A First Look at Impacts of the College Housing Assistance Program at Tacoma Community College

WEB APPENDICES

June 2021

Appendix A. Glossary

Admission:
The assignment of eligible applicants to become program participants. Eligible homeless applicants were always admitted and could be admitted between application cycles. Near-homeless applicants were evaluated once per application cycle; eligible near-homeless applicants were assigned via a random lottery to become participants or non-participants. An applicant who was not admitted in one application cycle could reapply in another.

Applicant:
Student who completed the two-page program application (see "CHAP Application"). Not all applicants became program participants; first their eligibility was assessed on the basis of their application (see "Eligibility"), and then eligible students were selected for admission or non-admission (see "Admission").

Application Cycle:
Time period in which students applied and were admitted to CHAP. There were six application cycles in the period covered by this study: October 2017, January 2018, April 2018, October 2018, January 2018, and April 2019. Cycles began with a brief window (usually three business days) during which students could submit applications. Subsequently, the Resource Navigator (see "Resource Navigator") accepted applications, working with evaluators to randomly assign near-homeless applicants to become participants or non-participants. Applicants were notified of the award approximately 2–3 weeks after submitting their applications. Near-homeless students could only enter the program at the start of an application cycle, while homeless students could apply and be admitted to the program between application cycles.

CHAP:
Stands for College Housing Assistance Program, a partnership between THA and TCC to "house or pay to house" college students who are homeless or at imminent risk of homelessness ("near-homeless") by providing these students with person-based and place-based affordable housing supports. The program is the subject of this evaluation.

CHAP Application:
A two-page program application. Completing this application is the first step in the process; students who have done so are considered Applicants. See "Eligibility" for more information.

Eligibility:
Eligibility was assessed at three stages:
1) Upon completion of the CHAP Application: Applicants were considered eligible at this point if they were enrolled at Tacoma Community College and determined, by the Resource Navigator, to be homeless or near-homeless.
2) Upon completion of the HUD Application: Participants were considered eligible if they met THA eligibility criteria for income level, background check, and lawful residency.

3) Throughout program enrollment: To remain eligible, Participants had to comply with several conditions while in the program, which are described in Appendix B.

Homeless:
According to the program manual, during the evaluation period, a household (or student) is homeless if they are either: 1) in an emergency shelter or transitional housing facility; or 2) are a client of a case management program serving the homeless. For the purpose of the program and evaluation, students are categorized as homeless based on their status at the time of application.

Housed (aka Leasing Up):
Describes a participant who completed the HUD application, received a voucher, searched for housing, and leased up. Students who receive property-based subsidies and move into their apartment were also housed.

Housing Search:
The process of looking for housing. Participants generally searched for housing that: a) was located in Tacoma, b) would accept the voucher, c) was affordable to them with the voucher, and d) otherwise met their needs in terms of size and relative location, with respect to work, school, and/or childcare, etc.

HUD:
U.S. Department of Housing and Urban Development. THA administers CHAP with vouchers funded by the HUD. THA's designation as a Moving To Work agency means that the regulations governing its allocation of voucher funding are more flexible than for many Public Housing Authorities.

HUD Application:
An application used to determine students' eligibility to receive a voucher based on HUD and THA standards. The application includes an income statement, asset certification, debt statement, and certification of eligibility. Participants did not complete this application until after admission into the program. See "Eligibility" for more information.

Near-Homeless:
According to the program manual, during the evaluation period, a household (or student) is near-homeless if they experience any of the following:

1) are unable to meet basic housing expenses such as rent, mortgage, or utilities that will result in the loss of permanent housing;
2) are residing in a motel/hotel due to loss of permanent housing and lack the resources to remain;
3) have lost permanent housing and are living temporarily with a friend or family member and cannot be placed on the lease;
4) have received an eviction notice that will result in loss of permanent housing;
5) are pending unlawful detainer notices that will result in loss of permanent housing;

6) have a recent history of serious housing instability;
7) are a victim of domestic violence; or
8) are facing discharge from a public institution (e.g., incarceration, hospital, etc.) without a housing discharge plan.

For the purpose of the evaluation, students are categorized as near-homeless based on their status *at the time of their initial application*.

Non-Participant:
Applicant who was not admitted to the program via random lottery. An applicant who did not become a participant in one application cycle could reapply in another. Only near-homeless students could become non-participants.

Participant:
Homeless or near-homeless applicant who was admitted to the program based on eligibility and, if near-homeless, the random lottery.

Property-Based Subsidy:
An alternative type of subsidy to vouchers, which are "person-based." Under this model, designated apartments in buildings that THA owns, or where THA has negotiated an agreement with the landlord, are set aside for CHAP students. THA pays a portion of the rent for these units. Since property-based subsidies were introduced halfway through the evaluation period and very few students in the evaluation were housed with this subsidy, we only consider the impact of vouchers in this report.

