URBAN EDUCATION INSTITUTE

HELPING YOUTH REALIZE THEIR COLLEGE DREAMS:
AN IMPACT STUDY OF THE SAN ANTONIO AREA FOUNDATION'S SCHOLARSHIP PROGRAM

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UTSA

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ABOUT THE URBAN EDUCATION INSTITUTE

OUR MISSION

The Urban Education Institute at The University of Texas at San Antonio produces improvement-focused, collaborative research to raise educational attainment, advance economic mobility, and help people achieve their potential in the Greater San Antonio region.

The Institute pursues its mission by (1) producing rigorous and actionable analysis that supports education policymaking, program implementation, and philanthropic giving; (2) convening community leaders to address entrenched challenges that harm education and human development; and (3) training the next generation of social scientists and educators to address education challenges through observation, analysis, and discovery.

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EXECUTIVE SUMMARY

The San Antonio Area Foundation is the city's community-giving headquarters. The non-profit was established almost 60 years ago to connect donors to causes they care about. In addition to distributing grants from permanent charitable endowments to qualifying groups, the Area Foundation also distributes higher education scholarships. Since its first scholarship award in 1969, the organization has given over $37 million to college-going students from more than 100 scholarship funds to help them achieve their educational dreams.

The Area Foundation engaged the Urban Education Institute (UEI) at The University of Texas at San Antonio (UTSA) to evaluate the effectiveness of its higher education scholarship program. A primary objective was to measure the effect the program had on college enrollment and degree completion. Another purpose was to gauge its potential impact on lowering student debt and reducing the need to work while in college – two barriers to success commonly experienced by students pursuing higher education.

The UEI found meaningful and statistically significant evidence that the Area Foundation's scholarship program helped students achieve college success. In this study, researchers used a longitudinal, explanatory, nonexperimental research design that compared

693 scholarship awardees to their high school peers with similar demographic, socioeconomic characteristics, and prior educational achievement experiences.

Researchers found that those receiving an Area Foundation scholarship were more likely to enroll in a four-year college over a two-year college. The award increased the probability of a student enrolling in a four-year college over a two-year college by 11.8 percentage points.

A Foundation scholarship also helped students graduate from four-year colleges on time at higher rates than their peers, according to the study. The award improved the probability of a student earning a bachelor's degree in four years for students who entered a four-year college by 19.5 percentage points.

Furthermore, receiving an Area Foundation scholarship decreased loan debt by an average of $4,508 for students who attended four years of a four-year college.

While positive effects were found for those who enrolled in a four-year college, which accounted for 86% of scholarship recipients, no statistically significant effects were found for two-year college students.

Finally, receiving an Area Foundation scholarship did not change the total wages students earned while in college, nor did it impact their probability of working during that time.

KEY FINDINGS

Students receiving an Area Foundation scholarship were more likely to enroll in a four-year college over a two-year college. Receiving an award increased the probability of enrolling in a four-year college over two-year college by 11.8 percentage points.

An Area Foundation scholarship increased the likelihood of students earning bachelor's degrees within four years. Receiving a scholarship increased the probability of earning a bachelor's degree in four years by 19.5 percentage points.

Receiving a scholarship did not change the probability of earning an associate degree within two or three years of college entry.

Four-year college students with an Area Foundation scholarship experienced decreased college loan debt by $4,508 on average after four years of college.

Receiving a scholarship did not change the total wages students earned while in college, nor did it impact their probability of working during that time.

RECOMMENDATIONS

The Area Foundation should continue growing its scholarship program based on its history of effectiveness. However, to strengthen its impact, it should move funding where it is making the greatest difference. Based on the findings of this study, this would mean prioritizing four-year college scholarships over two-year college scholarships and prioritizing students with more financial need over those with less financial need.

While two-year college students are more likely to be economically disadvantaged than four-year college students, their needs are also more likely to exceed the cost of college tuition and include child care, housing, food security, and other basic needs (Goldrick-Rab, S. (2018). Consequently, if the Area Foundation is intent on helping two-year college students complete college, an intervention focused on the unique needs of this population will likely prove more effective.

The Area Foundation should also review how its scholarship dollars are tied to academic readiness and progress standards. For example, consideration should be given to differentiating initial award sizes based on the completion of early college coursework (i.e., dual credit or Advanced Placement or International Baccalaureate course credit) in high school. If this strategy is taken, students should be informed no later than ninth grade so they will have time to respond to the incentive. There also may be opportunities to introduce financial incentives to encourage awardees to enroll in and complete a full load of college courses each semester or participate in a summer internship aligned with their professional goals. Existing research supports these recommendations as long as the administrative costs of complying to the standards remain low (Dynarski and Scott-Clayton, 2013).

The Area Foundation should also consider ways to enhance the psychological benefits of receiving a scholarship. Existing research has found that students who receive public recognition as scholars experience a psychological benefit (e.g., improved self-confidence and self-efficacy, or improved self-identify as a college student) that increases their likelihood of college success (Thistlewaite and Campbell, 1960). For example, if not done already, the Area Foundation could publicly recognize awardees in the newspaper, at San Antonio Spurs games, or at other public events.

Finally, more investigation needs to be done into why all eligible students do not take advantage of the Area Foundation's scholarship program. Based on the findings of this study, high schools in Bexar County are not equally represented among scholarship awardees. More research should be done into the reasons behind this in order to expand access and ensure equity.

POLICY RECOMMENDATIONS

Prioritize four-year college scholarships over two-year college scholarships.

Prioritize students with financial need.

Tie academic readiness and progress standards to scholarship dollars where none exist.

Enhance the public recognition of receiving an Area Foundation scholarship.

Investigate why eligible students do not take advantage of the scholarship program.

INTRODUCTION

In November of 2018, the San Antonio Area Foundation hired the Urban Education Institute (UEI) at The University of Texas at San Antonio to perform an impact study of its higher education scholarship program. The Area Foundation's primary concern was on evaluating the effects its scholarship program had on improving student awardees' college persistence and degree completion. The organization was also interested in learning about their scholarships' potential impact on lowering college debt and reducing students' need to work while in college.

To complete this evaluation, the UEI worked with the Area Foundation to gather its data on scholarship recipients. Initially, the UEI attempted unsuccessfully to collect this information from colleges and universities of scholarship recipients. Ultimately, Area Foundation staffers gathered enough personally identifiable information on scholarship recipients so that the UEI was able to link 86% of awardees to their secondary and postsecondary education records. But for the effort made by the staff at the Area Foundation, this study would not have been possible.

SAN ANTONIO AREA FOUNDATION SCHOLARSHIP PROGRAM

The Area Foundation has been facilitating the creation and administration of scholarship funds since 1969. According to its website, the organization has more than 100 scholarship funds available for graduating high school students and current college students. The UEI study sample analyzed 83 constituent scholarship funds, serving approximately 1,000 students. The funds that supported the largest share of recipients included the Whataburger Family Foundation Scholarship Fund (17.8%), the Kym's Kids Scholarship Fund (15.46%), the Anna, Pierre, and Ephraim Block Scholarship Fund (8.19%), the Harvey E. Najim Family Foundation Scholarship Fund (5.83%), and the Patricia L. Hartman & Lois C. Hartman Scholarship Fund (5.02%).

The scholarship fund programs varied in their program design, with differences in factors such as eligibility standards and levels of financial support. The size of initial Area Foundation scholarships varied greatly with a median, mean, and standard deviation (SD) of $6,000, $7,113 and $5,839, respectively.

In Appendix A, researchers report the academic, demographic, and socioeconomic background of scholarship recipients by scholarship program that provided awards to at least 20 students in the study sample. Also presented are the aggregated descriptive statistics for all other scholarship programs with less than 20 awardees.

EXISTING LITERATURE

The Area Foundation has chosen to focus on improving educational attainment rates in the Greater San Antonio community by facilitating the creation and administration of scholarship funds. This strategy is supported by a large body of existing research.

Existing empirical research has found that grant aid improves college degree completion rates. With adequate financing, students are less likely to juggle work and school and more likely to engage in their coursework and extracurricular activities. Grant aid has also been found to improve longer-term outcomes such as graduate education, reduced debt, homeownership, and future earnings (Bettinger, 2004; Bettinger et al., 2016; Curs & Harper, 2012; DesJardins, McCall, Ott, & Kim, 2010; DesJardins & McCall, 2010; Dynarski, 2002; Deming & Dynarski, 2009).

In 2018, researchers performed a meta-analysis of studies that examined the effects of scholarship aid on college students' persistence and degree

completion. Based on the 43 studies included in this meta-analysis, researchers found that receipt of student financial aid (average grant size was $2,697) increased persistence by 2 percentage points and degree completion by 3 percentage points. Findings also showed that an additional $1,000 in grant aid improved persistence by 1.5 percentage points and four-year degree completion by 2 percentage points (Nguyen et al., 2019). Based on these figures, the average Area Foundation scholarship is expected to improve on-time bachelor's degree completion by 11.8 percentage points.

It is important to note that these effect sizes are average effect sizes, which vary by program design and the characteristics of award recipients. Programs with complicated eligibility standards and delivery mechanisms have been found to produce below-average effect sizes. Those tied to academic achievement, as opposed to having no strings attached, have been found to produce above-average effect sizes (Dynarski and Scott-Clayton, 2013). Finally, grant aid given to students from economically disadvantaged backgrounds was found to improve persistence and degree completion more than grant aid provided to students from more privileged backgrounds (Anderson & Goldrick-Rab, 2018; Angrist et al., 2020; Denning, 2019; Sigal, 2011; Williams, 2019).

Given this background knowledge, UEI researchers set out to determine if these effects also held true for the Area Foundation's scholarship program. Primary research questions included the following:

1. Did receiving an Area Foundation scholarship improve the likelihood of four-year college enrollment over two-year college enrollment?
2. Did receiving a scholarship increase the probability of college degree completion?
3. Did receiving a scholarship decrease student debt?
4. Did receiving a scholarship decrease the amount of time employed while in college?

For each of these questions, researchers further examined if receiving an Area Foundation scholarship benefited some student groups more than others.

METHODOLOGY

Students voluntarily apply for scholarships through the Area Foundation. As a result, it is reasonable to assume that scholarship recipients differ from non-recipients in non-trivial ways. And some of these differences likely contribute to postsecondary educational achievement. For example, students who received scholarships likely had more access to information about college scholarships and other college knowledge. And this plausible college information advantage likely also meant they were more prepared for college in other important ways. These systematic differences between students who *select* to apply for a scholarship and those who do not can bias estimates of effect sizes (referred to as *selection bias*) and lead to erroneous conclusions.

