The Green Jobs and Health Care Impact Evaluation: Findings from the Impact Study of Four Training Programs for Unemployed and Disadvantaged Workers

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Executive Summary

This report summarizes the final results for the Green Jobs and Health Care (GJ-HC) Impact Evaluation, a study of selected grantees funded by two job training initiatives administered by the Employment and Training Administration (ETA) at the U.S. Department of Labor (DOL). In response to the 2008 recession and as part of the American Recovery and Reinvestment Act of 2009, DOL provided grants to partnerships of workforce agencies, community colleges, non-profits, and other organizations to offer vocational training designed to improve the employment and earnings of unemployed workers and other individuals facing barriers to employment. The Pathways Out of Poverty grant initiative funded training to prepare individuals for employment in green industries, such as energy efficiency and renewable energy; and the Health Care and Other High Growth and Emerging Industries grant initiative focused on providing training in healthcare and other high-growth fields. (See the boxes below for descriptions of the two initiatives.)

DOL sponsored a single rigorous evaluation of selected grantees of these two job training initiatives. The impact evaluation reported on here used a random assignment design, which is widely considered to be the strongest method for determining whether a program makes a difference in the earnings and other outcomes of program participants. Four grantees from the two grant initiatives were purposively selected for evaluation based on their program design and scale. Conducted by Abt Associates and its partner Mathematica Policy Research, the evaluation examines the impacts for each selected grantee program separately.

Two grantee programs focused on training in the healthcare fields: the Soil to Sky program, operated by the American Indian Opportunities Industrialization Center (AIOIC) in Minnesota, and the Health Matrix Grant operated by North Central Texas College (NCTC). The other two programs provided training in green-related industries: the Pathways to Prosperity program at Grand Rapids Community College (GRCC) in Michigan, and the Clean Energy Center program at the Kern Community College District (KCCD) in California. Three grantees used the grant funds to provide training services and related supports, while one, NCTC, used the grant funds to provide partial scholarships to participants to attend existing training programs.

The goals of this report are to (1) document the impact of each of the four grant-funded programs on participation in training and receipt of credentials over an 18-month follow-up period; (2) determine the extent to which access to these services resulted in impacts on participants' employment and earnings, household income, public benefit receipt, and other outcomes over the same period; and (3) discuss implications of the results for policymakers and program operators. The report also summarizes findings from an examination of program implementation, described more fully in a separate evaluation report. Although the study findings are not representative of all grantee programs funded by the two grant initiatives, they nevertheless provide valuable insights about grantee experiences implementing their programs, and about the impacts that access to training and other services may have on employment, earnings, and other outcomes of unemployed individuals and others facing barriers to work.

The evaluation found that all four grantee programs had large positive impacts during the 18-month follow-up period on participation in vocational training; receipt of training-related supports, particularly financial assistance to attend the training, career counseling, and job placement assistance; and the receipt of vocational credentials. However, the evaluation detected statistically significant positive impacts on employment and earnings within the same time period for only one grantee, KCCD.

Policy Context: A Career Pathways Approach

A central challenge in building a strong U.S. economy is identifying strategies that provide opportunities to unemployed and low-skilled individuals to enter and advance in the labor market, while also meeting the needs of economic sectors with a strong demand for skilled workers.

To address these twin goals, policymakers and practitioners have developed occupational training programs that combine articulated employment steps targeted to locally in-demand jobs, support services, and strong connections to employment. Sometimes known as "career pathways" programs, these provide training and supports that allow low-skilled workers to find jobs and advance in careers that pay enough to support a family, while also focusing on occupations in high-demand sectors in order to meet the economy's need for skilled workers.

Job-related training is not a new approach to improve the economic well-being of low-wage workers, and past efforts have had mixed results. Previous research has found that some job training programs have produced small, favorable earnings impacts, while many found no evidence of impact.[1] Although there is no rigorous evidence on what factors are related to positive outcomes, a range of issues appear to influence the effectiveness of these programs.[2] Low-wage workers might be unaware of training opportunities and the types of credentials that are in demand in the labor market, resulting in low enrollment in training programs. In addition, low-wage workers might face challenges to their successful completion of education and training programs. These challenges include limited academic skills, negative past school experiences, work and family demands on time, and financial constraints.

Career pathways programs reflect an approach to training that seeks to improve on past efforts by bringing together training innovations and supports that directly address challenges faced by low-skilled adults, many of whom do not earn enough to support themselves and their families.[3] The career pathways approach can include training comprising a series of manageable steps and credentials; the integration of occupational skills and basic skills instruction; supports to help students complete training; direct connections to employment; and financial assistance. To date there have been no rigorous evaluations of programs using this approach, although several such evaluations are in progress. However, a number of studies have shown positive effects for different elements of the approach, suggesting its potential in improving participants' outcomes and generating program impacts.[4]

Although the grantees under the two initiatives had flexibility in the design and operation of their programs, DOL directed them to develop projects that supported participants' advancement along a defined career pathway, resulted in an employer- or industry-recognized credential or degree, and integrated training activities with supports to attend training and find employment.

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1 Card et al., 2010; Greenberg et al., 2003

2 Fein, 2012

3 Fein, 2012; Werner et al., 2013

4 Martin and Broadus, 2013; Miller et al., 2011; Patel and Rudd, 2012; Richburg-Hayes et al., 2009; 2015; Zeidenberg et al., 2010

Overview of the Green Jobs and Health Care Impact Evaluation Design

The Green Jobs and Health Care Impact Evaluation used a random assignment research design to determine whether each of the four programs had positive impacts on participation in education and training activities, credential and degree receipt, and employment and earnings. To produce reliable estimates of the effectiveness of the four grantee programs in each of these areas, program applicants at each grantee program were randomly assigned to one of two groups: (1) a treatment group who were offered the opportunity to participate in the program's grant-funded services (whether or not they actually participated), or (2) a control group who were not allowed to participate in the program's grant-funded services (but could access other services available in the community). The random assignment process ensures that no systematic differences existed between the two groups at the time they entered the study. As a result, observed differences between the outcomes of the two groups after random assignment (impacts) can be attributed directly to the program.

DOL's **Pathways Out of Poverty** grant initiative targeted economically disadvantaged populations in high-poverty areas, specifically individuals who were unemployed, high school dropouts, and those who were formerly incarcerated. It directed grantees to provide training in energy efficiency and renewable energy that supported advancement along a defined career pathway and that resulted in an industry-recognized credential.

As appropriate, the 55 funded programs were to integrate basic skills and work-readiness training with occupational skills training, and combine supportive services with training services to help participants overcome barriers to employment.

GRCC received a grant under this initiative.

DOL's **Health Care and Other High Growth and Emerging Industries** grant initiative targeted unemployed workers, dislocated workers, and incumbent workers in need of skill upgrades to advance within a career.

With the goal of developing a pipeline of credentialed healthcare workers and workers for other high-growth industries, DOL directed the 38 grantees who received awards to develop projects that supported participants' advancement along a defined career pathway, resulted in an employer- or industry-recognized certificate or degree, and integrated training activities with supportive services to help participants overcome barriers to participation in training and employment.

AIOIC, KCCD, and NCTC received grants under this initiative.

The four grantee programs were purposively selected for the evaluation, in coordination with DOL, based on three primary factors: the extent to which they operated a career pathways approach, sufficient program size for the impact evaluation, and ability to implement the study's procedures, particularly conducting random assignment.

Random assignment of program applicants began in summer 2011, lasting for 9 months in GRCC and 22 months in the other three programs. NCTC had a sample size (including both treatment and control groups) of 995, and KCCD had 829. The other two grantee programs, AIOIC and GRCC, did not enroll as many individuals as had been expected at the time they were selected to be part of the study; final sample sizes were 542 at AIOIC and 277 at GRCC. Particularly for GRCC, the sample size limits the study's ability to detect all but large impacts.

This evaluation estimates program impacts separately for each grantee program 18 months after random assignment. The data sources for the impact study are a baseline survey administered to treatment and control group members at the time of random assignment; a follow-up survey administered to members approximately 18 months after random assignment; and quarterly administrative wage record data on employment and earnings, available through the National Directory of New Hires. The study also included site visits to grantees, and an analysis of participation patterns based on program administrative data.

The evaluation designated a "confirmatory" outcome in order to prioritize the study findings and indicate program effectiveness. Specifically, prior to conducting any impact analysis, the research team, in conjunction with DOL, designated that *cumulative earnings in the fifth and sixth calendar quarters (13–18 months) after random assignment*, as measured in administrative data, would be the single confirmatory outcome. The choice of this confirmatory outcome reflects the primary goal of the DOL grant programs: to increase the earnings of program participants and allows individuals to find employment and experience earnings gains given the length of the training programs. On average, across the grantees, training lasted two to three months (see further discussion below).

Grantee Programs: Their Participants and the Services Provided

The four grantee programs targeted a diverse set of individuals and provided a range of training and other services. Exhibit ES.1 presents selected characteristics of those assigned to the treatment group in each of the grantee programs. The services provided and participation patterns for the treatment group are summarized in text boxes. The study's implementation report covers these topics in detail.

Although all the grantees targeted disadvantaged populations, the specific populations they served varied considerably. Moreover, the grantees operated in diverse environments and used different organizational partnerships to operate their programs. The individuals served by each of the programs reflected the nature of the training provided (e.g., the grantees providing training in healthcare served a larger proportion of women); the training-specific enrollment requirements; and the populations in the community in which they operated. Specifically:

- GRCC, the only program funded by the Pathways Out of Poverty grant initiative, served a more disadvantaged population than did the other grantees. Participants at GRCC were older and primarily male, almost two-thirds were receiving public benefits, and one-third had been previously convicted of a felony.
- KCCD served a primarily male population, most of whom were unemployed when they enrolled in the program (82 percent), and almost half were receiving some type of public benefits.
- Reflecting the community in which it operated, AIOIC served a primarily minority population, and more than half of participants were receiving public benefits at the time of enrollment.
- NCTC served the least disadvantaged population: 44 percent of participants were unemployed, 50 percent had some college experience, and less than a quarter were receiving public benefits at the time of enrollment.

Three of the programs (GRCC, KCCD, and NCTC) were operated by community colleges and served relatively large geographic areas; one (AIOIC) was operated by a non-profit agency in a large city. GRCC's program included partnerships with several organizations; the other three programs provided all services themselves.

Exhibit ES.1: Selected Characteristics of Treatment Group Members at the Time of Random Assignment, by Grantee Program

Characteristic	AIOIC	GRCC	KCCD	NCTC
Female (%)	79.0	29.0	10.4	83.8
Average age (years)	32.3	40.8	32.0	31.2
Race/ethnicity (%)				
White	20.9	57.0	72.9	69.5
Black or African American	58.2	36.9	10.9	18.3
Hispanic ethnicity	7.0	15.1	44.9	20.6
U.S. citizen (%)	77.1	88.7	93.9	91.5
Employed (%)	43.3	26.7	17.7	55.8
Education level (%)				
Less than high school	6.3	11.3	2.7	3.4
High school diploma or GED	27.8	25.8	46.1	26.1
Some college but no degree	37.8	31.2	32.5	49.8
Receiving any public benefits (%)	53.9	62.9	45.9	22.0
Felony conviction (%)	1.5	29.2	12.3	0.4

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form.
Note: Percentages do not sum to 100 percent for race/ethnicity and education level because not all response categories are included. Estimates in this table are computed based on the 271 AIOIC treatment group members, 186 GRCC treatment group members, 414 KCCD treatment group members, and 555 NCTC treatment group members who completed the baseline survey given at the time of random assignment. Statistical tests indicate that the characteristics of the treatment and control groups are similar for each grantee program.

All grantees' programs featured a series of connected training courses that could be taken in sequence, but with notable differences across the programs. The most structured program was at KCCD, which provided a defined sequence of short-term trainings in wind and solar technology. GRCC's program included eight-week work and school readiness classes in addition to vocational training. All programs resulted in a grantee organization–specific credential upon completion. For many occupations (particularly in healthcare), participants had the option also to take a state licensing exam to achieve an employer-recognized credential.

Most participants attended training for short periods. Participants in three of the grantee programs (AIOIC, GRCC, and KCCD) progressed through some sequenced training "steps." For example, at KCCD, two-thirds of those who participated attended two or more of the green trainings. Similarly, in AIOIC, 60 percent of participants took two or more short-term healthcare trainings. Despite their multiple training steps, the duration of the overall programs was relatively short. The average length of stay in the grant-funded programs ranged from 2.4 months at NCTC to 3.3 months at GRCC, with few participants attending longer than 6 months. Completion rates were relatively high overall. Close to 90 percent of KCCD participants completed their trainings; the other grantee programs had high rates of completion, although not consistently across all individual courses or sequences of courses.

American Indian Opportunities Industrialization Center, Minneapolis, MN
Soil to Sky Program

Organization and Context: AIOIC is a non-profit organization located in a low-income South Minneapolis neighborhood. Although originally established to serve American Indians, AIOIC now offers education and employment services to a diverse population.

Training Programs: Soil to Sky trainings in healthcare fields ranged from short-term programs (one to six weeks) to longer term programs (six and nine months). The short-term programs were Acute Care Nursing Assistant, Home Health Aide, First Aid and CPR, Nursing Assistant, Personal Care Assistant, and Trained Medication Aide. Short-term training programs could be taken in a sequence to gain multiple certificates. The long-term training programs were the Health Occupations Program (which combined several short-term programs) and the Medical Office Assistant program. Training resulted in either an AIOIC certificate or eligibility to sit for the relevant state examination.

Supports: Training was offered at AIOIC at no cost to participants. Advisors provided tutoring and support on academic-related issues, while other dedicated staff provided assistance with personal issues. Dedicated staff provided one-on-one counseling on all aspects of the job search process. Each week, AIOIC offered a two-hour work readiness class that was required for participants in short-term training and optional for those in long-term training. Staff also identified and established relationships with numerous healthcare employers to identify clinical placements and job openings, build the reputation of the Soil to Sky program, and guide program services.

Participation Patterns: Of those who participated, the most (89 percent) attended the short-term programs, with 60 percent attending two or more training programs, within a 12-month follow-up period. Completion rates were highest among those who attended two training programs (80 percent). Average length of stay was 3.2 months.

While their service delivery approaches varied, all grantees provided a range of supports, including advising on academic and personal issues, and financial assistance. Job readiness and job search skills were also important program components, and some grantees had strong connections with the employer community. All of the grantees provided full or partial financial assistance to attend the training. The grantee approaches to advising students while they were in training varied: having designated staff who focused on addressing these issues (AIOIC), using partner organizations in this role (GRCC), and having training instructors address the issues as part of the courses (KCCD). All of the grantees offered services focused on job readiness and job search skills. Several also provided one-on-one job search assistance. Staff at AIOIC and KCCD developed connections with numerous employers in their respective industries.

Impacts of the Grantee Programs

The evaluation assesses the programs' impacts on receipt of training and other services, employment, earnings, and other related outcomes. All four grant-funded programs had impacts on service receipt and credential attainment, and one had an impact on the study's confirmatory outcome, earnings in the fifth and sixth calendar quarter after random assignment. With a few exceptions, no statistically significant impacts were found for other employment-related outcomes such as household income or receipt of public benefits.