Resource Navigator:
Primary program staff for CHAP at TCC. Administers the TCC portion of CHAP application and is responsible for supporting participants throughout CHAP.

TCC:
Tacoma Community College, a community college in Tacoma, Washington and the largest college in the region. All students in this evaluation had to initially be enrolled at TCC.

THA:
Tacoma Housing Authority, a public housing authority in Tacoma, Washington (see also HUD). THA is also a public development authority, and has a nonprofit affiliate organization.

UWT:
University of Washington-Tacoma, a public four-year university in Tacoma, Washington. CHAP participants who were initially enrolled at TCC were allowed to transfer to UWT and count their enrollment toward requirements for continuing assistance. Currently, students enrolled in UWT can apply for property-based subsidies; however, these students are not included in our evaluation.

Voucher:
A monthly credit for a specific dollar amount to be used toward rent on the private market, allocated to CHAP participants that were approved for the program by both TCC and THA. The specific dollar amount varies based on household size. Funding for vouchers is provided by HUD. Vouchers are also referred to as person-based subsidies as they are provided to individuals and usable at multiple locations.

Appendix B. Additional Program Information

Program eligibility and compliance requirements[1]

CHAP offers assistance to students who meet the program's definition of homelessness or near-homelessness, as found in the glossary (Appendix A) and main report. The program's specific eligibility criteria have evolved over time. In 2016, the year before this evaluation's purview, students had to have been enrolled in at least 12 credits, hold a cumulative GPA of at least 2.0, and have a FAFSA on file when they applied. All of these criteria had to be maintained for continued assistance. Additionally, in order to qualify for a housing voucher, students had to meet THA eligibility criteria for income level, background check, and lawful residency.

When CHAP expanded in 2017, the first year considered by this evaluation, its requirements were amended to allow the program to reach more students struggling with housing, especially those most deeply affected by housing challenges and those with less experience navigating higher education. The full-time enrollment, minimum GPA, and FAFSA requirements were all eliminated as conditions for application to the program, but remained as conditions for continued assistance once admitted. By the end of the last application period for students included in our evaluation, CHAP required full-time enrollment, a 2.0 cumulative GPA, and an attempt to file the FAFSA only after a participant had been in the program for two quarters.[2] It is unclear whether these requirements have been consistently enforced.

Since the last application period for students included in our evaluation, the program has implemented several more eligibility changes. Definitions of "homeless" and "near-homeless" have shifted; students fleeing domestic violence and those discharged from a public institution (such as a hospital or prison) without a housing plan are now considered homeless. These changes are important as homeless students continue to be prioritized for admission to CHAP. Additionally, students discharged from a public institution with a housing plan that provides for less than six months have been added to the "near-homeless" category. Currently, students must also be enrolled in at least six credits at the time of application.

During the past year, requirements for continued assistance have also been relaxed with the intent to keep students' housing stable through a variety of situations that may arise in their life, as well as during terms when class offerings are scheduled such that full-time enrollment is not necessary for their program of study. In April 2020, academic progress and enrollment requirements were temporarily suspended due to the pandemic. As of writing, this suspension is still in effect. When it is removed, CHAP participants must maintain part-time, rather than full-time, enrollment (six credits) throughout the duration of their assistance, and they are allowed to disenroll for up to two terms without losing their assistance. If their cumulative GPA falls below 2.0 but the program determines that they are actively seeking academic support,

they will not lose assistance. Lastly, participants are no longer required to take financial literacy courses or pursue a summer internship, as they had been previously.

Program Outreach and CHAP Application

The first step to participating in CHAP is learning about the program. Since CHAP serves a population whose challenges are often hidden, and offers services that are uncommon at community colleges, outreach is important.

In its pilot phase prior to our evaluation, TCC primarily used word-of-mouth and flyers to share information with students. As the program has become more mature, TCC has established and maintained relationships with area nonprofit service providers and college faculty and staff, which has resulted in numerous referrals. For colleges considering a similar strategy, we would also recommend implementing a texting program to spread awareness about the program. Furthermore, it is often helpful to proactively identify potentially eligible students using financial aid administrative data and/or a short in-class survey to assess needs for housing services. Also, all language used in outreach materials should be carefully considered. What messages will be used to reassure students that this program is legitimate and trustworthy? The amount of the housing subsidy should be clearly communicated, as students left wondering about the program's value are less likely to persist through all of the required steps of the process. Finally, originally the application existed only in paper form, and students had to come into the office on campus to complete it. Applications must be made available online as well as in-person.

Appendix C. Data Collection and Measures

EVALUATION DESIGN

Our evaluation of CHAP included the following components:

1. An *implementation* study included surveys and interviews to examine how the program operated and how students navigated it. Student quotes and anecdotes throughout the report are drawn from these interviews.

2. A *descriptive* study included surveys and administrative data to examine the program's outcomes for homeless students. These outcomes were tracked over time, but cannot be compared to another group since all eligible homeless students who applied to the program were admitted. This component of the evaluation included 126 homeless students.