To mitigate selection bias and construct a valid comparison group for each student outcome examined, researchers employed a longitudinal, explanatory, nonexperimental research design using panel data and propensity score matching (PSM). PSM is a quantitative methodology that meets the standards

of causal inference prescribed by the Institute of Education Sciences of the U.S. Department of Education in its *What Works Clearinghouse Standards Handbook Version 4*. This approach involved using a rich set of control variables to model the probability of receiving a scholarship as a function of student characteristics. (See Table 1 for a list of control variables used in addition to a random effects variable for high school and fixed-effects variable for cohort.) Researchers then used this model to calculate each student's expected probability of receiving an Area Foundation scholarship (referred to as a *propensity score*). They then matched scholarship recipients (also referred to as a *quasi-treatment group*) to non-recipients (also referred to as a *quasi-control group*) based on their propensity scores. If scholarship recipients could not be matched to non-recipients with similar propensity scores, they were removed from the study population (Rosenbaum & Rubin, 1983).

There are different methods for matching a quasi-treatment group member to one or more quasi-control group members. Researchers tested four different matching procedures and selected the one that best fit the data. The selected method involved matching each quasi-treatment group member to a weighted average of the five non-recipients with the nearest propensity scores.

COMPARISON GROUPS. For each outcome evaluated, non-recipients were matched to recipients to form a quasi-control group or, simply, a comparison group. In addition to having similar propensity scores, comparison groups were limited to students who attended the same high school as each recipient during the year of scholarship receipt.

"Your generosity and support is a tremendous blessing in propelling my success."

–Diana H.

STUDENT OUTCOMES. Researchers compared the average outcome of matched recipients and comparison groups members to identify the average effect of receiving a scholarship. Researchers produced *average treatment effects on the treated* (i.e., average treatment effect when treatment is taken up) for the following student outcomes:

- Four-year college enrollment instead of two-year college enrollment;
- Bachelor's degree attainment within four years by students who enrolled in a four-year college following high school;
- Bachelor's degree attainment within five years by students who enrolled in a four-year college following high school;
- Associate degree attainment within two years by students who enrolled in a two-year college following high school;
- Associate degree attainment within three years by students who enrolled in a two-year college following high school; and,
- Student loan debt acquired in first four years of college of four-year college students who were enrolled for four consecutive years.

In estimating average treatment effect sizes, researchers included control variables to improve the precision of estimates.

HYPOTHESES. Researchers translated each of the study's research questions into a testable hypothesis. Each of the following hypotheses was paired with a null hypothesis that claimed no program effect and was rejected with an *alpha level* of 0.05:

H1: The percent of students enrolling in a four-year college rather than a two-year college was greater for scholarship recipients than a comparison group of similar students from the same high schools as scholarship recipients.

H2: The percent of students who enrolled in a four-year college following high school and earned a bachelor's degree within four years was greater for scholarship recipients than a comparison group of similar students from the same high schools as scholarship recipients.

H3: The percent of students who enrolled in a four-year college following high school and earned a bachelor's degree within five years was greater for scholarship recipients than a comparison group of similar students from the same high schools as scholarship recipients.

H4: The percent of students who enrolled in a two-year college following high school and earned an associate degree within two years was greater for scholarship recipients than a comparison group of similar students from the same high schools as scholarship recipients.

H5: The percent of students who enrolled in a two-year college following high school and earned an associate degree within three years was greater for scholarship recipients than a comparison group of similar students from the same high schools as scholarship recipients.

H6: The average amount of student debt acquired during the first four years of college by four-year college students who persisted for four consecutive years was less for scholarship recipients than a comparison group of similar students from the same high schools as scholarship recipients.

H7: The average number of quarters employed during the first four years of college by four-year college students who persisted for four consecutive years was less for scholarship recipients than a comparison group of similar

students from the same high schools as scholarship recipients.

H8: The average total wages earned during the first four years of college by four-year college students who persisted for four consecutive years was less for scholarship recipients than a comparison group of similar students from the same high schools as scholarship recipients.

"Thank you for helping me fulfill my dreams!"

–Rayne R.

ROBUSTNESS CHECK. Researchers used multiple tests to determine the robustness of their findings. First, an alternative comparison group was constructed to determine if results were sensitive to how they defined their comparison group. This alternative comparison group contained students who attended high schools in the same county, instead of the same high school, of each awardee during the year the recipient received a scholarship. The direction, magnitude, and level of statistical significance of the study's original findings were not altered by the use of this alternative comparison group.

Second, researchers performed multiple tests to determine the quality of matches between awardees and comparison group members after matching. These tests included observing a change in *pseudo* R^2, mean bias, and median bias, the likelihood ratio test and Ruben's B test statistic to determine if treatment status was unrelated to a function of control variables after matching.

Only Hypothesis 5 (scholarship effect on associate degree completion within three years) produced test results that indicate a low-quality match. For this hypothesis, Rubin's B test statistics fell slightly out of the acceptable range after matching, indicating that associated results should be interpreted with caution. All other hypotheses were tested with quality matches, meaning the distribution of control variables between the quasi-treatment and quasi-control groups were statistically equivalent.

STUDY LIMITATIONS. Findings produced by nonexperimental research designs such as the one used in this study are less definitive than random control trials. In particular, unobserved data limits all studies that work with observational data. For example, this study does not include a direct measure of each student's grit—the perseverance and passion for long-term goals—in estimating effects (Duckworth, 2007). If treatment group members disproportionately possess grit, and if variables included are poor proxies for grit, then grit may be a confounding variable. If this is the case, then not controlling for grit will cause program effects to be overstated. Of course, there may also be other lurking factors that bias effect sizes downward. Because these variables are unobserved, their confounding effects cannot be dismissed, only mitigated through research design, methodological techniques, and a proper grounding in existing theory. For these reasons, researchers characterize the findings of this study as predictive and explanatory but not causal. For a more technical presentation of the methodology used, see Appendix B.

STUDY SAMPLE

The original dataset of Area Foundation scholarship awardees included 4,880 observations. However, about half of these observations were duplicates, the same student receiving more than one award at different times. It also included observations that could not be linked to secondary or postsecondary records due to inadequate personal identifiable information. Another set of observations represented students who received their awards in 2019 and 2020, a period too soon to evaluate their college outcomes.

Altogether, 693 unique scholarship recipients could be included in the study sample because they met the following criteria:

- Completed eighth-grade, state-mandated math exam;
- Entered a public high school in ninth grade between school years ending in 2005 to 2014;
- Graduated high school within four years;
- Received a scholarship during high school senior year or early freshman

year of college; and,

- Enrolled in postsecondary education (a two- or four-year Texas college) upon high school graduation.

The typical awardee in our study sample was a first-generation college student, Hispanic, female, and eligible for the federal free or reduced school lunch program, as displayed in Table 4 in Appendix C. This typical student earned 4.6 AP credits and 2.6 dual credits and achieved an eighth-grade math score higher than 65% of other Texas public school peers. In summary, the typical student came from an economically disadvantaged background but was more academically college-ready than the average high school student.

Females comprised 71% of the study population. Students who identified as Hispanic, White, or African American comprised 61.3%, 30.0%, and 8.7% of the study population. About 17.5% were identified as at risk of dropping out of high school and 65.1% were first-generation college students.

The study population had an average attendance rate of 97.3%. And 12.3% of them had received at least one school disciplinary report.

The study population by definition only included students who enrolled in a two-year college or four-year college in the year following high school. Of awardees, 86.1% enrolled in a four-year college. Of awardees who enrolled in a four-year college, 62.8% completed a bachelor's degree within four years and 78.7%

completed within five years. Of awardees who enrolled in a two-year college, 9.7% completed an associate degree within two years and 13.6% completed within three years. Awardees who enrolled in a four-year college and completed four consecutive years of college acquired $12,816 (*SD* = $18,379) of student debt on average.

TABLE 1: DESCRIPTIVE STATISTICS OF AWARDEES' CHARACTERISTICS AND POSTSECONDARY OUTCOMES

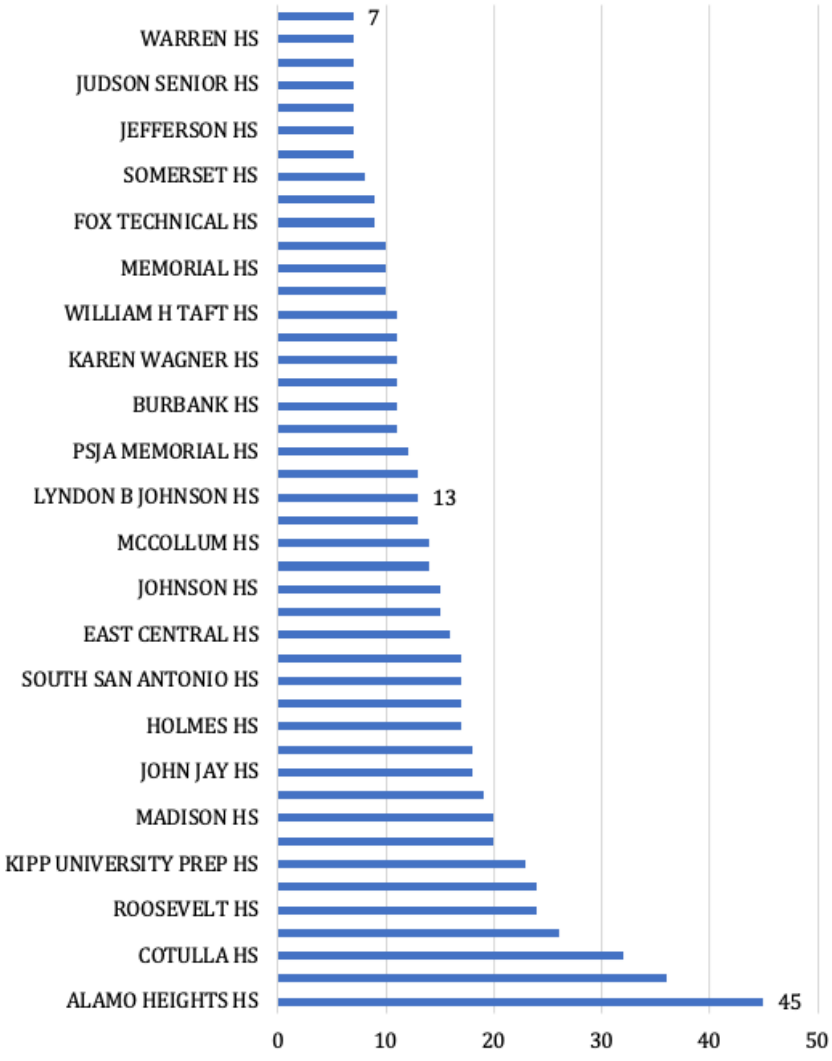
Predictor Variables	N	Mean	SD
Female	693	0.710	0.45
Age in Ninth Grade	693	14.039	0.26
African American	693	0.087	0.28
Hispanic	693	0.613	0.49
Eligible for Reduced Price Lunch Program	693	0.102	0.30
Eligible for Free Lunch Program	693	0.284	0.45
Eligible for Free Lunch Program based on Other Public Assistance	693	0.128	0.34
Received Special Education Services or Accommodations	693	0.012	0.11
AP/IB Credit Earned	693	4.502	3.34
Dual Credit Earned	693	2.377	3.16
Advanced High School-Only Credit Earned	693	1.383	1.01
High School CTE Credit Earned	693	4.082	2.72
Other High School Credit Earned	693	20.200	3.63
Classified as At-Risk of Dropping Out of High School	693	0.175	0.38
Attendance Rate	693	97.316	2.37
Disciplinary Action	693	0.123	0.39
Changed Schools in High School	693	0.094	0.29
Not First-Generational College	693	0.349	0.48
State-Mandated, Eighth-Grade Math Score (Z-score)	693	0.395	0.73
Postsecondary Outcome Variables	N	Mean	SD
Enrolled in a four-year college in year following high school	693	0.861	0.35
Earned a bachelor's degree within four years	188	0.628	0.49
Earned a bachelor's degree within five years	150	0.787	0.41
Earned an associate degree within two years	185	0.097	0.30
Earned an associate degree within three years	110	0.136	0.35
Student debt acquired in first four years of college by four-year college students ($)	122	12,816.80	18,379.31

