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ABSTRACT

This paper explores the outcomes associated with participation in the Transportation Career Academy Program (TCAP), a school-to-career (STC) program in Los Angeles, California. To determine the extent to which participation in TCAP enhances students' engagement with school while avoiding potential negative effects, this study examines four outcomes associated with schooling: attendance, grade point average, credits earned, and credit pace. Specifically it asks whether students participating in TCAP had more positive outcomes than nonparticipating students in the same school and in representative comparison schools in the same school district. Significant positive outcomes were found for TCAP students on all these school-related measures. It is suggested that the impact of special student programs continues to be difficult to separate for selection effects, primarily as a function of the lack of information on prior performance. The average levels of performance reported in this study are disconcerting; when students continue to fall behind, what are their real chances of graduating? (Contains 11 references and 8 tables; the appendix contains 4 additional tables of data.) (MKA)

The Effects of Enrollment in the Transportation Career Academy Program on Student Outcomes[1]

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INTRODUCTION

During the last decade participation in school-to-career (STC) programs has increased, as many educators and policymakers see value in programs that connect school and work. Many studies have been conducted on various types of STC programs, including cooperative education (Stern et al., 1997), school-based enterprises (Stern et al., 1994), youth apprenticeships (Hamilton and Hamilton, 1997), tech prep (Bragg and Hamm, 1996) and career academies (Stern, Dayton, and Raby, 1992; Kemple and Rock, 1996). Much of the research to date has primarily emphasized the structure and implementation of these programs, while a few have attempted to quantify student outcomes as well. Although research has identified many positive outcomes associated with program participation, most studies lack adequate comparison groups or other controls (Stasz, 1998).

This paper explores student outcomes associated with participation in the Transportation Career Academy Program (TCAP), an STC program in Los Angeles. Previous quantitative studies have focused on employment outcomes for students who have participated in STC programs (e.g., Stern et al., 1997), while this study emphasizes outcomes related to school. It is important to examine school-related outcomes for several reasons. First, many STC programs, including TCAP, target students at risk for completing high school or for finding gainful employment after graduation. Many also aim to encourage students to pursue higher education after high school. Increasing school-related performance of program participants is essential to both of these goals.

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Second, previous studies also suggest that STC program participation can have negative effects on schooling, when students work and attend school concurrently. When students work and attend school, students' academic performance can suffer—they have less time to do homework, may be tired or late for class, may take fewer courses, or may have lower grades (Greenberger and Steinberg, 1986; Stasz and Brewer, 1998; Stone et al., 1990).

To determine the extent to which participation in TCAP enhances students engagement with school while avoiding potential negative affects, this study examined four outcomes associated with schooling: attendance, grade point average, credits earned, and credit pace. Specifically, we asked whether students participating in TCAP had more positive outcomes than non-participating students in the same school and in representative comparison schools in the same school district. We found significantly positive outcomes for TCAP students on all these school-related measures.

PROGRAM DESCRIPTION

Before discussing our analytic approach, we begin with a brief discussion of the program. The Transportation Career Academy Program (TCAP) is designed to prepare high school students for careers in the transportation industry. TCAP began its operation in February 1994, with support from the Los Angeles County Metropolitan Transit Authority (LACMTA), the Los Angeles Unified School District (LAUSD) and the Los Angeles Community College District (LACC).[2] The goals were to: 1) create a prototype program for ninth to twelfth grade students geared to preparation for careers in the transportation industry; 2) focus on the future education and training needs of those youth affected by the 1992 civil disturbances in Los Angeles; and 3) provide adequate linkages with business and employers to ensure that education and training match existing meaningful careers.

The program started in three comprehensive high schools with primarily minority enrollments. The schools participating in TCAP set academic, attendance and performance expectations for students as a condition to remain in, rather than enter, the program: general, academic and vocational students participate.

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[2] TCAP also received funds from the Office of Vocational and Adult Education, U.S. Department of Education, through a competitive grant program.

TCAP follows the traditional academy model of school-within-a-school. Each school was expected to identify a core group of academic and vocational teachers, to integrate academic and vocational education in the curriculum, to provide adequate administrative and counselling support, and to collaborate with MTA staff to create work-based learning opportunities for students, through field trips, industry mentors, special projects, and summer work internships. Teachers also participate in the Transportation Teaching Institute, which provides professional development opportunities to help teachers gain an understanding of the range of work and career opportunities in the transportation industry and to assist them in developing integrated, project-based curricula. In addition, the program encouraged stronger links between each school and a local community college through articulation agreements or other cooperative ventures.

