COLLEGE PROMISE PROJECT

Evaluation of the Kansas City Scholars Program

Year 4 Impact Report

2021

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INTRODUCTION

The Kansas City Scholars (KC Scholars) program was launched in 2016 to help low- and modest-income students[1] in the six-county Kansas City metropolitan area enroll in and complete higher education and, ultimately, to strengthen the regional economy.[2] The program targets students from 128 high schools and adults who are returning to college, and it seeks to reduce racial and ethnic gaps in higher education access and completion.

Overview

This is the second of WestEd's two reports describing the evaluation of the fourth year of operation of the KC Scholars program. The first report described the characteristics of program participants and summarized findings on program implementation and awardees' college experiences. This second report is organized into three sections. The first section describes the impact of the KC Scholars program on college enrollment and persistence for Traditional scholarship awardees. Traditional awardees are program applicants who were offered a Traditional scholarship, regardless of whether or not they eventually used the scholarship.

The second section describes the impact of receiving a KC Scholars Adult Learner award on persistence in and completion of college.

The third section describes the findings from a survey of workforce outcomes of Adult Learner awardees who completed their degrees or certificates.

KC Scholars Program Components

There are three components to the KC Scholars program: Traditional, Adult Learner, and College Savings. This report includes analyses of awardees in the Traditional and Adult Learner components.

In the Traditional component, the program awards college scholarships of $5,000 to $10,000 per year to students in 11th grade.

In the Adult Learner component, the program provides college scholarships of $5,000 per year for learners aged 24 or older who have accumulated at least 12 college credits and have not earned an associate's or bachelor's degree. Beginning with Cohort 3 (the 2019 award cycle), applicants with an associate's degree became eligible to apply, which was not the case for the cohorts included in this report's analyses (Cohorts 1 and 2).

[1] The KC Scholars program defines low- or modest-income families as those with a Free Application for Federal Student Aid (FAFSA) expected family contribution (EFC) of $12,000 or below.

[2] The six counties served by KC Scholars are Cass, Clay, Jackson, and Platte in Missouri, and Johnson and Wyandotte in Kansas.

Guiding Questions

- **To what extent does receiving a KC Scholars Traditional scholarship award impact college enrollment and persistence outcomes at KC Scholars partner postsecondary institutions?**
- **Does the impact vary by awardee characteristics or type of postsecondary institution?**

TRADITIONAL SCHOLARSHIP IMPACT

To answer these questions, analyses examined two cohorts of Traditional scholarship awardees, corresponding to the program's first and second award cycles. Because students apply to the program in the spring semester of their junior year in high school and are notified of their awardee status that same term, Cohort 1 (corresponding to the 2017 award cycle) would be expected to enroll in college in fall 2018, and Cohort 2 (corresponding to the 2018 award cycle) would be expected to enroll in college in fall 2019 (Table 1).

Data

National Student Clearinghouse (NSC) StudentTracker data was used to identify the number of applicants and awardees who were enrolled in a degree or certificate program during the period that each cohort was expected to be in college. Table 1 shows the number of students included in each analytic sample and the corresponding period of expected college enrollment.

About the data

KC Scholars administrative data from application records were matched with outcome data from the National Student Clearinghouse (NSC) StudentTracker database. The StudentTracker database contains term-by-term student-level enrollment records for more than 3,500 public and private colleges and universities, covering over 98%t of all U.S. postsecondary enrollments. Of the 2,441 eligible applicants comprising Cohorts 1 and 2, detailed enrollment records were located for 88%, or 2,156 students. The remaining 12% had no record of enrollment at any postsecondary institution in the StudentTracker database during the period examined (June 1, 2018 through December 15, 2020), including five students whose information was blocked by FERPA hold and whose enrollment status could not be verified.

TABLE 1

Number of Traditional Scholarship Applicants and Awardees Included in the Analyses and Period of College Outcomes Examined by Cohort and Year of Award

Cohort Number (Year of Award)	Applicants	Awardees	Period of College Outcomes Examined
Cohort 1 (2017)	1,017	278	Fall 2018 – Fall 2020
Cohort 2 (2018)	1,323	546	Fall 2019 – Fall 2020
Total	2,340	824	

Note. This table represents the numbers of unique records used in the analyses after matching KC Scholars administrative data with outcome data from the NSC, excluding crossover cases and cases with missing data. Appendix A provides a detailed discussion of the process for determining the analytic samples. Cohort 2 Traditional scholarship awardees include students who were awarded an institution-specific scholarship to attend the University of Missouri–Columbia or the University of Missouri–Kansas City.

Methods

To estimate the impact of receiving a Traditional scholarship offer on awardees' college enrollment and persistence outcomes, the WestEd Evaluation Team (hereafter referred to as the evaulation team), used a regression discontinuity design to compare Traditional scholarship awardee outcomes with eligible applicants who were not awarded a scholarship. This approach was employed to generate plausibly causal estimates of an award offer because the program uses a points-based scoring system for ranking applicants. The difference in outcomes between the two groups can be reasonably attributed to the impact of being offered an award by comparing the average outcomes of applicants who scored just above the cut-off for receiving an award with those of the applicants who scored just below. See Appendix A for more details on the methods employed for these analyses.

Outcomes Examined

Five postsecondary outcomes for Traditional scholarship awardees were examined. For Cohort 1 awardees, who first entered college in the fall of 2018, the evaluation team analyzed the impact of a Traditional scholarship award on three-year persistence (fall 2020) (Table 2). For Cohort 2 awardees, who first entered college in the fall of 2019, the team analyzed the impact of a Traditional scholarship award on postsecondary enrollment (fall 2019), enrollment in a four-year institution (fall 2019), enrollment in a two-year institution (fall 2019), and two-year persistence (fall 2020).

Outcome Variables

The following five outcome variables were included in the analyses.

Enrollment: Enrollment in the fall after high school graduation in one of the 17 postsecondary institutions that partner with KC Scholars

Four-Year Institution: Enrollment in a four-year postsecondary institution

Two-Year Institution: Enrollment in a two-year postsecondary institution

Two-Year Persistence: Reenrollment one year from the initial enrollment term

Three-Year Persistence: Reenrollment two years from the initial enrollment term

Table 2
Traditional Scholarship Awardee Outcomes by Cohort

Outcome	Cohort
Enrollment	Cohort 2 (2018 awardees)
Four-Year Institution	Cohort 2 (2018 awardees)
Two-Year Institution	Cohort 2 (2018 awardees)
Two-Year Persistence	Cohort 2 (2018 awardees)
Three-Year Persistence	Cohort 1 (2017 awardees)

Note. Not enough time has elapsed to examine the outcome of three-year persistence for Cohort 2. All outcomes are restricted to the 17 KC Scholars partner postsecondary institutions. See Appendix A for a detailed description of the outcome measures.

Findings

The following findings reflect the results of examining the impact of Traditional scholarship awards on enrollment and persistence.

Awardees in both cohorts enrolled and persisted in partner institutions at higher rates than non-awardees, but these differences are not statistically significant.

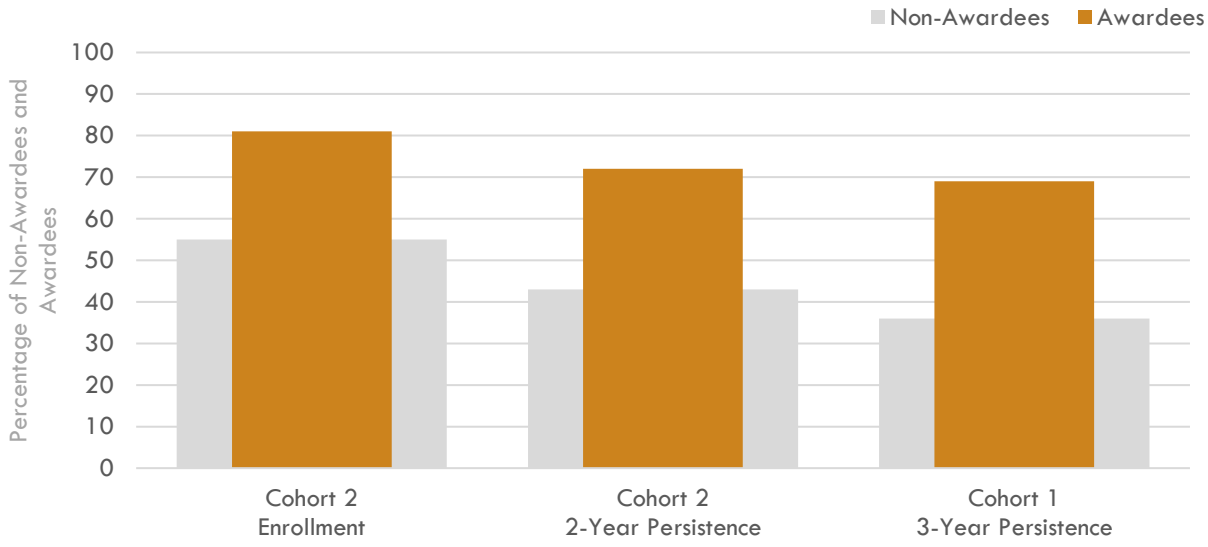
Traditional scholarship awardees from Cohort 2 (2018 awardees) enrolled in a KC Scholars partner postsecondary institution at a rate that was 26 percentage points higher than that of applicants who were not awarded a scholarship (Figure 1). Specifically, 81% of awardees enrolled in a KC Scholars partner institution in the fall immediately following high school graduation, compared to 55% of non-awardees. The same cohort of awardees reenrolled in a KC Scholars partner institution one year later at a rate that was 29 percentage points higher than non-awardees. That is, 72% of awardees persisted into the second year of college, compared to 43% of non-awardees.

Cohort 1 (2017 awardees) also reenrolled in a KC Scholars partner institution at a higher rate than their non-awardee peers as they entered their third year of college. Sixty-nine percent of awardees persisted into the third year of a partner college, compared to 36% of non-awardees, a 34-percentage point difference.

However, these differences in enrollment and persistence patterns were not found to be statistically significant in the regression discontinuity models (Appendix A, Table A3).

Figure 1

Percentage of Traditional Scholarship Awardees and Non-Awardees Who Enrolled and Persisted in a KC Scholars Partner Institution by Cohort and Year



Note. This figure represents the evaluation team's analysis of data from the KC Scholars Program and the National Student Clearinghouse. Cohort 1 n = 1,017. Cohort 2 n = 1,323.

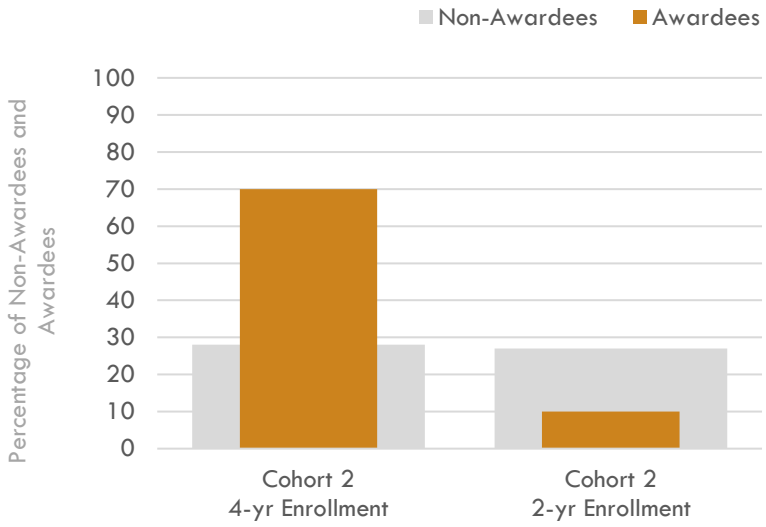
Traditional scholarship awardees enrolled in four-year KC Scholars partner postsecondary institutions at higher rates and two-year institutions at lower rates than non-awardees, but these differences are not statistically significant.

Differences were also evident in the enrollment rates between awardees and non-awardees based on institution type (Figure 2). Cohort 2 awardees enrolled in four-year KC Scholars partner postsecondary institutions at a rate that was 43 percentage points higher than that of non-awardees. Specifically, 70% of awardees enrolled in a four-year college, compared to 28% of non-awardees. At two-year KC Scholars institutions, the trend was reversed. Non-awardees enrolled in these institutions at a rate that was 17 percentage points higher than awardees. Specifically, 10% of awardees enrolled in a two-year college,

compared to 27% of non-awardees. None of the differences between awardees and non-awardees is statistically significant (Appendix A, Table A3).

Figure 2

Percentage of Cohort 2 Traditional Scholarship Awardees and Non-Awardees Who Enrolled in a KC Scholars Partner Institution, by Cohort and Type of Partner Institution.



Note. This figure represents the evaluation team's analysis of data from the KC Scholars program and the National Student Clearinghouse. Cohort 2 N = 1,323.

Black, Hispanic, male, and first-generation awardees enrolled and persisted at higher rates than non-awardees.

The evaluation team also examined college enrollment and persistence rates between awardees and non-awardees by student subgroups (Black, Hispanic, male, and for students whose parents were without a four-year degree). In all subgroup analyses, awardees had higher rates of enrollment and persistence than non-awardees (Table 3).

The difference in enrollment and two-year persistence between Cohort 2 awardees and non-awardees was greatest for Black and first-generation students (who had around 30 percentage point higher enrollment and persistence). Male and Hispanic awardee subgroups had 20 percentage point higher rates of enrollment and 25 percentage point higher rates of persistence than male and Hispanic non-awardees.

When comparing Cohort 1 three-year persistence by subgroup, Black, Hispanic, and first-generation awardees persisted at 31 percentage points higher than non-awardees, and male awardees persisted at 23 percentage points higher than non-awardees.

In these subgroup analyses, the differences in three-year persistence rates among Black and first-generation awardees compared to non-awardees are statistically significant at conventional levels. None of the other observed differences among subgroup awardees and non-awardees is statistically significant (Appendix A, Tables A4–A7).

TABLE 3

Percentage of Black, Hispanic, Male, and First-Generation Students Who Enrolled and Persisted in a KC Scholars Institution by Cohort and Awardee Status

	Black		Hispanic		Male		First Generation	
Outcome	Awardee	Non-Awardee	Awardee	Non-Awardee	Awardee	Non-Awardee	Awardee	Non-Awardee
Cohort 2 Enrollment	76%	46%	84%	65%	73%	53%	83%	55%
Cohort 2 Two-Year Persistence	65%	34%	77%	50%	64%	40%	74%	41%
Cohort 1 Three-Year Persistence	73%	42%	80%	50%	68%	45%	78%	47%

A higher percentage of Cohort 2 Black, Hispanic, male, and first-generation awardees than non-awardees enrolled in four-year institutions, and a lower percentage attended two-year institutions. The differences are not statistically significant.

In all subgroups, a higher percentage of awardees than non-awardees enrolled in four-year KC Scholars partner institutions (Table 4). About 70% of Black, Hispanic, and first-generation students enrolled in a four-year institution; a slightly smaller portion (65 percent) of male awardees did so.

Conversely, a smaller percentage of awardees than non-awardees in each subgroup enrolled in a two-year institution. Twelve percent of Hispanic and first-generation awardees enrolled in two-year institutions, as did nine percent of male and eight percent of Black awardees.

None of the differences between awardees and non-awardees is significant statistically (Appendix A, Table A4–A7).