Note: Sample sizes vary by outcome variables due to different time horizon needed to observe postsecondary outcomes.

HIGH SCHOOLS. Awardees in our study sample graduated from 249 different high schools. As shown in Figure 1, Alamo Heights High School represented the largest share (45 awardees), followed by Travis Early College High School (36 awardees),

Cotulla High School (32 awardees), Lanier High School (26 awardees), Roosevelt High School (24 awardees), Young Women's Leadership Academy (24 awardees), KIPP University PREP High School (23 awardees), Churchill High School (20 awardees), Madison High School (20 awardees), and Sam Houston High School (19 awardees). Due to student privacy requirements under the Family Educational Rights and Privacy Act (FERPA), 205 high schools could not be included in Figure 1 because they represented less than 5 students each.

FIGURE 1: DISTRIBUTION OF SCHOLARSHIP RECIPIENTS BY HIGH SCHOOL THAT HAD 5 OR MORE AWARDEES



Note: Due to student privacy requirements, 205 high schools could not be listed because they represented less than 5 awardees each.

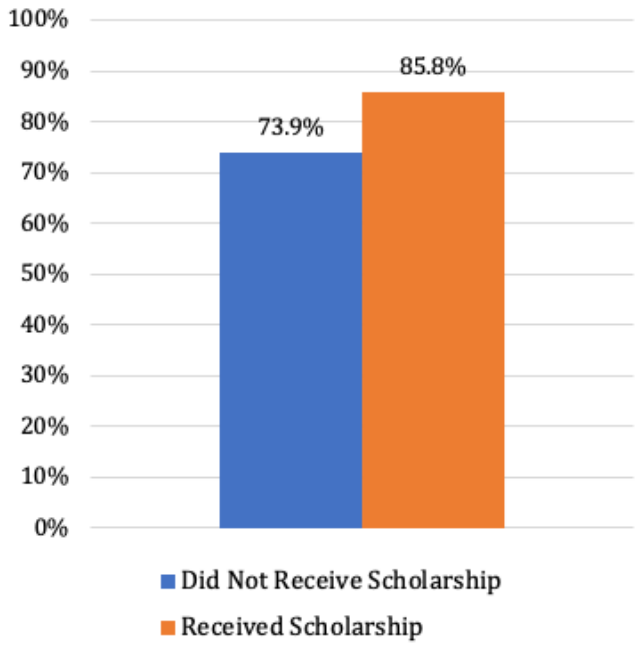
RESULTS

DID RECEIVING AN AREA FOUNDATION SCHOLARSHIP INCREASE THE LIKELIHOOD OF FOUR-YEAR COLLEGE ENROLLMENT OVER TWO-YEAR COLLEGE ENROLLMENT?

Receiving an Area Foundation scholarship increased the probability of being enrolled in a four-year college instead of a two-year college by 11.9 percentage points. Awardees enrolled in a four-year college over a two-year college at a rate of 85.8%. This figure equaled 73.9% for the comparison group, which consisted of students who didn't receive a scholarship and who came from the same high schools as recipients and had the same odds of receiving an award. The change in four-year college enrollment represented a relative growth rate of 16.1% from the base of 73.9%.

See Table 3 in Appendix C for a detailed description of all scholarship effect sizes.

FIGURE 2: AVERAGE PERCENT OF STUDENTS WHO ENROLLED IN A FOUR-YEAR COLLEGE INSTEAD OF A TWO-YEAR COLLEGE BY TREATMENT STATUS

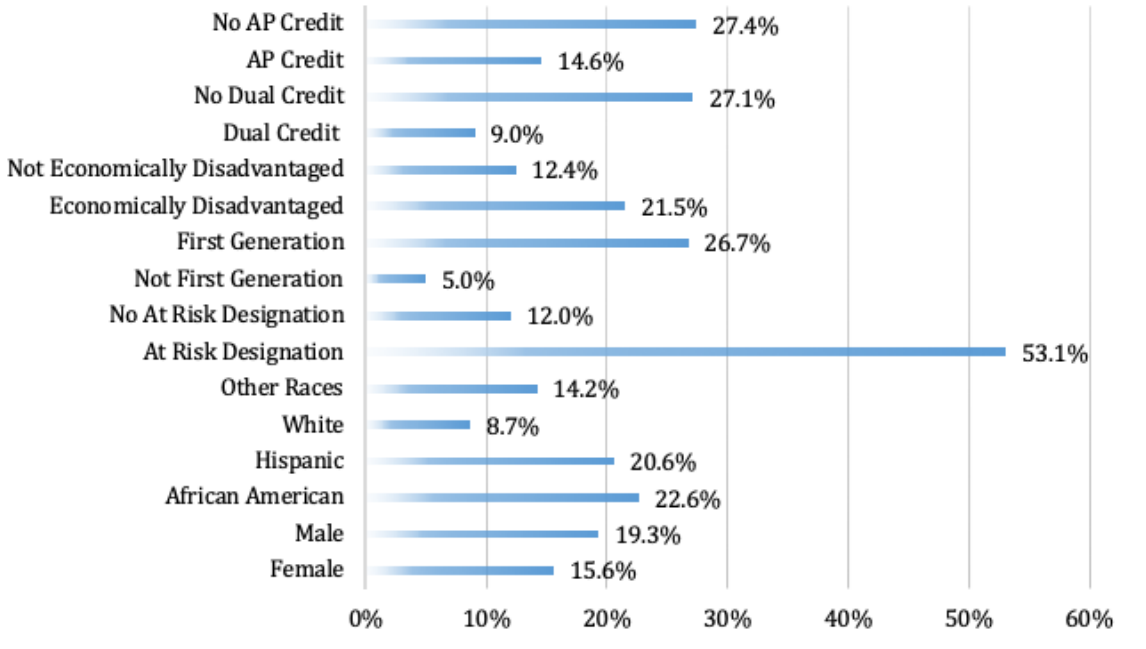


MATCHING. Test statistics affirmed a quality match between the quasi-treatment and quasi-control group members. No significant difference in characteristics was found between scholarship recipients and their comparison group after matching. The results also showed that both mean and median standardized biases were substantially decreased to around 1, and Rubin's B test statistic fell within the acceptable range after matching.

A statistical description of the quasi-treatment and quasi-control groups before matching can be found in Table 4 of Appendix C. Test results matching process can be found in Table 5 in Appendix C.

DISAGGREGATION OF AVERAGE IMPACT. Some identifiable student subgroups realized a greater scholarship effect on four-year college enrollment, as shown in Figure 3. Recipients with an at-risk designation appear to have the highest impact with a relative growth rate of 53.1%. In addition, first-generation students, African American students, and students who did not participate in early college courses tended to have a higher impact than their counterparts.

FIGURE 3: SCHOLARSHIP EFFECT, EXPRESSED AS A GROWTH RATE, ON FOUR-YEAR COLLEGE ENROLLMENT INSTEAD OF A TWO-YEAR COLLEGE ENROLLMENT BY STUDENT SUBGROUPS

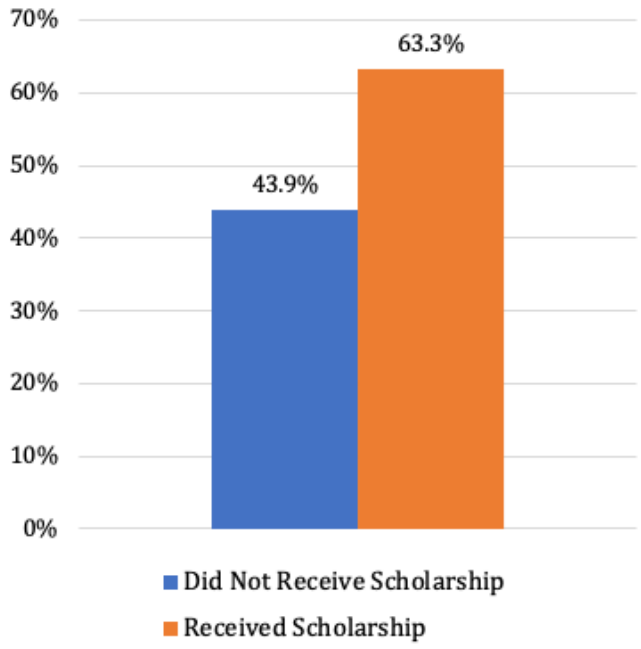


Note: The estimates are obtained from the comparison of the outcome variable between scholarship recipients and matched students who graduated from the same high schools. The regression model does not include matching covariates since the model is over fitted especially with a small sample size. Adding covariates would help decrease standard errors of the coefficient but should not change the main finding since the matching method assumes conditional independence.

DID RECEIVING AN AREA FOUNDATION SCHOLARSHIP INCREASE THE LIKELIHOOD OF EARNING A BACHELOR'S DEGREE WITHIN FOUR YEARS?

Receiving an Area Foundation scholarship increased the percent of four-year college students who earned a bachelor's degree within four years by 19.4 percentage points, as shown in Figure 4. Awardees graduated on-time at a rate of 63.3%. This figure equaled 43.9% for the comparison group. The change in degree completion represented a relative growth rate of 44.2% from the base of 43.9%.