Exhibit ES.2: Impacts on Participation in Education and Training and Receipt of Training-Related Supports Within an 18-Month Follow-Up Period, by Grantee

Outcome	AIOIC Treatment Group	AIOIC Control Group	AIOIC Difference	GRCC Treatment Group	GRCC Control Group	GRCC Difference	KCCD Treatment Group	KCCD Control Group	KCCD Difference	NCTC Treatment Group	NCTC Control Group	NCTC Difference
Education and Training												
Participated in any education or training activity (%)	92.8	66.6	26.2***	89.8	38.9	50.9***	95.0	43.8	51.2***	94.2	64.4	29.8***
Participated in vocational training (%)	63.5	37.9	25.6***	49.0	15.9	33.1***	83.6	29.5	54.1***	73.4	44.0	29.3***
Supports												
Received financial assistance to attend education and training (%)	83.6	53.2	30.0***	81.3	22.4	58.9***	86.1	28.8	57.3***	80.7	29.9	50.8***
Received academic advising (%)	54.7	38.3	16.3***	42.5	26.5	16.0*	25.5	18.9	6.6*	44.6	28.2	16.4***
Received career counseling (%)	48.0	28.3	19.7***	52.4	20.9	31.5***	51.2	14.7	36.5***	33.9	18.5	15.4***
Received job placement assistance (%)	50.1	19.7	30.4***	44.8	12.0	32.8***	63.3	14.9	48.3***	41.5	12.7	28.8***

Source: Green Jobs and Health Care 18-Month Follow-Up Survey.

Note: Estimates in this exhibit are based on the following sample sizes: For AIOIC, the total sample of 345 individuals includes 187 treatment group and 158 control group members. For GRCC, the total sample of 189 individuals includes 130 treatment group and 59 control group members. For KCCD, the total sample of 570 individuals includes 294 treatment group and 276 control group members. For NCTC, the total sample of 750 individuals includes 436 treatment group and 314 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts (treatment–control differences) may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

The programs had large impacts (ranging from 26 to more than 50 percentage points) on participation in education and training activities, particularly vocational training. Exhibit ES.2 shows the proportion of treatment and control group members who reported that they had participated in any education and training activity within the 18-month follow-up period. For this analysis, education and training activities included vocational training, basic skills instruction (Adult Basic Education or GED classes), college-level classes, or school or job readiness courses. Across the sites, the impact (the difference between the treatment and control group outcomes) on participation in any education or training activity ranged from 51 percentage points in GRCC and KCCD to 26 percentage points in AIOIC. These impacts were primarily driven by an impact in the receipt of vocational training, the focus of the DOL grant initiatives. The KCCD program produced the largest impact on participation in vocational training (54 percentage points).

For GRCC and KCCD, the programs more than doubled participation in education or training activities for the treatment group relative to the control group. Smaller impacts on participation in education and training activities are observed for AIOIC and NCTC, in large part due to the relatively high level of participation in education and training activities by the control group (approximately two-thirds of the control group at each site participated in these activities). Both AIOIC and NCTC provided healthcare training; the smaller impact on education and training received may reflect the availability of other healthcare training programs in the community that control group members could and did access. (For GRCC and KCCD, there may have been fewer alternatives for those seeking green-related training.)

Grand Rapids Community College, Grand Rapids, MI
Pathways to Prosperity Program

Organization and Context: GRCC serves residents of Kent County, which includes Grand Rapids, where the school's main campuses are located, as well as several surrounding counties. Pathways to Prosperity was led by the School of Workforce Development. Partner organizations contributed to delivering career coaching and support services.

Training Programs: Pathways to Prosperity offered basic skills classes in GED preparation, Adult Basic Education, and English as a Second Language instruction to boost basic academic skills. It also offered an eight-week Career Prep program focused on school and work readiness. Participants who were prepared for college-level coursework—either upon enrollment or after completing basic skills classes—could enroll in occupational training programs in green-related sectors. Completion of Career Prep resulted in employability certificates, and some occupational trainings prepared participants to take industry certification exams.

Supports: Training was offered at no cost to participants. GRCC staff and staff at partner organizations helped participants navigate the selection of trainings, and provided support during training. These staff also assisted participants in finding employment, including giving guidance on searching for jobs and submitting an application.

Participation Patterns: Of those who participated in Pathways to Prosperity, 61 percent attended one program (primarily Career Prep), and 30 percent attended Career Prep and occupational training, within a 12-month follow-up period. The completion rate was 50 percent for Career Prep on its own and 80 percent for those who attended both Career Prep and occupational training. Average length of stay was 3.3 months.

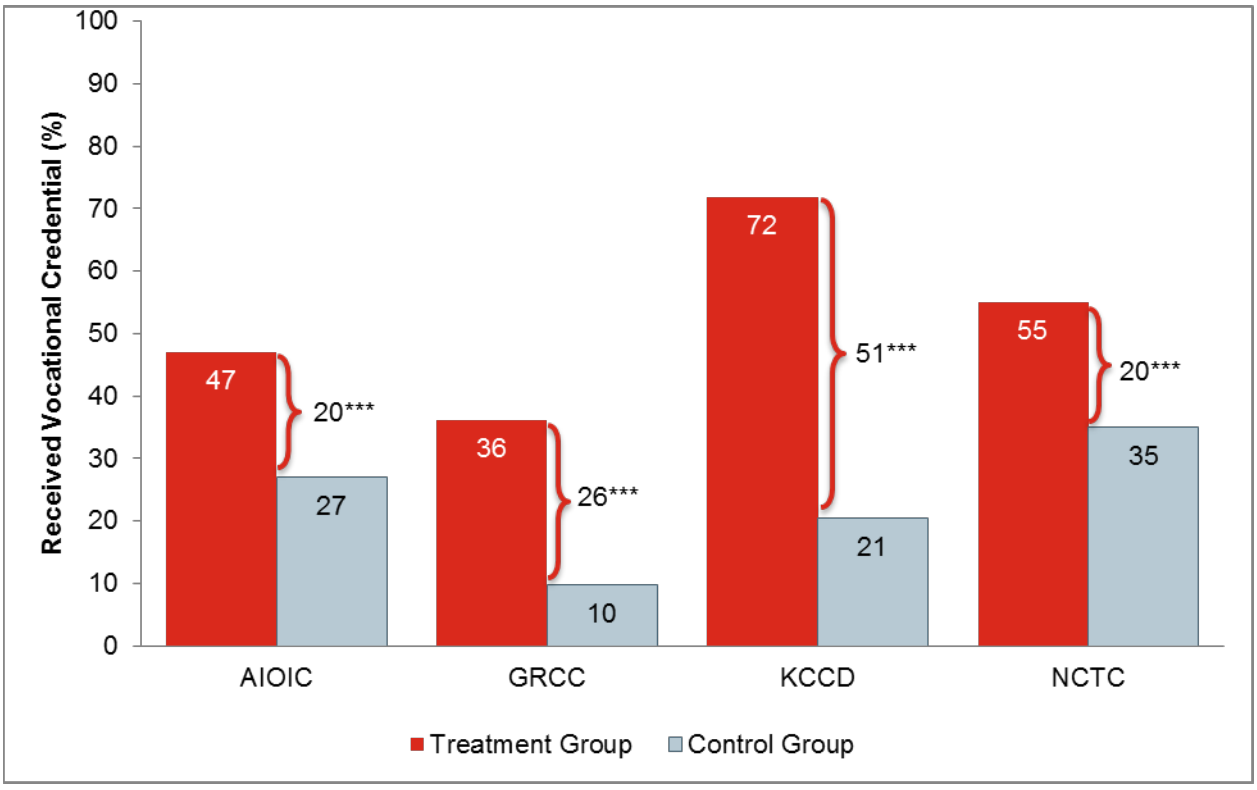
The grantee programs had positive impacts on the receipt of training-related support services, particularly financial assistance, career counseling, and job placement assistance. An important aspect of the career pathways approach is the range of supports provided to those in training to facilitate engagement and completion. Exhibit ES.2 presents the proportions of treatment and control group members who reported that they received financial assistance to attend training, academic advising, career counseling, and/or job placement assistance within the 18-month follow-up period. All four grantee

programs produced impacts on receipt of these services, although at varying levels of magnitude. The largest impacts detected are for the receipt of financial assistance. The GRCC, KCCD, and NCTC programs produced impacts of more than 50 percentage points on this measure. AIOIC had the smallest impact, in part due to the large proportion of control group members who reported that they had received financial assistance to attend a different training program.

The KCCD program had the largest impacts on receipt of job placement assistance (a 48 percentage point impact) and career counseling (37 percentage points); the other three grantee programs also had impacts on these measures. Except for NCTC, the programs had smaller impacts on the receipt of academic advising than on the other supports.

All four programs had positive impacts on receipt of vocational credentials. As shown in Exhibit ES.3, a higher percentage of treatment than control group members reported that they had received a vocational credential during the follow-up period. Across the four grantee programs, the level of these impacts ranged from 51 percentage points in KCCD to 20 percentage points in NCTC. These vocational credentials included credentials provided by the institution where they attended the training, as well as any state licensing exams required in order to be certified in a specific field.

Exhibit ES.3: Impacts on Receipt of Vocational Credentials Within an 18-Month Follow-Up Period, by Grantee

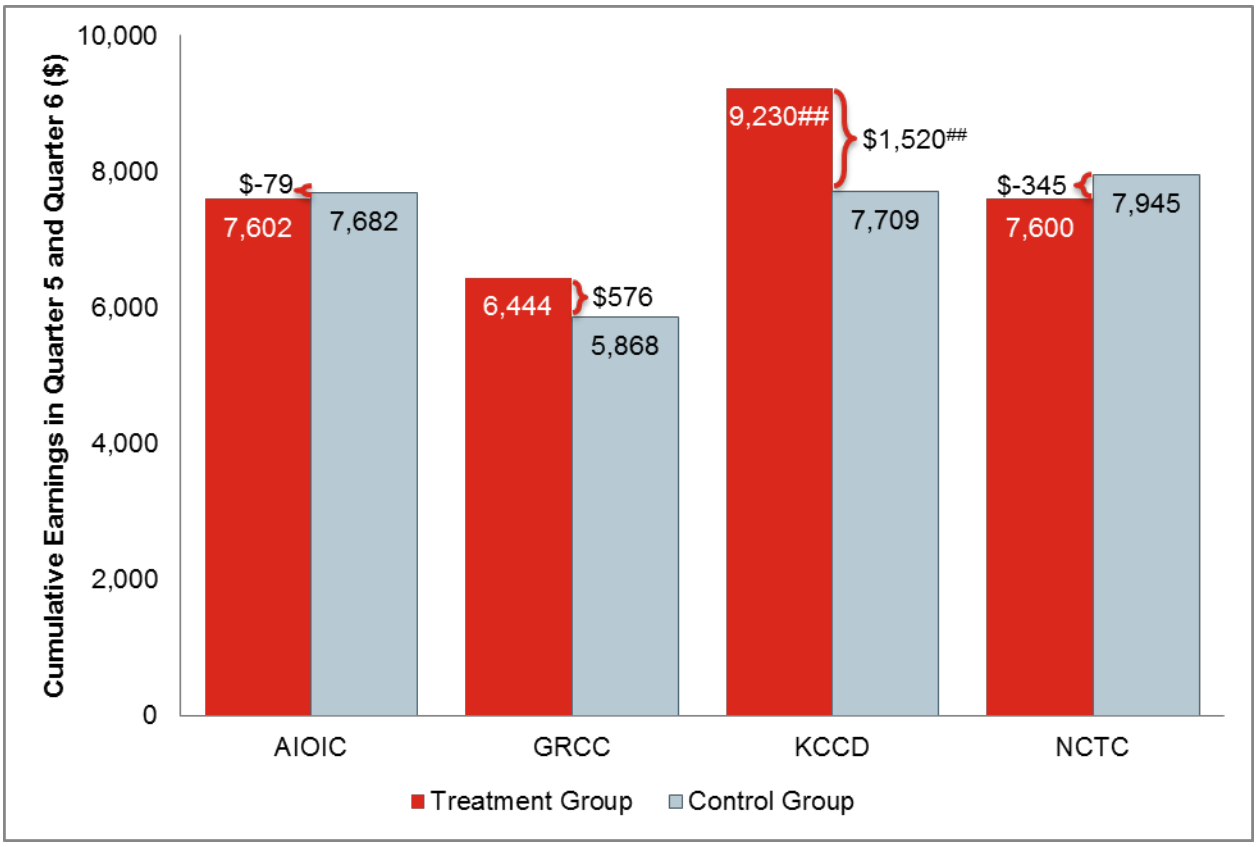


Source: Green Jobs and Health Care 18-Month Follow-Up Survey.
Note: Estimates in this exhibit are based on the following sample sizes: For AIOIC, the total sample of 345 individuals includes 187 treatment group and 158 control group members. For GRCC, the total sample of 189 individuals includes 130 treatment group and 59 control group members. For KCCD, the total sample of 570 individuals includes 294 treatment group and 276 control group members. For NCTC, the total sample of 750 individuals includes 436 treatment group and 314 control group members.
*** Difference is statistically significant at the p<0.01 level. ** Difference is statistically significant at the p<0.05 level. * Difference is statistically significant at the p<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

KCCD's program produced positive impacts on participants' earnings in the fifth and sixth calendar quarter after random assignment, the study's confirmatory outcome. As shown in Exhibit ES.4, during the fifth and sixth calendar quarters (13–18 months) after random assignment, KCCD treatment group member earnings were $9,230 compared with control group earnings of $7,709, a difference of $1,520 (with rounding), or about 20 percent. Analyses show that earnings decreased during the first quarter after random assignment, reflecting enrollment and participation in the training program, peaked in the fourth quarter after random assignment, and then declined.

Exploratory analyses of a smaller cohort of early enrolling sample members for which longer follow-up (27 months) is available indicate that the earnings difference between the treatment and control group fades by the seventh quarter after random assignment. These results, while exploratory in nature, suggest that the positive impacts on earnings may not be sustained over the longer term.

Exhibit ES.4: Impacts on Earnings in the Fifth and Sixth Calendar Quarters After Random Assignment, by Grantee



Source: National Directory of New Hires.

Note: Estimates in this exhibit are based on the following sample sizes: For AIOIC, the total sample of 538 individuals includes 268 treatment group and 270 control group members. For GRCC, the total sample of 274 individuals includes 183 treatment group and 91 control group members. For KCCD, the total sample of 816 individuals includes 407 treatment group and 409 control group members. For NCTC, the total sample of 984 individuals includes 550 treatment group and 434 control group members. Due to rounding, reported impacts (treatment–control differences) may differ from differences between reported regression-adjusted means for the treatment and control groups.

Difference is statistically significant at the p<0.01 level after multiple comparison adjustment. ## Difference is statistically significant at the p<0.05 level after multiple comparison adjustment. # Difference is statistically significant at the p<0.10 level after multiple comparison adjustment. Pound signs are present only if the impact is statistically significant at the indicated level.

KCCD treatment group members also experienced higher rates of employment than the control group, although these differences diminished by the end of the 18-month follow-up period. Specifically, in the first quarter after random assignment (when treatment group members were participating in the program), fewer treatment than control group members were employed. But by the third and fourth quarters, a treatment-control differential emerges, with 71 percent of the treatment group working by the fourth quarter compared to 61 percent of the control group. However, by the fifth and sixth quarters the employment rates for the treatment and control groups were similar and not statistically significantly different.

In addition, the KCCD program had an impact on weekly earnings, as well as on both hourly wages and hours worked per week. Analyses show that both wages and hours worked contributed about equally to the earnings impact. The program also had impacts on working in a job represented by a union and in a job with a regular daytime schedule. Of those treatment group members who worked during the follow-up period, 35 percent reported in the 18-month follow-up survey that they attributed obtaining their job to completing the training program.

For the other three grantee programs (AIOIC, GRCC, and NCTC) there was no evidence of statistically significant impacts on employment, earnings, or job characteristics. As shown in Exhibit ES.4, there is no evidence that the programs in AIOIC, GRCC, and NCTC had impacts on earnings in the fifth and sixth calendar quarters after random assignment. There is also no evidence of positive impacts on employment levels or the nature of jobs obtained in terms of wages, hours worked, benefits, or schedule. Of those treatment group members who worked during the follow-up period, roughly one-quarter at AIOIC and NCTC and one-fifth at GRCC reported in the 18-month follow-up survey that they attributed obtaining their job to completing the training program.