TABLE 4

Percentage of Black, Hispanic, Male, and First-Generation Cohort 2 Students Who Enrolled in a KC Scholars Institution by Institution type

	Black		Hispanic		Male		First Generation	
Outcome	Awardee	Non-Awardee	Awardee	Non-Awardee	Awardee	Non-Awardee	Awardee	Non-Awardee
Cohort 2 four-year institution	69%	27%	72	30%	65%	29%	71%	26%
Cohort 2 two-year institution	8%	19%	12%	36%	9%	24%	12%	30%

Discussion

These analyses explored the relationship between receiving a KC Scholars Traditional scholarship award and enrollment and persistence at KC Scholars higher education partner institutions. The results indicate that Traditional scholarship awardees enrolled and persisted at higher rates than non-awardees. They also

had higher rates of enrollment in four-year and lower rates of enrollment at two-year higher education institutions. Analyses of awardee subgroups indicated that Black, Hispanic, male, and first-generation awardees also enrolled, enrolled in four-year institutions, and persisted at higher rates than their non-awardee peers.

Results from the subgroup analyses revealed that Black and first-generation awardees persisted at significantly higher rates, on average, than their non-awardee counterparts. The majority of the estimates produced from this analysis are not significant statistically. Random variation in sampling could account for the observed differences in outcomes between awardees and non-awardees. The evaluation team feels it would be imprudent to conclude the program did not have a meaningful impact on postsecondary outcomes among awardees for two reasons.

First, the evaluation team used a robust, albeit conservative, estimation procedure. (See Appendix A, Table A3, for differences in impact estimates across conventional and robust estimation approaches.) Academic literature suggests that this empirical approach yields model estimates and inferences that are bias-corrected against potential model misspecification, which is a particularly thorny challenge for regression discontinuity deigns.[3] Also, this particular procedure was used in the prior KC Scholars evaluations and the evaluation team wanted a level of consistency across evaluation cycles. One benefit of this approach is greater protection against reporting "false positives" (i.e., type 1 errors). One drawback, however, is a higher hurdle for a given impact estimate to be significant statistically.

Second, while impact estimates were mostly consistent across model specification (e.g. functional form, whether covariates were included), in some cases decisions related to bandwidth size and methods for estimating standard errors did influence whether a point estimate was above or below thresholds for statistical significance. Consequently, determinations were not always clear-cut.

Often, researchers must make a number of difficult decisions in the process of carrying out an impact evaluation. Ultimately, the evaluation team decided the most responsible approach was to report impact estimates (and their associated *p* values) derived from models that struck the best balance between increasing precision, while reducing variance. Achieving this balance came with trade-offs, which in some cases meant a loss of statistical power. Consequently, readers of this report should not focus exclusively on statistical significance.

[3] Cattaneo, M. D., Idrobo, N., & Titiunik, R. (2019). *A practical introduction to regression discontinuity designs: Foundations.* Cambridge University.

ADULT LEARNER IMPACT

Guiding Question

To what extent does receiving a KC Scholars Adult Learner award impact college persistence, and completion outcomes?

To determine the impact of receiving a KC Scholars Adult Learner award, outcomes for three cohorts of awardees were examined. Cohort 1 (2017 award cycle) reenrolled in college in the 2017/18 academic year; Cohort 2 (2018 award cycle) reenrolled in college in the 2018/19 academic year; and Cohort 3 (2019 award cycle) reenrolled in college in the 2019/20 academic year (Table 5).

Data

National Student Clearinghouse Research Center (NSCRC) staff played an integral role in developing the dataset for this analysis. After locating postsecondary records for Adult Learner awardees using the NSC StudentTracker data, NSCRC identified a set of control students to match with each Adult Learner awardee based on the year they reentered college, the college they enrolled in, their level of enrollment (full-time/part-time), gender, race/ethnicity, and age. The verification and matching processes yielded data on 624 students: 312 Adult Learner awardees and 312 matched control students.

About the data

KC Scholars administrative data from application records were matched with outcome data from the National Student Clearinghouse (NSC) StudentTracker database, which contains term-by-term student-level enrollment records for more than 3,500 public and private colleges and universities, covering over 98% of all U.S. postsecondary enrollments. Of the 424 Adult Learner awardees across Cohorts 1, 2 and 3, detailed enrollment records were located for 403 students (95%). After validating that the Adult Learner awardees met the KC Scholars application criteria, there were 340 Adult Learner awardees in the StudentTracker database. For these Adult Learner awardees, NSCRC was able to locate control students with equivalent postsecondary reentry year, reentry college, enrollment status, gender, race/ethnicity, and age (+/- 2 years) for 312 Adult Learner awardees: 69 Cohort 1 Adult Learner awardees, 107 Cohort 2 Adult Learner awardees, and 136 Cohort 3 Adult Learner awardees (Table 5). Ultimately, NSCRC provided outcome data for 624 total students (312 Adult Learner awardees and 312 control students).

TABLE 5

Number of Adult Learner Awardees and NSCRC Matched Control Students Included in the Analyses by Cohort

Cohort Number (Year of Award)	College Reentry Year	Adult Learner Awardees	NSCRC Matched Control Students
Cohort 1	2017/18	91	69
Cohort 2	2018/19	137	107
Cohort 3	2019/20	196	136
Total		424 (312 with NSCRC matches)	312

Methods

To estimate the impact of receiving an Adult Learner scholarship on awardees' college persistence and completion, the evaluation team used a series of linear probability regression models that controlled for gender, race, age, the number of terms a student completed before reenrolling in college, and the college in which they reenrolled. Because the control group sample was constructed by NSCRC researchers to mirror the Adult Learner awardees on these and other observed measures, model estimates produced by regression models without covariates were not dissimilar from those with covariates included.

To check robustness, the evaluation team used a two-step matching procedure that compared outcomes among Adult Learner awardees and non-awardees who were qualitatively similar in all observed aspects except for treatment status. The estimates produced from these matching models were largely similar to those produced by the linear probability estimates, with few variations; hence, this report focuses on the linear probability estimates for parsimony and ease of interpretation. See Appendix B for more details on the methods employed for these analyses.

Outcomes Examined

Five postsecondary outcomes for KC Scholar Adult Learner awardees are examined. For Cohorts 1 and 2 awardees — who reentered college in 2018 and 2019, respectively — the evaluation team analyzed the impact of an Adult Learner award on one-year and two-year persistence and on completion of an associate's degree, bachelor's degree, or certificate. For Cohort 3 awardees who reenrolled in college in 2019, the evaluation team examined one-year persistence (Table 6).

Outcome Variables

The following five outcome variables were included in the analyses.

One-Year Persistence: Reenrollment one year from the initial reenrollment term

Two-Year Persistence: Reenrollment two years from the initial reenrollment term

Certificate Completion: Successful completion of a certificate after reenrollment, including certificates of completion, short-term certificates, vocational certificates, and technical certificates

AA/AS Completion: Successful completion of an associate's degree of Arts (AA) or Science (AS) after reenrollment

BA/BS Completion: Successful completion of a bachelor's degree of Arts (BA) or Science (BS) after reenrollment

TABLE 6
Adult Learner Outcomes by Cohort

Outcome	Cohort
One-Year Persistence	Cohorts 1, 2, and 3
Two-Year Persistence	Cohorts 1 and 2
Certificate Completion	Cohorts 1 and 2
AA/AS Completion	Cohorts 1 and 2
BA/BS Completion	Cohorts 1 and 2

See Appendix B for a detailed description of the outcomes.

Findings

The following findings reflect the results of the impact analyses of receiving an Adult Learner award on enrollment and persistence.

Adult Learner awardees in all three cohorts persisted in partner institutions at higher rates than non-awardees.

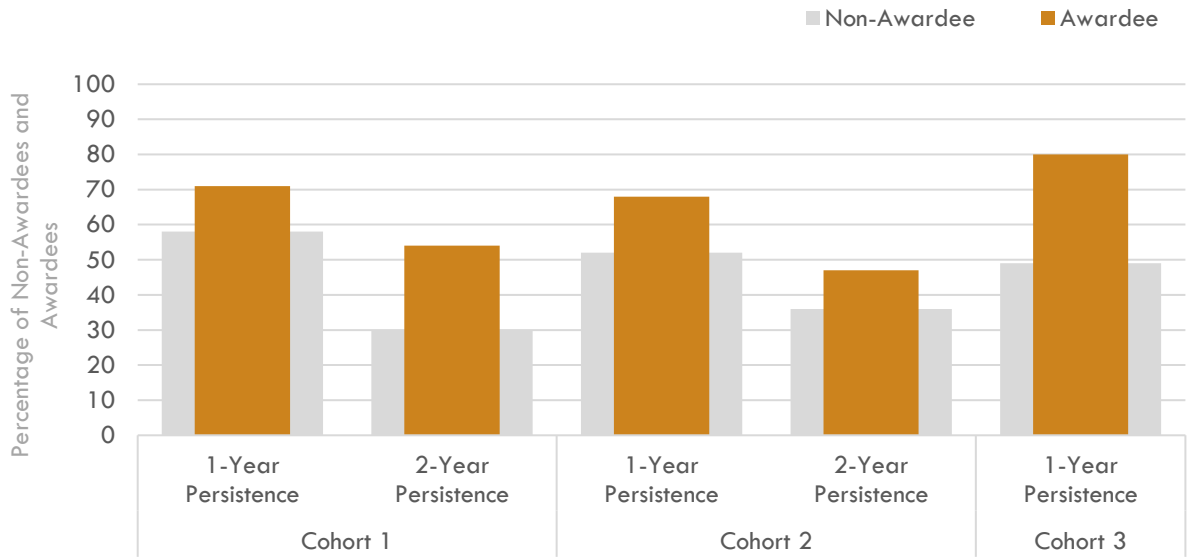
Adult Learner awardees from Cohort 1 (2017 awardees) had a one-year persistence rate that was roughly 13 percentage points higher than non-awardees, though this difference is not statistically significant (Figure 3, Appendix B, Tables B1 and B2). More specifically, Cohort 1 Adult Learner awardees persisted through their first academic year at a rate of 71%, while similar non-awardees persisted at a rate of 58%. Cohort 1 Adult Learner awardees had a two-year persistence rate of 54% In contrast, non-awardees had a two-year persistence rate of 30%. The 24-percentage point difference is significant statistically.

Adult Learner awardees from Cohort 2 (2018 awardees) had a one-year persistence rate of 68% (Figure 3 and Appendix B, Table B1). Similar non-awardees had a one-year persistence rate of 52%, roughly 16 percentage points lower than the Adult Learner awardees. This difference is significant statistically. Cohort 2 Adult Learner awardees also had a two-year persistence rate that was 11 percentage points higher than non-awardees, though this difference is not significant statistically (Appendix B, Table B3).

Adult Learner awardees from Cohort 3 (2019 awardees) had a one-year persistence rate of 80% (Figure 3 and Appendix B, Table B1). By contrast, non-awardees in the comparison group had a one-year persistence rate of 49%, which is a statistically significant difference of 31 percentage points (Appendix B, Table B4).

Figure 3

Percentage of Adult Learner Awardees and Non-Awardees Who Persisted in a KC Scholars Partner Institution, by Cohort



Note. This figure represents the evaluation team's analysis of data from the KC Scholars program and the National Student Clearinghouse. Cohort 1 n = 138, Cohort 2 n = 214, Cohort 3 n = 271.

Adult Learner awardees were more likely to earn an associate's degree than non-awardees

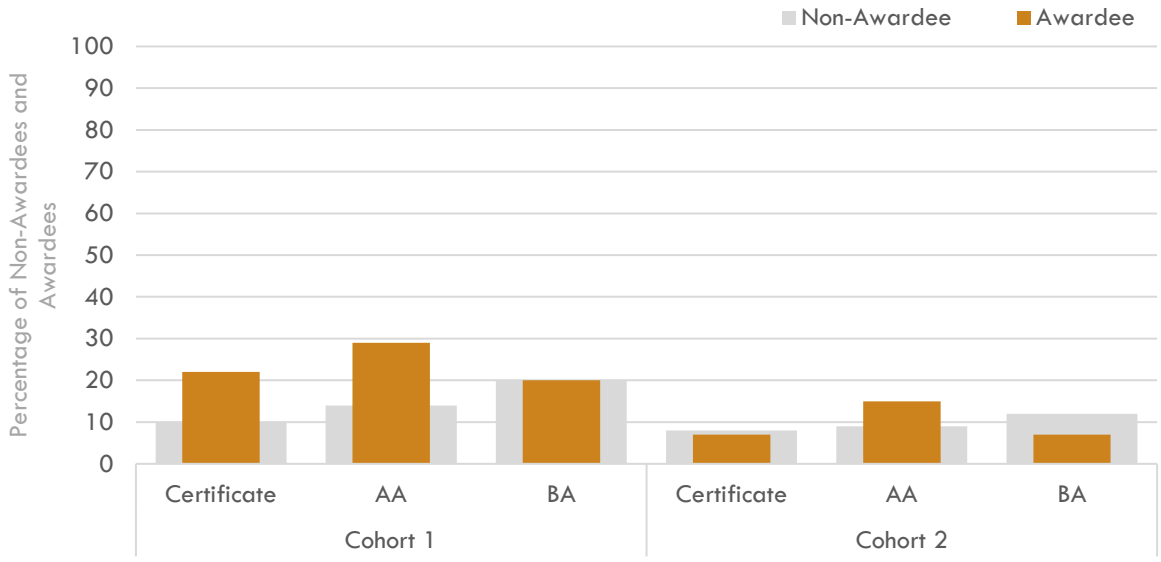
Twenty of the 69 Adult Learner awardees from Cohort 1 (29 percent) earned an AA/AS degree, compared to 10 of the 69 non-awardees (14 percent), a significant difference of 15 percentage points (Figure 4 and Appendix B, Table B2). A higher percentage of Cohort 2 Adult Learner awardees also earned an AA/AS degree, but the difference is not significant (Appendix B, Table B3).

Adult Learner awardees were not more nor less likely than non-awardees to earn certificates or bachelor's degrees.

Twenty-two percent of the Cohort 1 Adult Learner awardees earned a certificate, compared to 10% of the non-awardees. In Cohort 2, 7 percent of Adult Learner awardees and eight percent of non-awardees earned a certificate (Figure 4). Neither of these differences is significant (Appendix B, Tables B2–B5).

Figure 4

Percentage of Adult Learner Awardees and Non-Awardees Who Earned an Academic Credential in a KC Scholars Partner Institution by Cohort



Note. This figure represents the evaluation team's analysis of data from the KC Scholars program and the National Student Clearinghouse. Cohort 1 n = 138, Cohort 2 n = 214, Cohort 3 n = 271.

Discussion

These analyses explored the relationship between receiving an Adult Learner award and persistence and completion at KC Scholars partner postsecondary institutions. The results indicated that Adult Learner awardees consistently persisted at higher rates than non-awardees. Two of the observed differences are statistically significant. Adult Learner awardees in Cohort 1 (2017 awardees) had a two-year persistence rate that was statistically higher than matched non-awardees. In addition, Adult Learner awardees in Cohorts 2 and 3 (2018 and 2019 awardees, respectively) had one-year persistence rates that are significantly higher than matched non-awardees.

Regression results indicated that Adult Learner awardees were often just as likely, if not more likely, to have earned an academic credential than their matched non-awardee counterparts. The differences in completion rates between the two groups are not statistically significant, with the exception of Cohort 1 Adult Learner awardees, who were significantly more likely than their matched non-awardee counterparts to have earned an AA or AS after reentering college.