The usual curriculum sequence begins with a survey course for ninth or tenth graders that reviews transportation-related jobs, careers and professions. The course is expected to increase students' knowledge of the industry and to help prepare them for choices about their educational and professional future. In addition to the basic subjects offered in high school, much of the required and elective curriculum is taught in the context of transportation related jobs and professions and emphasizes "all aspects" of the industry. Each school emphasizes one or more clusters or areas of concentration--engineering, architecture and urban planning—as a curricular focus. Internships, summer jobs, and mentoring activities provide direct experiences with the work of the industry.

Typical of complex school reforms like TCAP, implementation of all program features was somewhat uneven in the three schools. One school adapted fairly quickly and was able to create a "true" academy program, while one experienced staff and administrative turnover and other problems that slowed their progress. By and large, the three academies were fairly well established in each school by the third year of program implementation and still function today. About 1,500 students in five high schools are enrolled in TCAP during the 1998-99 school year.

APPROACH

Evaluating the effects of program enrollment on student outcomes is problematic, primarily as a function of the nonrandom nature of the enrollment of students in specific programs. How are we to judge the performance of students enrolled in the program of interest? For example, if we simply compare the average grade-point-averages (GPA) for participating

students and non-participating students can we say that participants perform better because of the programs themselves? Or does the selection process used by the program ensure that only high performing students will be admitted and thereby bias the results of simple comparisons? An evaluation of any program must attempt to tease out the effects of the program itself from the effects of the unique characteristics of students who choose to enroll in them. Students in TCAP have self-selected into the program and the characteristics that are unique to students interested in TCAP may confound the results of simple comparisons between TCAP and other students, either positively or negatively. The confounding effects that arise from nonrandom selection of students into programs are generally referred to as selection effects, and there are a few methods for dealing with them.

One technique that can be used to overcome selection effects is true random assignment of students to programs. This method of controlling selection effects was unavailable to us—students had already self-selected into TCAP a year or more before our study began.

Other techniques not as elegant as random assignment can be used to moderate selection effects. One of these is through the use of appropriate comparison groups. One potential comparison group is students from the same school that are not enrolled in the program of interest. There are advantages and disadvantages associated with using students from within the same school. On one hand, students from the same school experience many of the same unmeasured contextual effects associated with being in a specific school building, and hence these variables are controlled by using same-school comparisons. On the other hand, comparison students from the same school have expressly chosen *not* to enroll in the program of interest. If student characteristics underlying such enrollment choices are also related to performance in school, the results of comparisons will be confounded with them. This is expressly what random assignment overcomes.

Another potential comparison group is students from another school. Assume that the treatment and comparison schools each have a magnet program and a general student population, and the treatment school has an additional treatment program (e.g., TCAP). One might reasonably hypothesize that the students in the magnet programs are equivalent for selection effects but the general student population in the comparison school includes a general student population like that in the treatment school plus a treatment-equivalent population mixed into it. The general student population from the comparison school is a slightly better comparison than

the general student population from the treatment school. Nevertheless, the comparison suffers from the influence of differences that may exist in the schools' contextual effects. We include same-school students in our analyses in an effort to include same-school contextual effects, as well as students from comparable schools, chosen by program representatives.

All three comparison schools and two of the TCAP schools have magnet programs on the same site. Thus, we were able to draw valuable comparisons between TCAP and magnet students, between TCAP and students in the general school population, and between magnet programs and students in the general school population.[3]

One additional technique for moderating selection effects is analysis of covariance (ANCOVA). ANCOVA adjusts for disparities in covariates' distributions over groups by artificially assuming that all groups have the same set of mean covariate values. For example, if ethnicity is the covariate and three groups are being compared, the ANCOVA adjustment treats all three groups as if they had the same ethnic distribution. That is, ANCOVA corrects the disparity in covariate distributions over groups by assuming a common distribution. The covariates that we included in our analyses are ethnicity, gender, school, age, and standardized test scores from a previous year.[4]

The analyses in this report attempt to moderate the confounding effects of nonrandom assignment of students into programs by using a number of appropriate comparison groups in an ANCOVA design.