3. A rigorous *experimental* study drew on survey and administrative data to estimate the program's causal impacts for near-homeless students. Since the program could not serve all near-homeless applicants, these applicants were put into a lottery to be randomly selected for program participation.[3] The outcomes of the applicants admitted to the program (program participants) are compared to applicants who were not admitted (program non-participants) in order to understand the program impact, independent of other factors. This component of the evaluation included 296 near-homeless students: 165 participants and 131 non-participants.

DATA COLLECTION

Administrative Records Data

Administrative records used in this evaluation come from three sources:

1. The CHAP application administered by TCC was used by the TCC Resource Navigator to determine program eligibility. Demographics from the application were used for randomization equivalence checks at the time of randomization; gender and age are drawn from this application for all data analyses.

2. Data from THA include information from their administrative records as well as the HUD application. We use these data to determine if students have received a voucher and/or leased up, as well as what type of housing they secured.

3. TCC administrative data include extensive information on the program applicants at baseline, which augments the CHAP application data. Additionally, TCC provides term-

to-term information on academic outcomes such as GPA, credits completed, and enrollment (used to measure term-to-term persistence).

CHAP Survey Data

Survey data are not included in this report; however, we are providing information about survey administration and measures for those interested in learning more about the full scope of our evaluation. The surveys were administered to all applicants (participants and non-participants) across three waves—baseline, follow-up 1, and follow-up 2. All surveys were in the field for approximately four to six weeks with variance due to when the survey fell relative to the academic terms (see Table C-1). The baseline survey was administered soon after the application was processed, the follow-up 1 survey was administered approximately six months after the baseline survey, and the follow-up 2 survey was administered approximately six months after follow-up 1. Each time a respondent completed a baseline survey they were awarded a $20 gift certificate; follow-up surveys received a $30 award.

Table C-1. Survey Administration Timeline by Application Cycle

Application Cycle	Baseline	Follow-Up 1	Follow-Up 2
1	January 2018	June 2018	January 2019
2	March 2018	October 2018	March 2019
3	June 2018	January 2019	June 2019
4	October 2018	May 2019	November 2019
5	March 2019	September 2019	March 2020
6	May 2019	November 2019	May 2020

Survey protocols assessed multiple factors pertaining to applicants' experiences with the program and with basic needs insecurity, including food and housing stability, employment, and mental health. Any questions that raised concerns about an individual's safety triggered an email response to the respondent recommending resources on the TCC campus. Table D-2 shows that survey response rates declined across survey waves.

Interview Data

During the first two years of the study, approximately twenty interviews were conducted with both program participants and program staff. These interviews inform the context and understanding of the program and program experiences throughout the report.

1. The Resource Navigator recruited program participants for interviews, which were then conducted by Dr. Sara Goldrick-Rab and other Hope Center employees. We interviewed

a small convenience sample of participants at baseline in application cycle 1 and conducted follow-up interviews with those available a year later. We recruited for additional interviews from other application cycles with limited success. In total, we interviewed 17 participants.

2. Program staff interviews were formally conducted in spring 2018. However, regular meetings between program staff (TCC and THA) and the Hope Center throughout the project have contributed to contextual understanding of challenges and the success of implementation.

Document Review

With support from the program staff and through careful monitoring of media and press, this document is informed by multiple resources, including news media, program documentation, and the like.

MEASUREMENT

Administrative Data

All academic outcomes are measured at the term level. Academic baseline data is measured cumulatively to the time of application.

Term GPA and Credits Completed are measured for each quarter. Quarter refers to academic quarters: fall, winter, and spring. While some participants (those from earlier application cycles) have more than two terms of data available, we have analyzed only the first two terms of outcomes for participants for simplicity as all participants hold these data. Subsequent analyses will include additional terms for examination. Participants not enrolled in a term receive a 0 for the term in their record.

Survey Data

- **Food security:** To assess food security in this report, we used the 18-item Household Food Security Survey Module from the U.S. Department of Agriculture (USDA).[4] It is important to note that while we mainly discuss insecurity, the standard is to measure the level of food security, referring to those with low or very low security as "food insecure." We used USDA guidelines for scoring responses in order to classify students' level of food security.

- **Housing stability:** To assess students' housing insecurity, we used a modified version of the Housing Security Scale, a series of survey questions designed to measure housing stability among young people.[5] We created a continuous 0–50 scale based on the sum of the responses.