ADULT LEARNER WORKFORCE OUTCOMES

Guiding Questions

- **To what extent are Adult Learner awardees who have completed their degrees working and living in Kansas City, working in the same occupation group as they were at the time of KC Scholars application, and working at the same percentage of time?**
- **To what extent are Adult Learner awardees who have completed their degrees earning a higher wage than at the time of their application?**

In collaboration with the Kauffman Foundation and KC Scholars staff, the evaluation team developed an Adult Learner workforce survey to gather self-reported employment and earnings data. The survey was designed to gather data on whether or not KC Scholars Adult Learner awardees remained in Kansas City after graduating as part of the KC Scholars program, and if their level of employment and remuneration had changed over time.

The Adult Learner workforce survey was administered on March 5, 2021, to the Adult Learner awardees who had completed their education after reentry. The survey gathered self-reported employment data regarding their situation at the time when they applied to the KC Scholars program (Time 1) and at the time of the survey administration in spring 2021 (Time 2). The surveys were completed up to four years since the Cohort 1 Adult Learner awardees had reentered college (2017) and up to three years since the Cohort 3 Adult Learner awardees had reentered college (2018).

Data and Methods

There were 91 Adult Learner awardees in Cohort 1, which reenrolled in college during the 2017/18 academic year. Cohort 2 consisted of 137 Adult Learner awardees who reenrolled during the 2018/19 academic year.

The survey was sent to the 67 of the 228 Adult Learner awardees from Cohorts 1 and 2 who had graduated prior to the survey administration. This number included awardees who received one degree (associates or bachelor's degrees) and who continued with their education to earn a higher degree (bachelor's or master's degree). Twenty-four of the 67 Adult Learner awardees completed a survey, resulting in a 33% response rate.

Descriptive statistics were used to summarize the quantitative responses. Qualitative responses to open-ended items were included to provide additional context.

Findings

The survey results are organized into two sections. The first section describes the data from all 24 of the respondents. The second section includes the findings from the 14 respondents who provided sufficient employment information to compare data from the time when they applied to the KC Scholars program and the time when they completed the survey, up to four years after they had reenrolled in college.

All Respondents

All but one of the 22 Adult Learner awardees who were working when they applied to the KC Scholars Program reported that their position was permanent.

The majority of Adult Learner awardees (22 of 24) reported that they were employed when they applied to the KC Scholars program. All but one reported that their position was a permanent one. One respondent reported working in a temporary position, and two respondents were not working at the time of their application.

The majority of Adult Learner awardees were working 40 hours per week or more when they applied to the KC Scholars Program.

Of the 22 Adult Learner awardees who were working when they applied to KC Scholars, 68% reported working 40 or more hour per week: Eight reported working 40 hours and seven worked between 45 and 50 hours per week.

Five Adult Learner awardees reported that they worked less than 40 hours per week: One worked 30 hours, one worked 20 hours, one worked 11 hours, and two worked four hours per week.

Two of the respondents worked in two jobs when they applied for the scholarship. Each had a full-time job at 40 hours a week and worked more than 10 hours per week in their second job for a total of 52 and 65 hours per week, respectively.

All respondents worked in the Kansas City metro area when they applied to the KC Scholars Program.

Of the 22 respondents who were working when they applied to the KC Scholars program, all reported living in the Kansas City metro area. The majority (16) lived in Kansas City, Missouri. Two participants lived in Kansas City, Kansas, and each of the following cities had one participant living there: Independence, Missouri; Overland Park, Kansas; Lenexa, Kansas; and Lee's Summit, Missouri.

When the Adult Learner awardees completed the survey in spring 2021, 16 respondents reported the city where they were working. Similar to the results at the time of application, the majority (13) reported working in Kansas City, Missouri, when they completed the survey. Two respondents reported working in Overland Park, Kansas, and one in Kansas City, Missouri. The other eight respondents were either unemployed or did not report the location of their employer.

Longitudinal Employment Analysis

This section describes the data from the 14 Adult Learner awardees who provided enough employment information to investigate changes over time.

Most Adult Learner awardees remained in the same major occupation group after they completed their education.

Ten of the 14 Adult Learner awardees in the analysis reported being in the same occupation group as they had been in when they applied to the KC Scholars program. Five of these respondents reported working in community and social service, and each of the following occupational groups had one respondent working in it: education and instruction, business and financial operations, food preparation and serving related, and legal. One respondent described their occupational group as religious/non-profit.

Four respondents reported that they were working in a different occupation group at the time of the survey than they had been when they applied to KC Scholars. Two respondents had shifted to business and financial (from community and social service and legal). One person had moved from insurance to behavioral health, and one had changed from production to architecture and engineering.

JOB SATISFACTION HAD INCREASED OVER TIME FOR HALF OF THE ADULT LEARNER AWARDEES AND REMAINED THE SAME FOR ABOUT 20%.

Adult Learner awardees were asked to report their level of job satisfaction on a seven-point scale at Time 1 and Time 2. Seven of the 14 respondents reported an increase in job satisfaction over time, three reported a consistent satisfaction level, and three reported being less satisfied at Time 2.

All seven of the respondents who had increased job satisfaction levels reported being either very satisfied or satisfied in their current position. Two respondents made a notable shift. One reported that they had been very unsatisfied, and another reported that they had been unsatisfied at Time 1.

Three respondents reported a consistent level of job satisfaction: Two were very satisfied and one was Satisfied at both Time 1 and Time 2.

Two of the three respondents who were less satisfied with their job over time reported that they were somewhat satisfied at Time 2. The other respondent shifted from unsatisfied to very unsatisfied.

The final respondent reported being satisfied at Time 2 but did not report what their satisfaction level had been at Time 1.

MOST ADULT LEARNER AWARDEES WORKED 40 HOURS PER WEEK AFTER THEY PARTICIPATED IN KC SCHOLARS.

Ten of the 14 respondents reported working a 40-hour week at Time 2. The level of employment did not change over time for six of the participants who were working 40-hour weeks when they applied to KC Scholars. Two respondents shifted over time from working in two jobs for more than 50 hours a week at Time 1 to working in a single job for 40 hours a week at Time 2. The last two respondents each worked for more than 40 hours a week in a single job in Time 1 and decreased their hours to 40 hours per week in Time 2.

Two Adult Learner awardees were working 40 hours per week when they applied to KC Scholars but reported a decreased level of employment in Time 2. One decreased their weekly hours to 24, and the other to only 10 hours per week.

One respondent worked more than 40 hours per week at Time 1 and continued in the same position at the same level of employment in Time 2.

Only one of the 14 respondents increased their level of employment over time. In Time 1, they worked 45 hours per week, and then their work commitment increased to 50 hours a week by Time 2.

THE MAJORITY OF ADULT LEARNER AWARDEES REPORTED A WAGE INCREASE OVER TIME.

Of the 14 Adult Learner awardees in the analysis, eight reported a wage increase, three reported that their wages stayed the same, and three reported a wage decrease from Time 1 to Time 2.

Although the majority of respondents reported a wage increase over time, there was a wide range in the wage increases. The smallest annual wage increase reported was $1,997, and the largest was $30,680. The average wage increase was $8,248, but this figure was influenced heavily by an outlier, a $30,680 wage increase. Given this extreme value, a more accurate measure of the center would be the median wage increase, which was $5,905.

Wages stayed the same over time for three respondents, all of whom remained in the same job.

Of the three respondents who reported that their annual wage decreased over time, one took a job in a different occupational group and decreased the amount they worked from more than 40 hours per week to 40 per week. Consequently, the participant reported a decrease of $13,208 in annual wages. Another respondent reported a $14,188 decrease in annual wages after the participant shifted to a new occupational group and was working less than 40 hours per week despite working in two different jobs. The other respondent remained in the same job but decreased their weekly hours from 40 to 10 hours per week, which led to a $23,140 decrease in annual wages.

Nearly all Adult Learner awardees earned more than minimum wage before and after their participation in Kansas City Scholars.

The annual wages of the Adult Learner awardees at Time 1 and Time 2 were measured against the annual wage of a full-time employee who earns the legal minimum wage. The calculations for Kansas City, Missouri, which are slightly higher than Kansas City, Kansas, were used in this analysis.

The legal minimum wage in Missouri was $7.85 per hour in 2018 and $10.30 per hour in 2021.[4] Assuming 40 hours of work per week and two weeks of paid vacation, a minimum wage job would translate to an annual wage of $16,382 in 2018 and $21,424 in 2021. Wages for all respondents at both times exceeded the minimum wage, with the exception of one Adult Learner at Time 2, whose hours decreased over time from 40 hours per week to 10 hours per week.

At both time periods, nearly all Adult Learner awardees met or exceeded the minimum living wage for a single adult, but most had not met or exceeded the living wage for one adult and one child.

Annual wages were analyzed to determine whether Adult Learner awardees met or exceeded the living wage for the Kansas City metro area. In this analysis, a living wage was defined as the minimum hourly wage that allows a single adult resident to meet the economic self-sufficiency standard, assuming full-time employment, or 2,080 hours of work per year. The Massachusetts Institute of Technology (MIT) Living Wage Calculator provides the living wage for other family sizes and structures, including one adult and one child, two adults and one child, two adults (one working) and two children, and so on.[5]

In 2018, the minimum hourly living wage for a single adult in the Kansas City metro area was $11.05 ($22,984 annual wage) and was $24.06 ($50,044 annual wage) for a single adult with one child.[6] In 2021, the hourly living wage for a single adult is $14.40 ($29,952 annual wage) and $30.02 ($62,442 annual wage) for a single adult with one child.[7]

In 2018, wages for all 14 Adult Learner awardees exceeded the minimum living wage for one adult ($22,984), however, only two respondents in the sample met or exceeded the minimum living wage for one adult and one child ($50,044). In 2021, all respondents exceeded the minimum living wage for a single adult, except the two Adult Learner awardees who reported working less than 40 hours per week. The 2021 minimum living wage for one adult and one child was met or exceeded only by the same two Adult Learner awardees, as in the 2018 analysis.

Discussion

There are several patterns that emerged in the data, although the extent to which the findings can be generalizable is limited because of the small number (14) of Adult Learner awardees who provided enough employment information to compare data over time.

Most respondents (11 of 14) reported being satisfied (either satisfied or very satisfied) with their jobs at Time 2, and the data suggest a relationship between job satisfaction and wages. Seven of these Adult Learner awardees who reported high job satisfaction at Time 2 also reported an increase in wages over time. All but two of them reported increased satisfaction; the others reported the same high level of satisfaction over time. An additional three respondents reported being very satisfied with their jobs at both times, despite maintaining the same wage level over time. All of these respondents remained in the same jobs at the same company. The final respondent in this satisfied group of 11 increased their job satisfaction level from unsatisfied to satisfied over time, despite a 26 percent decrease in annual wages.

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[4] https://ballotpedia.org/Missouri_Proposition_B,_%2412_Minimum_Wage_Initiative_(2018); https://www.minimum-wage.org/missouri

[5] Glasmeier, A. (2019). *Living wage calculator*. Massachusetts Institute of Technology. http://livingwage.mit.edu

[6] https://web.archive.org/web/20180321012206/http://livingwage.mit.edu:80/metros/28140

[7] https://livingwage.mit.edu/metros/28140

One can assume that their increase in satisfaction level was due, at least in part, to a change in their occupational group and a decrease in employment level from 45 to 40 hours per week.

Of the three respondents who reported a decrease in job satisfaction over time, two reported being somewhat satisfied in their current job. One of these respondents reported being somewhat satisfied, despite reporting a 42% increase in pay (one of two in the analysis whose wages met or exceeded a living wage for one adult and one child at Time 2) and a shift from 45 hours per week to 40. It is possible that this decreased satisfaction level may be due to a dissatisfaction in the new occupation group in which they work. The other somewhat satisfied respondent changed occupation group, leaving a 40-hour per week position with health and retirement benefits. At Time 2, they reported working in two jobs in a less lucrative occupation, receiving no health and retirement benefits and earning 46% less in annual pay. They also reported contracting COVID-19 at their workplace and having to quarantine without pay.

The final respondent who reported a decrease in job satisfaction moved from unsatisfied to very unsatisfied over time. This respondent remained in the same occupational group but experienced a large decrease in employment level due to the COVID-19 pandemic, leading to a 26% wage decrease.

Overall, the data suggest that after completing their education, most Adult Learner awardees remained in the same occupation group and worked 40 hours a week. They also earned higher wages and had a higher level of job satisfaction compared to the time when they applied to KC Scholars.

There were only two respondents who reported that COVID-19 had any impact on their employment opportunities. These were the same Adult Learner awardees who experienced a decrease in their level of employment and annual pay.

Future analyses could be strengthened in several ways. First, the analysis should include only students who completed their terminal degree, and if possible, could include a comparison group of non-awardees. Second, the survey response rate might increase if the survey is shortened, the survey recipients received additional reminders, there was an option to respond to survey items via telephone call, and incentives for survey completion were offered. Third, to provide context to the findings, survey data could be linked to KC Scholars administrative data, such as the year of award (cohort number), demographic data (age, gender, race/ethnicity, socio-economic status), and academic data (college attended, major pursued). Finally, to capture the longer employment outcomes, the survey could be conducted one year and three years after awardees earn their terminal degree.

APPENDIX A

Methodological Details for the Traditional Scholarships Impact Analysis

Population and Sample

The Traditional scholarship target population was defined as first-time postsecondary students who were enrolled in the 11th grade at the time of scholarship application and who intended to matriculate into one of the 17 regional postsecondary institutions in the fall immediately following high school graduation.

Two cohorts of Traditional scholarship applicants and awardees were examined: Cohort 1, corresponding to award cycle 2017, and Cohort 2, corresponding to award cycle 2018. The KC Scholars program made award determinations for both cohorts using a points-based system for ranking applications. Additionally, for Cohort 2, the program expanded its scholarship offering to include a limited number of institution-specific, Traditional scholarship awards for applicants who scored just below the cutoff point for the Traditional scholarship. These students were offered an award to attend either the University of Missouri–Columbia (MU) or the University of Missouri–Kansas City (UMKC), rather than an award that could be applied to any one of the program's 17 network colleges or universities. Because the students who were offered an MU- or UMKC-specific scholarship completed the same Traditional scholarship application as all other applicants, for purposes of analysis in this evaluation, they were included in the same applicant pool and awardee cohort as students who received a Traditional scholarship to attend one of the 17 partner colleges or universities. The analyses for Cohort 2 used the lowest application score received by MU/UMKC scholar awardees as the threshold for setting the cut score.

The KC Scholars program provided data for a combined 2,441 students across the two cohorts (1,050 for Cohort 1, and 1,391 for Cohort 2). These students were identified for the impact analyses because they completed their applications, were assigned a final score by program administrators, and were subsequently offered an award or not. Students' application records were merged with postsecondary outcome data from the National Student Clearinghouse (NSC), resulting in matches for 2,158 (or 88%) of the original sample of 2,441 students. The remaining 283 students (or 12% of the original sample) did not have a record of postsecondary attendance in NSC's StudentTracker database for the time examined, the period beginning when awardees would have first enrolled in college and continuing until the most recent NSC data was available at the time of the analysis.[8]

Methods

The evaluation team used a regression discontinuity design (RDD, or RD design) to estimate impacts on five outcomes: postsecondary enrollment, enrollment in a four-year institution, enrollment in a two-year institution, two-year persistence, and three-year persistence. When properly implemented, the RD design produces unbiased causal estimates of program effects that approximate the conditions of a randomized controlled trial.[9] RDD is valid in this case because assignment to treatment status was determined by a points-based scoring system for ranking applicants, the applicants were unable to manipulate the scores

[8] The StudentTracker database contains term-by-term student-level enrollment records for more than 3,500 public and private colleges and universities (including all 17 KC Scholars partner institutions), covering over 98% of all U.S. postsecondary enrollments. If a student record is not found in the database, it is highly likely that the individual was not enrolled in the covered postsecondary institutions during the time defined by the search. One exception is when either the individual or their institution has issued a FERPA hold preventing the disclosure of their educational record data. This was the case for five of the 2,441 students included in the NSC request, resulting in a non-match for these students. It is also possible that administrative errors related to the recording of students' names or birth dates (including potential name changes) could result in a non-match.