There was no evidence of statistically significant impacts on other measures of financial and economic stability, including household income, public benefits receipt, and overall financial circumstances, for any grantee. In KCCD, the increase in earnings among the treatment group, relative to the control group, did not appear to translate into increased household income, reduced public benefits receipt, or an overall improvement in financial circumstances (such as whether the individual had difficulty meeting expenses, or was late with a rent or mortgage payment) for the treatment group. Average household income was relatively low, as reported by the treatment and control groups across the four grantees at the time of the 18-month survey, ranging from approximately $22,000 annually for AIOIC and GRCC, and $31,000 for KCCD, to almost $40,000 for NCTC.[5]

[5] For comparison, the 2013 median household income in each of the counties where the programs operated was approximately $64,000 for AIOIC, $52,000 for GRCC, $49,000 for KCCD, and ranged from approximately $50,000 to $74,000 in the counties that NCTC served. See Appendix G.

Kern Community College District, Bakersfield, CA
Clean Energy Center Program

Organization and Context: KCCD, comprising three community colleges, serves multiple counties in the southern San Joaquin Valley. Its Workforce Development Division established the Clean Energy Center in Bakersfield to provide occupational training in the traditional and clean utility sectors.

Training Programs: KCCD offered three training courses, starting with a required foundational PowerTech course, which focused on basic math and traditional electrical utilities. Students completing PowerTech could subsequently enroll in the WindTech and/or SolarTech courses, designed to prepare participants for jobs as wind turbine technicians and solar technicians, respectively. Each training ranged in length from six to nine weeks. Each course resulted in a KCCD certificate, and SolarTech graduates received an industry solar technician certificate.

Supports: All training courses incorporated team work skills, resume development, interview skills, and job search strategies into the curricula. Staff cultivated and maintained relationships with employers, who provided guidance on course content and hired some graduates. Instructors offered tutoring and academic advising as well as guidance on personal issues. Training was provided at no cost to participants. Instructors provided employment services and career advice, served as job references, and assisted with interview and resume preparation. When possible, instructors drew on their own professional networks to facilitate employment connections.

Participation Patterns: Of those who attended a program, two-thirds combined PowerTech with WindTech or SolarTech or both (one third took PowerTech only), within a 12-month follow-up period. Completion rates for all the programs were near or above 90 percent. Average length of stay in the Clean Energy Center was 2.5 months.

Discussion and Implications of the Findings

There is a great deal of interest at the federal, state, and local levels in developing effective training strategies to improve the employment prospects and subsequent earnings of unemployed individuals and other individuals with barriers to work. This evaluation found that, after 18 months, the four programs in the study produced impacts on participation in vocational training and the receipt of credentials. However, only the program at KCCD produced evidence of an impact on cumulative earnings during the fifth and sixth calendar quarters after random assignment—the time period on which the evaluation focused for assessing post-training effects. In addition, there is some evidence the impacts at KCCD do not continue over a longer follow-up period. Finally, there were no detectable impacts on other employment-related outcomes such as household income or public benefits receipt.

Several implications can be drawn from these results.

Funding for short-term training programs can significantly raise both participation levels in training and receipt of vocational credentials among unemployed individuals and those with work barriers. The large and consistent impacts on service and credential receipt across the grantees show that these programs were effective in increasing participation in and completion of training among diverse and disadvantaged target populations. While the participants and the barriers they faced varied by grantee program, each program engaged the targeted group in program services and facilitated their attainment of vocational credentials.

North Central Texas College, Gainesville, TX
Health Matrix Grant Scholarship Program

Organization and Context: NCTC serves four counties in northern Texas, with five campuses that extend from north of Dallas to near the Oklahoma border. The Lifelong Learning division offers short-term, non-credit courses in an effort to meet the training needs of local residents and employers.

Training Programs: Partial scholarships were awarded for eight non-credit programs in allied health (Certified Medication Aide, Clinical Medical Assistant, Certified Nurse Aide, EKG Technician, Medical Billing and Coding, Pharmacy Technician I, Phlebotomy, and Physical Therapy Aide) that ranged in length from one to six months (including externships), and for a 12-month for-credit program (Licensed Vocational Nurse). The trainings resulted in a certificate or a degree.

Supports: The average scholarship was $816 and covered 60 percent of tuition. Scholarships initially ranged from 24 to 82 percent of tuition depending on the program, but increased to cover 95 percent of tuition for non-credit programs by the end of the grant period. Advisors provided initial guidance as needed on course selection and assistance during training. Attendance in a six-hour job readiness class was required. Near the end of the grant period, a dedicated staff person provided one-on-one job search assistance to current and former scholarship recipients.

Participation Patterns: Of those who participated, most (92 percent) took only one healthcare training program, most commonly the Certified Nurse Aide or Pharmacy Technician I, within a 12-month follow-up period. Few attended the longer for-credit program. Completion rates were above 80 percent in several of the non-credit programs, but were as low as 63 percent in others, among those who participated in one training program. Average length of stay was 2.4 months.

Consideration should be given to targeting training resources to populations not typically served by available training services, or in areas where training is unavailable or oversubscribed. As the control group experience suggests, to varying degrees, individuals would have participated in training activities even without the grant-funded program. The proportion of the control group who participated in education and training activities ranged from 39 percent in GRCC to as much as 67 percent in AIOIC. Moreover, KCCD had the largest impact among the four grantee programs on training participation, and the control group there participated in training at relatively low rates (the control group had a 44 percent participation rate). This may reflect the limited training opportunities in the relatively rural area that KCCD served, particularly in green industries targeted by the grant. In contrast, in AIOIC and NCTC, both healthcare training programs, the control group participated in training programs at much higher rates, potentially reflecting general availability of healthcare training programs other than those available under the grant. While DOL emphasized funding training in high-demand occupations when it established these grant initiatives, the evaluation results indicate that identifying training that is not generally available or is oversubscribed could also be important.

Although the study cannot determine the specific KCCD program services that produced the earnings impact observed there, this program included a structured sequence of training courses and a strong role for instructors in all aspects of service delivery. The KCCD program included three green-related training courses with a clear sequence; a curriculum that was adapted over time to align to participant and employer interests; instructor-provided academic and personal supports; instructor-provided job-readiness and job placement assistance, often integrated with classroom training; and ongoing staff commitment to cultivating and maintaining relationships with employers. KCCD's employer partners provided guidance on course content, offered labor market information, and at times

hired those who completed the program. Instructors, some of whom had previously worked in the industry, reported that when possible, they drew on their own professional networks to facilitate student connections with industry contacts.

A more substantial investment in developing job-related skills might be needed to increase the employment and earnings of disadvantaged populations. The short-term nature of the training (which averaged 2.4 to 3.3 months depending on the grantee program) and the resulting credentials appear not to have been sufficient to result in changes to the earnings trajectory of program participants within the 18-month follow-up period of this study, as evidenced by the limited employment and earnings impacts for sample members for three grantee programs and the low incomes at the end of the study period. These results are consistent with other studies that show positive earnings gains resulting from educational degrees requiring a year or more of training at community colleges, and limited evidence of positive economic outcomes from shorter-term credentials like the ones offered through the four grantee programs.[6]

The training programs studied in this evaluation were designed with a career pathways approach, which is based on the theory of human capital development programs, when after an initial investment in training individuals experience sustained increases in earnings. However, the findings of this study are more consistent with the effects of short-term job search assistance programs, which have been shown to increase the speed to employment but do not necessarily to result in long-term changes to earnings.[7] Even for KCCD, where earning impacts were observed in the fifth and sixth quarters of the follow-up period, the preliminary evidence of diminishing impacts over a longer follow-up period (27 months) appears more consistent with the effects of short-term job search assistance programs. In addition, while the training provided may have been a "first step" on a career ladder, there is no evidence that individuals continued beyond this initial training step (at least within the follow-up period for this study).

Ongoing attention should be given to ensuring that the training offered reflects employer demand for related positions. Among those in the treatment group who worked during the follow-up period, 35 percent in KCCD and one-quarter or less in the other programs attributed getting a job to completing the training program. Moreover, except for KCCD, treatment and control group members were employed at the same rates over the 18-month follow-up period. That employment levels were similar for treatment and control groups and that few members in the treatment group attributed job attainment to the training could indicate that jobs were not available in the fields for which they trained and, as a result, they took other types of jobs that were similar in pay to those of the control group.The evaluation cannot determine the extent to which a lack of job opportunities in the training field contributed to this result: Data are not available on the demand for openings for the specific training fields in the geographic areas where these grantee programs operated.

Grantee staff at the four programs, however, reported that employer demand for jobs in the training fields changed from what the grantees initially projected (i.e., when the grants were awarded). Notably, both GRCC and KCCD, the green industry programs, reported that jobs did not materialize as anticipated, and each made adjustments to its training program. GRCC provided training for different occupations than originally planned, while KCCD incorporated more broadly applicable skills into its curriculum. In

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6 Jepson et al., 2012; Bahr et al., 2015

7 Klerman et al., 2012

contrast, the two healthcare grantee programs generally did not report a lack of jobs for trainees, although demand changed over the course of the grant period. Staff at AIOIC reported that job opportunities increased, as the economy recovered from the recession; staff at NCTC reported some decline in demand for some healthcare positions in more remote parts of its service region.

Overall, while targeting industries and occupations with a high demand for workers was a focus of the DOL grant initiatives, the experiences of these grantees suggest that doing so is challenging. One response to this challenge is to monitor the economy and job growth projections over time and make adjustments to the program services as needed.

When developing training initiatives, consideration should be given to the wages for positions resulting from the training. As noted, except for KCCD, the treatment and control groups had similar levels of employment and earnings over the follow-up period, and earnings levels were low. In particular, the two healthcare programs (AIOIC and NCTC) focused on training for Nursing Assistants, a field that has drawn attention for its relatively low pay;[8] and their control group members found jobs at the same rate and level of pay as those in the treatment group. And as discussed, while Nursing Assistant may be a first step on a career ladder in healthcare, follow-on training, and then progression to higher wage positions was not observed in the follow-up period for this study. In contrast, KCCD achieved earnings impacts, by increasing its participants' wages and hours worked. These results indicate the importance of providing training not only for in-demand occupations, but also for occupations that result in better-paying jobs than individuals could obtain without the training.

Attention should be given to strategies for connecting training to employment, potentially through strong connections to employers. To improve connections between training and employment, more effective employment assistance may be needed to help people find jobs in the field of training. Although the programs in this study did provide some types of job placement assistance (the content of which varied across the grantees), the evaluation results suggest that an increased focus on job placement services in training programs would be beneficial. In addition, because the impact on credential receipt did not translate into earnings impacts for three of the programs, it was not clear that employers valued the credentials obtained. Working with employers to ensure that the curricula match needed job skills and that the credentials granted are recognized and valued within the industry could help to make stronger connections between training and employment.

Financial assistance to attend training programs appears to be important for promoting engagement in the training activities. Except at NCTC (which provided a mix of full and partial scholarships), all the courses provided through the grantee programs were tuition-free, and across all the programs in the study, the largest impact in terms of services received was on financial assistance to attend education or training. The much lower rates of financial assistance received by the control group suggest that there is a lack of resources to support attendance in training programs; notably, some short-term training programs are not eligible for federal Pell Grants to cover tuition. Some control group members attended training without financial assistance, but it seems plausible that the lack of financial assistance contributed to lower rates of training received in the control group. Consistent with this interpretation, it is notable that NCTC, which provided a relatively small scholarship (averaging $816, or

[8] For example, one study found that more than 90 percent of nursing assistants earned less than $20,000 per year (Carey, 2014).

60 percent of tuition), was able to boost participation and credential receipt in its existing training programs by a large margin.

1. Introduction

A central challenge in building a strong U.S. economy is achieving the dual goals of providing opportunities to unemployed and low-skilled individuals to enter and advance in the labor market and meeting the needs of economic sectors with a strong demand for skilled workers.[9] To address these related goals, policymakers and practitioners have developed occupational training programs that combine articulated employment steps targeted to locally in-demand jobs, support services, and strong connections to employment. These programs, sometimes known as career pathways programs, aim to address the economy's need for skilled workers by focusing on high-demand occupations while providing training and supports that allow unemployed and disadvantaged workers to find jobs and advance in careers that pay enough to support a family. The U.S. federal government, states, and localities have shown great interest in and dedicated significant funding to developing and operating training programs that reflect this career pathways approach.[10]

As part of the response to the deep recession that started in 2008, the American Recovery and Reinvestment Act of 2009 (the Recovery Act) funded several initiatives designed to provide training to improve the employment prospects of unemployed workers and other individuals facing barriers to employment. Two of these initiatives, both administered by the Employment and Training Administration (ETA) at the U.S. Department of Labor (DOL), are the focus of this report:

- The **Pathways Out of Poverty (Pathways)** grant program, which funded training in green occupations—such as energy efficiency and renewable energy sectors—for disadvantaged populations living within high-poverty areas, with particular emphasis on unemployed individuals, high school dropouts, and those with a criminal record.[11]
- The **Health Care and Other High Growth and Emerging Industries (Health Care)** grant program, which provided resources for unemployed, dislocated, and incumbent workers to prepare, enter, and advance in the fields of nursing, allied health, long-term care, health information technology, and other high-demand sectors of the economy, including renewable and traditional energy, logistics, and biotechnology.[12]

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9 "Low-skilled" generally refers to individuals without a high school diploma or General Educational Development (GED) certificate or who lack the technical skills to work in jobs beyond an entry-level position.

10 For example, the Workforce Innovation and Opportunity Act of 2014 requires state and local workforce agencies to develop career pathways strategies and provides a definition of these activities. More broadly, in 2012, a Joint Letter on Career Pathways from the U.S. Department of Labor's Employment and Training Administration, the U.S. Department of Education's Office of Vocational and Adult Education, and the U.S. Department of Health and Human Services's Administration for Children and Families was released to convey the interagency support for career pathways systems-building to meet the education and training needs of adults (accessed July 22, 2015, http://wdr.doleta.gov/directives/corr_doc.cfm?DOCN=3536). For information on state and local career pathways initiatives, see the Alliance for Quality Career Pathways sponsored by the Center for Law and Social Policy (CLASP, 2014).

11 U.S. Department of Labor, 2010a. The Pathways Solicitation for Grant Applications defined an area of high poverty as a Public Use Microdata Area (PUMA) where the poverty rate was 15 percent or greater. PUMAs are geographic statistical areas determined by the U.S. Census Bureau.

12 U.S. Department of Labor, 2010b

Both grant programs included a focus on a career pathways approach to training and funded partnerships of workforce agencies, community colleges, non-profit organizations, and other organizations to provide the training.

DOL sponsored a single rigorous evaluation of these two grant programs. The evaluation, known as the Green Jobs and Health Care (GJ-HC) Impact Evaluation, was conducted by Abt Associates and its partner, Mathematica Policy Research, Inc. Four grantees were purposively selected for the evaluation based on their program design and scale. The evaluation includes both an implementation study to examine the design and operation of each of the four programs and an impact study that uses a random assignment research design to determine the effects of selected grantee programs on participants' earnings as well as other outcomes of interest, including educational attainment.