- **Perceived stress:** To assess perceived stress, we used the four-item version of the Perceived Stress Scale 4 (PSS-4); creating a continuous scale ranging from 0 to 16 based on the sum of responses (Never, Almost never, Sometimes, Fairly often, Very often) to the following questions:[6]

    - In the last month, how often have you felt that you were unable to control the important things in your life?
    - In the last month, how often have you felt confident about your ability to handle your personal problems?
    - In the last month, how often have you felt that things were going your way?
    - In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

- **Sense of belonging:** We based our assessment of sense of belonging on the four-item Social and Academic Fit Scale.[7] We created a continuous scale ranging from 0 to 16 based on the sum of responses (Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly disagree) to the following statements:

    - People at TCC accept me.
    - I feel like an outsider at TCC.
    - I feel comfortable at TCC.
    - I feel like I belong at TCC.

- **Perceptions of Support:** We used agreement with the following prompts to measure perceptions of support from TCC. Respondents could answer any of these prompts with the options "very much," "quite a bit," "some," "very little," and "not at all"; respondents who answered "very much" or "quite a bit" to the following questions were coded as perceiving support:

    - How much does Tacoma Community College support you in the following ways?
        - Providing you the support you need to succeed at this college
        - Helping you cope with your non-academic responsibilities
        - Providing the financial support you need to afford your education

- **Employment:** Employment is measured dichotomously, with a "yes" response indicating any amount of work for pay, and a "no" indicating a complete lack of work for pay. We used a "yes" response to the following question, which is derived from questions the

Bureau of Labor Statistics uses to measure unemployment, to assess whether the respondent was recently employed.[8]

- In the last ***week***, did you have a job where you worked for pay or profit? (A job includes any job that you consider a job, including self-employment and work-study.) Include a job even if you were temporarily absent from it last week.

Appendix D. Missing Data and Attrition

Missing data for baseline characteristics have been imputed using multiple imputation with regression as recommended by What Works Clearinghouse (WWC, 2020).

There is very little attrition in the administrative data, as shown in Table D-1.

Table D-1: Overall and Differential Attrition Rates for Academic Outcomes

All Application Cycles	Total N	Baseline N	Baseline Attrition		Term 1 N	Term 1 Attrition		Term 2 N	Term 2 Attrition	
Overall	296	296	0		296	0		296	0	
Treated	165	165	0		165	0		165	0	
Control	131	131	0		131	0		131	0	
Differential Attrition			0	**		0	**		0	**
Application Cycle 1										
Overall	63	63	0		63	0		63	0	
Treated	34	34	0		34	0		34	0	
Control	29	29	0		29	0		29	0	
Differential Attrition			0	**		0	**		0	**
Application Cycle 2										
Overall	34	34	0		34	0		34	0	
Treated	17	17	0		17	0		17	0	
Control	17	17	0		17	0		17	0	
Differential Attrition			0	**		0	**		0	**
Application Cycle 3										
Overall	30	30	0		30	0		30	0	
Treated	8	8	0		8	0		8	0	
Control	22	22	0		22	0		22	0	
Differential Attrition			0	**		0	**		0	**
Application Cycle 4										
Overall	51	51	0		51	0		51	0	
Treated	33	33	0		33	0		33	0	
Control	18	18	0		18	0		18	0	

Differential Attrition			0	**		0	**		0	**
Application Cycle 5										
Overall	60	60	0		60	0		60	0	
Treated	34	34	0		34	0		34	0	
Control	26	26	0	**	26	0	**	26	0	**
Differential Attrition			0			0			0	
Application Cycle 6										
Overall	58	58	0		58	0		58	0	
Treated	39	39	0		39	0		39	0	
Control	19	19	0		19	0		19	0	
Differential Attrition			0	**		0	**		0	**

Note: Cautious Boundary for differential attrition standards denoted by **. Optimistic Boundary for differential attrition denoted by *. Does not meet Cautious Boundary for differential attrition standards denoted by >. Standards are based on What Works Clearinghouse Standards Handbook version 4.1. Academic attrition is measured as missing all three academic indicators used as dependent variables (enrollment, GPA, and credits attempted). Data were provided on enrollment status, term GPA, and credits attempted for all students, and thus no data are missing. Term 1 is defined as the first completed term after randomization, Term 2 the subsequent term, etc.

Attrition in the survey data, particularly differential attrition, requires that we consider estimates using these data for outcome measurement to be exploratory rather than confirmatory, per WWC standards. This is particularly true for follow-up 2 (Table D-2).

Table D-2: Overall and Differential Attrition Rates by Survey Wave

All Application Cycles	Total N	Baseline N	Baseline Attrition	Follow-Up 1 N	Follow-Up 1 Attrition	Follow-Up 2 N	Follow-Up 2 Attrition
Overall	296	242	18%	202	32%	204	31%
Treated	165	138	16%	110	33%	110	33%
Control	131	104	21%	92	30%	94	28%
Differential Attrition			4% **		4% *		5% *
Application Cycle 1							
Overall	63	52	17%	44	30%	42	33%
Treated	34	28	18%	22	35%	20	41%
Control	29	24	17%	22	24%	22	24%