DATA AND METHODS

In the early stages of implementation, programs often do not have all program elements in place. This may be especially true for programs that have many components, such as career academies. Evaluating programs too early in the implementation stage can result in negatively biased results when not all elements of the program are operating effectively. We selected grade levels in which TCAP had enrolled students for at least one year in order to give the Transportation Career Academies at least one year of experience with students prior to our

[3] Magnet programs were established in LAUSD to promote school desegregation goals. Magnets typically have a program focus, such as science, arts, or technology. Prospective students must apply to attend a magnet school and are selected through a complicated lottery and point system.

[4] Other covariates that would be beneficial include attendance and school performance (e.g., GPA, credits earned, etc.) from a period prior to enrollment in the treatment program. These were not available for our analyses, both as the result of technical recordkeeping practices and of high levels of student turnover within the district.

evaluation. The data used in this study are from school year 1996-97. Sample sizes for our analyses by grade-level and program enrollment are shown in Table 1.

Table 1

Sample Sizes by School, Program, and Grade[5]

	Magnet				TCAP				No Program				
	9	10	11	12	9	10	11	12	9	10	11	12	Total
TCAP 1			70	50			62	51			660	470	1363
Comparison 1			73	46							476	351	946
TCAP 2	87	78			61	69			1101	891			2157
Comparison 2	61	60							816	577			1644
TCAP 3					24				788				812
Comparison 3	52								858				910
Total	200	138	143	96	85	69	62	51	3563	1468	1136	821	7832

Next we examine the characteristics of students enrolled in TCAP, magnet programs, or in the general student population.

Table 2 presents the distribution of ethnicity across the three pairs of schools and by program. Note that the magnet programs represented in our sample have almost two-thirds more Asians than TCAP and more than three times the number of Asians in no specific program. TCAP enrolled approximately one-third fewer blacks than magnets or the general student population. TCAP attracted Hispanics in slightly greater proportion to the general student

Table 2

Percent Ethnicity by Program

Ethnicity	TCAP	Magnet	No Program	Total
North American Indian	0.00	0.00	0.24	0.22
Asian	9.36	15.60	3.72	4.79
Black	7.12	10.05	12.44	12.08
Hispanic	78.65	55.29	76.19	74.73
White	2.62	14.90	6.27	6.78
Filipino	1.87	3.99	1.03	1.28
Pacific Islander	0.37	0.17	0.11	0.13

[5] For reasons of confidentiality, we refer to the three participating high schools as TCAP 1, 2, and 3 and to their respective comparison schools as Comparison 1, 2, and 3.

population but almost 50 percent more Hispanics than magnets. TCAP enrolled proportionately only one-third as many whites as are in the general student population but fewer than 20 percent as many whites as are enrolled in the magnets. North American Indians, Filipinos, and Pacific Islanders together make up less than 2 percent of the population in these schools. In general, the differences in ethnic distributions across programs provide good reason to include ethnicity as a covariate in our analyses.[6]

Table 3 displays gender differences across programs. TCAP attracted more females than are enrolled in the magnets or in the general student population. Gender is included as a covariate in our analyses.

Table 3

Percent Gender by Program for All Schools

Gender	TCAP	Magnet	No Program	Total
Male	43.45	50.09	52.22	51.76
Female	56.55	49.91	47.78	48.24

Average standardized test scores for students across programs are shown in Table 4. These scores are from tests administered prior to school-year 1996-97. Overall, only 39 percent of students had available test scores for prior to school-year 1996-97. TCAP program enrollees have significantly higher test scores than students in the general population, though not as high as magnet students. These score differences may be evidence of selection effects in program enrollment. We used reading and math scores, in conjunction with indicator variables for students lacking test scores, as covariates in our analyses.

Table 4

Average Standardized Test Scores (percentiles) by Program

Test Area	TCAP	Magnet	No Program	Total
Reading	36.09	55.17	26.28	29.19
Math	45.38	60.82	34.55	28.22

[6] In the data analyses North American Indians were coded with Hispanics, and Filipinos and Pacific Islanders were coded with Asians.

Ten percent of students in our dataset had a GPA of zero, had earned no credits, and had withdrawn as of the end of the school year.[7] None of these students was enrolled in TCAP, 2.4% were enrolled in magnet programs, and 97.6% were from the general student population. Undoubtedly some of these students were dropouts, however, some of these students would have transferred to other schools. We were unable to make this distinction from our data. In order to be conservative, we analyzed the GPA, credits earned, and attendance variables both with these students excluded and with these students included. We included these students in our analyses of whether students in these programs withdrew at different rates throughout the school year.