FIGURE 4: AVERAGE PERCENT OF FOUR-YEAR COLLEGE ENROLLEES WHO EARNED A BACHELOR'S DEGREE WITHIN FOUR YEARS BY TREATMENT STATUS

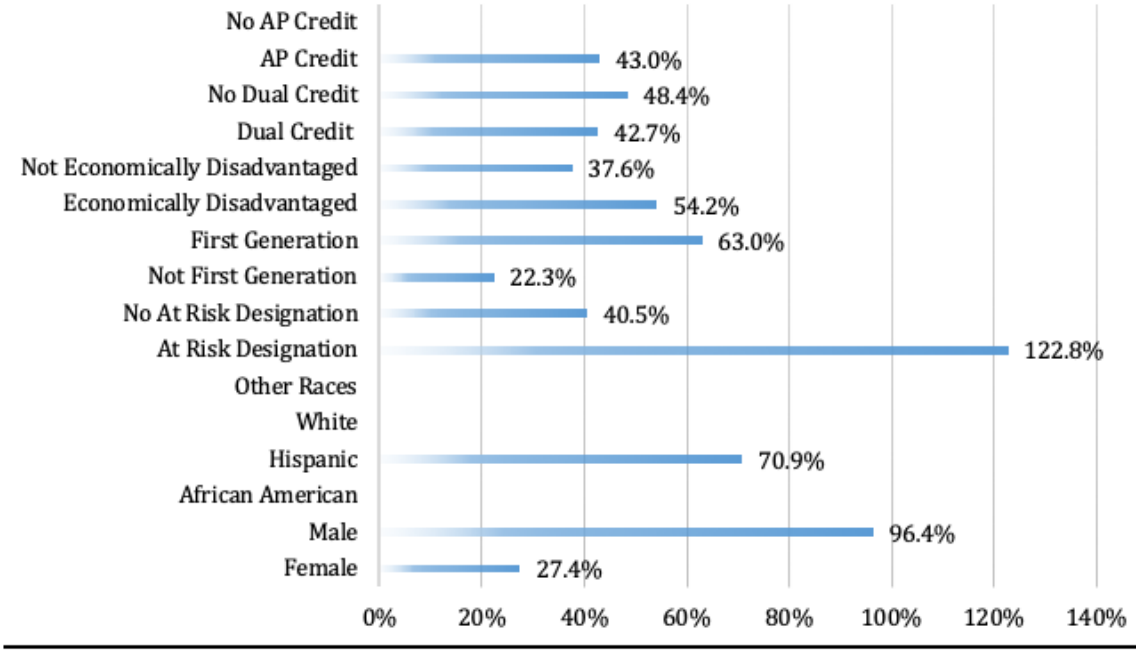


MATCHING. Test statistics affirmed a quality match between the quasi-treatment and quasi-control group members. No significant difference in characteristics was found between scholarship recipients and their comparison group after matching. The results also showed that both mean and median standardized biases were substantially decreased to around 1, and Rubin's B test statistic fell within the acceptable range after matching.

A statistical description of the quasi-treatment and quasi-control groups before matching can be found in Table 6 of Appendix C. Test results matching process can be found in Table 7 in Appendix C.

DISAGGREGATION OF AVERAGE IMPACT. Once again, some student subgroups realized a greater scholarship effect than others, as shown in Figure 5. Recipients with an at-risk designation appear to have the highest impact with a relative growth rate of 122.8%. In addition, male students, Hispanic students, first-generation students, and economically disadvantaged students (reduced/free-price meals or eligible for other public assistance) tended to have a higher program impact than their counterparts. No bar graph in Figure 5 indicates that the estimated effect is not statistically significant.

FIGURE 5: SCHOLARSHIP EFFECT, EXPRESSED AS A GROWTH RATE, ON BACHELOR'S DEGREE ATTAINMENT WITHIN FOUR YEARS OF FOUR-YEAR COLLEGE ENROLLMENT BY STUDENT SUBGROUPS

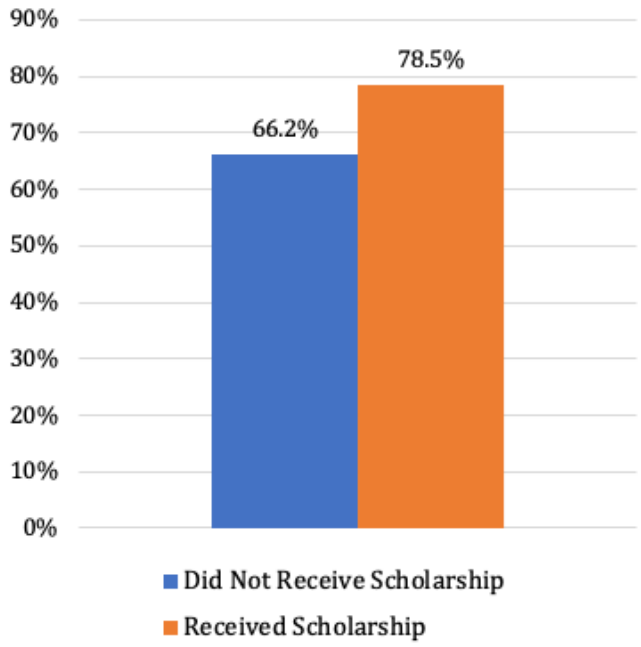


Note: The estimates are obtained from the comparison of the outcome variable between scholarship recipients and matched students who graduated from the same high schools. The regression model does not include matching covariates since the model is over fitted especially with a small sample size. Adding covariates would help decrease standard errors of the coefficient but should not change the main finding since the matching method assumes conditional independence. No bar graph indicates that the estimated effect is not statistically significant.

DID RECEIVING AN AREA FOUNDATION SCHOLARSHIP INCREASE THE LIKELIHOOD OF EARNING A BACHELOR'S DEGREE WITHIN FIVE YEARS?

Receiving an Area Foundation scholarship increased the percent of four-year college students who earned a bachelor's degree within five years by 12.3 percentage points, as shown in Figure 6. Awardees graduated within five years at a rate of 78.5%. This figure equaled 66.2% for the comparison group. The change in degree completion represented a relative growth rate of 18.6% from the base of 66.2%.

FIGURE 6: AVERAGE PERCENT OF FOUR-YEAR COLLEGE ENROLLEES WHO EARNED A BACHELOR'S DEGREE WITHIN FIVE YEARS BY TREATMENT STATUS

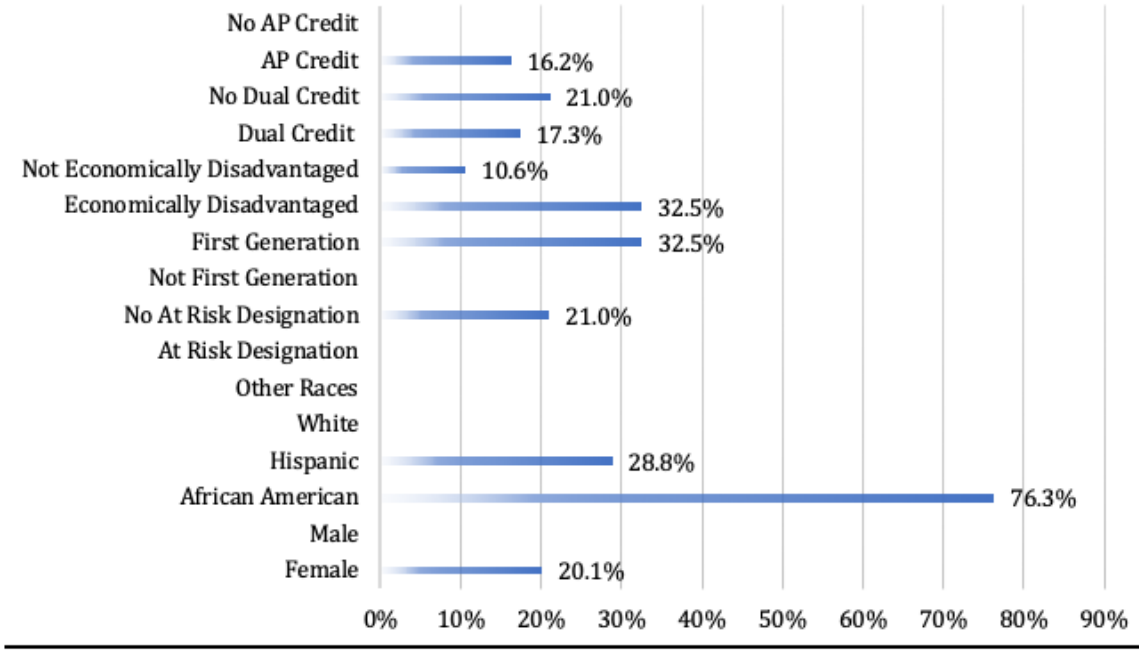


MATCHING. Test statistics affirmed a quality match between the quasi-treatment and quasi-control group members. No significant difference in characteristics was found between scholarship recipients and their comparison group after matching. The results also showed that both mean and median standardized biases were substantially decreased to around 1, and Rubin's B test statistic fell within the acceptable range after matching.

A statistical description of the quasi-treatment and quasi-control groups before matching can be found in Table 8 of Appendix C. Test results matching process can be found in Table 9 in Appendix C.

DISAGGREGATION OF AVERAGE IMPACT. As shown in Figure 7, receiving an Area Foundation scholarship improved the rate of bachelor's degree completion within five years the most for students identified as African American. These students realized the highest impact with a relative growth rate of 76.3%. In addition, Hispanic students, first-generation students, and economically disadvantaged students (reduced/free-price meals or eligible for other public assistance) tended to have a higher program impact than their counterparts. No bar graph in Figure 7 indicates that the estimated effect is not statistically significant.