Differential Attrition			0% **		11% >		17% >
Application Cycle 2							
Overall	34	27	21%	26	24%	27	21%
Treated	17	14	18%	14	18%	11	18%
Control	17	13	24%	12	29%	10	24%
Differential Attrition			6% *		12% >		6% *
Application Cycle 3							
Overall	30	24	20%	18	40%	17	43%
Treated	8	8	0%	7	13%	6	25%
Control	22	16	27%	11	50%	11	50%
Differential Attrition			27% >		38% >		25% >
Application Cycle 4							
Overall	51	44	14%	38	25%	40	22%
Treated	33	26	21%	20	39%	22	33%
Control	18	18	0%	18	0%	18	0%
Differential Attrition			21% >		39% >		33% >
Application Cycle 5							
Overall	60	48	20%	39	35%	39	35%
Treated	34	28	18%	23	32%	22	35%
Control	26	20	23%	16	38%	17	35%
Differential Attrition			5% **		6% *		1% **
Application Cycle 6							
Overall	58	47	19%	37	36%	39	33%
Treated	39	34	13%	24	38%	26	33%
Control	19	13	32%	13	32%	13	32%
Differential Attrition			19% >		7% *		1% **

Note: Cautious Boundary for differential attrition standards denoted by **. Optimistic Boundary for differential attrition denoted by *. Does not meet Cautious Boundary for differential attrition standards denoted by >. Standards are based on What Works Clearinghouse Standards Handbook version 4.1.

The level of missingness in baseline data depended on the data source. An especially large proportion of students were missing FAFSA information at baseline. For this reason, we

removed parental education and number of dependents (both of which were obtained from FAFSA data and had more than 25% missingness) from all analytic models.

Table D-3. Missingness for Covariates at Baseline

Characteristic		Participant		Non-Participant	
		Mean	Percent attrition	Mean	Percent attrition
Gender (%)	Female	80	18	72	20
Race/ethnicity (%)	White or Caucasian	34	1	35	5
	African American or Black	13	1	18	5
	Hispanic or Latinx	7	1	6	5
	Two or more races	27	1	23	5
	Other race/ missing race	20	0	23	0
Age		33	1	35	4
Marital Status (%)	Single	51	0	52	0
	Married	8	0	11	0
	Other/Unknown	41	0	37	0
Mother's Education (%)	Unknown	26	25	15	24
	Middle School	15	25	17	24
	High School	36	25	48	24
	College	24	25	20	24
High School Credential (%)	None	8	0	6	0
	GED	12	0	14	0
	Diploma	51	0	42	0
	Unknown	29	0	38	0
Missing FAFSA (%)		23	0	23	0
EFC		1,599	0	1,089	0
Has Dependents (%)		15	0	20	0
GPA at Application Term		2.77	1	2.38	6
Total Credits Completed		29	2	29	4
Received Benefits (%)	Free/Reduced Lunch	100	96	100	97

SNAP	100	97	100	96
WIC	100	98	100	98
SSI	100	95	100	96

Note: All variables in the above table refer to missing values at baseline. Mean refers to the mean percentage of non-missing data. Percentage missing for Has Dependents and EFC is reported only for those students who completed a FAFSA.

Appendix E. Student Characteristics

Table E-1 shows the characteristics of students who applied to CHAP, as well as the general TCC student body. In addition to the characteristics shown, which come from administrative data sources, 54% of applicants who took our initial survey indicated that they were parents—51% of homeless applicants and 56% of near-homeless applicants.

Table E-1. Characteristics of CHAP Applicants and All TCC Students

		Homeless	Near-Homeless	All CHAP Applicants	All TCC Students
Gender (%)	Female	60	75	71	64
Race/ethnicity (%)	White or Caucasian	26	34	32	44
	African American or Black	30	15	20	6
	Hispanic or Latinx	1	6	5	10
	Two or more races	28	25	26	8
	Other/Missing	16	21	19	32
Age		32	34	34	27
Marital Status (%)	Single	51	51	51	34
	Married	2	9	7	8
	Other	48	39	42	59
High School Credential (%)	Diploma	29	47	41	51
	GED	18	13	14	6
	None	16	7	10	19
	Unknown	37	33	34	25
EFC ($)		1,147	1,373	1,316	6,325
Term GPA (4.0 scale)		1.82	2.60	2.39	3.14
Term Credits Completed		13	13	13	11
N		**126**	**296**	**422**	**6,242**

Source: Administrative data
Notes: Information on race/ethnicity, term GPA, and other characteristics for study participants comes from TCC administrative data; the information shown is at baseline. Gender and age are drawn from program application data. Missing administrative data have been imputed using multiple imputation with regression as recommended by What Works Clearinghouse (2020). TCC demographic estimates for gender, race/ethnicity, and age are obtained from IPEDS' College Navigator website, and reflect only students enrolled in an undergraduate degree program. TCC demographics for marital status, high school credential, EFC, term GPA, and term credits completed are obtained from TCC administrative data. Cumulative percentages may not add up to 100 due to rounding.