This report provides the results for the impact study and describes the impacts for each selected grantee program separately. The study is not designed to estimate the overall effect of the Pathways or Health Care grants. Rather, the findings of the evaluation are specific to each of the four grantee programs and so cannot be generalized to the other grantees funded by the Pathways or Health Care grant. The report examines the impacts of the four grant-funded programs on participants' employment and earnings over an 18-month follow-up period. It also examines impacts on service receipt and educational attainment, household income, public benefits receipt, and other outcomes. The report also includes a discussion of the key findings and implications.[13]

The remainder of this chapter describes the policy and research context for the Pathways and Health Care grants and gives an overview and summary of the grantees and their programs. This chapter also provides an overview of the evaluation design, focusing on the methodology and data sources used for the impact study. Finally, the chapter outlines the structure of the remainder of the report.

1.1 Policy and Research Context

By training unemployed and disadvantaged adults for jobs in high-demand sectors of the economy, the DOL grant initiatives examined in this study addressed disparities that have developed in the American labor market over the past three decades. First, there has been a growing disparity in the earnings of workers with different education levels. Those with high school diplomas or less education have seen their earnings remain flat in real terms for decades, while those with postsecondary degrees have experienced significant earnings gains.[14] Few low-skilled workers over the last three decades have had jobs offering significant or lasting wage increases. For example, during 1984–2004 the probability that any worker would leave the bottom quintile of earnings was more than 30 percentage points higher for those with more than a high school education than for those who did not complete high school.[15] These disparities are expected to persist or worsen, due to declines in educational attainment among American workers, an aging (and soon to retire) skilled workforce, and an influx of low-skilled immigrants.[16]

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[13] This report also provides information on the design and operation of each of the four programs based on the implementation study. The full implementation study is provided in a separate report (Copson et al., 2016).

[14] Mishel et al., 2015

[15] Acs and Zimmerman, 2008

[16] Dohm and Shniper, 2007

At the same time, demand has been growing for "middle-skills" jobs.[17] Middle-skills jobs generally have not required education and training beyond a high school diploma but would pay enough to help pull a family out of poverty. However, the skill level required for many of these jobs is increasing.[18] Instead of the manual and clerical tasks usually required for these jobs in the past, many contemporary middle-skills jobs require specialized skills and the performance of non-routine tasks. For example, computer technology, nursing, high-skill manufacturing, and other fields require postsecondary technical education and training, and in some cases, college math courses or degrees.

Finally, evidence exists that employers in some industries are having trouble finding qualified applicants for jobs, and that some struggle to fill certain types of vacancies, especially for some middle-skills jobs.[19] This fact points to the possibility of a "skills gap," where the skills of the middle-skills workforce do not match the skills needed by employers. While the severity of this skills mismatch is debated,[20] it is clear that workers with no training beyond high school often have difficulty obtaining higher-skilled jobs that offer better wages.

The DOL grant initiatives examined in this study seek to provide occupational training to unemployed, dislocated, and disadvantaged adults to help them obtain and succeed in jobs in high-demand sectors of the economy. Thus, these initiatives are potentially important responses to the workforce trends described above and, through the training provided, focus on moving individuals into middle-skills occupations.

Occupational training is not a new approach for improving the job prospects of low-wage workers, and past efforts have had mixed results. Some studies of job training programs have found small but positive impacts and others have found no evidence of impact.[21] The evidence to explain why some past programs have not been shown to be effective is limited, but descriptive studies point to a range of factors that appear to limit success. Low-wage workers may lack awareness of training opportunities and the types of credentials that are in demand in the labor market, resulting in low enrollment in training programs.[22] Moreover, low-wage workers face significant challenges to successful completion of education and training programs, including limited basic academic skills, limited academic or training goals due to negative school experiences and lack of college role models, work and family demands on time, and an inability to afford school.[23]

Career pathways programs reflect an approach to training that seeks to improve on past efforts by bringing together training innovations and supports that directly address common challenges faced by

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17 Holzer and Lerman, 2007

18 Holzer, 2010

19 Holzer, 2013; Osterman and Weaver, 2014

20 Economic theory suggests the skills mismatch should correct itself over time. When labor demand rises for any given skill or credential and exceeds its supply in the market, the relative wages and salaries of workers who have these skills should rise. In turn, more workers and/or employers should invest in such skills, and eventually the skill supply among workers should also rise, thus reducing or eliminating any mismatch that might have initially resulted. Others point to market failures that may cause this mismatch to persist over time (Holzer, 2013).

21 Card, et al., 2010; Greenberg et al., 2003

22 Tompson et al., 2013

23 Fein, 2012

low-skilled adults, many of whom do not earn enough to support themselves or their families. While there is no single definition of a career pathways program, key elements generally are the following:[24]

- Training that includes a series of manageable steps that are understood and attainable, leading to successively better credentials and employment opportunities, typically in middle-skills occupations that are increasingly in demand.
- Instructional approaches that accommodate the needs of low-skilled individuals, such as integrating technical and basic skills.
- Supports to help students complete the training, such as academic and non-academic advising, tutoring, or assistance addressing personal issues.
- Direct connections to employment and assistance in finding a job in the field of training.
- Financial assistance to ensure students can afford school, particularly for programs or non-traditional students ineligible for federal assistance under the Pell Grant program.

A growing number of career pathways initiatives exist across the country, operating at the state, local, and individual program levels and involving a wide array of organizational partners including workforce agencies, community colleges, non-profit agencies, employers, and unions. Career pathways is a prominent feature in the Workforce Innovation and Opportunity Act of 2014 (WIOA), which requires all state and local workforce boards to develop career pathways strategies.[25] Interest in career pathways also extends beyond DOL, with the U.S. Departments of Education (ED) and Health and Human Services (HHS) also making considerable investments in programs in this area, as have many private foundations. Moreover, as specified by the Solicitations for Grant Awards (SGAs) for the Health Care and Pathways initiatives and discussed below, the programs funded by grants incorporated many career pathways elements.

While career pathways programs have gained attention, to date there have been no rigorous evaluations of programs using the career pathways approach, although several such evaluations are in progress.[26] A number of studies suggest the potential of a career pathways approach to improve student outcomes and program impacts. One such study examines sectoral training programs, where training reflects the active involvement of employers and training providers in particular economic sectors and that also focus on preparing individuals for middle-skills positions; this study showed earnings impacts of 18 percent over a

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[24] Fein, 2012; Werner et al., 2013

[25] The definition of career pathways provided in WIOA also encompasses the central elements discussed above, specifying that programs operating under a career pathways framework combine rigorous and high-quality education, training, and other services that align with the skill demands of state and local economies; prepare individuals to be successful in a range of secondary and postsecondary options; include academic and career counseling; include, as appropriate, concurrent and accelerated program designs; and help individuals to enter or advance within a specific occupation or occupational clusters.

[26] These include the Pathways for Advancing Careers and Education (PACE) and the Health Professions Opportunity Grant (HPOG) evaluations sponsored by the U.S. Department of Health and Human Services. See Martinson and Gardiner, 2014 on PACE and Dietz et al., 2014 on HPOG. Like the GJ-HC Impact Evaluation, these other evaluations use a random assignment research design to estimate the impact of the career pathways programs. The PACE evaluation estimates impacts for individual programs, while the HPOG evaluation pools results across grantee programs.

two-year period.[27] Other studies have shown the positive effects of an approach that integrates basic skills with occupational training in the context in which the skills and training might be used on the job.[28] Moreover, studies have found positive effects on the completion of training and credit receipt when enhanced financial resources were provided.[29]

1.2 The Pathways and Health Care Grants

As noted above, the 2008 recession brought new urgency to programs and policies that focus on skills training for low-skilled and unemployed workers. Through resources provided by the Recovery Act, DOL sponsored several training initiatives designed to help unemployed workers reenter the labor market, with a particular focus on economically disadvantaged workers. These initiatives included the Pathways Out of Poverty grant and the Health Care and Other High Growth and Emerging Industries[30] grant initiatives.[31] Grants were awarded to national non-profit organizations with local affiliates, local public agencies, and local non-profit organizations. The resulting programs often involved partnerships with non-profit organizations, public workforce agencies, education and training providers, employers and industry associations, and labor organizations. The grantees were given considerable flexibility in the design and operation of their programs.[32]

The Pathways grant initiative targeted economically disadvantaged populations, specifically these populations: unemployed individuals at least 18 years old, high school dropouts, and individuals with a criminal record. It also focused on unemployed workers in high-poverty regions, specifically those living in or contiguous to areas where the poverty rate was 15 percent or higher. Its SGA directed grant applicants to provide training in energy efficiency and renewable energy that supported advancement along a defined career pathway and that resulted in an industry-recognized credential. As appropriate, the funded programs were to integrate basic skills and work-readiness training with occupational skills training and combine supportive services with training services to help participants overcome barriers to employment. In January 2010, DOL awarded two-year Pathways grants to 38 grantees, with the grants ranging in value from $1 million to $8 million.

The Health Care grant initiative targeted unemployed workers, dislocated workers, and incumbent workers in need of skills upgrades to advance. Notably, this grant did not have a high-poverty focus, one

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27 Maguire et al., 2009

28 Martin and Broadus, 2013; Zeidenberg et al., 2010

29 Miller et al., 2011; Patel and Rudd, 2012; Richburg-Hayes et al., 2009; 2015

30 "High growth" and "emerging industries" were not strictly defined; rather, they were to be identified by the grant applicant, based upon local context (accessed February 4, 2016, https://doleta.gov/grants/pdf/SGA-DFA-PY-09-01.pdf, page 36257).

31 The other training initiatives funded by the Recovery Act and administered by DOL are Energy Training Partnerships (accessed April 14, 2015, http://doleta.gov/grants/pdf/SGA-DFA-PY-08-18.pdf) and the State Energy Sector Partnerships and Training (accessed April 14, 2015, http://doleta.gov/grants/pdf/SGA-DFA-PY-08-20.pdf). These grant programs were not included in this evaluation.

32 IMPAQ International, 2012

of its key differences from the Pathways grant.[33] With the goal of developing a pipeline of credentialed healthcare workers and workers for other high-growth industries, its SGA directed applicants to develop projects that supported participants' advancement along a defined career pathway, resulted in an employer- or industry-recognized credential or degree, and integrated training activities with supportive services to help target populations overcome barriers to participation in training and employment. In February 2010, DOL awarded three-year grants to 55 grantees, with grants ranging in value from $2 million to $5 million.

1.3 Grantee Programs Included in the Evaluation

The GJ-HC evaluation includes 4 of the 93 grantees, one with a Pathways grant and three with Health Care grants. In consultation with DOL, the four grantees were purposively selected based on the following factors:

- ***Career pathways approach.*** Because of a strong interest in learning more about a career pathways approach to training, the research team considered programs with key elements of this approach, including articulated training and employment steps in occupations in demand in local communities; instructional accommodations for low-skilled populations, such as the inclusion of basic skills instruction in vocational training; supports such as academic and personal counseling and financial assistance; and connections to employers and jobs.
- ***Program size***. The impact study uses a random assignment research design. Because precision of estimates increases as the sample size increases, larger programs were preferable.
- ***Ability to implement study procedures.*** Finally, grantees had to be able (with assistance provided by the evaluators) to incorporate a random assignment research design into their program operations. Random assignment studies take commitment on the part of program operators in two different ways, and grantees needed to have the capacity to participate in this type of study. First, random assignment studies require program staff to be willing and available to carry out the random assignment procedures. Second, random assignment studies require that the program anticipate over-subscription to services (so that the program could serve the number of participants as intended in its grant application while also placing others in the control group).

Given this approach to site selection, the grantees were not selected to be and are not representative of all Pathways or Health Care grantees. Instead, the evaluation focuses on measuring grantee-specific impacts, rather than impacts of the grant initiatives overall. Thus, with its focus on programs that include key career pathways elements, this evaluation seeks to build evidence on an approach to training that is hypothesized to deliver stronger results than do past programs studied.

The research team worked with DOL and used a multi-step process to select grantees for the evaluation. After a review of all the grantee programs funded under the two grant initiatives and site visits to potential candidate sites, the research team selected four grantees that best met the criteria for the evaluation.

The selected grantees and their programs are:

[33] The Health Care SGA noted that within these categories, grantees could serve a range of individuals, such as those receiving public assistance, high school dropouts, individuals with disabilities, and individuals with limited English proficiency.

- American Indian Opportunities Industrialization Center (AIOIC)—Soil to Sky program.
- Grand Rapids Community College (GRCC)—Pathways to Prosperity program.
- Kern Community College District (KCCD)—Clean Energy Center program.
- North Central Texas College (NCTC)—Health Matrix Grant scholarship program.

Exhibit 1.1 provides an overview of the four grantees. AIOIC and NCTC, both Health Care grantees, aimed to increase participant skill levels and credential receipt in the healthcare field. GRCC, a Pathways grantee, and KCCD, a Health Care grantee, received funding to operate training programs in green-related industries that included wind and solar technologies (KCCD operated a green training program under the Other High Growth Industries provision of the Health Care grant program). AIOIC is a non-profit organization; GRCC, KCCD, and NCTC are community colleges. All the grantees generally targeted unemployed populations; however, reflecting the requirements of the Pathways grants, GRCC focused on low-income and low-skilled individuals, particularly those with a criminal background.

While their programs varied in design and service delivery, three of the grantees (AIOIC, GRCC, and KCCD) operated programs providing training services that were developed and funded by the grant. All three featured a series of connected training courses that could be taken in sequence, as well as a range of supports, including academic advising, tutoring, financial assistance, and employment assistance. For these grantees, the impact evaluation focused on measuring the effects of trainings and supports on credential attainment, employment, and earnings.

Importantly, and different from the other grantees in the evaluation, NCTC used grant funds to provide partial scholarships for existing healthcare training programs to offset participants' tuition expenses. This grantee was selected because of interest in the role of financial assistance in supporting training completion and subsequent employment. The scholarship-supported healthcare training programs at NCTC also could be sequenced to help participants progress in the healthcare field.

Exhibit 1.1: Overview of Grantee Programs Included in the Green Jobs and Health Care Impact Evaluation

Grantee, Program, Location	Type of Grant	Type of Organization	Target Population	Industry and Targeted Occupations	Overview of Grant-Funded Services
American Indian Opportunities Industrialization Center (AIOIC) Soil to Sky program Minneapolis, Minnesota	Health Care and Other High Growth and Emerging Industries	Non-profit organization	Unemployed or underemployed individuals with no criminal record. Education level of at least the fifth grade with some trainings requiring a high school diploma or General Educational Development (GED) certificate	Healthcare industry Personal Care Assistant; Nursing Assistant; Home Health Aide; Trained Medication Aide; Acute Care Nursing Assistant; Medical Office Assistant; and First Aid and CPR	The Soil to Sky program healthcare trainings were short term, lasting one to six weeks, with the exception of two that lasted six and nine months, respectively. Short-term training programs could be taken in a sequence to gain multiple certificates. Training was offered at no cost to participants and resulted in either an AIOIC certificate or eligibility to sit for the relevant state examination. AIOIC also offered academic and personal advising, financial assistance, and employment services.
Grand Rapids Community College (GRCC) Pathways to Prosperity program Grand Rapids, Michigan	Pathways Out of Poverty	Community college	Low-income individuals. Emphasis on serving low-skilled individuals (e.g., those without a high school diploma or GED, or with limited English language proficiency) and individuals with criminal backgrounds	Green industry Green Construction Remodeler; Construction Electrician; Welder; Information Technology Specialist; and Commercial Driver	The Pathways to Prosperity program included basic skills instruction, a career preparation course, and occupational training for employment in the green sector. Training was offered at no cost to participants. Most trainings resulted in employability or career readiness certificates, and some occupational trainings prepared participants to sit for industry certification exams. Partner organizations provided support to students while in training and assistance in finding employment.