We computed regression models of the form:

$$y_i = \beta_0 + \beta_1 X_i + \beta_2 Z_i + e_i$$

where: y(i) = GPA, credits earned, or percent attendance

X(i)=a vector of covariates (ethnicity, gender, age, school, and standardized test scores)

Z(i)=program in which enrolled (TCAP, magnet, none)

We created a variable labeled "credit pace" which represents whether a student had earned at least 55 credits during the school year.[8] We also computed a logit model similar to the above regression model for the dependent variables of credit pace and enrollment status on the last day of the school year.

A description of all dependent or outcome variables (Y) and independent variables appears as follows:

Outcome Variables (Y)

GPA: 4-point grade point average during the current year (may be larger than 4-point if student has Advanced Placement courses

Credits: Number of credits earned during the current year (five credits equals one class that meets for one class period five times per week for a semester)

Attendance: Proportion of enrolled days not attended during the current year

[7] Approximately 10 percent (767) of the students who had been enrolled in these schools in school year 1996-97 withdrew without earning any credits. Of these, none were enrolled in TCAP, 18 were enrolled in magnets, and 749 were in the general student population.

[8] Students need 220 credits to graduate, which averages about 55 credits per year during grades nine through twelve.

Ontime: Indicator = 1 if student earned at least 55 credits during the current year; 0 otherwise

End-of-Year Status: Indicator = 1 if student actively enrolled at end of the current year; 0 otherwise

Program Variables (Two dummy variables for four mutually exclusive categories)

TCAP: Transportation Career Academy enrollees

Magnet: Magnet enrollees

Students in neither of the above programs are included in the omitted group

Demographic Variables

Race-ethnicity: Black, White, Asian, Hispanic (omitted)

Gender: Male, Female (omitted)

Age: Age in years as of June 1, 1996

Higher Grade: Indicator = 1 for students enrolled in the higher of two grades in a given school; 0 otherwise

School: Indicator = 1 for students enrolled in schools with the Transportation Career Academy program; 0 otherwise

Other Covariates

Math: Nationwide percentile of last math aptitude test score prior to school-year 1996-97

Read: Nationwide percentile of last reading aptitude test score prior to school-year 1996-97

Notest(2): Indicator = 1 for students for whom there was no aptitude test score prior to school-year 1996-97; 0 otherwise

RESULTS

Table 5 excludes students who were not actively enrolled at the end of school-year 1996-97, and who had zero GPA, and zero credits earned. It lists the unadjusted averages for GPA, credits earned, credit pace, and percent attendance for each group of students. Differences between TCAP and magnet students are insignificant.[9] TCAP and magnet students performed significantly better than students in the general population.

[9] Significance for mean differences is based on 95% confidence intervals.

Table 5

Unadjusted Averages for GPA, Credits Earned, Percent Ontime, and Percent Attendance by Program

Outcome Variable	TCAP	Magnet	None
GPA	2.40	2.55	1.97
Credits Earned	52.18	53.59	45.14
Ontime (credit pace)	44.2%	48.6%	29.6%
Attendance	91.4%	93.5%	85.1%

Table 6 gives the averages for GPA, credits earned, credit pace, and percent attendance adjusted for the full set of covariates. For all four outcomes there are no significant differences between TCAP students and magnet students. Also, for all four outcomes, TCAP and magnet students performed significantly better than students in the general population.

Table 6

Adjusted Averages for GPA, Credits Earned, Percent Ontime, and Percent Attendance by Program[10]

Outcome Variable	TCAP	Magnet	None
GPA	2.21	2.27	2.01
Credits Earned	49.30	50.87	45.54
Ontime (credit pace)	37.4%	39.9%	29.0%
Attendance	88.8%	91.2%	85.4%

Compared with students in the general population, TCAP students' GPA is significantly higher, they also exhibit an 8.2 percent increase in credits earned, a 29 percent increase in the number of students earning 60 or more credits per year, and a 4 percent increase in attendance. However, these estimates are conservative because they exclude all students who were listed by LAUSD as having a GPA of zero, who earned no credits, and who withdrew during the school year (98 percent of students with a GPA of zero and no earned credits were enrolled in the general student population). If we include these students in our analyses (see Table 7), the above improvements attributed to TCAP would be greater: 23 percent increase in credits earned, 53

percent increase in the number of students earning 60 or more credits, and a 7 percent increase in attendance. Since we cannot be certain of the status of these students, we can only suggest that the improvements in student performance that may be attributable to enrollment in TCAP lie somewhere within these ranges.