Appendix F. Impact Analysis Details

Baseline Equivalence

To prepare for the experimental component of our evaluation, where we estimate the program's impact on academic and other outcome measures, we checked the two groups produced by randomization (near-homeless participants and non-participants) to ensure their similarity across basic demographic characteristics. The final column shows "effect size," a measure of difference between two randomized groups in terms of the prevalence of students with each characteristic. Group differences are small (less than a 0.25 effect size) with regard to gender, race/ethnicity, age, high school credential, marital status, lack of FAFSA application, Expected Family Contribution (EFC), and number of completed credits. Students were slightly more likely to be female, had slightly higher EFCs, and were on average one year younger. Therefore, following best practice, we control for these baseline characteristics in statistical models.[9] In addition, participants do appear to have a substantially higher GPA than their non-participant peers. Although we include controls for GPA in our model estimates, this means all impact estimates should be interpreted with caution as the balance across groups does not meet WWC standards regarding acceptable bias into our estimates.

Table F-1. Baseline Equivalence for Near-Homeless Students

		Participant	Non-Participant	Effect Size
Gender (%)	Female	78	71	0.21
Race/Ethnicity (%)	White or Caucasian	35	33	0.06
	African American or Black	14	17	0.16
	Hispanic or Latinx	6	6	0.01
	Two or more races	26	24	0.05
	Other/Missing	20	22	0.06
Age		33	35	0.20
Marital Status (%)	Single	50	53	0.06
	Married	8	11	0.17
	Other	41	37	0.14
High School Credential (%)	Diploma	49	44	0.14
	GED	13	13	0.04
	None	8	6	0.19
	Unknown	30	37	0.19
EFC ($)		1,599	1,089	0.12
Term GPA (4.0 scale)		1.82	2.38	0.29
Term Credits Completed		13	13	0.12

N	**165**	**131**	**—**

Source: Administrative data
Notes: Student background information on race/ethnicity, term GPA, and other characteristic records for study participants comes from TCC administrative data at baseline. Gender and age are drawn from the program application data. Effect size is estimated using Hedges G or Cox's Index as appropriate. The column "Effect Size" denotes effect sizes for binary and continuous measures. Missing data were imputed using multiple imputation with regression as recommended by What Works Clearinghouse (2020). Categories may not total 100% due to rounding.

Classification of Crossovers

Table F-2 examines the distribution of admissions probability of near-homeless students across cycles. It also shows the number of applicants who were denied admission in one cycle but reapplied and were admitted in a later cycle; these individuals are termed "crossovers" and their role in the analysis is discussed later. The average admissions probability for near-homeless applicants was 59%. Because students could reapply, there were 324 applications across the admissions cycles among 295 unique applicants. There were a total of 15 crossovers: 12 reapplied as near-homeless students; three reapplied after they became homeless and were automatically admitted to the program. Those 15 individuals (5% of the total applicants) are included in the total count and classified as non-participants (their initial designation) in analyses.

TABLE F-2. Admissions Probability and Crossovers, By Admissions Cycle, Among Near-Homeless Applicants

		Application Cycle						All Application Cycles
		1	2	3	4	5	6	
Percentage admitted to program (%)		54	50	27	65	57	67	56
Crossovers:	To Homeless	0	1	0	1	0	1	3
	To Near-Homeless Treatment	0	3	1	2	4	2	12
Applicants:	Unique	63	34	30	51	60	58	296
	Total	**63**	**37**	**33**	**55**	**71**	**65**	**324**

Source: Administrative data
Notes: "Unique" represents the number of students who applied one or more times to the program; "Total" includes every application during the application cycles represented here. Crossovers include applicants initially identified as control and later treated. There are 12 observations that were applicants twice but not crossovers and are not shown in the crossovers section here. Four of these were homeless at their first application, and re-entered an application as near-homeless at a later time. Of those, three were assigned to the control condition and one assigned to treatment. There are also nine students who applied twice but

were assigned to control both times. There is one applicant who enters the pool three times; this applicant is included in the non-participant count in Cycle 3, in the homeless count (as a crossover) in Cycle 4, and in the non-participant count again in Cycle 6 (only shown in total). Remaining duplicate applicants are shown in the crossovers line in this table.

