Abstract Title Page

**Title:** Poor Scores, Higher Chances: Magnet School Effects on Four-year College Enrollment of Students Across the ACT Spectrum

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Abstract Body

Background / Context:
The US has embarked on a new educational policy of ‘college for all.’ The US labor market has increasingly demanded a college educated workforce (Goldin & Katz, 2008). Moreover, this is increasingly recognized by high school seniors, and a recent national survey showed that 89% of high school graduates have plans to get a BA degree (ELS, 2004, personal calculation). Although American schools strive to improve academic achievement, current high school students have a wide variety of achievement levels. Magnet schools are one approach used to raise students' achievement, however, there has been little analysis of whether magnet schools improve college attendance net of achievement, and, if so, at what levels of achievement do they have this impact? Analyzing comprehensive data on the entire senior class of a large urban school district which encourages all students to apply to four-year colleges, this study examines how college enrollment varies across the spectrum of ACT test scores, and which part of this spectrum is affected by magnet schools.

Standardized tests have played an increasingly important role in college application admissions, with SAT or ACT tests as an integral part of the college admissions formula used by four year institutions (Syverson, 2007). In response, school districts with the goal of increasing college access for their student populations have increasingly focused on increasing ACT test scores. Chicago Public Schools (CPS) has set a goal to increase student qualifications, including ACT performance, and supports geared to assist students in the college process. CPS has set a test score goal of 20 (close to the national average) for all students (Easton, Ponisclak & Luppescue, 2008). Part of this policy has included a requirement that all high school students take the ACT in the spring of their junior year.

Despite these efforts, many students are still getting lower ACT scores than colleges expect. In a school system that is strongly encouraging all students to attend four-year colleges, we must wonder what outcomes result. It is possible that some kinds of high schools provide additional support for these applications.

Magnet schools may provide an advantage not seen in general public schools. Do magnet schools, which implement special curriculae and student supports, have an effect on student four-year college access across ACT scores? Is this effect heterogenous or do students scoring at all levels of the ACT stand to benefit equally from magnet school enrollment?

Purpose / Objective / Research Question / Focus of Study:
The current research is focused on heterogeneity on the relationship of ACT scores to students’ enrollment in four-year colleges across ethnicity, and school level variables. Do schools where increased supports are made available improve the odds of students with a wide variety of initial ACT scores? Are these effects constant across individual student characteristics? If the effect of magnet schools is heterogeneous across student subgroups, how do student and school differences help explain these different outcomes and how can our an understanding of these factors improve the effectiveness of policies designed to improve college enrollment?
Population / Participants / Subjects:
The study includes survey and administrative data collected by Chicago Consortium on School Research in conjunction with Chicago Public Schools. Administrative data encompassing academic achievement, survey responses to questions about academic behaviors, and CPS administrated ACT scores for 19,948 students enrolled as juniors in CPS during the 2005-2006 school year. CPS serves a predominantly minority and low-income student population. Of all juniors in this sample 48% are African American, 36% are Latino and 89% receive free lunch.

Intervention / Program / Practice:
Chicago Public Schools aims to increase college access through a combination of increases in the qualifications of students, specifically ACT scores, and the provision of supports to aid in the college application process. Because completion rates at community colleges are much lower than at four-year colleges (Pascarella & Terenzini 2005; Reynolds, 2006), and the community colleges which CPS students would likely attend have abysmally low completion rates (10 percent; IPEDS), CPS policy strongly encourages students to apply to four-year colleges. Therefore, these analyses focus on four-year college attendance.

Research Design:
This study uses official administrative records of ACT scores for students enrolled as Juniors in Spring of 2006. College attendance information was determined through National Student Clearinghouse enrollment data for the fall following each student’s senior year (2007). All students are required to take the ACT, with general schools reaching a 79% rate of success and magnet schools reaching a 95% rate of success.

While this sample is largely minority students (83% African American or Latino students versus 27% nationally based on 2004 seniors) and low income students (65% of 2004 seniors attended a high school where over 75% of students received free or reduced price lunch compared to just 2% of seniors nationally), this group of students has the most difficulty attending four-year colleges, and they are most likely to depend on school level interventions to increase college attendance (Stephan, 2010).

Data Collection and Analysis:
Survey and administrative data were collected through a collaboration of Chicago Public Schools and Chicago Consortium on School Research. Statistical analysis encompassed descriptive statistics and multivariate models.

Findings / Results:
One hypothesis in this study examines whether magnet schools have an effect on four year versus two year college enrollment. We examine descriptive tables and multivariate analyses. Table 1 shows percentage of students enrolled in four-year colleges versus two-year colleges at each score range. There was a significant relationship between magnet school attendance and four-year college enrollment for students scoring between 17 and 20 on the ACT, t(2713)= -3.5376, p<.001. Of these students 7.5% more students attending magnet schools attended four-year colleges than students attending non-magnet high schools. Scores below 17 and above 20
saw no statistically significant relationship with the percentage of students enrolling in four-year colleges. This range of scores, 17-20, includes 28.81% of test takers in CPS.