Table 7

Adjusted Averages for GPA, Credits Earned, Percent Ontime, and Percent Attendance by Program (including withdrawals with zero GPA and zero credits) [11]

Outcome Variable	TCAP	Magnet	None
GPA	2.10	2.08	1.71
Credits Earned	46.45	46.13	37.97
Ontime (credit pace)	32.8%	33.7%	21.5%
Attendance	85.6%	86.9%	79.9%

Table 8 shows the unadjusted probabilities that students in the three programs would be actively enrolled on the last day of the school year. There is a slight overlap between the TCAP and magnet students. Students in TCAP and magnet programs were significantly more likely to be actively enrolled in these schools on the last day of the school year.

Table 8

Adjusted Probability of Being Actively Enrolled on the Last Day of School[12]

Outcome Variable	TCAP	Magnet	None
Probability of being actively enrolled on the last day of school	.85	.84	.72

[10] Full results for the regression models (coefficients and standard errors) are included in Table A3 in the appendix.

[11] Full results for the regression models (coefficients and standard errors) are included in Table A1 in the appendix.

[12] Full results for the regression models (coefficients and standard errors) are included in Table A1 in the appendix.

Additional analyses using attendance as a covariate suggest that approximately half of the benefit of TCAP in higher credits earned and in GPA can be attributed to the increases in attendance that TCAP brings about.

It is clear from the detailed regression results presented in the Appendix that there are significant school differences. We repeated the above analyses on each pair of schools to further examine these differences. For one pair of schools (TCAP1) there were no significant differences between TCAP and magnet students nor between students in these programs and students in the general student population. This pair of schools also has the highest average of the six schools in the study on all performance measures except for attendance. The other two pairs of schools showed results identical to those described earlier—i.e., no differences in performance between TCAP and magnet students and better performance among these students compared to students in the general population.

DISCUSSION

The biggest shortcoming of the research reported here is its inability to deal with certainty with selection issues. With the available data there are only two ways of examining the selection issue: through information regarding how students were recruited into TCAP; and through standardized test scores recorded prior to the 1996-97 school-year. Neither are entirely satisfying. In the first case, students self-selected into TCAP, and there is no way to estimate the motivational effects of this self-selection in the present data.

In the second case, sparse information on test scores indicates some moderating of selection effects. TCAP students' prior reading test scores are slightly higher (though significant) than students in the general student population, and substantially lower than magnet students' reading scores. TCAP students' prior math test scores are not different from students in the general student population and substantially lower than magnet students' math scores. This suggests that TCAP students were not subject to selection to the same degree as magnet students. Nonetheless, it cannot be ruled out altogether, nor can we argue that our use of ANCOVA models obviates the problem. However, as expected, covariate adjustments resulted in a narrowing of the magnitude of the differences between TCAP students and students in the general student population.

To the extent that we can argue that improvements in student performance are associated with enrollment in TCAP, they are substantial, particularly when one considers that TCAP students' performance is indistinguishable from students in magnet programs who are much more heavily screened and selected. For example, compared to students in the general student population, the gains in attendance for TCAP students mean that they spend one to two additional weeks in school each year, and this additional time in school results in small but significant increases in GPA and substantial increases in credits earned. It may be that the better comparison of interest is between TCAP and magnet students. One potentially indisputable indicator of the value of TCAP is that its students compare favorably with highly selected and heavily screened magnet students in these schools.

CONCLUSIONS

The impact of special student programs continues to be difficult to separate from selection effects, primarily as a function of the lack of information on prior performance. One reason for the difficulty in maintaining the necessary information can simply be relegated to the difficulty in tracking students from school to school, particularly in the transition from eighth to ninth grade where recordkeeping systems are often different and effectively incommunicado. This is difficult enough when students transition between schools within the same district, but mostly impossible when students move from one district to another. These systems have improved substantially over the authors' careers, but still have far to go in serving the needs of researchers. And this may be why there are so few quantitative studies of program effects on student performance in the literature.

Even more disconcerting are the average levels of performance reported in this paper. In the best performing pair of schools in this sample, average attendance among students in the general student population is only 88%. In the lowest performing pair of schools, this same figure is only 75%. Similarly, only 60% of the students in the general student population in the best performing pair of schools earned enough credits to keep pace with an ontime graduation. In the worst pair of schools this figure was 30%. When students fall behind at this rate, what are their real chances of graduating? TCAP and similar career academy programs offer the hope that more of these students will make it.