Analytic Techniques

Results shown in Figure 4 ("Impact of CHAP on Academic Outcomes for Near-Homeless Participants") derive from an Intent-To-Treat (ITT) analysis, described here. In order to estimate the short-term and long-term impacts of CHAP, Equation (1) is estimated using generalized linear models, which incorporate linear and logistic regressions in a single framework and thus permit consistency of analytical approach across all outcomes analyses. Equation 1 represents the unadjusted models and Equation 2 the adjusted models:

(1) $$g(Y_i) = \beta_0 + \beta_{1i}(CHAP_i) + \varepsilon_i$$

(2) $$g(Y_i) = \beta_0 + \beta_{1i}(CHAP_i) + \sum_{j=1}^{m} \beta_j X_{ij} + \varepsilon_i$$

The Y_i represents an outcome for student i (i = 1…n); $CHAP_i$ is an indicator variable for whether a participant was assigned to the treatment group; X_{ij} is a vector of j = 1…m additional participant-level covariates that did not meet WWC baseline equivalence thresholds; and ε_i is a term for participant-specific random error. This approach is generally recommended to account for differences at baseline.[10] The $g(Y_i)$ represents a link function for relating the linear predictor (i.e., the right-hand side of the equation excluding ε_i) to the outcome variable when the outcome is binary.

The effect of the Treatment is quantified by $\beta_{1i}(CHAP_i)$, the average improvement in outcome y_i for the treatment group relative to the control. If CHAP is effective, estimates of $\beta_{1i}(CHAP_i)$ are expected to be positive and statistically significant for outcomes with the exception of the survey outcome food security. Analyses were also tested including an indicator for missing survey outcomes yielding no substantive differences, and they are thus not shown here.

There were a small number of modifications to the analysis conducted in this report that differed from what was pre-specified in our submission to the Open Science Foundation (OSF). First, our original plan was to include controls for receipt of public benefits, number of dependents, and parental education in our model estimates. However, Hope Center guidelines restrict publication of means or coefficient estimates for cell sizes below 10 students. Small cell size (less than 10) resulted in poor modeling estimates, and therefore these variables were not included in our final models presented in this brief. Second, we intended to include controls for college placement exam scores; however, this variable was not available. Lastly, our pre-specified methods in OSF stated we would use OLS to estimate effects. However, as we have a number of dichotomous outcomes we have elected to use GLM with the logit link for these estimates.

Appendix G. Tables on Data Used in Figures

TABLE G-1. Stages of Navigating CHAP (Figure 2)

	Homeless (%)	Near-Homeless (%)	
		Participant	Non-Participant
Participation	100	100	0
Voucher	63	56	12
Housed (Voucher)	25	25	11
Housed (Property-Based Subsidy)	2	0	1
N	**126**	**165**	**131**

Source: Administrative data (THA)

TABLE G-2. CHAP Participant Characteristics by Housing Status

For Near-Homeless Participants (Figure 3)

		All Participants	Obtained Voucher	Housed
Gender (%)	Female	78.18	78.49	82.93
Race/Ethnicity (%)	White or Caucasian	33.74	31.18	39.02
	African American or Black	13.50	13.98	7.32
	Hispanic or Latinx	6.75	5.38	7.32
	Two or more races	26.99	27.96	29.27
	Other/Missing	20.00	21.51	17.07
Age		33	35	35
Term GPA (4.0 scale)		2.77	2.81	3.17

Source: Administrative data (TCC & THA)
Notes: Student background information on race/ethnicity and term GPA come from TCC administrative data at baseline. Gender and age are drawn from the program application data. Missing data were imputed using multiple imputation with regression as recommended by What Works Clearinghouse (2020). "Housed" includes only participants who were housed with a voucher; it does not include those housed with property-based subsidies (n=5 for the full evaluation sample). The sample for this table includes all near-homeless students assigned to treatment (n=165). Categories may not total 100% due to rounding.

For Homeless Students (Reference)

		All Participants	Obtained Voucher	Housed
Gender (%)	Female	60.32	61.25	70.00
Race/Ethnicity (%)	White or Caucasian	25.60	28.75	26.67
	African American or Black	30.40	26.25	30.00
	Hispanic or Latinx	0.80	0.00	0.00
	Two or more races	28.00	27.50	40.00
	Other/Missing	15.87	17.50	3.33
Age		32	34	35
Term GPA (4.0 scale)		1.82	1.96	2.45

Source: Administrative data (TCC & THA)
Notes: Student background information on race/ethnicity and term GPA come from TCC administrative data at baseline. Gender and age are drawn from the program application data. Missing data were imputed using multiple imputation with regression as recommended by What Works Clearinghouse (2020). "Housed" includes only participants who were housed with a voucher; it does not include those housed with property-based subsidies (n=5 for the full evaluation sample). The sample for this table includes all homeless students (n=126). Categories may not total 100% due to rounding.