FIGURE 7: SCHOLARSHIP EFFECT, EXPRESSED AS A GROWTH RATE, ON BACHELOR'S DEGREE ATTAINMENT WITHIN FIVE YEARS OF FOUR-YEAR COLLEGE ENROLLMENT BY STUDENT SUBGROUPS

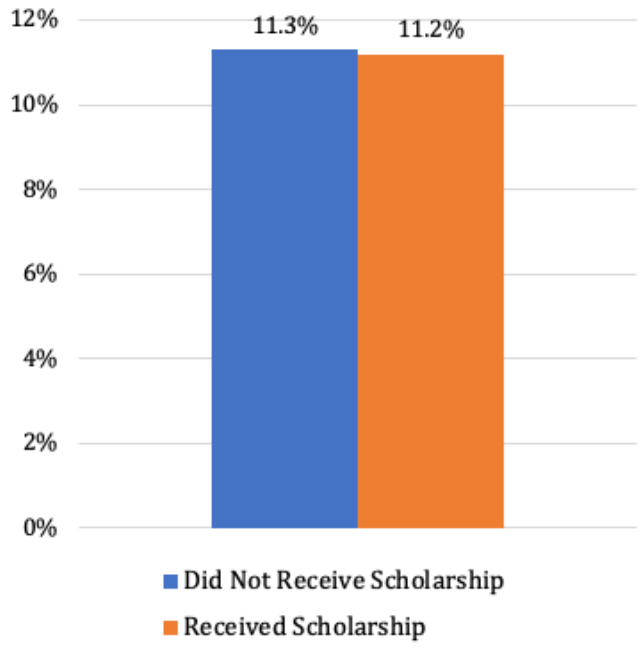


Note: The estimates are obtained from the comparison of the outcome variable between scholarship recipients and matched students who graduated from the same high schools. The regression model does not include matching covariates since the model is over fitted especially with a small sample size. Adding covariates would help decrease standard errors of the coefficient but should not change the main finding since the matching method assumes conditional independence. No bar graph indicates that the estimated effect is not statistically significant.

DID RECEIVING AN AREA FOUNDATION SCHOLARSHIP INCREASE THE LIKELIHOOD OF EARNING AN ASSOCIATE DEGREE WITHIN TWO YEARS?

Receiving an Area Foundation scholarship did not change the percent of two-year college students who earned an associate degree within two years, as shown in Figure 8. Students who received a scholarship earned an associate degree within two years at a rate of 11.2%, a rate statistically equivalent to the comparison group.

FIGURE 8: AVERAGE PERCENT OF TWO-YEAR COLLEGE ENROLLEES WHO EARNED AN ASSOCIATE DEGREE WITHIN TWO YEARS BY TREATMENT STATUS



MATCHING. Test statistics affirmed a quality match between the quasi-treatment and quasi-control group members. No significant difference in characteristics was found between scholarship recipients and their comparison group after matching. The results also showed that both mean and median standardized biases were substantially decreased to around 1, and Rubin's B test statistic fell within the acceptable range after matching.

A statistical description of the quasi-treatment and quasi-control groups before matching can be found in Table 10 of Appendix C. Test results matching process can be found in Table 11 in Appendix C.

DISAGGREGATION OF AVERAGE IMPACT. No subgroup of two-year college recipients realized an improvement in their completion rates at statistically significant levels.

Some students who enrolled in a two-year college also enrolled in a four-year college. An additional impact analysis was performed on those who only enrolled in two-year college. No program impact was found; however, this may be due to having a small sample size.

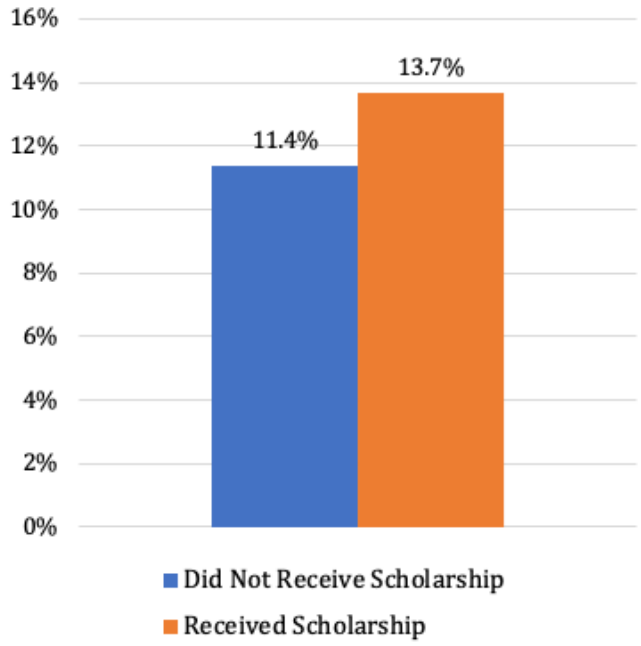
"This award is another indication of my hard work and I will continue to help influence and better others in need around the world!"

–Christine O.

DID RECEIVING AN AREA FOUNDATION SCHOLARSHIP INCREASE THE LIKELIHOOD OF EARNING AN ASSOCIATE DEGREE WITHIN THREE YEARS?

Receiving an Area Foundation scholarship improved the percent of two-year college students who earned an associate degree within three years, but not by a statistically significant amount, as shown in Figure 9. Students who received a scholarship earned an associate degree within two years at a rate of 13.7%, a rate statistically equivalent to the comparison group.

FIGURE 9: AVERAGE PERCENT OF TWO-YEAR COLLEGE ENROLLEES WHO EARNED AN ASSOCIATE DEGREE WITHIN THREE YEARS BY TREATMENT STATUS



MATCHING. Test statistics did not affirm a quality match between the quasi-treatment and quasi-control group members across all tests. No significant difference in characteristics was found between scholarship recipients and their comparison group after matching. The results also show that both mean and median standardized biases were substantially decreased to around 1. However, Rubin's B test statistic fell outside of the acceptable range after matching.

Consequently, the results of this analysis should be interpreted with caution.

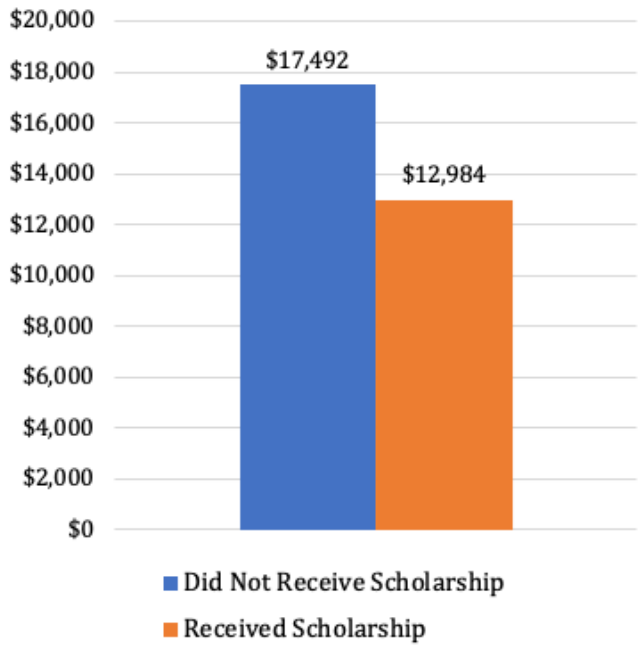
A statistical description of the quasi-treatment and quasi-control groups before matching can be found in Table 12 of Appendix C. Test results matching process can be found in Table 13 in Appendix C.

DISAGGREGATION OF AVERAGE IMPACT. No subgroup of two-year college recipients realized an improvement in completion rates by the third year from enrollment at statistically significant levels.

DID RECEIVING AN AREA FOUNDATION SCHOLARSHIP LOWER STUDENT DEBT ACQUIRED IN THE FIRST FOUR YEARS OF COLLEGE FOR FOUR-YEAR COLLEGE STUDENTS?

Receiving an Area Foundation scholarship lowered a student's debt by an average of $4,508 or 25.8%, as shown in Figure 10. Awardees completed their first four years of their bachelor's program with $12,984 of student debt; while the comparison group acquired $17,492 of student debt on average.

FIGURE 10: AVERAGE STUDENT DEBT ACQUIRED IN FIRST FOUR YEARS OF COLLEGE BY FOUR-YEAR COLLEGE STUDENTS BY TREATMENT STATUS



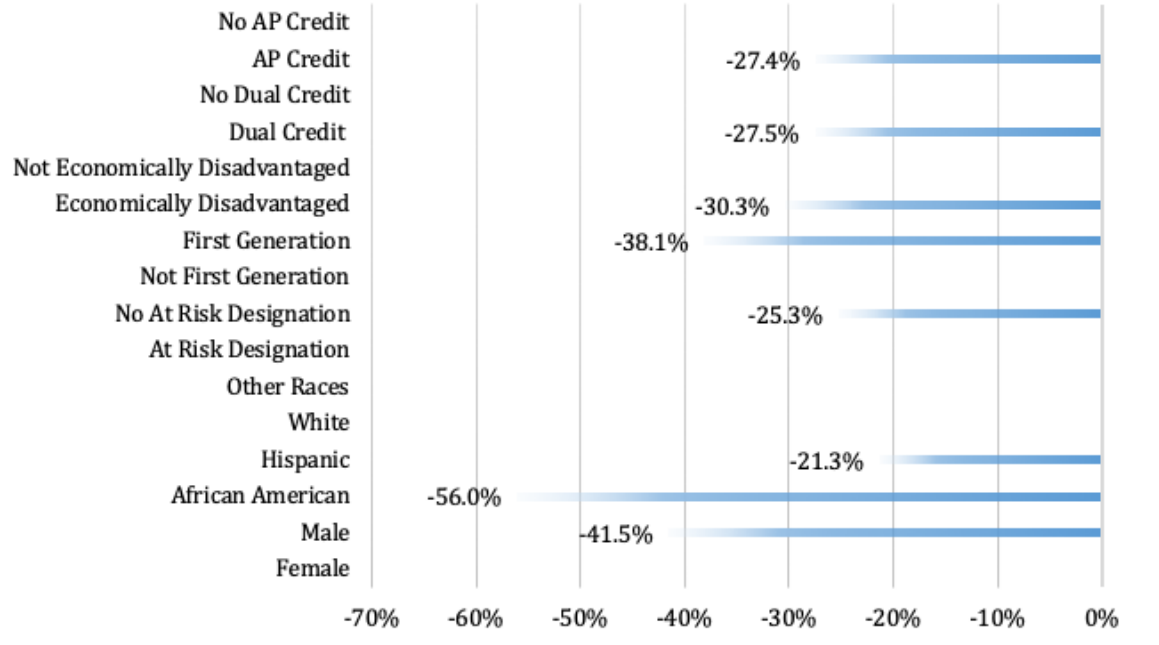
MATCHING. Test statistics affirmed a quality match between the quasi-treatment and quasi-control group members. No significant difference in characteristics was found between scholarship recipients and their comparison group after matching. The results also showed that both mean and median standardized biases were substantially decreased to around 1, and Rubin's B test statistic fell within the acceptable range after matching.

A statistical description of the quasi-treatment and quasi-control groups before matching can be found in Table 14 of Appendix C. Test results matching process

can be found in Table 15 in Appendix C. Moreover, these results also applied to employment and earnings outcomes in the following sections as these three outcomes (student debt, employment, and total earnings) relied on the same study sample.