9 Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference.* Houghton Mifflin.

in response to the ranking system, and the program was oversubscribed, meaning that there were more eligible applicants than scholarships to be awarded.

The evaluation team used the cut scores established by the KC Scholars program to group applicants who scored at or above the cut-off into the treatment condition, which consisted of individuals who were awarded a KC Scholars Traditional scholarship, irrespective of eventual award uptake. The analysis compared the average outcomes of this group with the average outcomes of the non-awardees (i.e., those who scored below the cut-off). This approach produced "intention-to-treat" (ITT) estimates, which preserved the original sample of applicants without limiting the treatment group to only those who used the award, thus reducing the potential for bias and improving the statistical power of the design.[10]

The postsecondary outcome data was prepared for analysis by creating indicators for postsecondary enrollment at three distinct time points: fall 2018, defined as the period from August 1, 2018, through December 31, 2018; fall 2019, defined as the period from August 1, 2019, through December 31, 2019; and fall of 2020, defined as the period from August 1, 2020, through December 31, 2020.

Close examination of the data indicated that defining the enrollment periods within these intervals ensured that students were correctly counted as having enrolled, even if the institution reported a start date later in the term. Using this approach, each indicator was further restricted to enrollment at one of the 17 KC Scholars partner postsecondary institutions.[11] After merging KC Scholars application data with the formatted NSC data, each student was assigned an indicator for attaining the outcomes of postsecondary enrollment, enrollment in a four-year institution, enrollment in a two-year institution, two-year persistence, and three-year persistence, based on their individual cohort membership. For example, a student belonging to Cohort 1 (with an expected high school graduation of spring/summer 2018) was considered to have immediately enrolled in college if, the NSC data indicated their enrollment was at one of the 17 partner institutions in fall 2018. The five outcomes were defined as follows:

- **Postsecondary enrollment:** College enrollment at any of the 17 KC Scholars partner postsecondary institutions in the fall following expected on-time high school graduation
- **Four-year institution:** College enrollment at one of the four-year KC Scholars institutions in the fall following expected on-time high school graduation
- **Two-year institution:** College enrollment at one of the two-year KC Scholars institutions in the fall following expected on-time high school graduation
- **Two-year persistence:** Reenrollment in the fall of the second year of college at any of the 17 KC Scholars institutions (i.e., fall-to-fall persistence)
- **Three-year persistence:** Reenrollment in the fall of the third year of college at any of the 17 KC Scholars institutions (i.e., fall-to-fall-to-fall persistence)

After merging the data and operationalizing the outcomes, the evaluation team verified the completeness of the data and the treatment status of each individual. Cases were included in the analyses if:

- they had complete data on the outcome measures and the four demographic measures used as covariates (gender, race, first-generation status, and high school grade point average [GPA]); and
- their treatment status conformed to the cut score requirements defined by the program — i.e., they were not identified as crossover cases, that is students who should have been in the treatment group based on their score but were assigned to the comparison group, or vice versa,

10 Ranganathan, P., Pramesh, C. S., & Aggarwal, R. (2016). Common pitfalls in statistical analysis: Intention-to-treat versus per-protocol analysis. *Perspectives in clinical research, 7*(3), 144–146. https://doi.org/10.4103/2229-3485.184823

11 Though the reported impact estimates were derived from models that restricted the sample to enrollments at the 17 KC Scholars partner postsecondary institutions, the evaluation team also conducted the analyses on the full sample of postsecondary matriculates. The results of these analyses were similar to those in the main report and are available by request.

which may be due to exceptions in the program selection process or administrative errors (Shadish et al., 2002).

With respect to the first criterion, of the 2,441 students for whom data were obtained, 77 students (three percent of the original sample) did not have complete data due to missing values on one or more of the variables. Consequently, these students were removed from the analyses because the regression discontinuity design called for estimating the models based on a complete-cases framework.

After accounting for the missing data, a total of 24 crossover cases (or one percent of the non-missing sample) were identified across the two cohorts. Baseline equivalence tests were conducted with and without these subjects, revealing that the penalty incurred in the sample size reductions by removing these students did not materially affect the composition of the samples. Specifically, removing crossover cases resulted in the loss of 13 comparison students in Cohort 1 (or less than 2 percent of the sample), and five comparison students and six treatment students in Cohort 2 (equivalent to less than one percent of the sample). Since these students constituted less than five percent of the sample, and the sample, including crossover cases, closely resembled that of the sample without them, the crossover cases were dropped from the analyses. This was done in order to preserve the integrity of the "sharp" discontinuity that is needed for the RDD methodology, consistent with the recommendations in the literature for handling crossover cases (Shadish et al., 2002). Figures A1 and A2 confirm the presence of this sharp discontinuity in the data, which allowed the evaluation team to accurately estimate the regression discontinuity models.

The final full analytic samples thus included 1,017 students in Cohort 1 and 1,323 students in Cohort 2. Baseline equivalence testing was conducted on these samples to determine the extent to which treatment and comparison students were different on observable characteristics. As expected, Traditional scholarship awardees and non-awardees differed significantly on characteristics such as the groups' racial/ethnic compositions, the proportion of first-generation students in each group, and the average expected family contribution (Table A1). The results are consistent with the logic of how the program awards points to applicants in the application process. Compared to non-awardees, awardees would be expected to have lower expected family contributions (EFCs) and larger proportions of first-generation students, for example, because having these attributes translates into higher scores on the KC Scholars rubric. According to RDD assumptions, however, these differences should disappear at smaller bandwidths around the cut score, such that students just below the cut score and students just above it differ only in their treatment status. The evaluation team conducted multiple iterations of these baseline equivalence statistics under different bandwidth restrictions, and was able to verify that the differences observed in the full samples become less and less significant when those samples are restricted to students closer to the cut score (Table A2). This pattern increases the analysts' confidence that any observed effects from the impact models are due to the impact of a Traditional scholarship offer rather than some other factor, such as an applicant's EFC. Although restricting the sample size in this manner minimizes the bias associated with the impact estimates, the tradeoff is that it increases variance and reduces power, such that it may be more difficult to detect a significant result.

After confirming that the resulting analytic samples conformed to a sharp discontinuity, the evaluation team estimated a series of impact models for each outcome. Following best practices in the RDD literature,[12] the team tested a range of different bandwidth and model specifications in order to find the right balance of minimizing bias, while maintaining a large enough sample size to estimate the treatment effect (Table A3). Because regression discontinuity produces valid estimates for the *marginal* student — i.e., the student right at the cut score — the evaluation team's final models focused on bandwidths that were sufficiently close to the threshold, then multiplied each bandwidth by a factor of two to achieve a

[12] Jacob, R., Zhu, P., Somers, M., & Bloom, H. (2012). *A practical guide to regression discontinuity*. MDRC; Cattaneo, M. D., Idrobo, N., & Titiunik, R. (2019). *A practical introduction to regression discontinuity designs: Foundations*. Cambridge University Press: Elements in Quantitative and Computational Methods for the Social Sciences; Goodman, J., Melkers, J., & Pallais, A. (2019). Can online delivery increase access to education? *Journal of Labor Economics, 37*(1), 1–34.

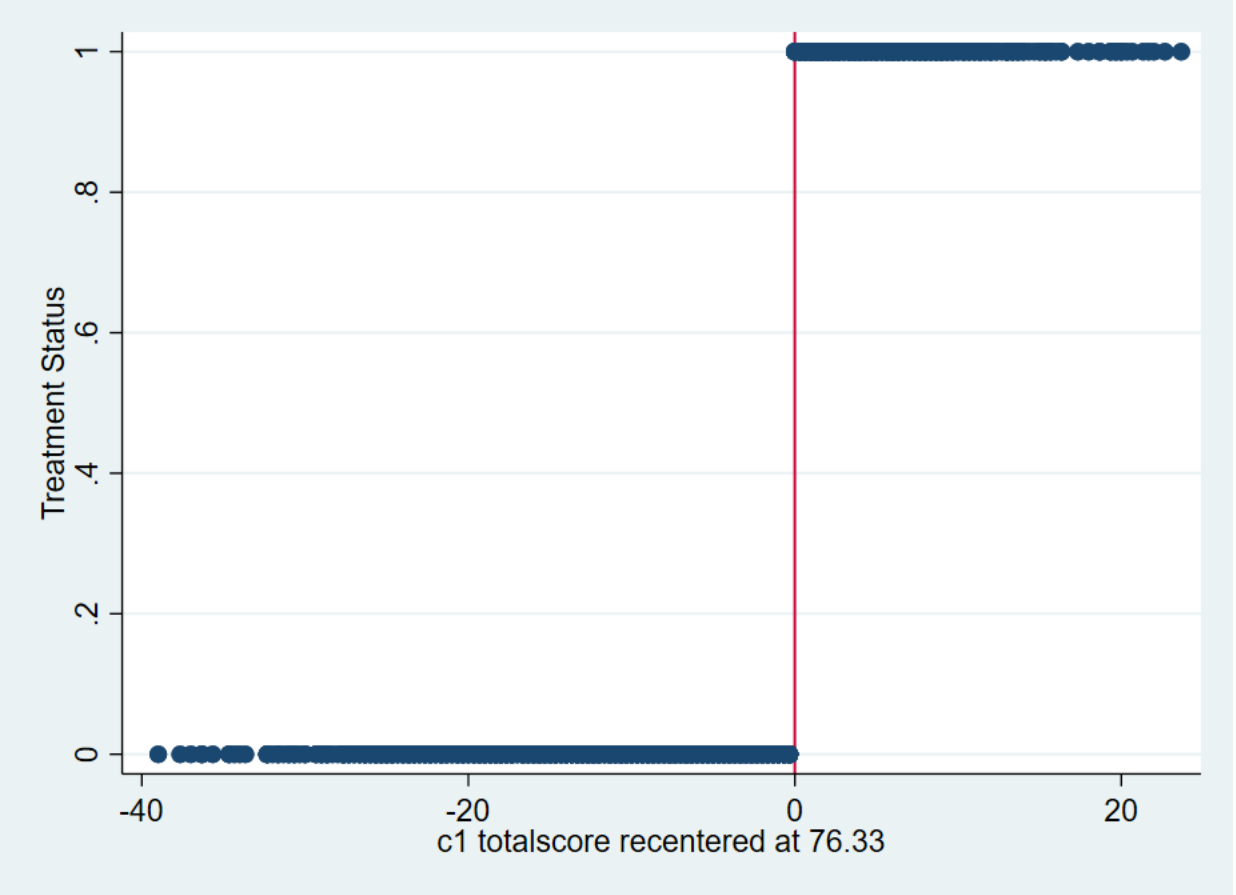
broader sample with more observations (and thus more variation). The inclusion of covariates for students' race/ethnicity, gender, EFC, first-generation status, and high school GPA was intended to mitigate any additional bias resulting from increasing the bandwidth by controlling for those characteristics in the impact estimations. Following the precedent set in the previous evaluation of the program, the evaluation team used a bandwidth multiple of two and robust standard errors and p-values when estimating treatment effects, which results in more conversative estimates of statistical significance and is an appropriate use of the RDD models.[13]

Consequently, the final results reflect an estimation strategy that sought to minimize bias and produce accurate estimates of the local average treatment effect. Under such conditions, significant results can be reasonably attributed to the effect of receiving a Traditional scholarship offer. By contrast, insignificant results, even if seemingly large in magnitude, indicate that any observed differences between awardees and non-awardees could be driven by factors other than selection into the program.

[13] Cattaneo, M. D., Idrobo, N., & Titiunik, R. (2019). *A practical introduction to regression discontinuity designs: Foundations*. Cambridge University Press: Elements in Quantitative and Computational Methods for the Social Sciences.

Figure A1

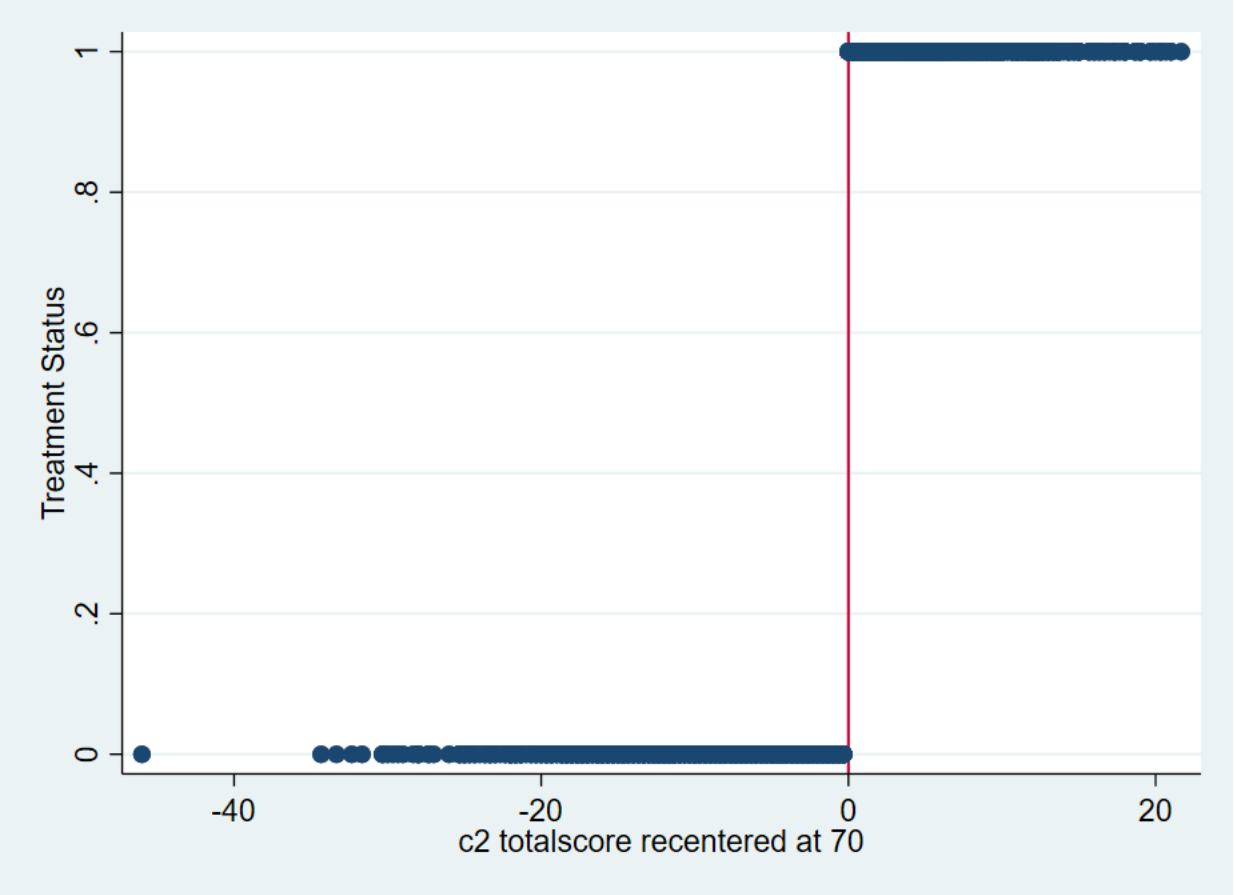
The Treatment Statuses of Students in Cohort 1 Conform to a Sharp Discontinuity



Note. This figure shows that Cohort 1 ("c1") students who scored below the 2017 award cycle cut score of 76.33 were all assigned to the comparison, or non-awardee, group, and students who scored at or above the cut score were all assigned to the treatment, or awardee, group. The x-axis plots the applicants' scores in terms of the distance from the cut score, with a positive value indicating a score above the cut score and a negative value indicating a score below the cut score. The y-axis plots the applicants' awardee status as a dichotomous variable, where 1 indicates membership in the treatment group and 0 indicates membership in the comparison group.