BIBLIOGRAPHY

Bragg, D., & Hamm, R. (1996). *Linking college and work: Exemplary policies and practices of two-year college work-based learning programs.* Berkeley: National Center for Research in Vocational Education.

Greenberger, E., & Steinberg, L. (1986). *When teenagers work: The psychological and social costs of adolescent employment.* New York: Basic Books.

Hamilton, M. A., & Hamilton, S. F. (1997). *Learning well at work: Choices for quality.* Washington, D.C: National School-to-Work Office.

Kemple, J.J. and Rock J.L. (1996). *Career academies: Early implementation lessons from a 10-site evaluation.* New York: Manpower Demonstration Research Corporation.

Stasz, C. (1998). *Work-Based Learning: High Hopes or Dim Realities?* Paper prepared for the Roundtable on Work, Learning, and Assessment, Board on Testing and Assessment, National Research Council, Washington, D.C.

Stasz, C., & Brewer, D. (1998). Work-based learning: Student perspectives on quality and links to school. *Educational Evaluation and Policy Analysis* 20(1), 31-46.

Stasz, C., & Kaganoff, T. (1997). Learning how to learn at work: Lessons from three high school programs. MDS-916. Berkeley, CA: National Center for Research in Vocational Education. RP-667. Santa Monica: RAND.

Stern, D., Finkelstein, N., Urquiola, M., & Cagampang, H. (1997). What difference does it make if school and work are connected? Evidence on cooperative education in the United States. *Economics of Education Review, 16* (3), 213-229.

Stern, D., Stone, J., Hopkins, C., & McMillion, M. (1990). Quality of students' work experience and orientation toward work. *Youth and Society*, 22(2), 263-282.

Stern, D., Raby, M., & Dayton, C. (1992). *Career academies: Partnerships for reconstructing American high schools.* San Francisco: Jossey-Bass.

Stone, J., Stern, D., Hopkins, C., & McMillion, M. (1990). Adolescents' perceptions of their work: School supervised and non-school supervised. *Journal of Vocational Education Research, 15(2)*, 31-53.

APPENDIX

Table A1

Models Including Students with Zero GPA, Zero Credits, and Inactive or Withdrawn at the End of the School-Year: Coefficients and Standard Errors (p<.01; * p<.05)**

Explanatory Variables	GPA	Credits	Attendance	Ontime[13]	Status[14]
TCAP Program	.39 (.06)**	8.48 (1.19)**	.06 (.01)**	1.79 (.24)**	2.47 (.35)**
Magnet	.36 (.04)**	8.16 (.84)**	.07 (.01)**	1.86 (.18)**	2.12 (.21)**
Black	-.16 (.04)**	-3.53 (.74)**	-.04 (.01)**	.87 (.09)	.79 (.07)*
White	.20 (.05)**	-1.83 (.93)*	-.02 (.01)	1.17 (.13)	1.12 (.12)
Asian	.58 (.05)**	3.37 (.92)**	.03 (.01)**	1.97 (.21)**	1.94 (.21)**
Female	.18 (.02)**	2.60 (.42)**	-.01 (.00)	1.41 (.08)**	.92 (.05)
Age	-.13 (.01)**	-3.99 (.23)**	-.04 (.00)**	.74 (.08)**	1.41 (.07)**
TCAP School 1	1.33 (.05)**	30.75 (1.05)**	.32 (.01)**	9.59 (1.47)**	13.19 (1.79)**
Comparison School 1	1.13 (.06)**	26.15 (1.11)**	.28 (.01)**	6.09 (.96)**	7.12 (1.00)**
TCAP School 2	.28 (.04)**	5.15 (.77)**	.11 (.01)**	1.77 (.20)**	1.62 (.15)**
Comparison School 2	.40 (.04)**	7.99 (.80)**	.16 (.01)**	2.08 (.24)**	1.96 (.19)**
TCAP School 3	.01 (.05)	.82 (.92)	.02 (.01)**	1.08 (.15)	1.00 (.12)
Reading	.00 (.00)*	.02 (.02)	.00 (.00)	1.00 (.00)	1.00 (.00)
Notest (Reading)	.44 (.06)**	9.19 (1.21)**	.08 (.01)**	2.22 (.38)**	2.18 (.34)**
Math	.01 (.00)**	.16 (.02)**	.00 (.00)**	1.02 (.00)**	1.01 (.00)**
Notest (Math)	.61 (.06)**	11.44 (1.23)**	.09 (.01)**	2.61 (.47)**	2.39 (.38)**
Constant	2.23 (.19)	72.01 (3.62)	1.15 (.04)	N/A	N/A

[13] Logit model: coefficients are odds ratios; Ontime is 1 if credits > 60; 0 otherwise.
[14] Logit model: coefficients are odds ratios; Status is 1 if actively enrolled at year end; 0 otherwise.