Exhibit 1.1: Overview of Grantee Programs Included in the Green Jobs and Health Care Impact Evaluation *(continued)*

Grantee and Location	Type of Grant	Type of Organization	Target Population	Industry and Targeted Occupations	Overview of Grant-Funded Services
Kern Community College District (KCCD) Clean Energy Center program Bakersfield, California	Health Care and Other High Growth and Emerging Industries	Community college	Unemployed, underemployed, and dislocated workers. High school diploma or GED, no violent felony convictions, and able to pass a drug test	Green industry, specifically clean energy Wind Technician; Solar Technician; and traditional utility worker	KCCD's Clean Energy Center program offered three connected trainings that prepared participants for employment in the wind and solar energy utility sector as well as traditional utilities. Trainings ranged in length from six to nine weeks, and could be taken individually or in sequence. Each resulted in a KCCD certificate; additionally, Solar Technician participants received an industry certificate. Training was offered at no cost to participants. Course instructors provided tutoring, advising on personal issues, and job search assistance.
North Central Texas College (NCTC) Health Matrix Grant scholarship program Gainesville, Texas	Health Care and Other High Growth and Emerging Industries	Community college	Unemployed, underemployed, and dislocated workers. Some targeting of first-generation college students and English language learners	Healthcare industry Certified Medication Aide; Clinical Medical Assistant; Certified Nurse Aide; EKG Technician; Medical Billing and Coding; Pharmacy Technician I; Phlebotomy; Physical Therapy Aide; and Licensed Vocational Nurse (LVN)	NCTC provided partial scholarships for eight non-credit programs in allied health and one for-credit program (LVN) in the School of Health Sciences. The trainings, most of which lasted one to six months, resulted in a certificate or a degree. Scholarship recipients were required to complete a six-hour job-readiness class. Instructors provided informal tutoring, and staff provided placement assistance.

1.4 Overview of the Evaluation Design

The GJ-HC Evaluation comprises two major components that together provide important information on the operation and effectiveness of selected grantees under the Pathways Out of Poverty and Health Care and Other High Growth and Emerging Industries grants. The components are as follows: (1) an implementation study that examines the operation of the four grantee programs and participation patterns of their program enrollees in key program activities and (2) an impact study that uses a random assignment research design to determine whether each of the four grantee programs increased its participants' employment, earnings, and other outcomes, relative to a control group.

This report examines findings from the impact study; a separate volume[34] reports on results from the implementation study.

To produce reliable estimates of the effectiveness of the four grantee programs for the impact study, the evaluation used a computer-based lottery-like process to randomly assign each eligible program applicant to one of two groups:

- A treatment group who were offered the chance to participate in the program's grant-funded services (whether or not those individuals actually participated)
- A control group who could not access the program's grant-funded services (but could access other similar services available in the community).

When properly implemented, random assignment ensures that there are no systematic differences between the two groups. Thus, any differences between the two groups in outcomes (known as "impacts") that emerge over time can be directly attributed to the grant-funded program, rather than to differences in the characteristics of individuals in each group. The extent and nature of the services available to the control group varied from site to site, but note that the treatment group is not being compared with a "no services" control group. Instead the impact study measures impacts of adding the grant-funded services to the configuration of services already available in the community.

This evaluation measures program impacts (separately for each grantee) 18 months after individuals' random assignment to the treatment or control group. The study examines the impact of each program on short-term outcomes, specifically the receipt of training and other services, the attainment of educational credentials, employment and earnings, job characteristics, factors affecting ability to work, household income, financial circumstances, and receipt of public benefits. The study also estimates impacts on employment and earnings among subgroups of individuals to determine whether the programs have stronger impacts on certain groups of people (i.e., participants with lower education levels or no recent work history).

The impact study data sources are a baseline survey administered to treatment and control group members at the time of random assignment; a follow-up survey administered to members approximately 18 months after random assignment; and quarterly administrative wage record data on employment and earnings, available through the National Directory of New Hires.

[34] Copson et al., 2016

Random assignment of program applicants began in summer 2011 and continued through the near-conclusion of the grant periods, which for GRCC was July 2012 and for the other grantees was June 2013.

1.5 Overview of the Report

The remainder of this report is organized as follows:

- Chapter 2 presents the evaluation's conceptual framework and research questions; details the evaluation design; describes the evaluation's data sources; and presents the analytic approach used to estimate site-specific program impacts.
- Chapters 3 through 6 present the impact study results, separately for each of the four grantee programs. Each chapter describes the grant-funded program and characteristics of the sample, followed by impacts on education and training participation, educational attainment, factors affecting the ability to work, employment and earnings, job characteristics, characteristics of unemployment, receipt of public benefits, health insurance coverage, and financial circumstances.
- Chapter 7 discusses the key findings and implications of the study results.

2. Evaluation Design, Data Sources, and Analytic Approach

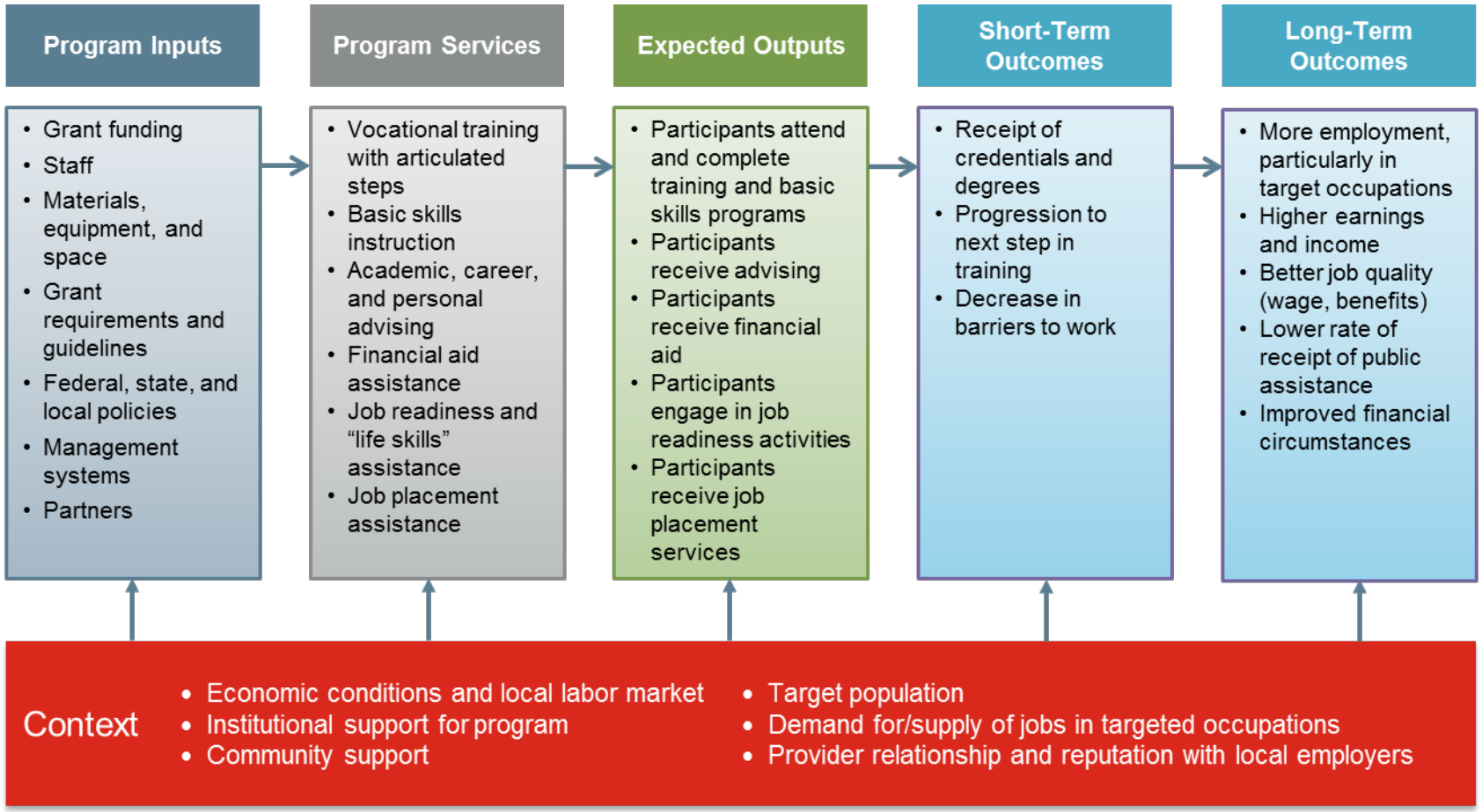
This chapter describes the program logic model, experimental evaluation design, data sources, and analytic approach used for the Green Jobs and Health Care Impact Evaluation. The evaluation consists of (1) an implementation study that examines the operation of the four grantee programs and participation patterns of program enrollees in key program activities and (2) an impact study that uses a random assignment research design to determine whether each of the four programs increased its participants' employment, earnings, and other outcomes relative to a control group. This chapter describes the evaluation design for the impact study component of the evaluation.

The chapter begins with a discussion of the logic model that drives the design of the evaluation and the key research questions addressed by the evaluation. It then describes the evaluation design for the impact study, specifically the use of the random assignment process. Next, it summarizes the main data sources for the evaluation and describes methods for estimating the effects of each of the four grantee programs. The chapter concludes with a discussion of issues related to the interpretation of study findings to help the reader better understand the results reported in the following chapters.

2.1 Logic Model and Research Questions Addressed

The evaluation's underlying logic model—also sometimes described as a conceptual framework or theory of change—is depicted graphically in Exhibit 2.1. This logic model describes how the grant-funded programs are hypothesized to produce the expected short- and long-term changes in participants' outcomes. This logic model guides both the implementation study (i.e., defines which aspects of program services are expected to drive outcomes and should therefore be documented by the implementation study) and the impact study (i.e., defines which outcomes are expected to change because of the program and therefore should be measured and those measurements used to estimate impact).

Exhibit 2.1: Logic Model for Green Jobs and Health Care Impact Evaluation



As shown in Exhibit 2.1, the logic model for the programs begins with inputs, which include the grantees' funding, staff and physical resources, and management structure. Continuing from left to right in the exhibit, the next box shows what those inputs provide: the program services. Given the career pathways approach of grantee programs (see Chapter 1), it is hypothesized that the services provided in addition to training are key to improving participant outcomes. These services may include academic, career, and personal advising; financial assistance; and employment supports relating to job readiness or life skills preparation, as well as assistance in locating and applying for jobs. While grantees may emphasize different aspects of support, this package of services is intended to yield the program outputs.

Next, the logic model posits that in the short run the grantee programs should improve participants' educational attainment, particularly credential and degree receipt. In addition, participants may progress to the next training step on a career pathway. Finally, participants should experience fewer barriers to their ability to work. These short-term outcomes in turn will produce better long-term outcomes: higher employment levels and earnings, particularly in better jobs as indicated by both wages earned and job benefits. With increased levels of employment and earnings, receipt of public assistance is hypothesized to decrease. Likewise, experience of financial hardship is expected to decline in response to improved employment and earnings. As shown, the grantee programs and participants' outcomes also are influenced by the context and environment in which grantees operate—including the local economic conditions and the community and target population characteristics.

Based on the logic model, the primary goal of the Green Jobs and Health Care Impact Evaluation is to measure the effectiveness of the four grantee programs in improving participants' short- and long-term outcomes. The evaluation examines the following questions (for each, the part of the logic model that it represents is noted):

- *Expected outputs:*
  - What is the impact of each selected grantee's program on individuals' participation in education and training services?
  - What is the impact of each program on the range of supports provided, specifically receipt of advising, financial aid assistance, and employment assistance?
- *Short-term outcomes:*
  - What is the impact of each program on educational attainment, including the receipt of credentials from training?
  - What is the impact on factors that affect participants' ability to work?
- *Long-term outcomes:*
  - What is the impact of each program on employment levels and earnings?
  - What is the impact of each program on the characteristics of jobs, including wages, benefits, and sector of employment?
  - What is the impact of each program on participants' total income, receipt of public benefits, and financial circumstances?

This evaluation estimates the impact of the *package* of services each grantee offered. Furthermore, because the study compares outcomes for participants who had *access* to the entire range of services

provided by the grantee compared with those who did not have access, the evaluation cannot determine which specific program feature or component is responsible for any observed impacts.

2.2 Evaluation Design

For each of the four grantee programs, the evaluation used a random assignment research design to determine the impact of access to the program on participants' outcomes. Eligible applicants were randomly assigned to one of two groups: a treatment group that gained access to the services of the grantee's program under study and a control group that did not. When properly implemented, random assignment ensures that there are no systematic differences—on either measured or unmeasured characteristics—between the treatment group and the control groups at "baseline" (i.e., before randomization). Thus, any difference between the two groups in outcomes that emerges after random assignment can be directly attributed to the grant-funded program or to chance. Differences due to the characteristics of individuals in each group before randomization can be ruled out.

Two factors are important to consider when interpreting the impacts presented in this report. First, comparing the entire treatment group to the entire control group, the evaluation estimates the impact of access to the grantee program. That is, individuals randomly assigned to the treatment group are offered the opportunity to participate in the training; while most took up that offer, some did not. (Supplementary analyses examine the program impact on selected measures for those who attended the training.) Second, because both treatment and control group members can access other education, training, and support services available in the community not funded by the grant, the evaluation estimates the impact of the grant-funded services above and beyond what was otherwise available during the study period. The control group's experiences represent what would have happened in the absence of the grantee's program, which includes accessing other training and supports in the community.

The evaluation estimates program impacts, separately for each grantee, 18 months after random assignment of program participants. Specifically, following the logic model discussed above, the study examines the impact of each program on short-term outcomes—specifically, the receipt of training and other services; attainment of educational credentials; and factors affecting ability to work. It then examines the impact on longer-term outcomes that result from these short-term impacts, including impacts on employment and earnings; characteristics of jobs obtained, such as wages and benefits; the receipt of public benefits; and overall financial circumstances.

In addition, the analysis examines a longer follow-up period (up to 33 months, depending on the grantee) to consider the program's longer-term earnings effects.

2.3 Confirmatory Outcome

An essential part of the design for this evaluation is the designation of a single "confirmatory" outcome. Like most experimental evaluations, this evaluation examines impacts for many outcomes. If the study did not adjust in some way for these multiple tests, even if there were no effects on any outcome in any site, some of the tests across the four grantee programs might appear to be significant merely by chance. This is known as the problem of "multiple comparisons." (See Appendix A for more discussion of the multiple comparisons problem.)

This study follows a conventional approach to the problem of multiple comparisons in that the evaluation designated a single confirmatory outcome to prioritize the study findings and indicate program

effectiveness.[35] Specifically, before conducting any impact analysis, the evaluation designated that the sum of earnings in the fifth and sixth quarters (13–18 months) after random assignment would be the single confirmatory outcome.

The choice of this confirmatory outcome reflects the primary goal of the DOL grants: to help workers find jobs and increase the earnings of grantee program participants. Participants are expected to experience an initial drop in employment and earnings while they attend the training programs: treatment group members are in training and therefore not working, while control group members are less likely to be in training. The fifth and sixth quarters after random assignment, therefore, are an appropriate follow-up period to allow individuals to find employment and experience earnings gains, given the length of the training programs.[36]

In addition to the confirmatory test, the study examines impacts on many other measures. In contrast to the single confirmatory outcome, these tests are labelled as "exploratory." These analyses address the study's research questions and provide additional suggestive evidence on program effectiveness. Section 2.6 provides a discussion of confirmatory and exploratory analyses, including how to use these standards of evidence in interpreting the meaning of results.