Figure A2

The Treatment Statuses of Students in Cohort 2 Conform to a Sharp Discontinuity



Note. This figure shows that Cohort 2 ("c2") students who scored below the 2018 award cycle cut score of 70 were all assigned to the comparison, or non-awardee, group, and students who scored at or above the cut score were all assigned to the treatment, or awardee, group. The x-axis plots the applicants' scores in terms of the distance from the cut score, with a positive value indicating a score above the cut score and a negative value indicating a score below the cut score. The y-axis plots the applicants' awardee status as a dichotomous variable, where 1 indicates membership in the treatment group and 0 indicates membership in the comparison group.

Table A1

Baseline Equivalence Results for the Full Impact Analysis Samples

Characteristic	Non-awardee mean	Non-awardee std. dev.	Non-awardee N	Awardee mean	Awardee std. dev.	Awardee N	Mean difference	p-value	Effect size (Hedges' g)
Cohort 1									
White not Hispanic	0.32	0.47	739	0.24	0.43	278	-0.08	0.01	0.19
Black/African American	0.29	0.45	739	0.24	0.43	278	-0.05	0.11	0.11
Hispanic/Latino	0.22	0.42	739	0.35	0.48	278	0.13	0.00	-0.29
Asian	0.09	0.28	739	0.12	0.33	278	0.03	0.10	-0.12
Other	0.08	0.26	739	0.05	0.22	278	-0.03	0.15	0.10
Male	0.32	0.47	739	0.27	0.45	278	-0.04	0.18	0.09
Parent Without Four-Year Degree	0.65	0.48	739	0.83	0.38	278	0.19	0.00	-0.41
Expected Family Contribution	3,221	3,731	739	1,110	2,004	278	-2,111	0.00	0.63
High School GPA	3.31	0.45	739	3.61	0.36	278	0.30	0.00	-0.69
Cohort 2									
White not Hispanic	0.33	0.47	777	0.31	0.46	546	-0.01	0.63	0.03
Black/African American	0.28	0.45	777	0.24	0.43	546	-0.04	0.12	0.09
Hispanic/Latino	0.28	0.45	777	0.28	0.45	546	0.00	0.96	-0.00
Asian	0.06	0.24	777	0.11	0.31	546	0.05	0.00	-0.17
Other	0.06	0.24	777	0.06	0.25	546	0.00	0.79	-0.01
Male	0.38	0.49	777	0.25	0.44	546	-0.12	0.00	0.27
Parent Without Four-Year Degree	0.64	0.48	777	0.79	0.41	546	0.15	0.00	-0.34
Expected Family Contribution	2,823	3,610	777	1,186	2,334	546	-1,637	0.00	0.52
High School GPA	3.28	0.43	777	3.67	0.30	546	0.39	0.00	-1.03

Note. Mean figures are in proportions, with the exception of expected family contribution, which is in dollars, and high school GPA, which is in grade points.

Table A2

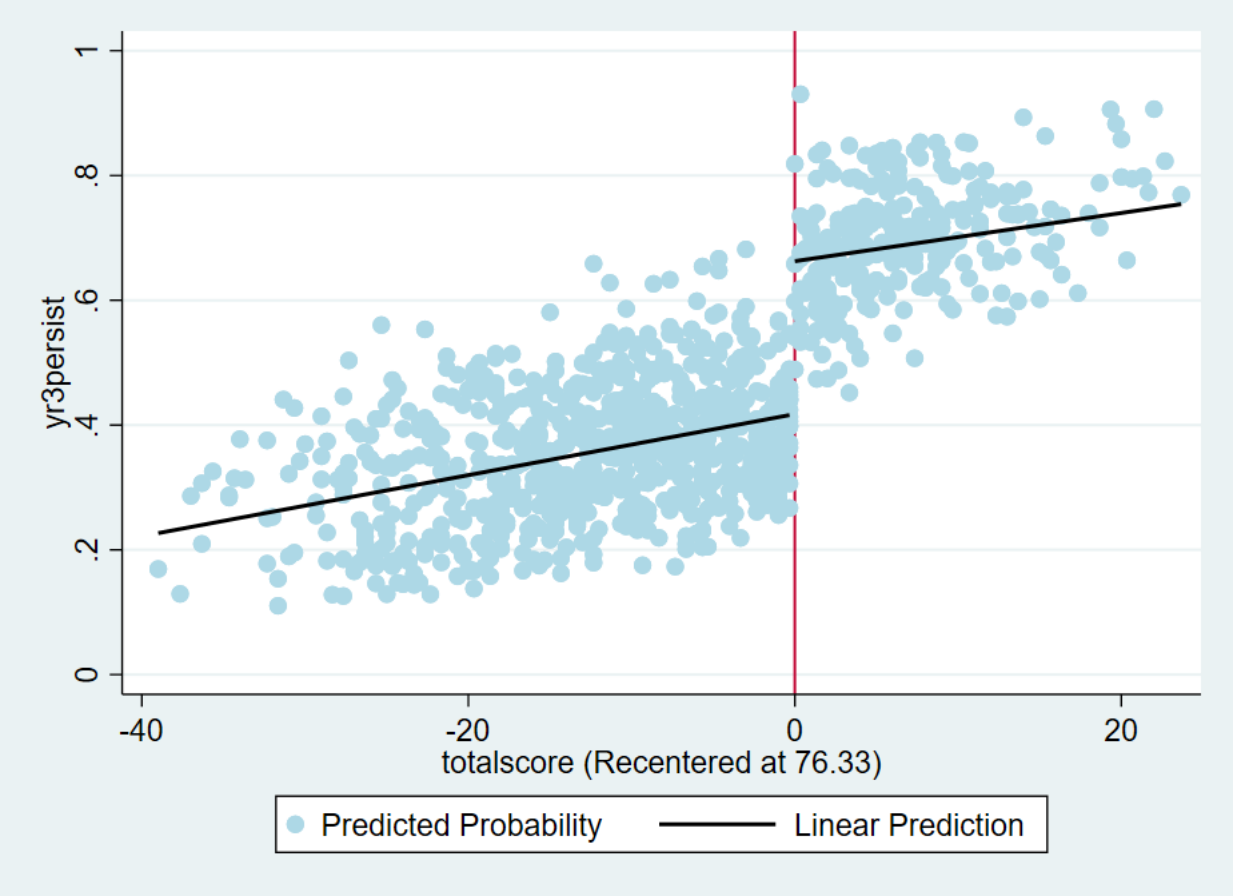
Baseline Equivalence Results for the Restricted Samples of Students with Application Scores +/- 1 Point Around the Cut Score

Characteristic	Non-awardee mean	Non-awardee std. dev.	Non-awardee N	Awardee mean	Awardee std. dev.	Awardee N	Mean difference	p-value	Effect size (Hedges' g)
Cohort 1									
White not Hispanic	0.24	0.43	46	0.29	0.46	21	0.05	0.69	-0.10
Black/African American	0.24	0.43	46	0.33	0.48	21	0.09	0.43	-0.21
Hispanic/Latino	0.17	0.38	46	0.14	0.36	21	-0.03	0.75	0.08
Asian	0.20	0.40	46	0.10	0.30	21	-0.10	0.31	0.27
Other	0.15	0.36	46	0.14	0.36	21	-0.01	0.92	0.03
Male	0.26	0.44	46	0.29	0.46	21	0.02	0.83	-0.05
Parent Without Four-Year Degree	0.74	0.44	46	0.71	0.46	21	-0.02	0.83	0.05
Expected Family Contribution	1,082	1,668	46	1,274	2,383	21	191	0.71	-0.10
High School GPA	3.55	0.37	46	3.56	0.37	21	0.01	0.88	-0.04
Cohort 2									
White not Hispanic	0.23	0.43	47	0.46	0.50	46	0.22	0.02	-0.47
Black/African American	0.23	0.43	47	0.20	0.40	46	-0.04	0.66	0.09
Hispanic/Latino	0.40	0.50	47	0.20	0.40	46	-0.21	0.03	0.46
Asian	0.04	0.20	47	0.13	0.34	46	0.09	0.13	-0.31
Other	0.09	0.28	47	0.02	0.15	46	-0.06	0.18	0.28
Male	0.34	0.48	47	0.37	0.49	46	0.03	0.77	-0.06
Parent Without Four-Year Degree	0.85	0.36	47	0.61	0.49	46	-0.24	0.01	0.56
Expected Family Contribution	1,445	2,013	47	1,791	2,957	46	346	0.51	-0.14
High School GPA	3.46	0.43	47	3.60	0.34	46	0.14	0.09	-0.35

Note. Mean figures are in proportions, with the exception of expected family contribution, which is in dollars, and high school GPA, which is in grade points.

Figure A3

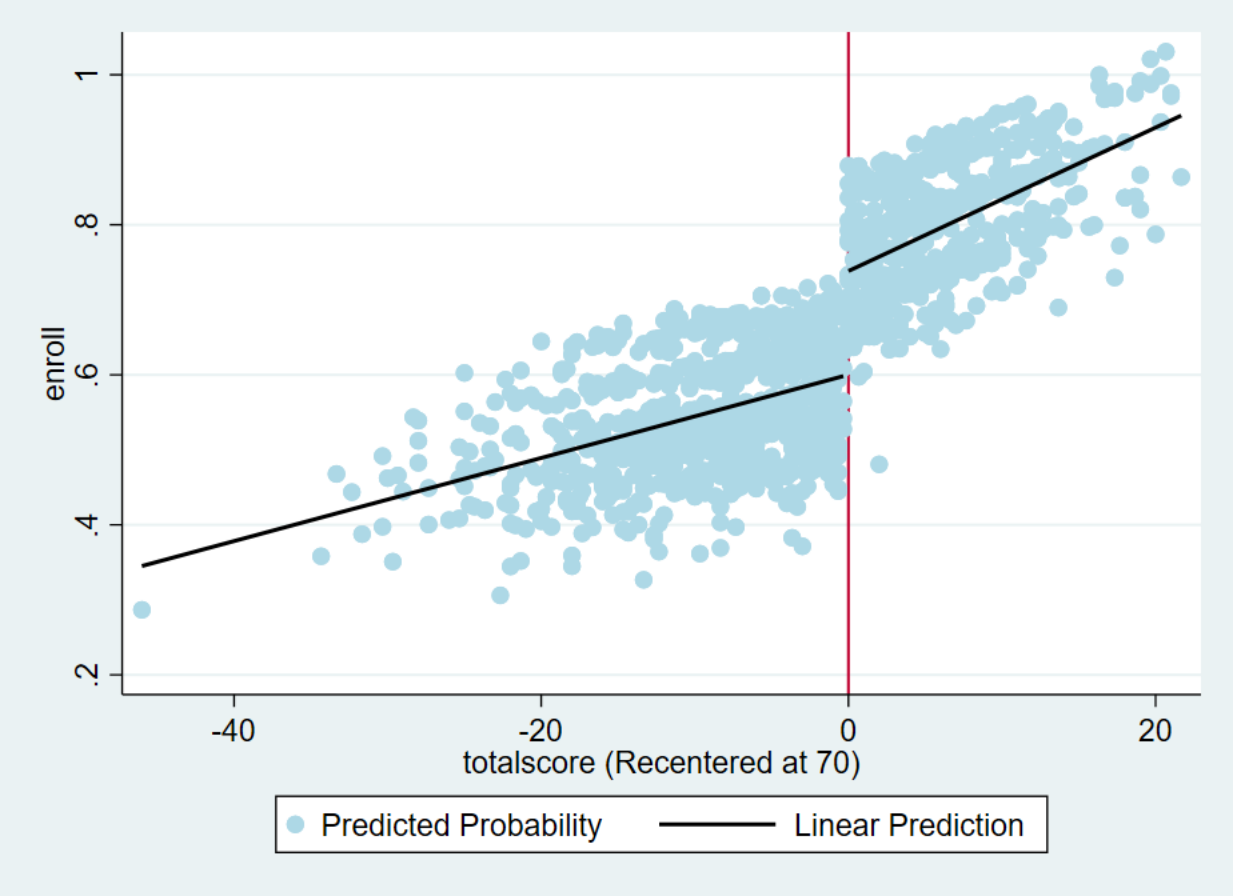
Visual Evidence of a Discontinuity at the Cut Score for the Outcome of Three-Year Persistence (Cohort 1, Full Sample)



Note. This figure plots the predicted probabilities obtained from a regression discontinuity model estimated on the full sample of Cohort 1 students for the outcome of three-year persistence, prior to testing the sensitivity of the estimates at smaller bandwidths. The underlying model estimates the probability of achieving the outcome adjusting for race/ethnicity, gender, first-generation status, EFC, and high school GPA. The x-axis plots applicants' scores in terms of the distance from the cut score. The y-axis plots the predicted probabilities obtained from the model.

Figure A4

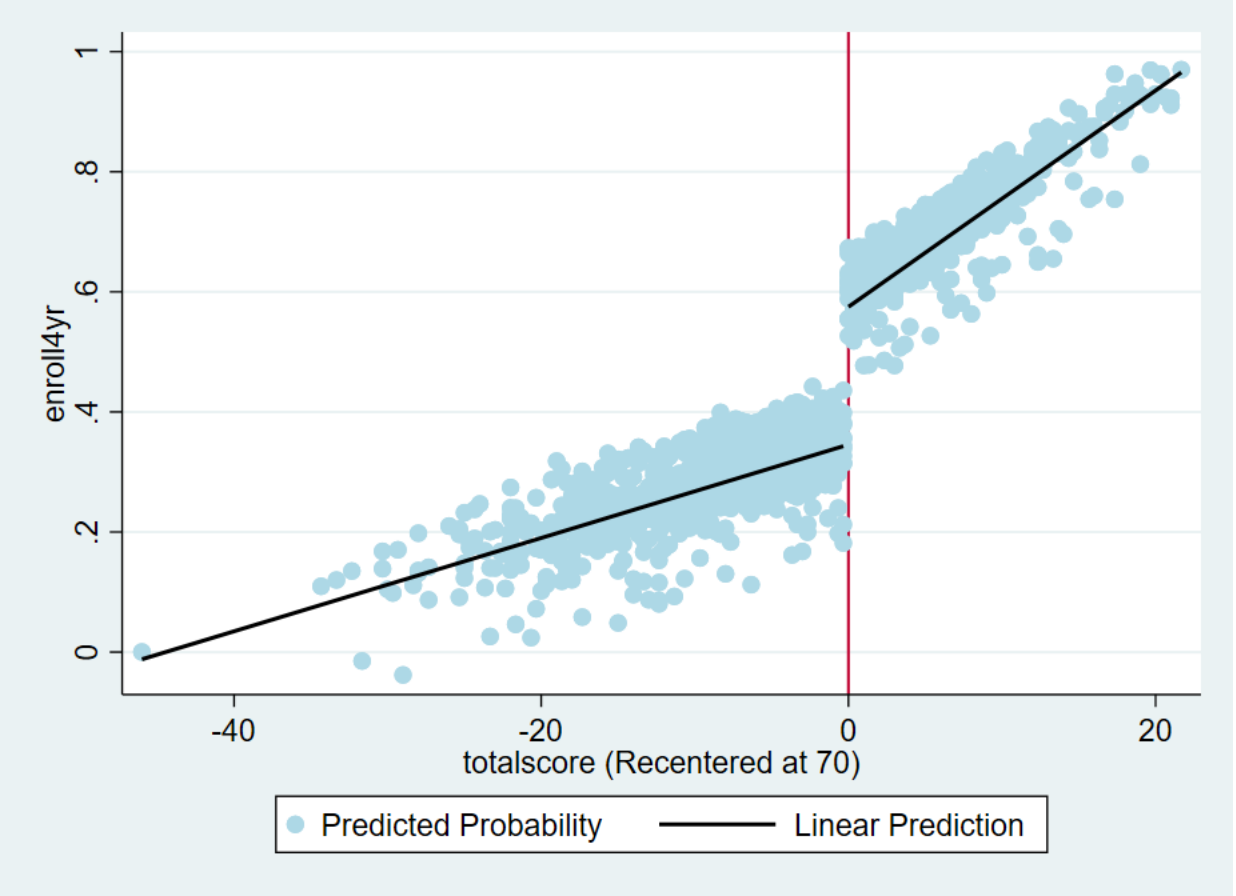
Visual Evidence of a Discontinuity at the Cut Score for the Outcome of Enrollment (Cohort 2, Full Sample)



Note. This figure plots the predicted probabilities obtained from a regression discontinuity model estimated on the full sample of Cohort 2 students for the outcome of enrollment, prior to testing the sensitivity of the estimates at smaller bandwidths. The underlying model estimates the probability of achieving the outcome adjusting for race/ethnicity, gender, first-generation status, EFC, and high school GPA. The x-axis plots applicants' scores in terms of the distance from the cut score. The y-axis plots the predicted probabilities obtained from the model.