Table A2

Adjusted and Unadjusted Outcome Variables by Program, Including Students with Zero GPA, Zero Credits, and Inactive or Withdrawn at the End of the School-Year

	GPA	Credits	Attendance	Ontime	Active Status
	Adjusted				
TCAP	2.10 A[15]	46.45 A	85.6% A	58.0% A	84.6% A
Magnets	2.08 A	46.13 A	86.9% A	54.2% A	84.0% A
None	1.71 B	37.97 B	79.9% B	35.8% B	71.7% B
	Unadjusted				
TCAP	2.40 A	52.18 A	91.4% A	68.9% A	80.1% A
Magnets	2.44 A	50.97 A	91.4% A	64.3% A	76.9% A
None	1.67 B	37.36 B	79.4% B	36.7% B	66.4% B

[15] In these tables, the letters designate significant differences; in a given column, programs with the same letter are not significantly different.

Table A3

Models Excluding Students with Zero GPA, Zero Credits, and Inactive or Withdrawn at the End of the School-Year: Coefficients and Standard Errors (p<.01; * p<.05)**

Explanatory Variables	GPA	Credits	Attendance	Ontime[16]
TCAP Program	.21 (.06)**	3.76 (.96)**	.03 (.01)**	1.89 (.27)**
Magnet	.27 (.04)**	5.33 (.70)**	.06 (.01)**	1.80 (.19)**
Black	-.11 (.04)**	-1.67 (.67)*	-.03 (.01)**	.91 (.09)
White	.26 (.05)**	.08 (.81)	-.01 (.01)	1.36 (.16)**
Asian	.60 (.05)**	3.43 (.79)**	.02 (.01)**	2.16 (.26)**
Female	.20 (.02)**	3.02 (.37)**	-.01 (.00)	1.45 (.08)**
Age	-.05 (.01)**	-1.87 (.22)**	-.02 (.00)**	.81 (.03)**
TCAP School 1	1.06 (.06)**	21.36 (1.01)**	.20 (.01)**	7.98 (1.21)**
Comparison School 1	.91 (.06)**	18.85 (1.04)**	.19 (.01)**	4.91 (.76)**
TCAP School 2	.29 (.04)**	5.94 (.70)**	.10 (.01)**	1.65 (.16)**
Comparison School 2	.40 (.04)**	7.74 (.72)**	.13 (.01)**	1.91 (.20)**
TCAP School 3	-.03 (.05)	.28 (.84)	-.00 (.01)	.97 (.12)
Reading	.00 (.00)	-.01 (.02)	-.00 (.00)	1.00 (.00)
Notest (Reading)	.33 (.07)**	4.03 (1.23)**	.04 (.01)**	1.68 (.31)**
Math	.01 (.00)**	.12 (.02)**	.00 (.00)**	1.01 (.00)**
Notest (Math)	.53 (.07)**	8.12 (1.26)**	.08 (.01)**	1.93 (.36)**
Constant	1.37 (.20)	53.51 (3.41)	.93 (.03)	N/A

[16] Logit model: coefficients are odds ratios; Ontime is 1 if credits > 60; 0 otherwise.

Table A4

Adjusted and Unadjusted Outcome Variables by Program, Excluding Students with Zero GPA, Zero Credits, and Inactive or Withdrawn at the End of the School-Year

	Adjusted			
	GPA	Credits	Attendance	Ontime
TCAP	2.21 A	49.30 A	88.8% A	62.8% A
Magnets	2.27 A	50.87 A	91.2% A	61.8% A
None	2.01 B	45.54 B	85.4% B	47.2% B
	Unadjusted			
TCAP	2.40 A	52.18 A	91.4% A	68.9% A
Magnets	2.55 A	53.59 A	93.5% A	68.1% A
None	1.97 B	45.14 B	85.1% B	46.3% B

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