2.4 The Random Assignment Process

Details of the random assignment process varied across the grantees. However, as shown in Exhibit 2.2, all grantees' random assignment procedures followed the same general approach:

- ***Recruitment.*** Program staff recruited potential participants using their established methods, which included referrals from community partners, word-of-mouth, and publicity in the media.
- ***Eligibility.*** Program staff determined eligibility of program applicants for the program's grant-funded services using standard procedures (i.e., application forms, assessments, one-on-one meetings to determine whether an applicant meets the eligibility criteria).
- ***Informed consent.*** Program staff discussed the study and participation in it with eligible individuals using a short information sheet describing the study and the accompanying informed consent form. Those individuals who refused to sign the informed consent form were not included in the study and were not eligible for the grant-funded services, but received information about other services available in the community.
- ***Baseline data.*** Eligible individuals who consented to be in the study completed the baseline information form (BIF). Program staff entered information from the BIF into a web-based Participant Tracking System (PTS) developed specifically for the evaluation.
- ***Random assignment.*** Following completion of the BIF, program staff used the PTS to randomly assign individuals to the treatment or control group.

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[35] Schochet, 2009

[36] The evaluation's implementation study found that training programs were short by design and that participants attended for relatively short periods (averaging 2.4 to 3.3 months depending on the grantee). Further, very few participants attended for longer than 12 months.

- ***Services according to random assignment status*.** Individuals assigned to the treatment group were offered the grant-funded program's services (but were not required to use them), while those assigned to the control group were not able to access those services (but could access others available in the community).

Each site's implementation of this general approach was tailored to local practices for recruitment, eligibility determination, and enrollment. The implementation study report for this evaluation describes the details of the random assignment process for each of the four grantees.

The random assignment ratio—that is, the proportion assigned to the treatment versus control group—varied across the grantees. For the AIOIC and KCCD programs, the ratio was 1:1. This means that half of program applicants were assigned to the treatment group and half to the control group.

For the GRCC program, the ratio was 2:1, which meant that for every two individuals assigned to the treatment group, one was assigned to the control group. Because the Pathways grant was shorter, and thus the time individuals could enroll in the program was also shorter, a higher ratio was used at GRCC (the one Pathways grantee in the study). This higher ratio increased the likelihood that GRCC could meet its overall enrollment goals established for the grant given that it was diverting some program applicants to the control group.

For NCTC's Health Matrix Grant scholarship program, where nine healthcare training courses were included in the evaluation, random assignment ratios varied by course of study. This was done to help manage class sizes and to avoid too few applicants for a given course being assigned to the treatment group (which could result in undersubscription and possible cancellation of a course). For four of the nine courses, the random assignment ratio was 1:1; for the remaining five courses, the ratio was about 2:1.[37]

[37] NCTC set a threshold number of individuals that needed to enroll in each course in order for it to make financial sense from an administration perspective for NCTC to operate it; the ratios were determined based on the anticipated demand for each course. The ratios were as follows: 1:1 for Certified Nurse Aide, Clinical Medical Assistant, Medical Billing and Coding, and Licensed Vocational Nurse; 2:1 for EKG Technician, Pharmacy Technician I, Phlebotomy, and Physical Therapy Aide; and 2.3:1 for Certified Medication Aide.

Exhibit 2.2: Random Assignment Process

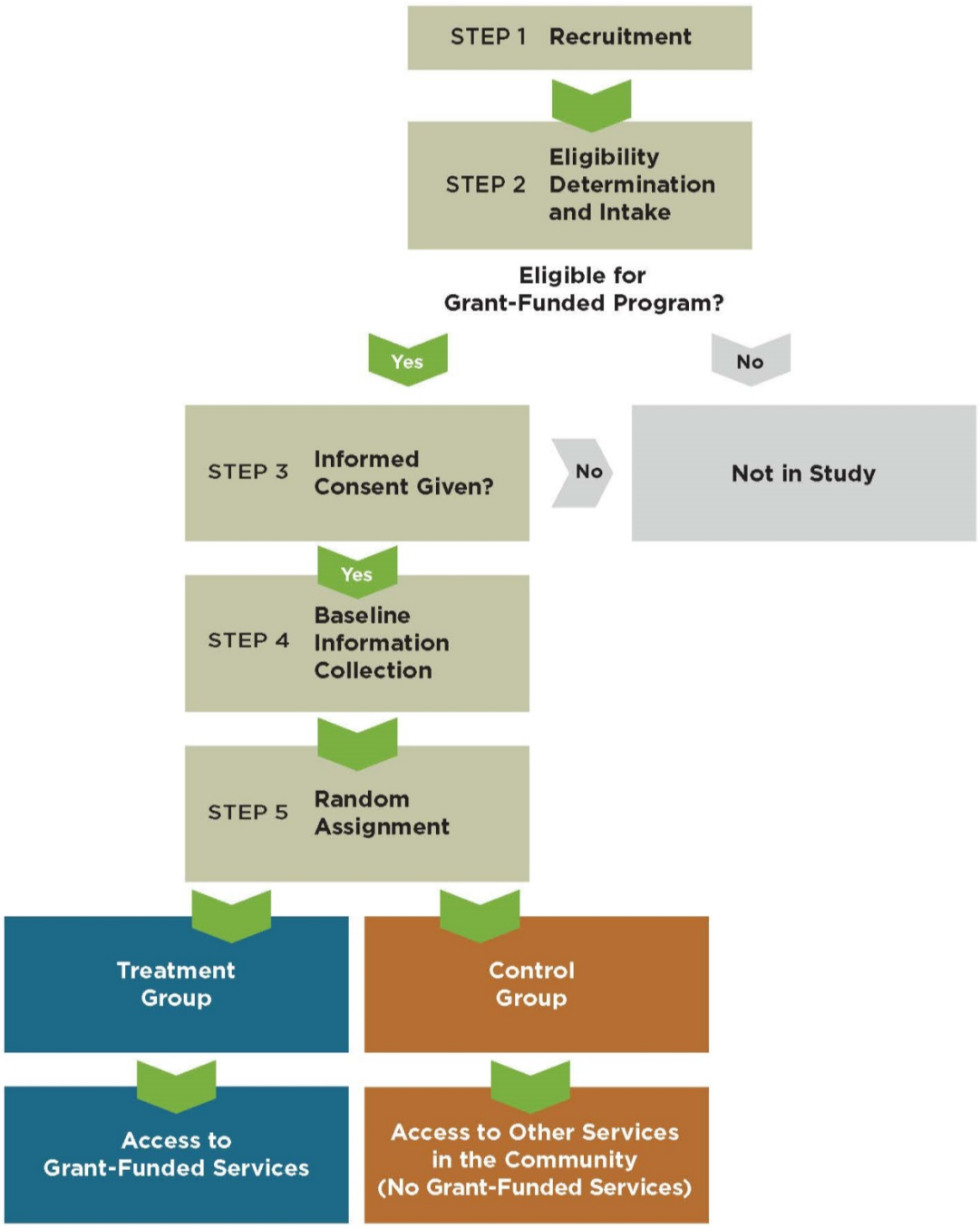

Exhibit 2.3 reports the dates of program operation, the period of random assignment for each grantee, the number of individuals enrolled in the treatment and control groups, the follow-up survey period, and the survey response rates.

As shown, the evaluation and random assignment process started after the programs began, but continued nearly to the end of the operational period of the grant (taking into account the need to serve those assigned to the treatment group within the grant period). The three Health Care grantees (AIOIC, KCCD, and NCTC) started their programs in approximately March 2010, with evaluation and random assignment starting about 17 months later, in July–August 2011. They ended their programs in June 2013. The Pathways grantee (GRCC) started its program in January 2010, with evaluation and random assignment starting in August 2011. Like all Pathways grants, the grant to GRCC was scheduled to last two years, but the program operated for two and a half years (including a six-month extension) and ended in July 2012.

Exhibit 2.3: Sample Enrollment Periods and Survey Response Rates

Grantee	Dates of Program Operation	Enrollment (Random Assignment) Period	Sample Size (n)			Follow-Up Survey Period	Follow-Up Survey Response Rate		
			Treatment Group	Control Group	Total		Treatment Group	Control Group	Total
AIOIC	March 2010–June 2013	August 2011–May 2013	271	271	542	February 2013–December 2014	69%	58%	64%
GRCC	January 2010–July 2012	August 2011–April 2012	186	91	277	March 2013–June 2014	70%	65%	68%
KCCD	March 2010–June 2013	August 2011–May 2013	414	415	829	February 2013–December 2014	71%	67%	69%
NCTC	March 2010–June 2013	July 2011–April 2013	555	440	995	February 2013–December 2014	79%	71%	75%

As shown, the overall survey response rates ranged from 64 percent (AIOIC) to 75 percent (NCTC). There are relatively small differences in the survey response rate for treatment and control group members for each grantee. To adjust for these differential response rates, weights were generated. Unless otherwise noted, these weights are used in all analyses of follow-up survey data. (See Appendix A, Section A.2.)

As discussed in Chapter 1, to ensure an adequate sample size for the impact study, the scale of the grantee programs was an important criterion in selecting grantees to include in the evaluation. Specifically, the evaluation sought to include relatively large programs that served several hundred participants over a one-year period, which was the original random assignment period for the study. However, as discussed in the evaluation's implementation study report, recruitment challenges caused the grantee programs, particularly AIOIC and GRCC, to enroll fewer participants than intended. Both the Health Care and Pathways grants were extended by up to six months, although even with the extensions enrollment was lower than anticipated. These smaller sample sizes limit the study's ability to detect statistically significant program impacts, unless those impacts are quite large in magnitude.

2.5 Data Sources

This section describes data sources for the study.

- ***Baseline information form (BIF).*** Before random assignment, applicants to a program completed the study's BIF, which captured information on their demographic and socioeconomic characteristics, employment and education history, receipt of public benefits, opinions about work, and contact information (including contact information for friends and relatives to help locate the individual later for the follow-up survey). The information collected on the BIF serves several purposes: (1) describing the study sample (reported in the first section of Chapters 3–6); (2) increasing the precision of impact estimates; (3) adjusting for non-response bias for the survey; and (4) defining subgroups for the impact analysis. Appendix A provides details on the construction of specific baseline measures.
- ***National Directory of New Hires (NDNH).*** Compiled by the Office of Child Support Enforcement (OCSE) at the U.S. Department of Health and Human Services, NDNH is a national database of Unemployment Insurance (UI) records that reports quarterly employment and earnings in UI-covered jobs. These jobs include most types of employment; however, some types of jobs are not included, specifically jobs that are "off the books." The NDNH serves as the primary source of data on earnings and employment status for study sample members.

  The study uses four quarters of NDNH data collected before random assignment, and six quarters of NDNH data collected after random assignment. These six quarters comprise the follow-up period for the study. These data cover almost the entire study sample—all but about 3 percent of individuals.[38]

  A supplemental analysis of early-enrolling sample members in each grantee program uses a longer follow-up period: nine quarters at KCCD and NCTC, 10 quarters at AIOIC, and 11 quarters at GRCC. Appendix B provides details on the construction of variables from the NDNH data, as well as additional information regarding the early cohort analysis.
- ***Follow-up survey.*** An attempt was made to survey all treatment and control group members, to collect information on their receipt of services and credentials, factors that affected the ability to work, employment and job characteristics, public benefits receipt, and financial circumstances. Exhibit 2.3 (above) shows the survey period and response rates for each of the four grantee programs. The follow-up survey was fielded roughly on the 18-month anniversary of an individual's entry into the research sample.[39]

This report also draws on two other data sources used in the implementation study:

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[38] OCSE performs a match to a record in the Social Security Administration (SSA) database based on a combination of name and Social Security number (SSN) before including that record in the NDNH database. Those participants who are not matched in the SSA database are considered "missing' for these purposes, because their employment records are not available.

[39] The follow-up surveys were completed between 17 and 27 months after random assignment, with an average follow-up period of 20 months. The longer follow-up period for some sample members was due to extended efforts needed to locate individuals, obtain their completion of the survey, and secure high response rates. The timing of the release of treatment and control sample to be surveyed and the length of the follow-up period was comparable between the treatment and control groups.

- ***Field research.*** The research team conducted in-person interviews with program administrators, instructors, organizational partners, and employers at two points during the study period.
- ***Administrative program data.*** Grantees provided the research team with program records. Although administrative data varied by grantee, data generally included dates of participation in the program, course enrollment information, and completion status. To ensure that the participation analyses in this and the implementation report capture complete participant experiences in the program, the research team used data for participants only where 12 months of follow-up (post-baseline) data were available. This necessitated focusing the analysis of participation patterns on a sample that enrolled in the earlier part of the random assignment period.

2.6 Estimating the Impact of the Grantee Programs

This section discusses issues related to the estimation of program impacts for each grantee program. As discussed, the random assignment of individuals to treatment or control groups allows for the computation of an estimate that reflects the impact of being offered *access* to program services. These analyses consider the confirmatory outcome (cumulative earnings in the fifth and sixth calendar quarters after random assignment) and explore a wide array of other outcomes. The study also estimates impacts on the confirmatory outcome of the offer of access separately for select subgroups. Finally, making additional assumptions, the study presents an estimate of the impact of participating in the program on the confirmatory outcome. The same methods were used to analyze data from each of the four grantees in the study.

2.6.1 Estimating the Impact of the Intention to Treat

This evaluation uses multivariate regression to estimate the effect of *access* to grant-funded program services (henceforth referred to as program impacts). Such estimates generally are referred to as the impact of the "intent to treat" (ITT).

Given the random assignment design of the evaluation, a simple difference of the means of the treatment and control groups also would correctly estimate impacts; the regression approach adopted here yields more precise estimates. Specifically, the following regression model was used:

$$Y_i = \alpha + \delta T_i + \beta X_i + \varepsilon_i \quad (1)$$

where Y is the outcome of interest (e.g., employment, earnings); T is an indicator of treatment status (which is set equal to 1 if the individual is assigned to the treatment group and 0 if the individual is assigned to the control group); X represents control variables measured at baseline (as detailed in Appendix A); δ is the average impact of the program on individuals in the treatment group (including those who do not use any services); α and β are regression parameters to be estimated; ε is a random residual error; and the subscript i indexes individuals.[40]

This model is estimated using weighted least squares regression both for continuous outcomes (e.g., cumulative earnings in quarters 5 and 6 post–random assignment) and for binary outcomes (e.g., whether an individual was employed during quarter 5 or 6 post-random assignment), using weights to adjust for

[40] Appendix B provides details regarding the construction of baseline covariates and outcome measures, as well as a description of how the research team handled extreme values.

follow-up survey nonresponse.[41,42] All tests are two sided unless otherwise noted.[43] Appendix A describes how missing baseline and follow-up survey data were addressed and how the sample weights were computed and applied when estimating impacts on survey-based outcomes. Minimum detectable impact estimates for the confirmatory outcome, for each of the four grantee programs, are also reported in Appenedix A.

2.6.2 Estimating the Impact of the Treatment on the Treated

Some treatment group members did not take up the offer to participate in the grant-funded training and associated services; additionally, a small number of control group members did participate in grant-funded services although they were assigned to the group that should not have had access to those services ("crossovers"). In such circumstances it is often of interest to estimate the impact of treatment on the individuals who *received* grant-funded services, defined as the "treatment-on-the-treated" (TOT) effect, in addition to estimating the ITT impact.[44] In this evaluation, only one program, KCCD's, experienced any crossovers, and then only for five individuals (1.2 percent of the control group). In addition, across the grantees, approximately 20 percent of treatment group members did not participate in the grantee-funded training programs.[45]

This evaluation uses a two-stage least squares regression to compute the TOT estimate. Specifically, this analysis assumes that all impact comes through those who receive the training, and that those who receive no training experience no effects.[46] For each of the four grantees, TOT estimates are computed only on the confirmatory outcome of earnings in the pooled fifth and sixth quarters after random assignment, as measured in the NDNH data.