DISAGGREGATION OF AVERAGE IMPACT. As shown in Figure 11, receiving an Area Foundation scholarship reduced student debt the most for students identified as African American. These students realized the sharpest decline with a reduction rate of 56.0%. In addition, male students, first-generation students, and economically disadvantaged students (reduced/free-price meals or eligible for other public assistance) realized higher reduction rates in student debt as compared to their counterparts. No bar graph in Figure 11 indicates that the estimated effect is not statistically significant.

FIGURE 11: SCHOLARSHIP EFFECT, EXPRESSED AS A GROWTH RATE, ON AVERAGE STUDENT DEBT ACQUIRED IN FIRST FOUR YEARS OF COLLEGE BY FOUR-YEAR COLLEGE STUDENT SUBGROUPS

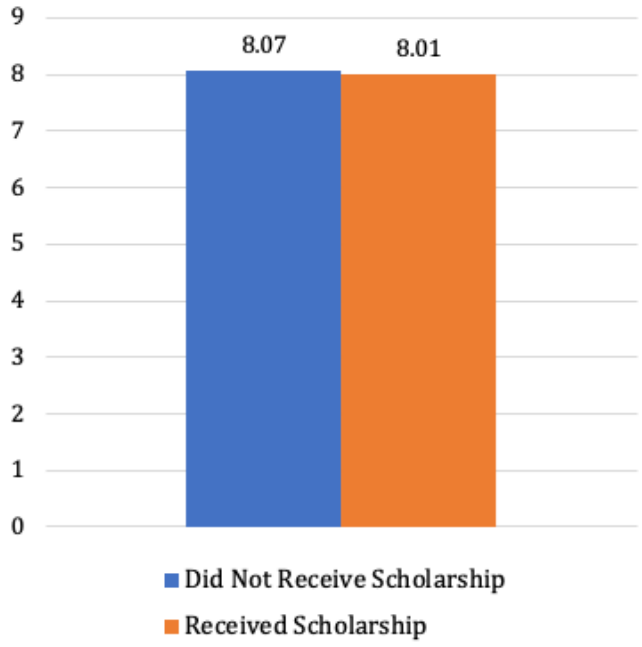


Note: The estimates are obtained from the comparison of the outcome variable between scholarship recipients and matched students who graduated from the same high schools. The regression model does not include matching covariates since the model is over fitted especially with a small sample size. Adding covariates would help decrease standard errors of the coefficient but should not change the main finding since the matching method assumes conditional independence. No bar graph indicates that the estimated effect is not statistically significant.

DID RECEIVING AN AREA FOUNDATION SCHOLARSHIP LOWER STUDENT EMPLOYMENT DURING THE FIRST FOUR YEARS OF COLLEGE FOR FOUR-YEAR COLLEGE STUDENTS?

Receiving an Area Foundation scholarship produced no statistically significant difference in number of quarters employed during the first four years of college for four-year college students. Scholarship recipients worked 8.01 quarters out of 16, as shown in Figure 12. The comparison group worked 8.07 quarters.

FIGURE 12: AVERAGE NUMBER OF QUARTERS WORKED BY FOUR-YEAR COLLEGE STUDENTS DURING THE FIRST FOUR YEARS OF COLLEGE BY TREATMENT STATUS



MATCHING. Test statistics affirmed a quality match between the quasi-treatment and quasi-control group members. No significant difference in characteristics was found between scholarship recipients and their comparison group after matching. The results also showed that both mean and median standardized biases were substantially decreased to around 1, and Rubin's B test statistic fell within the acceptable range after matching.

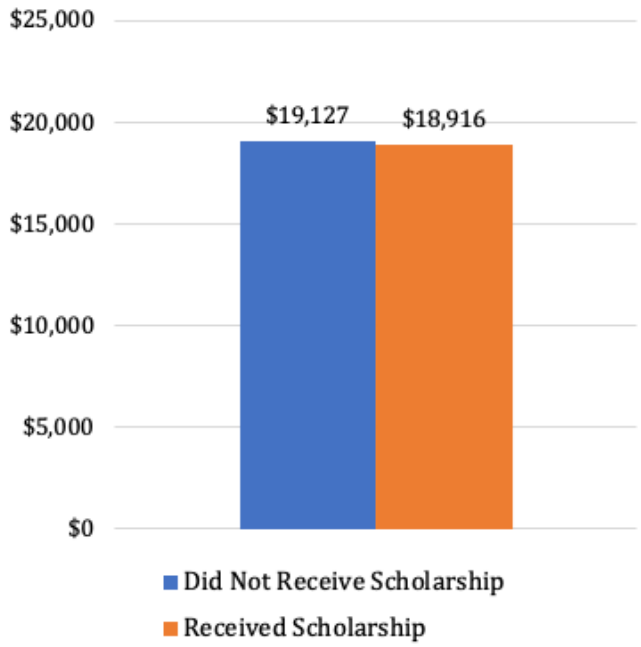
A statistical description of the quasi-treatment and quasi-control groups before matching can be found in Table 14 of Appendix C. Test results matching process can be found in Table 15 in Appendix C.

DISAGGREGATION OF AVERAGE IMPACT. No subgroup of four-year college recipients realized a change in its employment rate at statistically significant level.

DID RECEIVING AN AREA FOUNDATION SCHOLARSHIP LOWER STUDENT EARNINGS DURING THE FIRST FOUR YEARS OF COLLEGE FOR FOUR-YEAR COLLEGE STUDENTS?

Receiving an Area Foundation scholarship produced no statistically significant difference in total earnings during the first four years of college for four-year college students. Scholarship recipients earned $18,916 in their first four years of college, as shown in Figure 13. The comparison group earned $19,127.

FIGURE 13: AVERAGE TOTAL INCOME EARNED BY FOUR-YEAR COLLEGE STUDENTS DURING THE FIRST FOUR YEARS OF COLLEGE BY TREATMENT STATUS



MATCHING. Test statistics affirmed a quality match between the quasi-treatment and quasi-control group members. No significant difference in characteristics was found between scholarship recipients and their comparison group after matching. The results also showed that both mean and median standardized biases were substantially decreased to around 1, and Rubin's B test statistic fell within the acceptable range after matching.

A statistical description of the quasi-treatment and quasi-control groups before matching can be found in Table 14 of Appendix C. Test results matching process can be found in Table 15 in Appendix C.

DISAGGREGATION OF AVERAGE IMPACT. No subgroup of four-year college recipients realized a change in its employment rate at a statistically significant level.

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APPENDIX A

TABLE 2: DESCRIPTION OF AWARDEES BY SCHOLARSHIP PROGRAM

	Whataburger Family Foundation Scholarship Fund		Kym's Kids Scholarship Fund		Anna, Pierre, and Ephraim Block Scholarship Fund		Najim Family Foundation Scholarship	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Female	0.684	0.47	0.795	0.41	0.750	0.44	0.737	0.44
Age in Ninth Grade	14.017	0.23	14.079	0.29	14.063	0.24	14.000	0.00
African American	0.098	0.30	0.139	0.35	0.000	0.00	0.018	0.13
Hispanic	0.598	0.49	0.828	0.38	0.938	0.24	0.982	0.13
Eligible for Reduced Price Lunch Program	0.086	0.28	0.172	0.38	0.088	0.28	0.088	0.29
Eligible for Free Lunch Program	0.431	0.50	0.391	0.49	0.288	0.46	0.544	0.50
Eligible for Free Lunch Program based on Other Public Assistance	0.092	0.29	0.179	0.38	0.300	0.46	0.281	0.45
Received Special Education Services or Accomodations	0.000	0.00	0.040	0.20	0.000	0.00	0.000	0.00
AP/IB Credit Earned	3.966	3.30	3.768	3.33	4.843	3.06	5.202	3.92
Dual Credit Earned	2.396	3.17	2.629	4.05	3.850	3.31	4.219	4.63
Advanced High School-Only Credit Earned	1.221	0.92	1.152	0.78	1.338	1.09	1.149	1.09
High School CTE Credit Earned	4.894	2.58	3.613	2.66	6.033	2.70	4.316	3.03
Other High School Credit Earned	19.481	4.00	22.010	3.37	18.102	4.29	18.956	4.54
Classified as At-Risk of Dropping Out of High School	0.149	0.36	0.291	0.46	0.200	0.40	0.123	0.33
Attendance Rate	96.770	2.90	97.398	1.90	98.166	1.91	96.543	2.65
Disciplinary Action	0.178	0.44	0.152	0.41	0.038	0.19	0.070	0.26
Changed Schools in High School	0.138	0.35	0.099	0.30	0.050	0.22	0.053	0.23
Not First-Generational College	0.144	0.35	0.166	0.37	0.263	0.44	0.000	0.00
State-Mandated, Eighth-Grade Math Score (Z-score)	0.170	0.40	0.020	0.51	0.439	0.66	0.229	0.34
Observations	174		151		80		57	

	Patricia L. Hartman & Lois C. Hartman Scholarship Fund		Rapier Educational Foundation		Ben and Ida Alexander Memorial Fund		MLK Commission Scholarship Fund	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Female	0.633	0.49	0.548	0.50	0.829	0.38	0.735	0.45
Age in Ninth Grade	14.041	0.29	14.095	0.30	14.000	0.00	14.029	0.30
African American	0.020	0.14	0.000	0.00	0.000	0.00	0.294	0.46
Hispanic	0.306	0.47	0.571	0.50	0.800	0.41	0.588	0.50
Eligible for Reduced Price Lunch Program	0.041	0.20	0.119	0.33	0.086	0.28	0.147	0.36
Eligible for Free Lunch Program	0.122	0.33	0.214	0.42	0.429	0.50	0.147	0.36
Eligible for Free Lunch Program based on Other Public Assistance	0.020	0.14	0.071	0.26	0.000	0.00	0.147	0.36
Received Special Education Services or Accomodations	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00
AP/IB Credit Earned	6.480	3.74	4.476	3.13	2.071	1.29	5.088	3.66
Dual Credit Earned	1.592	3.01	2.476	3.10	4.300	2.23	3.926	5.62
Advanced High School-Only Credit Earned	1.704	1.09	1.381	0.93	1.429	0.76	1.603	1.43
High School CTE Credit Earned	1.867	1.57	4.310	2.77	5.486	2.11	3.368	2.54
Other High School Credit Earned	19.724	3.30	20.012	2.64	17.543	2.82	19.588	3.46
Classified as At-Risk of Dropping Out of High School	0.082	0.28	0.143	0.35	0.286	0.46	0.147	0.36
Attendance Rate	97.392	1.86	97.960	1.83	96.223	2.34	96.624	4.30
Disciplinary Action	0.061	0.32	0.071	0.26	0.286	0.57	0.147	0.70
Changed Schools in High School	0.041	0.20	0.071	0.26	0.000	0.00	0.029	0.17
Not First-Generational College	0.490	0.51	0.429	0.50	0.257	0.44	0.265	0.45
State-Mandated, Eighth-Grade Math Score (Z-score)	0.490	0.52	0.643	0.73	0.030	0.35	0.263	0.39
Observations	49		42		35		34	