Figure A5

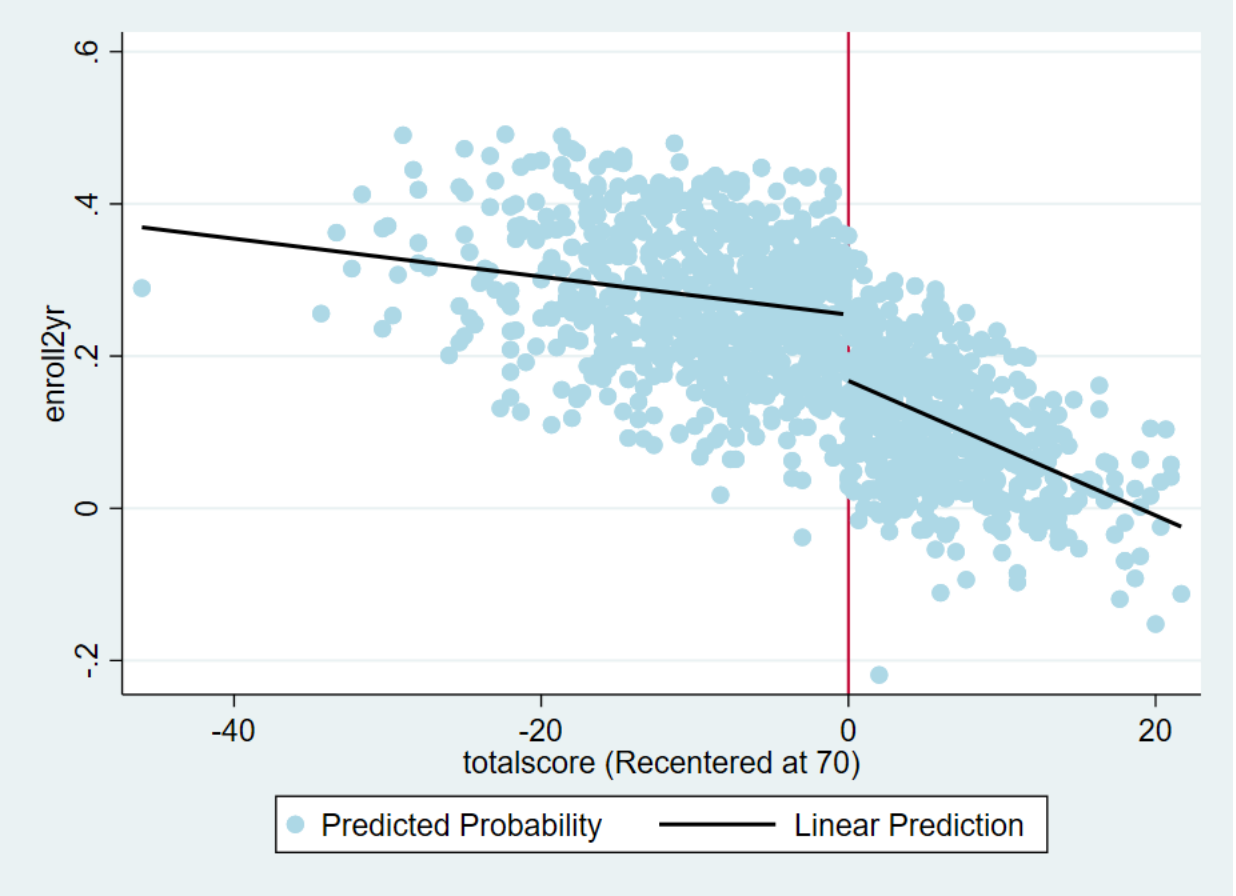
Visual Evidence of a Discontinuity at the Cut Score for the Outcome of Four-Year Enrollment (Cohort 2, Full Sample)



Note. This figure plots the predicted probabilities obtained from a regression discontinuity model estimated on the full sample of Cohort 2 students for the outcome of four-year enrollment, prior to testing the sensitivity of the estimates at smaller bandwidths. The underlying model estimates the probability of achieving the outcome adjusting for race/ethnicity, gender, first-generation status, EFC, and high school GPA. The x-axis plots applicants' scores in terms of the distance from the cut score. The y-axis plots the predicted probabilities obtained from the model.

Figure A6

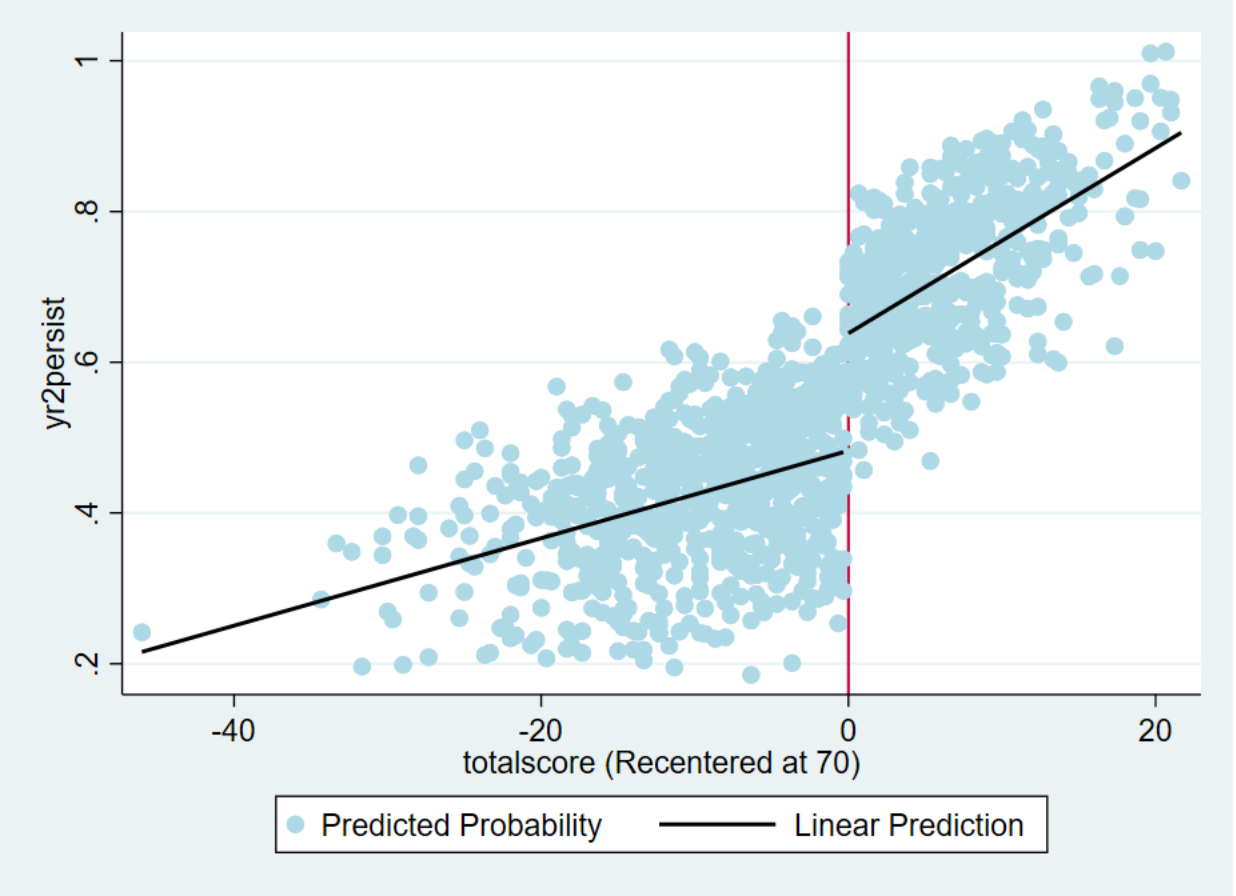
Visual Evidence of a Discontinuity at the Cut Score for the Outcome of Two-Year Enrollment (Cohort 2, Full Sample)



Note. This figure plots the predicted probabilities obtained from a regression discontinuity model estimated on the full sample of Cohort 2 students for the outcome of two-year enrollment, prior to testing the sensitivity of the estimates at smaller bandwidths. The underlying model estimates the probability of achieving the outcome adjusting for race/ethnicity, gender, first-generation status, EFC, and high school GPA. The x-axis plots applicants' scores in terms of the distance from the cut score. The y-axis plots the predicted probabilities obtained from the model.

Figure A7

Visual Evidence of a Discontinuity at the Cut Score for the Outcome of Year 2 Persistence (Cohort 2, Full Sample)



Note. This figure plots the predicted probabilities obtained from a regression discontinuity model estimated on the full sample of Cohort 2 students for the outcome of two-year persistence, prior to testing the sensitivity of the estimates at smaller bandwidths. The underlying model estimates the probability of achieving the outcome adjusting for race/ethnicity, gender, first-generation status, EFC, and high school GPA. The x-axis plots applicants' scores in terms of the distance from the cut score. The y-axis plots the predicted probabilities obtained from the model.

Table A3
Effect of Traditional Scholarship Awards on Postsecondary Outcomes by Cohort and Estimation Approach

	Conventional Impact Estimates			Robust Bias-Corrected Estimates		
	Impact	**Conventional Standard Error**	**Conventional p-value**	**Impact**	**Robust Standard Error**	**Robust p-value**
Cohort 1: Three-Year Persistence						
Optimal bandwidth	0.20	0.10	0.04	0.09	0.14	0.56
Optimal bandwidth x 2	0.23	0.07	0.00	0.18	0.10	0.09
Optimal bandwidth x 3	0.24	0.06	0.00	0.21	0.09	0.02
Optimal bandwidth w/ covars	0.24	0.10	0.02	0.07	0.15	0.64
Optimal bandwidth x 2 w/ covars	**0.23**	0.08	0.00	0.22	**0.11**	**0.05**
Optimal bandwidth x 3 w/ covars	0.25	0.07	0.00	0.22	0.09	0.02
Cohort 2: Postsecondary Enrollment						
Optimal bandwidth	0.07	0.09	0.44	-0.02	0.13	0.89
Optimal bandwidth x 2	0.14	0.06	0.02	0.04	0.09	0.70
Optimal bandwidth x 3	0.17	0.05	0.00	0.10	0.08	0.20
Optimal bandwidth w/ covars	0.06	0.08	0.47	-0.01	0.13	0.94
Optimal bandwidth x 2 w/ covars	**0.13**	0.06	0.03	0.03	**0.09**	**0.76**
Optimal bandwidth x 3 w/ covars	0.17	0.05	0.00	0.09	0.07	0.23
Cohort 2: Two-Year Institution						
Optimal bandwidth	-0.01	0.08	0.92	-0.05	0.12	0.66
Optimal bandwidth x 2	-0.02	0.05	0.70	-0.02	0.08	0.85
Optimal bandwidth x 3	-0.03	0.04	0.46	0.00	0.07	0.99
Optimal bandwidth w/ covars	-0.01	0.07	0.91	-0.03	0.11	0.75
Optimal bandwidth x 2 w/ covars	**-0.01**	0.05	0.78	0.00	**0.07**	**0.97**
Optimal bandwidth x 3 w/ covars	-0.03	0.04	0.51	0.01	0.06	0.85
Cohort 2: Four-Year Institution						
Optimal bandwidth	0.07	0.10	0.48	0.05	0.15	0.74
Optimal bandwidth x 2	0.14	0.07	0.03	0.05	0.10	0.60
Optimal bandwidth x 3	0.20	0.06	0.00	0.09	0.08	0.30

Optimal bandwidth w/ covars	0.07	0.09	0.48	0.05	0.14	0.74
Optimal bandwidth x 2 w/ covars	**0.14**	0.07	0.03	0.04	**0.10**	**0.67**
Optimal bandwidth x 3 w/ covars	0.19	0.05	0.00	0.08	0.08	0.33
Cohort 2: Two-Year Persistence						
Optimal bandwidth	0.09	0.09	0.29	0.09	0.14	0.53
Optimal bandwidth x 2	0.14	0.06	0.02	0.07	0.09	0.45
Optimal bandwidth x 3	0.16	0.05	0.00	0.11	0.08	0.16
Optimal bandwidth w/ covars	0.07	0.09	0.38	0.06	0.13	0.64
Optimal bandwidth x 2 w/ covars	**0.12**	0.06	0.04	0.05	**0.09**	**0.60**
Optimal bandwidth x 3 w/ covars	0.15	0.05	0.01	0.09	0.08	0.25

Note. Coefficients in the table represent regression discontinuity estimates and their associated standard errors and p values. Figures in the Conventional Impact Estimates columns were generated from conventional ordinary least squares estimation procedures; figures in the Robust Bias-Corrected Estimates columns were generated from robust, bias-corrected local polynomial regressions (Cattaneo et al., 2019). Each postsecondary outcome was estimated at optimal bandwidths around the discontinuity using methods outlined in Cattaneo et al. (2019), at two multiples around the optimal bandwidths and both with and without covariates. Preferred model specifications have been represented in bold text.