As is common practice, the specific TOT estimates computed in this report account for the percentage of treatment group members that did not attend the program under study, and the percentage of the control

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41 All outcomes were constructed as either continuous or binary measures.

42 For continuous and binary outcomes, the evaluation estimated the Equation (1) model using weighted least squares regression so that the interpretation of impact estimates is comparable for the different types of outcomes. The use of weighted least squared regression for binary outcomes is consistent and unbiased for percentage point impacts (see Angrist and Pischke, 2009). A drawback of using weighted least squares with binary outcomes (relative to using, for example, a logit model) is that the model may produce predicted probabilities less than 0 or greater than 1. This happens occasionally in the results reported here. When this occurs, the δ coefficients reported herein are restricted such that predicted probabilities fall within the [0, 1] interval. Thus, the very few results that fell outside that range are reported as either 0 or 1 for reporting purposes. Finally, robust standard errors were computed to correct for heteroscedasticity, both in general and as induced by the binary outcomes (Winship and Radbill, 1994).

43 The SAS System's "surveyreg" procedure was used to carry out the analyses.

44 Note that this is not the TOT estimate of receiving *any* training; instead, it is the TOT estimate of receiving grant-funded training. The TOT estimate is adjusted for multiple comparisons using the same multiple comparisons adjustment used for the confirmatory outcome.

45 Based on program administrative data analyzed for the evaluation's implementation study, the proportion of treatment group members that did not participate in a grant-funded training program under study was 21 percent at AIOIC, 24 percent at GRCC, 14 percent at KCCD, and 15 percent at NCTC.

46 Bloom, 1984

group that did attend the training program under study although they should not have. Following Angrist, Imbens, and Rubin,[47] the two-stage instrumental variables approach to estimate both the TOT value and the standard error is used. Note that this study uses a TOT estimate that adjusts for no-shows and formal crossovers from the control group. It represents the effect of participating in this training relative to the counterfactual, which includes access to other services in the community.[48]

2.6.3 Estimating the Impacts for Subgroups

The impact estimate based on the full sample for each grantee program represents the average impact of the program on all individuals at that program. The study also explores whether estimated impacts for each of the grantee programs differ across selected subgroups of interest, particularly those for whom program effects might vary.

Specifically, the evaluation considered two subgroups: (1) individuals with only a high school diploma or GED versus those with more than a high school diploma, as identified at baseline and (2) individuals who were employed during any of the four quarters preceding the quarter of random assignment versus those who were not employed during this period. For these subgroups, impacts are estimated for employment and earnings in the fifth and sixth quarters after random assignment.

2.7 Interpreting Findings

This section provides guidance on how to read and understand the information conveyed in results exhibits and associated discussions.

2.7.1 Reading and Understanding Exhibits and Statistical Significance

Throughout this report, the exhibits presenting impact analysis results have a common format. Exhibit 2.4 below shows a sample of the exhibits contained in the body of the report.

Specifically, each exhibit lists the outcome measure being analyzed in the left-most column, with the unit of that outcome in parentheses (e.g., "(%)" or ($)). The next column presents the treatment group's regression-adjusted mean outcome, with the next column reporting the control group's regression-adjusted mean outcome. The regression adjustments correct for random variation in baseline covariates between the two groups (and thus differ slightly from the raw means).[49] The right-most (final) column reports the difference in these two values, which is the estimated impact of being in the treatment group. If that impact estimate has one or more asterisks next to it (or one or more pound signs, for the confirmatory outcome), then the impact is statistically significantly different from zero.

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47 Angrist et al., 1996

48 Heckman et al., 2000

49 The treatment and control group means are regression adjusted, and are not the raw treatment and control group averages. To compute regression-adjusted treatment and control group means, the predicted outcomes are output from the impact analysis regression model using the entire sample. In doing so, the reported treatment group mean is computed as the average predicted outcome across all study members assuming all cases are in the treatment group. Likewise, the reported control group mean is computed as the average predicted outcome across all study members assuming all cases are in the control group. As such, the treatment and control group means adjust for random differences in observed baseline characteristics across study members.

Exhibit 2.4: Sample Exhibit

Outcome	Treatment Group	Control Group	Difference (Impact)
Participated in any education or training (%)	85.2	56.3	28.9***
Number of months attended education or training	4.1	2.2	1.9*
Number of courses attended	3.2	2.0	1.2***
Enrolled in education and training at time of follow-up survey (%)	23.6	20.4	3.2

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Due to rounding, reported impacts (treatment–control differences) may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

The reader can interpret these statistical significance symbols as follows: Results that are statistically significant at the $p<0.01$ level would arise by chance in only one in 100 cases and provide strong evidence of the finding. In contrast, results that are statistically significant only at the $p<0.10$ level, and not at the $p<0.05$ or $p<0.01$ level, provide less certain evidence because one in 10 of these statistically significant results would arise by chance. Results that are statistically significant at the $p<0.10$ level are noted as such in the text via parenthetical statements. In the absence of such a parenthetical statement, the reader can assume that the result is significant at the $p<0.05$ or $p<0.01$ level.

Because no multiple comparisons correction is made (in which the possibility of chance findings, due to the large number of statistical tests conducted, is reduced), except for the confirmatory outcome measure, evidence of impacts on these measures is limited. Unless otherwise explicitly noted, only impacts that are statistically significant, as indicated in the exhibits by having one or more asterisks (or pound signs), are discussed.[50]

2.7.2 Other Considerations for Interpreting Findings

Impacts discussed in this report are based on the ITT estimate (as discussed above), except where otherwise noted. That is, all results are estimates of the impact of being *offered* the program, although this is not specifically restated in each discussion of each result.

For the impact estimates to be unbiased, all treatment and control group members should be included in the analysis; sample members cannot be systematically excluded from the impact estimation. Specifically, some variables are not available for some groups of individuals. For example, the job characteristics of individuals who were unemployed for the entire follow-up survey period cannot be described, nor can the characteristics of training programs attended among sample group members who did not participate in any training. To maintain an experimental comparison—of all treatment group members to all control group members—there are some circumstances in which individuals for whom such a measure is undefined are assigned a value of zero. For example, for the variable that captures whether an individual's job offers health insurance coverage, those who had no job throughout the entire follow-up period *and* those whose job does not offer health insurance both are assigned a value of zero, whereas only those who have a job that offers health insurance are assigned a value of one. As summarized in Appendix B, several variables have this characteristic, and these variables are presented in the main body of this report.

[50] In addition, program-specific appendices provide supplemental detail including outcome-specific sample sizes and the standard error and a 90 percent confidence interval for the impact estimate.

In addition, non-experimental descriptive comparisons (that is, comparisons that systematically exclude part of the sample, such as those who were not employed during the follow-up period, or those who did not participate in training) are provided as supplemental analyses reported in Appendices C through F. Some of these results are referred to in the main body of the report (but are not presented in tables in the main body of the report), and are noted as non-experimental comparisons. Statistical tests were not conducted on non-experimental comparisons.

3. Impact Findings for American Indian Opportunities Industrialization Center's Soil to Sky Program

This chapter presents impact findings for the American Indian Opportunities Industrialization Center's (AIOIC) Career Ladders from the Soil to the Sky (Soil to Sky) healthcare training program.

The analysis found that AIOIC's Soil to Sky program did not produce a statistically significant impact on the evaluation's primary and confirmatory outcome: earnings of the treatment group in the fifth and sixth quarters after random assignment. In addition, the evaluation did not find a statistically significant impact on a range of other employment-related outcomes including the characteristics of jobs or financial circumstances. The program did, however, result in impacts on several short-term outcomes, including participation in vocational training; receipt of a range of supports including academic advising, career counseling, financial assistance, and job search assistance; and the attainment of a vocational credential.

This chapter is organized following the logic model presented in Chapter 2. Section 3.1 provides an overview of the Soil to Sky program goals, target population, and main services. Section 3.2 provides information about the characteristics of the research sample. Section 3.3 presents impacts on service receipt, educational attainment, and factors affecting the ability and willingness to work. Section 3.4 presents impacts on employment and earnings outcomes based on the National Directory of New Hires data and the 18-month follow-up survey data. Finally, Section 3.5 discusses impacts on income, public benefits receipt, and other financial measures.[51]

3.1 AIOIC's Soil to Sky Program

AIOIC is a non-profit organization based in Minneapolis, Minnesota, that offers a range of education and training opportunities, with the goal of helping individuals obtain and advance in jobs in their field of interest. Established in 1979, AIOIC's original mission was to address disparities in education and employment among American Indians in a disadvantaged Minneapolis neighborhood. The organization now serves a diverse community that includes numerous immigrant populations, with a particular focus on low-income and unemployed individuals. AIOIC provides postsecondary programs in healthcare, business, and information technology, as well as an Adult Basic Education (ABE) and GED programs.

The population in Hennepin County, where Minneapolis is located, was about 1.2 million in 2013. Three-quarters of the population was white and nearly 12 percent was black or African American, according to 2013 American Community Survey estimates (see Appendix G). Close to 7 percent of the population reported being Hispanic or Latino. Hennepin County's population was fairly highly educated: 46 percent of the population had a bachelor's degree or higher, 20 percent had some college experience but no degree, and 18 percent held a high school diploma. The median household income in 2013 was approximately $64,000, and 13 percent of individuals in the county lived below the federal poverty level.

[51] Not all individuals assigned to the treatment group participated in the AIOIC training programs, although most (79 percent) did, according to program administrative data (see Copson et al., 2016). As a result, the impacts reported in this chapter reflect the effect of the *offer* to participate. That is, as explained in Chapter 2, the reported impacts reflect the difference in outcomes between those in the entire treatment group (including those who did and did not participate in training) and those in the entire control group.

During the grant period, between 2010 and 2013, the unemployment rate in Hennepin County decreased from 7 percent to 3.6 percent and the metropolitan area experienced a 5 percent increase in job growth (see Appendix G). According to AIOIC staff, early in the grant period hiring by healthcare providers in the Minneapolis region had slowed due to the recession, but by 2011 employers began to advertise more job openings and this upward trend continued through the end of the grant period. In 2013, home health aides, nursing assistants, and personal care assistants were among the top 10 most in demand occupations in the Minneapolis/St. Paul area, according to the Minnesota Department of Employment and Economic Development.[52]

AIOIC used the U.S. Department of Labor's Health Care and Other High Growth and Emerging Industries grant to fund the Soil to Sky program. This program provided a series of tuition-free healthcare training programs, as well as advising, support, and employment services to students who attend these programs. Soil to Sky, designed for adults with education levels of at least fifth grade, provided training in a range of healthcare occupations to prepare unemployed, underemployed, and low-skilled individuals for direct care and healthcare administrative positions. As discussed in Chapter 2, the grant operated from March 2010 through June 2013, with random assignment to a treatment or control group taking place from August 2011 through May 2013.[53]

Exhibit 3.1 provides a summary of the primary services provided by AIOIC's Soil to Sky program. As shown, the healthcare training programs included six short-term (one to six weeks) programs and two longer-term (six and nine months) programs. Soil to Sky was designed to give participants flexibility to enroll in single or multiple programs that met their education needs and time frame for seeking employment. AIOIC did not have a predefined pathway of short-term courses. Instead, participants worked with AIOIC staff to determine the appropriate path based on their skills and interests.

- The short-term programs were Acute Care Nursing Assistant, Home Health Aide, First Aid and CPR, Nursing Assistant, Personal Care Assistant, and Trained Medication Aide. Individuals could take one or more of the programs concurrently or sequentially. The programs resulted in AIOIC certificates (i.e., Acute Care Nursing Assistant, Trained Medication Aide), a Minnesota Department of Human Services certificate (Personal Care Assistant), or eligibility (as a result of coursework completion) to sit for Minnesota state competency evaluations (i.e., Nursing Assistant, Home Health Aide).
- The long-term training programs were a six-month Health Occupations program and a nine-month Medical Office Assistant program. The former resulted in certificates for Nursing Assistant, Home Health Aide, and Trained Medication Aide, as well as an AIOIC Health Occupations program certificate. The latter resulted in an AIOIC certificate for Medical Office Assistant.

In addition to training, Soil to Sky included a range of student supports. Academic advisors provided tutoring and support on school-related issues, while other dedicated staff provided assistance with specific non-academic issues faced by students. Non-academic assistance included providing referrals as needed to food pantries and the Supplemental Nutrition Assistance Program (SNAP), community health clinics, emergency housing resources, or other services students needed to continue their engagement in the training courses. AIOIC's program also had staff dedicated to providing one-on-one job search assistance on job search skills, help with resume development and submitting job applications, and a weekly job

[52] Minnesota Department of Employment and Economic Development, 2013

[53] AIOIC received a six-month extension to operate the grant program.

readiness class. In addition, these staff made connections with a large number of employers to identify job openings for students.

Exhibit 3.1. Primary Services Provided by AIOIC's Soil to Sky Program

Program Component	Description
Training and Resulting Credentials	Trainings ranged from short-term (one to six weeks) programs to longer-term (six and nine months) programs. The short-term programs were Acute Care Nursing Assistant, Home Health Aide, First Aid and CPR, Nursing Assistant, Personal Care Assistant, and Trained Medication Aide. Short-term training programs could be taken in a sequence to gain multiple certificates. The long-term training programs were the Health Occupations program (which combined several short-term programs) and the Medical Office Assistant program. Training resulted in either an AIOIC certificate or eligibility to sit for the relevant state examination.
Academic Advising and Personal Supports	Advisors provided tutoring and support on academic-related issues, while other dedicated staff provided assistance with non-academic issues such as referrals to food pantries and SNAP, community health clinics, and emergency housing resources.
Financial Assistance	Training was offered at AIOIC at no cost to participants. Each participant in short-term training received $85 per month in transportation assistance. Those who secured employment received two $50 vouchers to offset transportation and uniform expenses.
Employment Assistance	Staff dedicated to providing employment services offered career guidance and one-on-one job search assistance, including help with developing a career plan, interviewing and job search techniques, developing resumes, submitting applications, and providing services needed to retain a job. A weekly two-hour job readiness class was provided.
Connections with Employers	Staff dedicated to employment issues also identified and established relationships with numerous healthcare employers to identify clinical placements and job openings for participants, build the reputation of the program, and guide program services.

Source: Interviews with program staff.

Program administrative data analyzed for the GJ-HC implementation study indicate high levels of participation in Soil to Sky trainings, with 79 percent of those assigned to the treatment group attending at least one healthcare training program.[54] Exhibit 3.2 shows the proportion of Soil to Sky participants, among those who attended at least one program, who participated in and completed each program, the groupings of programs attended and associated completion rates, and the average duration of participation.

Of those who participated in a Soil to Sky program, 89 percent attended a short-term training program. As shown, 60 percent of the participants attended two or more short-term training programs: 20 percent attended two short-term training programs, and 40 percent attended three or more. Program completion rates were higher among those who attended two or more short-term training programs: those who attended two short-term programs had an 80 percent completion rate (of both programs), compared with 53 percent completion rate among those who attended only one short-term program.

[54] See Copson et al., 2016 for more details on these analyses and results.

A small proportion of participants (16 percent) attended one of the longer-term training programs, most commonly the Medical Office Assistant program. This program had a 67 percent completion rate, but less than one-third of those who attended the six-month Health Occupations program completed it. Although many participants combined programs, the duration of participation in AIOIC trainings was relatively short overall. The average length of stay (i.e., the total amount of time a participant was enrolled at AIOIC) was 3.2 months. Most participants attended for six months or less (67 percent); 15 percent attended for longer than nine months (not on chart).

