implementation Effect, Proxy-Proxy

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.1711                         Obs per group: min =         4
       between = 0.0001                                        avg =       5.0
       overall = 0.0101                                        max =         5

                                                F(6,131)           =     14.50
corr(u_i, Xb)  = -0.0051                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
MTH_gr06_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   -3.67464   .8282983    -4.44   0.000    -5.313211   -2.036068
      Yr2008 |   .3026331   .9160791     0.33   0.742     -1.50959    2.114856
      Yr2009 |   2.779173   1.081105     2.57   0.011     .6404887    4.917857
      Yr2010 |   5.314572   1.159242     4.58   0.000     3.021314     7.60783
 imp_low_pp_ |  -3.023813   1.415967    -2.14   0.035    -5.824934   -.2226919
imp_high_pp_ |  -2.351124   1.581624    -1.49   0.140    -5.479953    .7777057
       _cons |   308.5254   .6426343   480.09   0.000     307.2541    309.7967
-------------+----------------------------------------------------------------
     sigma_u |  25.466235
     sigma_e |  6.7466902
         rho |  .93441679   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 6th-Grade Mathematics, Level-of-Implementation Effect, Proxy-Survey

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.1710                         Obs per group: min =         4
       between = 0.0003                                        avg =       5.0
       overall = 0.0099                                        max =         5

                                                F(6,131)           =     14.56
corr(u_i, Xb)  = -0.0065                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
MTH_gr06_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |  -3.674625   .8283222    -4.44   0.000    -5.313244   -2.036006
      Yr2008 |    .302648   .9161294     0.33   0.742    -1.509674    2.114971
      Yr2009 |   2.779611   1.081069     2.57   0.011     .6409986    4.918223
      Yr2010 |   5.314154   1.159067     4.58   0.000     3.021243    7.607065
 imp_low_ps_ |  -2.963425    1.47108    -2.01   0.046    -5.873572   -.0532777
imp_high_ps_ |  -2.403776   1.538947    -1.56   0.121    -5.448181    .6406295
       _cons |   308.5254   .6432008   479.67   0.000      307.253    309.7978
-------------+----------------------------------------------------------------
     sigma_u |  25.470064
     sigma_e |  6.7469933
         rho |  .93442971   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 7th-Grade Mathematics, Level-of-Implementation Effect, Proxy-Proxy

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.1460                         Obs per group: min =         4
       between = 0.0598                                        avg =       5.0
       overall = 0.0203                                        max =         5

                                                F(6,131)           =     12.29
corr(u_i, Xb)  = 0.0445                         Prob > F           =    0.0000

                               (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
MTH_gr07_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   3.516839   .6495825     5.41   0.000      2.23181    4.801868
      Yr2008 |    6.42593   .8455843     7.60   0.000     4.753163    8.098698
      Yr2009 |   4.452572   .9245764     4.82   0.000      2.62354    6.281605
      Yr2010 |   4.421459   1.021342     4.33   0.000     2.401001    6.441916
 imp_low_pp_ |  -3.226114   1.433891    -2.25   0.026    -6.062692   -.3895362
imp_high_pp_ |   .6668966   1.268428     0.53   0.600    -1.842357    3.176151
       _cons |   306.1174   .5575332   549.06   0.000     305.0144    307.2203
-------------+----------------------------------------------------------------
     sigma_u |  21.289201
     sigma_e |  5.8763779
         rho |  .92920354   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 7th-Grade Mathematics, Level-of-Implementation Effect, Proxy-Survey

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.1347                         Obs per group: min =         4
       between = 0.0041                                        avg =       5.0
       overall = 0.0100                                        max =         5

                                                F(6,131)           =     10.18
corr(u_i, Xb)  = 0.0055                         Prob > F           =    0.0000

                               (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
MTH_gr07_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   3.517263   .6496734     5.41   0.000     2.232054    4.802472
      Yr2008 |   6.426353   .8456506     7.60   0.000     4.753455    8.099252
      Yr2009 |   4.464989   .9196859     4.85   0.000     2.645631    6.284347
      Yr2010 |   4.409612   1.025112     4.30   0.000     2.381695    6.437529
 imp_low_ps_ |  -1.515108   1.481408    -1.02   0.308    -4.445687    1.415471
imp_high_ps_ |  -.8249059   1.338641    -0.62   0.539    -3.473057    1.823245
       _cons |    306.117    .562034   544.66   0.000     305.0052    307.2289
-------------+----------------------------------------------------------------
     sigma_u |  21.378543
     sigma_e |  5.9150481
         rho |  .92889092   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 8th-Grade Mathematics, Level-of-Implementation Effect, Proxy-Proxy

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.2867                         Obs per group: min =         4
       between = 0.0029                                        avg =       5.0
       overall = 0.0250                                        max =         5

                                                F(6,131)           =     26.21
corr(u_i, Xb)  = 0.0035                         Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
MTH_gr08_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |   2.611385   .5592201     4.67   0.000     1.505115    3.717656
      Yr2008 |   7.285628   .7314772     9.96   0.000     5.838591    8.732664
      Yr2009 |   5.454894   .8751105     6.23   0.000     3.723716    7.186071
      Yr2010 |   8.030928   .8258593     9.72   0.000     6.397182    9.664675
 imp_low_pp_ |  -2.186835   1.176362    -1.86   0.065     -4.51396    .1402901
imp_high_pp_ |  -1.150268   .9907135    -1.16   0.248    -3.110136    .8095991
       _cons |   314.7187   .5086909   618.68   0.000     313.7124     315.725
-------------+----------------------------------------------------------------
     sigma_u |  17.916755
     sigma_e |  5.0884323
         rho |  .92536185   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

School Average State Test Scores, 8th-Grade Mathematics, Level-of-Implementation Effect, Proxy-Survey

```
Fixed-effects (within) regression               Number of obs      =       657
Group variable: sch_num                         Number of groups   =       132

R-sq:  within  = 0.2868                         Obs per group: min =         4
       between = 0.0112                                        avg =       5.0
       overall = 0.0192                                        max =         5

                                                F(6,131)           =     25.70
corr(u_i, Xb)  = -0.0168                        Prob > F           =    0.0000

                              (Std. Err. adjusted for 132 clusters in sch_num)
------------------------------------------------------------------------------
             |               Robust
MTH_gr08_m~_ |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      Yr2007 |    2.61167   .5592257     4.67   0.000     1.505388    3.717952
      Yr2008 |   7.285912   .7314431     9.96   0.000     5.838943    8.732881
      Yr2009 |   5.463244   .8741426     6.25   0.000     3.733982    7.192507
      Yr2010 |   8.022961   .8267233     9.70   0.000     6.387505    9.658417
 imp_low_ps_ |  -1.036154   1.223718    -0.85   0.399    -3.456961    1.384653
imp_high_ps_ |  -2.153531   .9914232    -2.17   0.032    -4.114803   -.1922595
       _cons |   314.7185   .5076029   620.01   0.000     313.7143    315.7226
-------------+----------------------------------------------------------------
     sigma_u |  17.975437
     sigma_e |   5.087806
         rho |  .92582919   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```