Table A4
Effect of Traditional Scholarship Awards on Postsecondary Outcomes by Cohort: Black Students

	Conventional Impact Estimates			Robust Bias-Corrected Impact Estimates		
	Coefficient	**Std. Err.**	**p-value**	**Bias-Corrected Coeff.**	**Robust Std. Err.**	**Robust p-value**
Cohort 1: Three-Year Persistence						
Optimal bandwidth	0.50	0.19	0.01	0.53	0.27	0.05
Optimal bandwidth x 2	0.40	0.15	0.01	0.50	0.20	0.01
Optimal bandwidth x 3	0.38	0.13	0.00	0.45	0.18	0.01
Optimal bandwidth w/ covars	0.54	0.20	0.01	0.66	0.29	0.02
Optimal bandwidth x 2 w/ covars	0.45	0.15	0.00	**0.58**	**0.21**	**0.01**
Optimal bandwidth x 3 w/ covars	0.42	0.13	0.00	0.50	0.18	0.01
Cohort 2: Postsecondary Enrollment						
Optimal bandwidth	0.19	0.16	0.23	0.32	0.24	0.19
Optimal bandwidth x 2	0.20	0.12	0.09	0.16	0.17	0.36
Optimal bandwidth x 3	0.19	0.10	0.06	0.17	0.15	0.25
Optimal bandwidth w/ covars	0.15	0.14	0.29	0.23	0.22	0.29
Optimal bandwidth x 2 w/ covars	0.17	0.11	0.11	**0.16**	**0.16**	**0.34**
Optimal bandwidth x 3 w/ covars	0.18	0.10	0.06	0.16	0.14	0.25
Cohort 2: Two-Year Institution						
Optimal bandwidth	0.07	0.09	0.44	0.00	0.12	0.99
Optimal bandwidth x 2	0.05	0.07	0.52	0.02	0.10	0.81
Optimal bandwidth x 3	0.03	0.06	0.59	0.06	0.09	0.53
Optimal bandwidth w/ covars	0.06	0.09	0.50	0.02	0.11	0.87
Optimal bandwidth x 2 w/ covars	0.05	0.07	0.50	**0.02**	**0.10**	**0.83**
Optimal bandwidth x 3 w/ covars	0.03	0.06	0.61	0.06	0.09	0.51
Cohort 2: Four-Year Institution						
Optimal bandwidth	0.16	0.19	0.39	0.35	0.27	0.19
Optimal bandwidth x 2	0.13	0.13	0.32	0.15	0.19	0.43

Optimal bandwidth x 3	0.15	0.11	0.17	0.12	0.16	0.45
Optimal bandwidth w/ covars	0.12	0.15	0.42	0.21	0.24	0.37
Optimal bandwidth x 2 w/ covars	0.13	0.11	0.26	**0.09**	**0.17**	**0.58**
Optimal bandwidth x 3 w/ covars	0.16	0.10	0.11	0.09	0.14	0.55
Cohort 2: Two-Year Persistence						
Optimal bandwidth	0.01	0.19	0.94	-0.09	0.27	0.75
Optimal bandwidth x 2	0.07	0.13	0.62	-0.07	0.20	0.72
Optimal bandwidth x 3	0.14	0.11	0.23	0.00	0.17	0.99
Optimal bandwidth w/ covars	-0.06	0.16	0.71	-0.12	0.24	0.63
Optimal bandwidth x 2 w/ covars	0.03	0.12	0.79	**-0.11**	**0.18**	**0.55**
Optimal bandwidth x 3 w/ covars	0.11	0.10	0.29	-0.03	0.15	0.85

Note. Coefficients in the table represent regression discontinuity estimates and their associated standard errors and p values. Figures in the conventional impact estimates columns were generated from conventional ordinary least squares estimation procedures; figures in the robust bias-corrected impact estimates columns were generated from robust, bias-corrected local polynomial regressions (Cattaneo et al., 2019). Each postsecondary outcome was estimated at optimal bandwidths around the discontinuity using methods outlined in Cattaneo et al. (2019), at two multiples around the optimal bandwidths and both with and without covariates. Preferred model specifications have been represented in bold text.

Table A5
Effect of Traditional Scholarship Awards on Postsecondary Outcomes by Cohort: First Generation College Students

	Conventional Impact Estimates			Robust Bias-Corrected Impact Estimates		
	Coefficient	**Std. Err.**	**p-value**	**Bias-Corrected Coeff.**	**Robust Std. Err.**	**Robust p-value**
Cohort 1: Three-Year Persistence						
Optimal bandwidth	0.20	0.12	0.09	0.11	0.18	0.56
Optimal bandwidth x 2	0.24	0.09	0.01	0.19	0.13	0.13
Optimal bandwidth x 3	0.26	0.07	0.00	0.22	0.11	0.04
Optimal bandwidth w/ covars	0.30	0.10	0.00	0.20	0.15	0.19
Optimal bandwidth x 2 w/ covars	0.29	0.08	0.00	**0.26**	**0.11**	**0.02**
Optimal bandwidth x 3 w/ covars	0.29	0.07	0.00	0.27	0.10	0.01
Cohort 2: Postsecondary Enrollment						
Optimal bandwidth	0.13	0.09	0.14	0.04	0.13	0.74
Optimal bandwidth x 2	0.19	0.06	0.00	0.12	0.09	0.20
Optimal bandwidth x 3	0.19	0.05	0.00	0.16	0.08	0.04
Optimal bandwidth w/ covars	0.08	0.09	0.39	-0.03	0.14	0.82
Optimal bandwidth x 2 w/ covars	0.14	0.07	0.03	**0.06**	**0.10**	**0.57**
Optimal bandwidth x 3 w/ covars	0.17	0.06	0.00	0.12	0.08	0.14
Cohort 2: Two-Year Institution						
Optimal bandwidth	0.06	0.09	0.52	-0.04	0.14	0.77
Optimal bandwidth x 2	0.04	0.07	0.58	0.06	0.10	0.57
Optimal bandwidth x 3	0.01	0.05	0.83	0.07	0.08	0.39
Optimal bandwidth w/ covars	0.03	0.08	0.75	-0.07	0.12	0.59
Optimal bandwidth x 2 w/ covars	0.02	0.06	0.76	**0.04**	**0.09**	**0.66**
Optimal bandwidth x 3 w/ covars	0.00	0.05	1.00	0.06	0.08	0.46
Cohort 2: Four-Year Institution						
Optimal bandwidth	0.04	0.11	0.70	0.04	0.17	0.80
Optimal bandwidth x 2	0.13	0.08	0.10	0.03	0.12	0.81
Optimal bandwidth x 3	0.18	0.06	0.01	0.07	0.10	0.46

Optimal bandwidth w/ covars	0.06	0.10	0.58	0.04	0.15	0.80
Optimal bandwidth x 2 w/ covars	0.13	0.07	0.07	**0.02**	**0.11**	**0.84**
Optimal bandwidth x 3 w/ covars	0.17	0.06	0.00	0.07	0.09	0.46
Cohort 2: Two-Year Persistence						
Optimal bandwidth	0.16	0.10	0.11	0.15	0.16	0.33
Optimal bandwidth x 2	0.17	0.07	0.02	0.13	0.11	0.24
Optimal bandwidth x 3	0.18	0.06	0.00	0.16	0.09	0.07
Optimal bandwidth w/ covars	0.12	0.10	0.22	0.13	0.15	0.41
Optimal bandwidth x 2 w/ covars	0.12	0.07	0.09	**0.09**	**0.11**	**0.42**
Optimal bandwidth x 3 w/ covars	0.14	0.06	0.02	0.12	0.09	0.18

Note. Coefficients in the table represent regression discontinuity estimates and their associated standard errors and p values. Figures in the conventional impact estimates columns were generated from conventional ordinary least squares estimation procedures; figures in the robust bias-corrected impact estimates columns were generated from robust, bias-corrected local polynomial regressions (Cattaneo et al., 2019). Each postsecondary outcome was estimated at optimal bandwidths around the discontinuity using methods outlined in Cattaneo et al (2019), at two multiples around the optimal bandwidths and both with and without covariates. Preferred model specifications have been represented in bold text.

Table A6
Effect of Traditional Scholarship Awards on Postsecondary Outcomes by Cohort: Hispanic Students

	Conventional Impact Estimates			Robust Bias-Corrected Impact Estimates		
	Coefficient	**Std. Err.**	**p-value**	**Bias-Corrected Coeff.**	**Robust Std. Err.**	**Robust p-value**
Cohort 1: Three-Year Persistence						
Optimal bandwidth	0.35	0.19	0.06	0.36	0.31	0.25
Optimal bandwidth x 2	0.27	0.13	0.04	0.33	0.20	0.10
Optimal bandwidth x 3	0.25	0.12	0.04	0.31	0.17	0.06
Optimal bandwidth w/ covars	0.44	0.19	0.02	0.30	0.33	0.36
Optimal bandwidth x 2 w/ covars	0.30	0.14	0.03	**0.37**	**0.21**	**0.08**
Optimal bandwidth x 3 w/ covars	0.27	0.12	0.03	0.33	0.17	0.06
Cohort 2: Postsecondary Enrollment						
Optimal bandwidth	-0.10	0.17	0.57	-0.13	0.26	0.61
Optimal bandwidth x 2	0.02	0.11	0.88	-0.15	0.18	0.40
Optimal bandwidth x 3	0.07	0.09	0.45	-0.06	0.14	0.68
Optimal bandwidth w/ covars	-0.09	0.15	0.57	-0.10	0.24	0.68
Optimal bandwidth x 2 w/ covars	0.04	0.10	0.70	**-0.09**	**0.16**	**0.56**
Optimal bandwidth x 3 w/ covars	0.09	0.09	0.32	-0.02	0.13	0.85
Cohort 2: Two-Year Institution						
Optimal bandwidth	-0.12	0.17	0.48	-0.10	0.25	0.69
Optimal bandwidth x 2	-0.15	0.12	0.19	-0.11	0.18	0.55
Optimal bandwidth x 3	-0.13	0.09	0.15	-0.15	0.15	0.30
Optimal bandwidth w/ covars	-0.10	0.17	0.55	-0.06	0.24	0.80
Optimal bandwidth x 2 w/ covars	-0.15	0.12	0.21	**-0.11**	**0.18**	**0.55**
Optimal bandwidth x 3 w/ covars	-0.16	0.10	0.09	-0.14	0.15	0.34
Cohort 2: Four-Year Institution						
Optimal bandwidth	-0.01	0.18	0.96	-0.05	0.26	0.86
Optimal bandwidth x 2	0.14	0.13	0.30	-0.05	0.19	0.79
Optimal bandwidth x 3	0.22	0.11	0.04	0.05	0.16	0.74

Optimal bandwidth w/ covars	-0.01	0.18	0.94	-0.05	0.25	0.85
Optimal bandwidth x 2 w/ covars	0.14	0.13	0.26	**-0.06**	**0.19**	**0.76**
Optimal bandwidth x 3 w/ covars	0.23	0.11	0.03	0.06	0.16	0.72
Cohort 2: Two-Year Persistence						
Optimal bandwidth	0.05	0.15	0.76	0.07	0.23	0.78
Optimal bandwidth x 2	0.09	0.11	0.40	0.04	0.16	0.82
Optimal bandwidth x 3	0.11	0.09	0.26	0.05	0.14	0.73
Optimal bandwidth w/ covars	0.07	0.16	0.66	0.09	0.25	0.71
Optimal bandwidth x 2 w/ covars	0.08	0.12	0.49	**0.04**	**0.18**	**0.82**
Optimal bandwidth x 3 w/ covars	0.10	0.10	0.33	0.07	0.15	0.63

Note. Coefficients in the table represent regression discontinuity estimates and their associated standard errors and p values. Figures in the conventional impact estimates columns were generated from conventional ordinary least squares estimation procedures; figures in the robust bias-corrected impact estimates columns were generated from robust, bias-corrected local polynomial regression (Cattaneo et al., 2019). Each postsecondary outcome was estimated at optimal bandwidths around the discontinuity using methods outlined in Cattaneo et al. (2019), at two multiples around the optimal bandwidths and both with and without covariates. Preferred model specifications have been represented in bold text.

Table A7
Effect of Traditional Scholarship Awards on Postsecondary Outcomes by Cohort: Male Students

	Conventional Impact Estimates			Robust Bias-Corrected Impact Estimates		
	Coefficient	**Std. Err.**	**p-value**	**Bias-Corrected Coeff.**	**Robust Std. Err.**	**Robust p-value**
Cohort 1: Three-Year Persistence						
Optimal bandwidth	-0.14	0.22	0.53	-0.56	0.35	0.11
Optimal bandwidth x 2	0.12	0.16	0.45	-0.18	0.23	0.44
Optimal bandwidth x 3	0.20	0.13	0.14	0.01	0.19	0.98
Optimal bandwidth w/ covars	0.03	0.16	0.85	-0.34	0.25	0.17
Optimal bandwidth x 2 w/ covars	0.19	0.14	0.18	**-0.01**	**0.21**	**0.97**
Optimal bandwidth x 3 w/ covars	0.20	0.13	0.11	0.10	0.18	0.58
Cohort 2: Postsecondary Enrollment						
Optimal bandwidth	0.12	0.13	0.37	0.19	0.21	0.36
Optimal bandwidth x 2	0.14	0.10	0.15	0.11	0.14	0.44
Optimal bandwidth x 3	0.15	0.09	0.09	0.13	0.12	0.30
Optimal bandwidth w/ covars	0.08	0.13	0.52	0.16	0.20	0.43
Optimal bandwidth x 2 w/ covars	0.15	0.10	0.13	**0.09**	**0.14**	**0.51**
Optimal bandwidth x 3 w/ covars	0.16	0.09	0.07	0.13	0.12	0.28
Cohort 2: Two-Year Institution						
Optimal bandwidth	0.00	0.12	0.98	-0.02	0.18	0.91
Optimal bandwidth x 2	0.03	0.08	0.76	-0.02	0.12	0.86
Optimal bandwidth x 3	0.03	0.07	0.67	0.03	0.10	0.80
Optimal bandwidth w/ covars	0.02	0.11	0.88	-0.02	0.18	0.91
Optimal bandwidth x 2 w/ covars	0.06	0.08	0.44	**0.01**	**0.12**	**0.93**
Optimal bandwidth x 3 w/ covars	0.06	0.07	0.37	0.06	0.10	0.57
Cohort 2: Four-Year Institution						
Optimal bandwidth	0.14	0.15	0.36	0.23	0.22	0.30
Optimal bandwidth x 2	0.10	0.11	0.35	0.12	0.16	0.45
Optimal bandwidth x 3	0.13	0.10	0.18	0.07	0.13	0.60
Optimal bandwidth w/ covars	0.09	0.15	0.53	0.23	0.22	0.30

Optimal bandwidth x 2 w/ covars	0.06	0.11	0.58	**0.07**	**0.16**	**0.68**
Optimal bandwidth x 3 w/ covars	0.10	0.10	0.29	0.03	0.14	0.83
Cohort 2: Two-Year Persistence						
Optimal bandwidth	0.03	0.13	0.84	0.12	0.20	0.53
Optimal bandwidth x 2	0.05	0.10	0.60	-0.01	0.14	0.97
Optimal bandwidth x 3	0.10	0.09	0.28	-0.01	0.12	0.96
Optimal bandwidth w/ covars	-0.02	0.13	0.89	0.08	0.19	0.66
Optimal bandwidth x 2 w/ covars	0.03	0.10	0.73	**-0.04**	**0.14**	**0.77**
Optimal bandwidth x 3 w/ covars	0.08	0.09	0.36	-0.04	0.12	0.77

Note. Coefficients in the table represent regression discontinuity estimates and their associated standard errors and p values. Figures in the conventional impact estimates columns were generated from conventional ordinary least squares estimation procedures; figures in the robust bias-corrected impact estimates columns were generated from robust, bias-corrected local polynomial regressions (Cattaneo et al., 2019). Each postsecondary outcome was estimated at optimal bandwidths around the discontinuity using methods outlined in Cattaneo et al. (2019), at two multiples around the optimal bandwidths and both with and without covariates. Preferred model specifications have been represented in bold text.