TABLE 2 CONTINUED: DESCRIPTION OF AWARDEES BY SCHOLARSHIP PROGRAM

	Patricia L. Hartman & Lois C. Hartman Scholarship Fund		Rapier Educational Foundation		Ben and Ida Alexander Memorial Fund		MLK Commission Scholarship Fund	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Female	0.633	0.49	0.548	0.50	0.829	0.38	0.735	0.45
Age in Ninth Grade	14.041	0.29	14.095	0.30	14.000	0.00	14.029	0.30
African American	0.020	0.14	0.000	0.00	0.000	0.00	0.294	0.46
Hispanic	0.306	0.47	0.571	0.50	0.800	0.41	0.588	0.50
Eligible for Reduced Price Lunch Program	0.041	0.20	0.119	0.33	0.086	0.28	0.147	0.36
Eligible for Free Lunch Program	0.122	0.33	0.214	0.42	0.429	0.50	0.147	0.36
Eligible for Free Lunch Program based on Other Public Assistance	0.020	0.14	0.071	0.26	0.000	0.00	0.147	0.36
Received Special Education Services or Accomodations	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00
AP/IB Credit Earned	6.480	3.74	4.476	3.13	2.071	1.29	5.088	3.66
Dual Credit Earned	1.592	3.01	2.476	3.10	4.300	2.23	3.926	5.62
Advanced High School-Only Credit Earned	1.704	1.09	1.381	0.93	1.429	0.76	1.603	1.43
High School CTE Credit Earned	1.867	1.57	4.310	2.77	5.486	2.11	3.368	2.54
Other High School Credit Earned	19.724	3.30	20.012	2.64	17.543	2.82	19.588	3.46
Classified as At-Risk of Dropping Out of High School	0.082	0.28	0.143	0.35	0.286	0.46	0.147	0.36
Attendance Rate	97.392	1.86	97.960	1.83	96.223	2.34	96.624	4.30
Disciplinary Action	0.061	0.32	0.071	0.26	0.286	0.57	0.147	0.70
Changed Schools in High School	0.041	0.20	0.071	0.26	0.000	0.00	0.029	0.17
Not First-Generational College	0.490	0.51	0.429	0.50	0.257	0.44	0.265	0.45
State-Mandated, Eighth-Grade Math Score (Z-score)	0.490	0.52	0.643	0.73	0.030	0.35	0.263	0.39
Observations	49		42		35		34	

APPENDIX B

This study employed a propensity score matching (PSM) method within a longitudinal, explanatory research design to evaluate the impact of scholarships provided by the Area Foundation on recipients' postsecondary outcomes and student loan debt. PSM intends to construct a statistical counterfactual group, which is based on the probability of receiving the scholarship, using observed characteristics. More specifically, the recipients are matched on the basis of this probability, called propensity score, to non-recipients, and the average scholarship effect is calculated by differencing the mean of outcomes of interest across these two groups.

The validity of a matching estimator depends on the assumption that observed characteristics sufficiently determine the receipt of the Area Foundation scholarships (conditional independence). Another assumption that exists is that the data have a sizable number of non-recipients with similar propensity scores to ensure overall comparability across the recipients and non-recipients (commons support). If conditional independence holds with sizable overlap in the distribution of propensity scores between these two groups, the average treatment effect on the treated (TOT) can be defined in Equation 1 (Heckman et al., 1997):

$$TOT_{PSM} = \frac{1}{N_T}\left[\sum_{i \in T} Y_i^T - \sum_{j \in C} w(i,j) Y_j^C\right] \quad (1)$$

, where N_T is the number of recipients *i*, and w(*i*, *j*) denotes weights applied

to the outcomes for the matched non-recipients *j*. As shown in Equation 1, counterfactuals can be constructed differently, depending on the definition of the weights. There are several specifications such as nearest neighbor and kernel matching to calculate the weights, but all these specifications should yield the same matching estimator as the sample size increases. However, there exists a trade-off between bias and variance of the estimator across the specifications; hence, practitioners should carefully select the model that better fits the data.

Besides student characteristics, researchers included school-level random effects terms estimated from a multilevel, mixed-effects logistic model. This random-effects term is designed to capture heterogeneous high school effects on students' postsecondary education, plausibly stemming from different teaching quality, educational and regional resources, spatial sorting of most- or least-academically motivated students, and so forth. The inclusion of this variable would increase the precision of the matching estimation.

APPENDIX C

TABLE 3: ESTIMATED AVERAGE TREATMENT EFFECT OF RECEIVING SCHOLARSHIP ON THE TREATED BY STUDENT OUTCOME

	mean	robust se	t	p-value	stat. signif.	obs.
Four-Year College Enrollment over Two-Year College	11.81	0.01	868.31	< 0.01	***	3765
Bachelor's Degree Completion in Four Years	19.49	0.04	555.24	< 0.01	***	1041
Bachelor's Degree Completion in Five Years	12.20	0.03	371.89	< 0.01	***	828
Associate's Degree Completion in Two Years	< 0.01	0.02	-0.04	0.99		1040
Associate's Degree Completion in Three Years	2.30	0.03	72.10	0.33		603
Student Debt Acquired, First Four Years of College ($)	-4508.00	1835.00	-2.46	0.02	**	653
Number of Quarters that Students Had Worked	0.15	0.51	0.30	0.77		653
Total Wage Earned While in College ($)	2155.00	2129.00	1.01	0.31		653

*** p<0.01, ** p<0.05, * p<0.1.

TABLE 4: DESCRIPTIVE STATISTICS OF FOUNDATION SCHOLARSHIP RECIPIENTS AND COMPARISON GROUP BEFORE MATCHING PROCESS IS CONDUCTED FOR THE ANALYSIS OF FOUR-YEAR COLLEGE ENROLLMENT

	Recipients		Comparison Group	
	Mean	SD	Mean	SD
Female	0.710	0.45	0.540	0.50
Age in Ninth Grade	14.039	0.26	14.081	0.35
African American	0.087	0.28	0.081	0.27
Hispanic	0.613	0.49	0.578	0.49
Eligible for Reduced Price Lunch Program	0.102	0.30	0.075	0.26
Eligible for Free Lunch Program	0.284	0.45	0.260	0.44
Eligible for Free Lunch Program based on Other Public Assistance	0.128	0.34	0.118	0.32
Received Special Education Services or Accomodations	0.012	0.11	0.039	0.19
AP/IB Credit Earned	4.502	3.34	2.548	2.97
Dual Credit Earned	2.377	3.16	0.931	2.03
Advanced High School-Only Credit Earned	1.383	1.01	1.166	0.99
High School CTE Credit Earned	4.082	2.72	4.438	2.61
Other High School Credit Earned	20.200	3.63	22.072	3.81
Classified as At-Risk of Dropping Out of High School	0.175	0.38	0.310	0.46
Attendance Rate	97.316	2.37	96.141	3.34
Disciplinary Action	0.123	0.39	0.389	0.79
Changed Schools in High School	0.094	0.29	0.156	0.36
Not First-Generational College	0.349	0.48	0.269	0.44
State-Mandated, Eighth-Grade Math Score (Z-score)	0.395	0.73	0.119	0.77
Four-Year College Enrollment	0.861	0.35	0.495	0.50
Observations	693		80,754	

Note: Cohort dummy variables and random-effects at the high school level are omitted due to space.

TABLE 5: QUALITY INDICATORS OF PSM FOR THE IMPACT ANALYSIS OF FOUR-YEAR COLLEGE ENROLLMENT

		LR Test					
	Pseudo R^2	$\chi 2$	P-value	Mean Bias	Median Bias	Rubin's B	Trimmed Recipients
Before Matching	0.151	1206.72	<0.001	21.6	13.6	132.7*	-
After Matching	0.002	4.31	1.000	1.6	1.2	11.2	0.72%

Note: Rubin's B test statistic > 25 is indicated by an asterisk (*). 5-nearest neighbor (NN) matching specification is used.

TABLE 6: DESCRIPTIVE STATISTICS OF FOUNDATION SCHOLARSHIP RECIPIENTS AND COMPARISON GROUP BEFORE MATCHING PROCESS IS CONDUCTED FOR THE ANALYSIS OF BACHELOR'S DEGREE COMPLETION WITHIN FOUR YEARS BY FOUR-YEAR COLLEGE ENROLLEES

	Recipients		Comparison Group	
	Mean	SD	Mean	SD
Female	0.681	0.47	0.551	0.50
Age in Ninth Grade	14.021	0.23	14.038	0.30
African American	0.09	0.29	0.079	0.27
Hispanic	0.521	0.50	0.447	0.50
Eligible for Reduced Price Lunch Program	0.101	0.30	0.061	0.24
Eligible for Free Lunch Program	0.271	0.45	0.166	0.37
Eligible for Free Lunch Program based on Other Public Assistance	0.133	0.34	0.08	0.27
AP/IB Credit Earned	4.597	3.23	3.589	3.03
Dual Credit Earned	1.856	1.90	1.12	1.66
Advanced High School-Only Credit Earned	1.601	1.19	1.424	1.12
High School CTE Credit Earned	3.799	2.76	3.565	2.48
Other High School Credit Earned	20.187	3.38	21.355	3.81
Classified as At-Risk of Dropping Out of High School	0.101	0.30	0.152	0.36
Attendance Rate	97.358	2.71	96.856	2.54
Disciplinary Action	0.106	0.37	0.248	0.61
Changed Schools in High School	0.117	0.32	0.154	0.36
Not First-Generational College	0.378	0.49	0.426	0.50
State-Mandated, Eighth-Grade Math Score (Z-score)	0.903	1.01	0.589	0.91
Bachelor's Degree Attainment in Four Years	0.628	0.49	0.357	0.48
Observations	188		14,746	

Note: Cohort dummy variables and random-effects at the high school level are omitted due to space.

TABLE 7: QUALITY INDICATORS OF PSM FOR THE ANALYSIS OF BACHELOR'S DEGREE COMPLETION WITHIN FOUR YEARS BY FOUR-YEAR COLLEGE ENROLLEES

	Pseudo R^2	LR Test		Mean Bias	Median Bias	Rubin's B	Trimmed Recipients
		$\chi 2$	P-value				
Before Matching	0.103	209.85	<0.001	17.2	14.7	105.5*	-
After Matching	0.003	1.73	1.000	2.2	2.3	13.6	1.10%

Note: Rubin's B test statistic > 25 is indicated by an asterisk (*). 5-nearest neighbor (NN) matching specification is used.