We see similar patterns disaggregating by ethnicity. African American and Latino students also saw a significant increase in four-year college enrollment versus two-year college enrollment rate in the 17 to 20 score range, t(1309)=-2.53, p<.05 and t(945)=-2.00, p<.05, respectively (see Tables 2-3). For African American students, this range comprises 26.2% of test takers and for Latino students 32.1% of test takers. Neither group saw significant increases in four year over two year college enrollment rates if they attended magnet schools.

We then examine multivariate analyses. Does heterogeneity in the effect of enrollment in a magnet school remain if we control for GPA and ethnicity? We estimate the likelihood of enrolling in a four year college over a two year college controlling for GPA, self-identification as Latino and self-identification as African American. Table 4 shows the results of a logistical regression using enrollment in four-year institution as the outcome variable. Model 1 uses ACT scores and magnet enrollment to predict likelihood of enrolling in a four-year over a two-year college. As ACT composite scores taken in Junior year rise above 14 the odds ratio for enrolling in a four year college strongly increases (from .851 to 2.6, p<001). Moreover, students who both attend a magnet school and have ACT composite scores of 17-20 see an additional increase in their odds of attending a four year college, p<001.

Model 3, adds ethnicity variables that show a significant relationship with African American ethnicity and four year college enrollment. Latino status shows a significant decrease in likelihood of enrolling in four year institutions. African Americans see asignificant increase in likelihood of enrolling in a four year institution (p<.05).

Model 2 adds GPA as of the fall of 2007 (fall of senior year). Including GPA decreases the strength of the advantage of scoring at any ACT range, but they remain significant. However, the magnet school advantage for students scoring in the 17-20 range strongly increases (from .257 to .576, p<001.) when GPA is held constant across students. The magnet-school advantage for students who score 21 and above also becomes significant when controlling for grades.

In model 4, after adding GPA to Model 3, Latino is no longer significant, presumably because its relationship is explained by GPA. In this specification, African American becomes more strongly related to attending a four-year institution, after controlling GPA.

**Conclusions:**

These preliminary findings show that magnet school attendance is associated with increased likelihood of four-year college attendance for some parts of the ACT spectrum, but not others. Magnet schools are significantly associated with increased odds (.646, p<.001) for students with high ACT, but the association is stronger and more consistent for those with below average ACT scores (17-20), a level below the average on the test(21). A preliminary model shows that while holding GPA constant attendance at a magnet school increases the odds of these below average scoring students to attend four-year colleges.
The Chicago Consortium on School Research’s report on ACT scores in CPS talks about the difficulties in reaching CPS’s stated goal of ACT scores of 20 across the board (2008). While a majority (50%) of students in CPS score 16 or below, one third of all students achieve scores of 17-20 and are at the edges of being able to enroll in four-year institutions. Magnet schools somehow are associated with their increased success.

What are magnet schools providing to increase the four year enrollment rate of these students? The majority of students in magnet schools score 21 and above (60%), and yet magnet schools are succeeding in increasing enrollment rates for students scoring below the test’s average, those between 17 and 20 (30% of students enrolled in magnet schools). In Model 4, Latino is significant as a predictor of college enrollment, but only in the absence of GPA controls. Latino students have lower GPAs overall but, when GPA is held constant benefit in the same ways as other students from what magnet schools offer.

What is not clear is the mechanism by which magnet schools are increasing enrollment rates at four-year institutions. College actions have been shown (Stephan, 2010) to predict college enrollment. There may be a relationship between college actions and magnet school enrollment, which will be a next step in this paper. For example, Magnet schools in this district may have a higher success rate at getting students to engage in college actions such as scholarship applications, FAFSA completion, three or more college applications, doing homework, having good discipline, engaging in after-school activities. Is an increase in these behaviors the way in which magnet schools are improving their odds of four-year college enrollment? Alternatively, magnet schools may be weighted preferentially in college admissions process, and we may find stronger effects for the magnets with the most prestige. Our next analyzes will examine these possible mechanisms, using the rich data in the senior survey, which has a 95% response rate.

Next steps include more complex multivariate analyses that examine college application actions shown to predict college enrollment such as FAFSA completion, scholarship applications completed, and college applications completed. Student level differences across homework time, extra curricular activities and family characteristics will also be examined as potential moderators of magnet school effects.

Finally, CPS, like many school districs rarely focusses on college persistence. We propose using National Clearing House data to track persistence after enrollment. Specifically, does the added advantage seen for below average ACT students enrolled in magnet schools translate into increased rates of persistence? This paper will examine the persistence of low scoring students who, in adherence to the college for all policies of CPS and other school districts nationally, are encouraged to attend four year institutions.
Appendix A. References


Appendix B. Tables and Figures