APPENDIX B

Methodological Details for the Adult Learner Awardees Impact Analysis

Population and Sample

The Adult Learner target population was defined as postsecondary students who had previously stopped attending college but subsequently reenrolled in college and intended to pursue an academic credential after reentry. To be eligible for a KC Scholars Adult Learner award, students had to be at least 24 years old; live in one of the six eligible counties (Wyandotte, Johnson, Cass, Clay, Jackson, Platte); have an expected family contribution (EFC) of $12,000 or less; previously earned at least 12 college credits at an accredited, Title IV, postsecondary institution; and be lawfully present in the United States or be DACA eligible/approved.

There were 424 Adult Learner awardees from three cohorts that were examined: Cohort 1, corresponding to award cycle 2017; Cohort 2, corresponding to award cycle 2018; and Cohort 3, corresponding to award cycle 2019. Students in Cohort 1 reentered college in the 2017/18 academic year; students in Cohort 2 reentered college in the 2018/19 academic year; and students in Cohort 3 reentered college in the 2019/20 academic year. The evaluation team provided the National Student Clearinghouse Research Center (NSCRC) data on the 424 Adult Learner awardees to ascertain postsecondary enrollment, persistence and completion data, and to generate a sample of comparison students against whom the evaluation team could contrast postsecondary outcomes.

Using the birthdates and first, middle, and last names, NSCRC staff located 403 of the 424 Adult Learner awardees in the NSC's StudentTracker database. Successful matches were found for 89 students in Cohort 1 (2017), 131 students in Cohort 2 (2018), and 183 students in Cohort 3 (2019). NSCRC then ensured these matches met the following conditions:

1. Students were enrolled in either full-time or part-time enrollment level between July 1 of the award cycle year and March 1 of the following year.
2. Students were not enrolled at any level between July 1 and November 1 of the year preceding a given award cycle.
3. Students were enrolled at any level (to include completion of associate's level degrees) prior to July 1 of the year preceding a given award cycle.
4. Students did not complete a bachelor's level degree or higher prior to July of the year preceding a given award cycle.

NSCRC determined that 340 Adult Learner awardees met these conditions — 76 students in Cohort 1 (2017), 115 students in Cohort 2 (2018), and 149 students in Cohort 3 (2019). NSCRC then paired each of the 340 valid cases with a similar control case in the StudentTracker database using the reentry year (after appropriate enrollment gap), reentry college, reentry enrollment level (part-time/full-time); gender, race/ethnicity, and student age (+/- 2 years). There were 312 Adult Learner awardees for whom a control could be selected: 69 students in Cohort 1, 107 students in Cohort 2, and 136 students in Cohort 3. Postsecondary enrollment or completion/degree records that could be released under the Directory Information exception to the Family Educational Rights to Privacy Act (FERPA) for 624 students (312 KC Adult Learner awardees plus 312 matched controls) were then provided to the evaluation team. As illustrated in Table B1, KC Scholar Adult Learner awardees in each cohort were descriptively very similar to their matched controls.

Methods

Five postsecondary outcomes were examined:

1. **One-Year Persistence:** Reenrollment one year from students' first reenrollment term (e.g., Fall-to-Fall, Spring-to-Spring, Summer-to-Summer)
2. **Two-Year Persistence:** Reenrollment two years from students' first reenrollment term (e.g., Fall-to-Fall, Spring-to-Spring, Summer-to-Summer)
3. **Certificate Completion:** Successful completion of a certificate after college reentry. Sample certificates in the data included various certificates of completion, short term certificates, vocational certificates, and technical certificates.
4. **AA/AS Completion:** Successful completion of an associate degree of arts (AA) or science (AS) after reentry. Sample AA/AS degrees completed by students in the sample included "Associate of Science," "Associate of Arts," "Associate of General Studies," and "Associate of Applied Technology."
5. **BA/BS Completion:** Successful completion of a bachelor's degree of arts (BA) or bachelor's degree of science (BS) after reentry. Sample BA/BS degrees completed by students in the sample included "Bachelor of Health Science," "Bachelor of Liberal Arts," "Bachelor of Business Administration," and "Bachelor of Social Work."

Because the NSCRC matched Adult Learner awardees with non-awardees in the StudentTracker database based on gender, race/ethnicity, and age, the two groups of students (Adult Learner and control groups) were virtually identical on the observed covariates of gender, race, and age (Table B1). Slight variation between the groups was observed on the measure capturing the number of academic terms a student had completed prior to reentry. The greatest degree of variation between the groups of students was found in the five outcome measures. The evaluation team used a series of linear probability regression models to ascertain the degree to which receiving a KC Scholars Adult Learner award could explain this variation.

Impact estimates from linear probability models that did not include controls for gender, race/ethnicity, age, terms completed prior to entry, and the colleges in which students reenrolled were not dissimilar from models that include these measures. Still, models with these measures were preferred because they increased the models' explanatory power and improved precision. Tables B2–B4 contain the estimates from the preferred linear probability model specifications. These models estimated the relationship between receiving a KC Scholars Adult Learner award and the probabilities of each of the five binary postsecondary outcomes, conditioned on students' gender, race/ethnicity, their age, a squared age term, the number of academic terms students completed prior to reentry, and dummy indicators for the colleges in which the students reenrolled. Estimated standard errors were robust to heteroscedasticity, meaning that the standard errors are correct, whether there is heteroscedasticity or not.

For an added test of robustness, the evaluation team employed a two-step matching procedure, though there was little indication that doing so was necessary, given the similarities between the two samples. First, the evaluators sought to reduce potential imbalance on the covariates using Coarsened Exact Matching (CEM), which reduced the analytic data to only student data for which an exact match existed. Practically speaking, this temporary "coarsening" of the covariates was done by restructuring them into meaningful categorical groups or bins, which was especially important for the continuously measured covariates — such as age and terms prior to entry. Data could then be more easily placed into matching groups or cells and matched to similar students falling within the same coarsened cells. Data that were successfully matched were retained; those that could not be matched were discarded, though given the a priori NSCRC matching procedure, just 28 students (4 percent) were discarded.

A series of propensity score matching methods were then performed to estimate the impact of receiving a KC Scholars Adult Learner award on the 5 postsecondary outcomes. Propensity score methods (PSM) of impact analysis first estimate a treatment probability for each student based on observed covariates. Depending on the matching algorithm (e.g., nearest neighbor, kernel weighting), PSM then matches data with similar estimated treatment probabilities, compares their outcomes of students, and then calculates an average treatment effect. This process was carried out for five different matching algorithms (Table B5). Average treatment effects on the treated cases of these matching models were largely similar to the

evaluation team's preferred linear probability models, with some exceptions. For example, although linear probability models did not find the association between certificate completion and receiving an Adult Learner award among Cohort 1 Adult Learner awardees to be significant statistically at conventional levels, impact estimates produced from nearest neighbor, kernel, and Mahalanobis matching techniques did find this relationship to be marginally significant statistically. Because these matching techniques approximate standard errors on treatment effects assuming homoscedasticity of the outcome variable within treated and control groups, and because the linear probability model specifications were not based on this assumption, the evaluation team has greater confidence in the linear probability estimates.

Table B1

Descriptive Statistics of Analytic Data by Cohort and Treatment Status

	Adult Learner Awardees			Control Group		
Cohort 1 (2017)	**Mean**	**SD**	**n**	**Mean**	**SD**	**n**
One-year persistence	0.71	0.46	69	0.58	0.50	69
Two-year persistence	0.54	0.50	69	0.30	0.46	69
Earned certificate	0.22	0.42	69	0.10	0.30	69
Earned AA/AS degree	0.29	0.46	69	0.14	0.35	69
Earned BA/BS degree	0.20	0.41	69	0.16	0.37	69
Female	0.73	0.45	69	0.73	0.45	69
White	0.22	0.42	69	0.22	0.42	69
Black	0.67	0.47	69	0.66	0.48	69
Hispanic	0.09	0.29	69	0.09	0.29	69
Asian	0.00	0.00	69	0.00	0.00	69
Other	0.01	0.12	69	0.03	0.17	69
Age at reentry	34.41	8.66	69	34.43	8.66	69
Terms prior to reentry	9.39	7.61	69	8.10	6.81	69
Cohort 2 (2018)						
One-year persistence	0.68	0.47	107	0.52	0.50	107
Two-year persistence	0.47	0.50	107	0.36	0.48	107
Earned certificate	0.07	0.25	107	0.08	0.28	107
Earned AA/AS degree	0.15	0.36	107	0.09	0.29	107
Earned BA/BS degree	0.07	0.26	107	0.09	0.29	107
Female	0.89	0.32	107	0.89	0.32	107
White	0.15	0.36	107	0.13	0.33	107
Black	0.68	0.47	107	0.70	0.46	107
Hispanic	0.05	0.21	107	0.06	0.23	107
Asian	0.01	0.10	107	0.01	0.10	107
Other	0.11	0.31	107	0.11	0.31	107
Age at reentry	36.93	9.55	107	36.99	9.59	107
Terms prior to reentry	8.00	5.15	107	7.39	6.18	107
Cohort 3 (2019)						
One-year persistence	0.80	0.40	135	0.49	0.50	136
Two-year persistence	0.02	0.15	135	0.12	0.32	136
Earned certificate	0.04	0.19	135	0.03	0.17	136
Earned AA/AS degree	0.05	0.22	135	0.04	0.21	136
Earned BA/BS degree	0.04	0.21	135	0.10	0.31	136

Female	0.81	0.39	135	0.81	0.39	136
White	0.24	0.43	135	0.23	0.42	136
Black	0.61	0.49	135	0.60	0.49	136
Hispanic	0.08	0.28	135	0.08	0.28	136
Asian	0.00	0.00	135	0.00	0.00	136
Other	0.07	0.25	135	0.08	0.28	136
Age at reentry	36.56	8.43	135	36.59	8.41	136
Terms prior to reentry	9.83	6.96	135	7.72	5.28	136

Table B2
Cohort 1 (2017) Conditional Linear Probability Estimates

VARIABLES	One-Year Persistence	Two-Year Persistence	Certificate Completion	AA/AS Completion	BA/BS Completion
KC Scholar	0.13	0.24**	0.12	0.17*	0.03
	(0.09)	(0.08)	(0.06)	(0.07)	(0.06)
Race/ethnicity = 2, Black	-0.05	0.02	-0.05	-0.11	-0.12
	(0.12)	(0.12)	(0.10)	(0.10)	(0.08)
Race/ethnicity = 3, Latino	-0.01	0.16	-0.05	-0.08	-0.05
	(0.20)	(0.18)	(0.17)	(0.18)	(0.18)
Race/ethnicity = 5, Other	-0.67***	-0.42*	0.05	-0.09	-0.12
	(0.14)	(0.18)	(0.33)	(0.37)	(0.08)
Female	0.10	0.12	0.10	0.15	0.06
	(0.12)	(0.11)	(0.08)	(0.09)	(0.08)
Age at reentry	0.01	0.02	-0.02	-0.07	-0.01
	(0.05)	(0.05)	(0.05)	(0.04)	(0.02)
Age^2	-0.00	-0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Terms prior to reentry	-0.01	-0.02**	0.00	-0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
School Dummies	Yes	Yes	Yes	Yes	Yes
Observations	133	133	133	133	133
R-squared	0.15	0.24	0.15	0.22	0.40

Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table B3
Cohort 2 (2018) Conditional Linear Probability Estimates

VARIABLES	One-Year Persistence	Two-Year Persistence	Certificate Completion	AA/AS Completion	BA/BS Completion
KC Scholar	0.17*	0.12	-0.02	0.04	-0.03
	(0.07)	(0.07)	(0.04)	(0.05)	(0.04)
Race/ethnicity = 2, Black	0.08	0.03	-0.01	0.01	-0.02
	(0.11)	(0.11)	(0.06)	(0.07)	(0.05)
Race/ethnicity = 3, Latino	0.26	0.39*	-0.05	-0.04	0.06
	(0.18)	(0.17)	(0.06)	(0.08)	(0.15)
Race/ethnicity = 4, Asian	0.33	-0.55**	-0.01	-0.08	-0.05
	(0.19)	(0.18)	(0.07)	(0.11)	(0.11)
Race/ethnicity = 5, Other	0.07	-0.01	0.03	0.22	-0.07
	(0.16)	(0.16)	(0.08)	(0.12)	(0.06)
Female	0.04	0.06	-0.01	0.04	0.08
	(0.13)	(0.12)	(0.05)	(0.06)	(0.07)
Age at reentry	0.04	0.02	0.03*	0.04*	-0.00
	(0.03)	(0.03)	(0.01)	(0.02)	(0.02)
Age^2	-0.00	-0.00	-0.00*	-0.00*	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Terms prior to reentry	-0.01	-0.01	0.01*	0.01	0.00
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
School Dummies	Yes	Yes	Yes	Yes	Yes
Observations	206	206	206	206	206
R-squared	0.12	0.10	0.20	0.10	0.29

Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table B4
Cohort 3 (2019) Conditional Linear Probability Estimates

VARIABLES	One-Year Persistence
KC Scholar	0.33***
	(0.06)
Race/ethnicity = 2, Black	-0.19*
	(0.08)
Race/ethnicity = 3, Latino	-0.11
	(0.15)
Race/ethnicity = 5, Other	-0.17
	(0.15)
Female	0.08
	(0.08)
Age at reentry	0.00
	(0.03)
Age^2	-0.00
	(0.00)
Terms prior to reentry	-0.00
	(0.00)
School Dummies	Yes
Observations	257
R-squared	0.19

Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table B5

Adult Learner Impact Estimates from Two-Step Matching Process by Cohort and Matching Algorithm

	1 Nearest Neighbor		5 Nearest Neighbor		Kernel		5 Mahalanobis	
	Impact	**SE**	**Impact**	**SE**	**Impact**	**SE**	**Impact**	**SE**
Cohort 1 (2017) Matching Results								
One-Year Persistence	0.154	(0.125)	0.0954	(0.106)	0.125	(0.0944)	0.108	(0.103)
Two-Year Persistence	0.292**	(0.118)	0.234**	(0.0942)	0.233**	(0.0909)	0.212*	(0.110)
Certificate Completion	0.138*	(0.0796)	0.105	(0.0824)	0.134*	(0.0724)	0.135*	(0.0759)
AA/AS Completion	0.292***	(0.0748)	0.175**	(0.0738)	0.175***	(0.0653)	0.185**	(0.0799)
BA/BS Completion	0.0615	(0.0999)	0.00923	(0.0779)	0.0283	(0.0714)	0.0523	(0.0823)
Cohort 2 (2018) Matching Results								
One-Year Persistence	0.178*	(0.0923)	0.172*	(0.0973)	0.162**	(0.0720)	0.152**	(0.0669)
Two-Year Persistence	0.129	(0.110)	0.117	(0.0807)	0.134**	(0.0657)	0.133	(0.0966)
Certificate Completion	-0.0990*	(0.0576)	-0.00594	(0.0496)	-0.0122	(0.0409)	-0.0178	(0.0439)
AA/AS Completion	0.00990	(0.0516)	0.0693	(0.0434)	0.0565	(0.0414)	0.0475	(0.0533)
BA/BS Completion	-0.0594	(0.0589)	-0.0297	(0.0525)	-0.0321	(0.0421)	-0.0337	(0.0466)
Cohort 3 (2019) Matching Results								
One-Year Persistence	0.326***	(0.0897)	0.341***	(0.0671)	0.349***	(0.0574)	0.307***	(0.0641)

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Suggested citation: Rauner, M., Sublett, C, Torre Gibney, T. (2021). *Evaluation of the Kansas City Scholars Program: Year 4 Impact Report*. WestEd.

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