TABLE 8: DESCRIPTIVE STATISTICS OF FOUNDATION SCHOLARSHIP RECIPIENTS AND COMPARISON GROUP BEFORE MATCHING PROCESS IS CONDUCTED FOR THE ANALYSIS OF BACHELOR'S DEGREE COMPLETION WITHIN FIVE YEARS BY FOUR-YEAR COLLEGE ENROLLEES

	Recipients		Comparison Group	
	Mean	SD	Mean	SD
Female	0.680	0.47	0.553	0.50
Age in Ninth Grade	14.020	0.22	14.037	0.30
African American	0.067	0.25	0.083	0.28
Hispanic	0.533	0.50	0.435	0.50
Eligible for Reduced Price Lunch Program	0.107	0.31	0.061	0.24
Eligible for Free Lunch Program	0.240	0.43	0.167	0.37
Eligible for Free Lunch Program based on Other Public Assistance	0.120	0.33	0.078	0.27
AP/IB Credit Earned	4.394	3.16	3.509	3.01
Dual Credit Earned	1.833	1.92	1.080	1.61
Advanced High School-Only Credit Earned	1.603	1.25	1.410	1.15
High School CTE Credit Earned	3.858	2.83	3.718	2.49
Other High School Credit Earned	20.228	3.30	21.430	3.81
Classified as At-Risk of Dropping Out of High School	0.080	0.27	0.159	0.37
Attendance Rate	97.482	2.24	96.802	2.57
Disciplinary Action	0.107	0.37	0.265	0.63
Changed Schools in High School	0.127	0.33	0.174	0.38
Not First-Generational College	0.380	0.49	0.423	0.49
State-Mandated, Eighth-Grade Math Score (Z-score)	1.112	1.02	0.725	0.94
Bachelor's Degree Attainment in Five Years	0.787	0.41	0.554	0.50
Observations	150		12,882	

Note: Cohort dummy variables and random-effects at the high school level are omitted due to space.

TABLE 9: QUALITY INDICATORS OF PSM FOR THE ANALYSIS OF BACHELOR'S DEGREE COMPLETION WITHIN FIVE YEARS BY FOUR-YEAR COLLEGE ENROLLEES

	Pseudo R^2	LR Test		Mean Bias	Median Bias	Rubin's B	Trimmed Recipients
		$\chi 2$	P-value				
Before Matching	0.09	147.37	<0.001	18.3	16.1	98.9*	-
After Matching	0.004	1.66	1.000	2.3	1.5	14.9	0.70%

Note: Rubin's B test statistic > 25 is indicated by an asterisk (*). 5-nearest neighbor (NN) matching specification is used.

TABLE 10: DESCRIPTIVE STATISTICS OF FOUNDATION SCHOLARSHIP RECIPIENTS AND COMPARISON GROUP BEFORE MATCHING PROCESS IS CONDUCTED FOR THE ANALYSIS OF ASSOCIATE DEGREE COMPLETION WITHIN TWO YEARS BY TWO-YEAR COLLEGE ENROLLEES

	Recipients		Comparison Group	
	Mean	SD	Mean	SD
Female	0.697	0.46	0.536	0.50
Age in Ninth Grade	14.065	0.31	14.103	0.37
African American	0.086	0.28	0.076	0.27
Hispanic	0.632	0.48	0.614	0.49
Eligible for Reduced Price Lunch Program	0.092	0.29	0.082	0.28
Eligible for Free Lunch Program	0.314	0.47	0.284	0.45
Eligible for Free Lunch Program based on Other Public Assistance	0.130	0.34	0.126	0.33
Received Special Education Services or Accomodations	0.027	0.16	0.056	0.23
AP/IB Credit Earned	3.860	3.21	1.756	2.48
Dual Credit Earned	1.703	2.73	0.536	1.40
Advanced High School-Only Credit Earned	1.319	0.94	0.992	0.91
High School CTE Credit Earned	4.229	2.50	4.524	2.54
Other High School Credit Earned	21.039	3.86	22.744	3.71
Classified as At-Risk of Dropping Out of High School	0.195	0.40	0.381	0.49
Attendance Rate	97.156	2.86	95.759	3.61
Disciplinary Action	0.141	0.41	0.520	0.91
Changed Schools in High School	0.114	0.32	0.176	0.38
Not First-Generational College	0.265	0.44	0.180	0.38
State-Mandated, Eighth-Grade Math Score (Z-score)	0.322	0.77	0.014	0.82
Associate Degree Attainment in Two Years	0.097	0.30	0.044	0.21
Observations	185		38,527	

Note: Cohort dummy variables and random-effects at the high school level are omitted due to space.

TABLE 11: QUALITY INDICATORS OF PSM FOR THE ANALYSIS OF ASSOCIATE DEGREE COMPLETION WITHIN TWO YEARS BY TWO-YEAR COLLEGE ENROLLEES

	Pseudo R^2	LR Test		Mean Bias	Median Bias	Rubin's B	Trimmed Recipients
		$\chi 2$	P-value				
Before Matching	0.132	308.57	<0.001	22.4	13.3	129.0*	-
After Matching	0.006	2.83	1.000	2.8	2.6	17.6	1.10%

Note: Rubin's B test statistic > 25 is indicated by an asterisk (*). 5-nearest neighbor (NN) matching specification is used.

TABLE 12: DESCRIPTIVE STATISTICS OF FOUNDATION SCHOLARSHIP RECIPIENTS AND COMPARISON GROUP BEFORE MATCHING PROCESS IS CONDUCTED FOR THE ANALYSIS OF ASSOCIATE DEGREE COMPLETION WITHIN THREE YEARS BY TWO-YEAR COLLEGE ENROLLEES

	Recipients		Comparison Group	
	Mean	SD	Mean	SD
Female	0.718	0.45	0.541	0.50
Age in Ninth Grade	14.036	0.27	14.098	0.36
African American	0.100	0.30	0.075	0.26
Hispanic	0.573	0.50	0.603	0.49
Eligible for Reduced Price Lunch Program	0.082	0.28	0.085	0.28
Eligible for Free Lunch Program	0.291	0.46	0.278	0.45
Eligible for Free Lunch Program based on Other Public Assistance	0.145	0.35	0.117	0.32
Received Special Education Services or Accomodations	0.018	0.13	0.053	0.22
AP/IB Credit Earned	3.888	3.10	1.663	2.40
Dual Credit Earned	1.373	2.15	0.506	1.32
Advanced High School-Only Credit Earned	1.386	0.99	0.970	0.92
High School CTE Credit Earned	4.326	2.38	4.282	2.44
Other High School Credit Earned	20.779	3.73	22.847	3.64
Classified as At-Risk of Dropping Out of High School	0.218	0.42	0.395	0.49
Attendance Rate	97.231	3.00	95.772	3.46
Disciplinary Action	0.145	0.43	0.572	0.96
Changed Schools in High School	0.100	0.30	0.174	0.38
Not First-Generational College	0.282	0.45	0.185	0.39
State-Mandated, Eighth-Grade Math Score (Z-score)	0.438	0.90	0.042	0.84
Associate Degree Attainment in Three Years	0.136	0.35	0.099	0.30
Observations	110		26,280	

Note: Cohort dummy variables and random-effects at the high school level are omitted due to space.

TABLE 13: QUALITY INDICATORS OF PSM FOR THE ANALYSIS OF ASSOCIATE DEGREE COMPLETION WITHIN THREE YEARS BY TWO-YEAR COLLEGE ENROLLEES

	Pseudo R^2	LR Test		Mean Bias	Median Bias	Rubin's B	Trimmed Recipients
		$\chi 2$	P-value				
Before Matching	0.133	189.08	<0.001	24.4	18.7	129.0*	-
After Matching	0.016	4.57	1.000	5.2	4.3	29.3*	3.60%

Note: Rubin's B test statistic > 25 is indicated by an asterisk (*). 5-nearest neighbor (NN) matching specification is used.

TABLE 14: DESCRIPTIVE STATISTICS OF FOUNDATION SCHOLARSHIP RECIPIENTS AND COMPARISON GROUP BEFORE MATCHING PROCESS IS CONDUCTED FOR THE ANALYSIS OF STUDENT DEBT ACQUIRED DURING FIRST FOUR YEARS OF COLLEGE BY FOUR-YEAR COLLEGE ENROLLEES

	Recipients		Comparison Group	
	Mean	SD	Mean	SD
Female	0.713	0.45	0.560	0.50
Age in Ninth Grade	14.008	0.16	14.034	0.30
African American	0.090	0.29	0.063	0.24
Hispanic	0.500	0.50	0.409	0.49
Eligible for Reduced Price Lunch Program	0.115	0.32	0.055	0.23
Eligible for Free Lunch Program	0.270	0.45	0.139	0.35
Eligible for Free Lunch Program based on Other Public Assistance	0.123	0.33	0.066	0.25
AP/IB Credit Earned	4.814	3.18	3.970	3.07
Dual Credit Earned	1.906	1.95	1.227	1.68
Advanced High School-Only Credit Earned	1.598	1.15	1.496	1.13
High School CTE Credit Earned	3.907	3.00	3.474	2.52
Other High School Credit Earned	20.019	3.27	20.970	3.77
Classified as At-Risk of Dropping Out of High School	0.098	0.30	0.115	0.32
Attendance Rate	97.676	2.17	97.211	2.26
Disciplinary Action	0.098	0.35	0.172	0.50
Changed Schools in High School	0.115	0.32	0.150	0.36
Not First-Generational College	0.418	0.50	0.505	0.50
State-Mandated, Eighth-Grade Math Score (Z-score)	0.915	0.97	0.696	0.91
Student Loan Debt during First Four Years of College ($)	12,816.80	18,379.31	19,160.34	228,006.58
Observations	122		9,214	

Note: Cohort dummy variables and random-effects at the high school level are omitted due to space.

TABLE 15: QUALITY INDICATORS OF PSM FOR THE ANALYSIS OF STUDENT DEBT ACQUIRED DURING FIRST FOUR YEARS OF COLLEGE BY FOUR-YEAR COLLEGE ENROLLEES

	Pseudo R^2	LR Test		Mean Bias	Median Bias	Rubin's B	Trimmed Recipients
		$\chi 2$	P-value				
Before Matching	0.117	152.11	<0.001	17.7	17.1	109.5*	-
After Matching	0.009	2.9	1.000	3.6	3.3	21.9	1.60%

Note: Rubin's B test statistic > 25 is indicated by an asterisk (*). 5-nearest neighbor (NN) matching specification is used.

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