TABLE G-3. Impact of CHAP on Academic Outcomes for Near-Homeless Participants, One and Two Quarters After Application

Adjusted Results (Figure 4)

	Mean		CHAP Impact	p value	N
	Non-Participant	Participant			
One Quarter After Application					
Enrolled or Graduated (%)	77	77	0	0.93	204
Term GPA (4.0 scale)	2.64	2.66	0.01	0.93	177
Term credits completed	13	12	-1	0.03	177
Two Quarters After Application					
Enrolled or Graduated (%)	72	69	-4	0.46	226
Term GPA (4.0 scale)	2.60	2.71	0.12	0.57	146
Term credits completed	12	12	-1	0.15	146

Source: Administrative data (TCC)
Notes: This table reports on adjusted intent-to-treat (ITT) estimates. Term GPA and term credits completed impacts are derived from linear regression models. Enrollment impacts are derived from logistic regression models. Enrollment or graduation is reported as probability, term GPA is reported in GPA points, and term credits completed is reported in number of credits. This model controls for cohort and variables not equivalent at baseline: gender, race, age, GPA at baseline, high school education, marital status, and

Expected Family Contribution (EFC). See Appendix F for more information about variables excluded from analysis due to small cell size. Missing baseline data have been imputed using multiple imputation with regression as recommended by What Works Clearinghouse (2020); no outcomes were imputed. "Enrolled or Graduated" represents the percentage point difference between students in the treatment group and control group who were currently enrolled or who had completed a degree or certificate. Enrollment at TCC was a condition of admission to the program; however, since outcome data comes from enrollment records at the end of the quarter, not all students were enrolled at that time. Term GPA and credits completed are based on enrolled students only. Quarter refers to academic quarters: fall, winter, and spring.

Unadjusted Results (Reference)

	Mean		CHAP Impact	p value	N
	Non-Participant	Participant			
One Quarter After Application					
Enrolled or Graduated (%)	73	82	8	0.07	296
Term GPA (4.0 scale)	2.68	2.52	-0.16	0.42	185
Term credits completed	13	12	-1	0.09	228
Two Quarters After Application					
Enrolled or Graduated (%)	65	69	4	0.46	296
Term GPA (4.0 scale)	2.61	2.66	0.05	0.80	185
Term credits completed	12	12	0	0.43	185

Source: Administrative data (TCC)
Notes: This table reports on unadjusted intent-to-treat (ITT) estimates. Term GPA and term credits completed impacts are derived from linear regression models. Enrollment impacts are derived from logistic regression models. Enrollment or graduation is reported as probability, term GPA is reported in GPA points, and term credits completed is reported in number of credits. This model controls for cohort only. Missing baseline data have been imputed using multiple imputation with regression as recommended by What Works Clearinghouse (2020); no outcomes were imputed. "Enrolled or Graduated" represents the percentage point difference between students in the treatment group and control group who were currently enrolled or who had completed a degree or certificate. Enrollment at TCC was a condition of admission to the program; however, since outcome data comes from enrollment records at the end of the quarter, not all students were enrolled at that time. Term GPA and credits completed are based on enrolled students only. Quarter refers to academic quarters: fall, winter, and spring.

TABLE G-4. Academic Outcomes for Homeless Students Over Time: Quarter of Application and Two Quarters After Application (Figure 5)

	Quarter of Application	Two Quarters After Application
Term GPA (4.0 scale)	1.82	1.90
Enrolled or Graduated (%)	86	56

Term Credits Completed	13	13

Source: Administrative data (TCC)
Notes: Term GPA and credits completed are based on enrolled students only. "Enrolled or Graduated" represents the percentage of students who were currently enrolled or who had completed a degree or certificate two terms after baseline. Enrollment at TCC was a condition of admission to the program; however, since data come from enrollment records at the end of the quarter, not all students were enrolled by that time. This table reports observed outcomes only (no imputation). Quarter refers to academic quarters: fall, winter, and spring.

[1] Information throughout this section comes from CHAP program documents and communications with staff.

[2] Full-time enrollment is measured as at least 12 credits or submission of an education plan showing the classes needed to complete their degree do not require full-time attendance.

[3] Students who were not admitted in one application cycle could reapply in another cycle. Per What Works Clearinghouse standards, we classify students as participants or non-participants according to their original designation. Fifteen individuals were denied application in one cycle but later admitted; they are designated as non-participants in our data.

[4] U.S. Department of Agriculture, Economic Research Service. (2017). U.S. adult Food security survey module: Three-stage design with screeners.

[5] Frederick, T. J., Chwalek, M., Hughes, J., Karabanow, J., & Kidd, S. (2014). How stable is stable? Defining and measuring housing stability. *Journal of Community Psychology, 42*(8), 964–979.

[6] Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*(4), 385–396.

[7] Pyne, J., Rozek, C. S., & Borman, G. D. (2018). Assessing malleable social-psychological academic attitudes in early adolescence. *Journal of School Psychology,* 71, 57–71.

[8] U.S. Bureau of Labor Statistics. (2014). *How the government measures unemployment.* Current Population Survey (CPS) Technical Documentation.

[9] What Works Clearinghouse. (2020). *What works clearinghouse standards handbook, version 4.1*. U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance. We had planned to assess equivalence using parental education and number of dependents, but the administrative data offered inconsistent information for the sample. We will work to address this in subsequent analyses.

[10] Wang, J. (2020). Covariate adjustment for randomized control trials revisited. *Pharmaceutical Statistics, 19*(3), 255–261.