Exhibit 3.2. Type of Program Attended, Completion Rates, and Average Length of Stay Among AIOIC Program Participants over a 12-Month Follow-Up Period

Training Program	Participation Rate (%)	Completion Rate (%)	Months in Training
Attended Any Short-Term Training	89	65	2.4
Attended only one short-term training	30	53	0.8
Nursing Assistant	20	36	0.8
Trained Medication Aide	7	85	0.5
Acute Care Nursing Assistant	2	100	1.3
First Aid and CPR	1	100	0.1
Attended two short-term trainings	20	80	2.4
Nursing Assistant and Home Health Aide	6	82	1.2
Nursing Assistant and Trained Medication Aide	6	70	2.6
Acute Care Nursing Assistant and Trained Medication Aide	2	75	3.2
Other	6	90	3.3
Attended three or more short-term trainings	40	68	3.7
Home Health Aide, Nursing Assistant, Trained Medication Aide, and First Aid and CPR	16	86	3.8
Home Health Aide, Nursing Assistant, and Trained Medication Aide	11	50	2.5
Home Health Aide, Acute Care Nursing Assistant, Nursing Assistant, and Trained Medication Aide	3	33	5.2
Other	9	71	4.5
Attended Any Long-Term Training	16	57	7.3
Nine-month Medical Office Assistant program	12	67	7.9
Six-month Health Occupations program	4	29	4.6
Attended Any Training	100	64	3.2

Source: Calculations from AIOIC program records.
Note: Sample size is 179 and includes those in the treatment group who attended at least one AIOIC Soil to Sky program and for whom 12 months of follow-up data are available. Totals do not sum to 100 percent because those in long-term training programs may also have taken a short-term training. Completion and length of stay measures are for those who attended the specific program or combination of programs.

3.2 Target Group and Characteristics of the Research Sample

To be eligible for the Soil to Sky program, an applicant had to be unemployed or underemployed,[55] at least 18 years of age, and have no criminal record (which could hinder the ability to secure employment

[55] "Underemployed" generally refers to individuals working for fewer hours than desired or in a position below their level of skill and experience.

in the nursing field). As required for some healthcare positions, individuals also had to demonstrate proof of immunization and have a negative tuberculosis test. The education and experience requirements varied, depending on the training program. AIOIC used the Test of Adult Basic Education (TABE®) to determine eligibility for some of the short-term programs, requiring at least a fifth-grade-level score in reading and math. For other short-term programs, individuals needed to be registered with the Minnesota Nursing Assistant Registry (NAR). For the longer-term trainings, individuals needed a GED or high school diploma.

Exhibit 3.3 shows the characteristics of individuals in the treatment and control groups at baseline (that is, before random assignment). Balance testing demonstrates that the 271 treatment group members and the 271 control group members do not statistically differ from one another. Additionally, among only the sample members who responded to the 18-month survey (after applying survey weights), and among the sample members for whom NDNH data were available, the treatment and control group members still do not statistically differ from one another (see Appendix C). Therefore, any differences in the groups' outcomes reported in this chapter can be attributed to the AIOIC program.[56]

As shown, the vast majority of AIOIC sample members were female (79 percent) and most were not employed at the time of random assignment (58 percent); 35 percent were unemployed but had worked within the previous 12 months, and 22 percent had been unemployed for more than a year. Weekly earnings averaged $112.[57] More than half of AIOIC sample members received some type of public benefits, with 42 percent receiving SNAP benefits, 21 percent receiving housing assistance, and 18 percent receiving Temporary Assistance for Needy Families (TANF).

Reflecting the community in which it operated, AIOIC served a primarily minority population (including one-quarter who were legal U.S. residents). Some 60 percent of sample members reported being black or African American, and 43 percent spoke a language other than English at home. The average age was 32, and half had children younger than 18 living in their households.

AIOIC did not require a high school diploma or GED for entry into its shorter-term programs, and sample members reported a range of educational attainment. About one-third reported that they had a high school diploma or less, and about one-third had earned some college credit but no degree. Smaller proportions of individuals reported other credentials, such as a technical or associate's degree (14 percent) and bachelor's or master's degree (10 percent).

About two-thirds of sample members said they were willing to take any job, even if the pay was low (68 percent) and half said they preferred a job related to their training. Some sample members indicated that finding affordable childcare (21 percent) or access to transportation (31 percent) limited their ability to work.

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[56] The unadjusted *p*-value for a global F-test of all characteristics examined in Exhibit 3.3 is 0.245, which is not statistically significant, implying that collectively the treatment and control groups do not differ across all items considered.

[57] Weekly earnings are calculated among both the employed and unemployed at the time of the baseline survey. Among those who were working, average weekly earnings were $269 for the entire sample ($273 for the treatment group and $264 for the control group).

Exhibit 3.3: Selected Characteristics of Study Sample at Baseline, AIOIC

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	78.8	79.0	78.6	0.4
Male	21.2	21.0	21.4	-0.4
Race (%)				
American Indian or Alaskan Native	9.2	9.3	9.1	0.3
Asian	4.7	6.0	3.4	2.6
Black or African American	59.7	58.2	61.1	-2.9
Native Hawaiian or other Pacific Islander	0.4	0.0	0.8	-0.8
White	18.9	20.9	17.0	3.9
Multi-race	7.1	5.6	8.7	-3.1
Hispanic ethnicity (%)	5.9	7.0	4.8	2.2
Age (%)				
21 years or younger	18.8	18.1	19.6	-1.5
22 to 29 years	33.2	34.7	31.7	3.0
30 to 39 years	21.0	19.2	22.9	-3.7
40 years or older	26.9	28.0	25.8	2.2
Average age (years)	32.2	32.3	32.1	0.3
Citizenship (%)				
U.S. citizen	78.0	77.1	78.9	-1.8
Legal resident	22.0	22.9	21.1	1.8
Speaks a language other than English at home (%)	43.0	41.7	44.3	-2.6
Family Status				
Marital status (%)				
Married	21.8	21.0	22.5	-1.5
Widowed/divorced/separated	15.1	14.4	15.9	-1.5
Never married	63.1	64.6	61.6	3.0
Number of children under age of 18 (%)				
None	50.0	54.2	45.8	8.4
One child	21.8	20.0	23.7	-3.7
Two children	14.2	12.7	15.6	-3.0
Three or more children	14.0	13.1	14.9	-1.8
Education				
Education level (%)				
Less than high school	6.7	6.3	7.1	-0.8
High school diploma or GED	31.5	27.8	35.2	-7.4
Technical or associate's degree	14.0	17.8	10.1	7.7
Some college credit but no degree	38.4	37.8	39.0	-1.2
Bachelor's or master's degree	9.5	10.4	8.6	1.8
Currently enrolled in school or training program (%)	25.9	26.6	25.3	1.3
Employment				
Employed (%)	42.5	43.3	41.7	1.6
Currently employed full-time (30+ hours)	17.5	18.4	16.6	1.8
Currently employed part-time (<30 hours)	25.0	24.9	25.1	-0.2

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Not employed (%)	57.5	56.7	58.3	-1.6
Employed in last 12 months but not employed currently	35.2	35.2	35.1	0.1
Longer than 12 months since last worked	22.3	21.5	23.2	-1.7
Weekly earnings ($)	112	115	108	7
Factors That Affect Employment				
Hourly rate a job must pay for respondent to take ($)	10.54	10.54	10.53	0.01
Felony conviction (%)	1.1	1.5	0.7	-0.7
Job preferences (%)				
Prefers the kind of job that relates to training	50.4	49.4	51.4	-1.9
Will take any job, even if the pay is low	67.9	71.6	64.1	7.5
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	20.9	21.2	20.6	0.6
Transportation problems limit ability to work	30.5	31.0	30.0	1.0
Any kind of physical or mental disability	3.1	3.3	3.0	0.4
Public Benefits				
Receiving any public benefits (%)	55.2	53.9	56.5	-2.6
Types of benefits received (%)[a]				
Temporary Assistance for Needy Families	18.3	18.9	17.8	1.1
Supplemental Nutrition Assistance Program	41.6	42.0	41.1	0.9
Unemployment Insurance	8.4	6.7	10.1	-3.4
Section 8 or public housing assistance	21.3	20.8	21.8	-1.0

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).
Note: [a] Responses are not mutually exclusive.
Estimates in this table are computed based on the 271 AIOIC treatment group members and 271 AIOIC control group members who completed the baseline survey. All statistics are calculated for the full sample of treatment or control group members. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.
** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

3.3 Impacts on Service Receipt, Educational Attainment, and Factors Affecting Ability to Work

This section reports on the impact of AIOIC's Soil to Sky program on participants' receipt of education and training services, a range of support services, and the receipt of credentials or degrees. It also examines whether the program services affected any of the factors that limited study members' ability to work, including problems with transportation, finding quality childcare, or other health or emotional issues.

In sum, the AIOIC Soil to Sky program produced positive impacts on participation in vocational training programs and the receipt of a vocational credential. The program also had positive impacts on the receipt of academic advising, career counseling, and job placement assistance, as well as on financial and transportation assistance. Finally, the program was found to reduce the proportion of treatment group members who faced transportation barriers that limited their ability to work.

3.3.1 Participation in Education and Training Programs

Exhibit 3.4 shows the program impacts on participants' receipt and completion of education and training programs within the 18-month follow-up period. Almost all of the treatment group (93 percent) participated in some type of education or training program during the follow-up period, compared with two-thirds of the control group (67 percent). This impact on program participation is largely due to participation in vocational training, where 64 percent of the treatment group participated in this activity compared with 38 percent of the control group. While the AIOIC program increased participation in training activities for the treatment group relative to the control group, it should be noted that a large proportion (two-thirds) of the control group also accessed education and training opportunities during the follow-up period.

Exhibit 3.4: Impacts on Participation in Education and Training Programs, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Group	Control Group	Difference (Impact)
Participated in **any education or training** (%)	92.8	66.6	26.2***
Number of months attended education or training	5.0	3.7	1.3**
Number of courses attended	3.3	2.5	0.8***
Enrolled in education and training at time of follow-up survey	13.3	18.4	-5.1
Participated in **ABE/GED** (%)	10.4	10.7	-0.4
Average number of months attended	0.3	0.2	0.1
Completed any ABE/GED classes (%)	4.1	5.0	-0.9
Participated in **vocational training** (%)	63.5	37.9	25.6***
Average number of months attended	2.2	1.2	1.0***
Completed any vocational trainings (%)	54.3	30.2	24.1***
Participated in **college level courses for credit** (%)	34.6	34.8	-0.2
Average number of months attended	2.3	2.4	-0.1
Completed any college level courses (%)	29.3	26.7	2.6
Participated in **classes on study skills, workplace skills, or general life skills** (%)	11.9	13.3	-1.3
Number of months attended	0.4	0.2	0.1
Completed any life skills classes (%)	8.8	11.2	-2.4

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 345 individuals includes 187 treatment group and 158 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

An impact was also detected on the length of time individuals spent in education and training activities and the number of courses attended. Across all sample members (i.e., including those who did not attend training, who are coded as zero), the treatment group spent five months in education and training activities compared with four months for the control group. Treatment group members also attended approximately one more education or training course compared with the control group. However, when considering only those who participated in any education or training (a non-experimental comparison), the average amounts of time in training for the treatment and control groups appear to be comparable (5.4

months compared with 5.8 months),[58] as are the average number of courses attended (3.6 courses compared with 3.5 courses) (see Appendix C, Exhibit C.4). Given that the treatment/control differences in the length of training among those who attended training is minimal, the impact on the average months of training attended is primarily due to the higher percentage of treatment group members than control group members attending training, rather than on an increase in the length of time or number of courses taken by those who did participate.

Finally, considering all treatment and control group members, an impact was detected on the completion rates of vocational training: 54 percent of the treatment group reported completing vocational training, compared with 30 percent of the control group.[59] However, among those who *attended* a vocational training program (a non-experimental comparison), completion rates for the treatment and control group appear to be comparable: the treatment group had an 84 percent completion rate among those who attended, compared with the control group's 79 percent completion rate among those who attended.[60] Thus, although the completion rate was somewhat higher for treatment group members who attended training, the impact on the completion rate for training primarily stems from the higher percentage of treatment group members than control group members attending training.

3.3.2 Receipt of Advising, Support, and Financial Assistance Services

In addition to training in the healthcare field, the AIOIC Soil to Sky program provided a range of supports including advising on academic, career, and job search issues. As discussed above, academic advisors provided tutoring and support on school-related issues, while other dedicated staff provided assistance with non-academic issues faced by the students, including referrals to other organizations and programs. AIOIC's program also had staff dedicated to providing career guidance and one-on-one job search assistance on job search skills, resume development, and submitting job applications and a weekly job readiness class. Finally, each participant in short-term training received $85 per month in transportation assistance. Those who secured employment received two $50 vouchers to offset transportation and uniform expenses.

As shown in Exhibit 3.5, consistent with the program model, more treatment than control group members received any type of advising as part of their education and training program, with 78 percent of the treatment group reporting that they received these services compared with 51 percent of the control group. Specifically, half of the treatment group (50 percent) received job placement assistance compared with 20 percent of the control group members. Additionally, more treatment than control group members received career counseling (48 percent compared with 28 percent) and academic advising (55 percent compared with 38 percent).

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[58] Statistical tests were not conducted on non-experimental comparisons, as described in Chapter 2.

[59] "Completion" of programs is self-reported and thus differs from figures presented above based on program administrative data. In addition, program completion may not necessarily mean that a credential was obtained, as some credentials require state licensing exams. See Section 3.3.3, below, for impacts on credential receipt.

[60] Some 64 percent of the treatment group participated in vocational training and 54 percent of them completed; 38 percent of the control group attended a vocational training program and 30 percent of them completed.

The Soil to Sky program also resulted in impacts on the receipt of assistance with life skills, including having a good work ethic, communication skills, anger management, and money management and financial planning. These topics were typically covered in AIOIC's job readiness classes.

Exhibit 3.5: Impacts on Receipt of Advising, Life Skills, Support Services, and Financial Assistance, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Group	Control Group	Difference (Impact)
Advising			
Received any type of advising as part of education and training program (%)	78.2	51.4	26.9***
Academic (%)	54.7	38.3	16.3***
Tutoring (%)	17.7	18.1	-0.4
Career counseling (%)	48.0	28.3	19.7***
Financial aid advising (%)	29.4	25.5	3.9
Job placement assistance (%)	50.1	19.7	30.4***
Life Skills			
Received any assistance on life skills issues (%)	48.6	35.8	12.8**
Having a good work ethic (%)	35.2	14.8	20.4***
How to communicate well with your boss and co-workers (%)	40.9	23.5	17.4***
How to manage any anger and frustrations (%)	33.9	15.6	18.3***
How to manage your money and plan your finances (%)	24.7	16.0	8.7*
Support Services			
Received support services to attend training or work (%)	59.4	48.0	11.4**
Clothes or uniforms (%)	32.5	18.6	13.9***
Childcare assistance (%)	10.4	13.6	-3.2
Assistance with transportation (%)	38.1	15.3	22.7***
Job-related tools (%)	9.8	2.6	7.1***
Books or supplies (%)	27.3	12.5	14.8***
Financial Assistance			
Received financial assistance to attend education and training (%)	83.6	53.2	30.3***
Paid out of pocket for some portion of classes (%)	17.5	23.0	-5.5
Received student loans to finance courses (%)	9.8	12.3	-2.5

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 345 individuals includes 187 treatment group and 158 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Treatment group members were also more likely to receive support services to attend training or work, including uniforms and job-related tools, transportation assistance, and books and supplies. The largest impact for these supports was for transportation services, with 38 percent of the treatment group receiving transportation assistance compared with 15 percent of the control group.

Finally, reflecting AIOIC's tuition-free courses, the treatment group was more likely than the control group to receive financial assistance to attend education and training (84 percent compared with 53 percent).

3.3.3 Educational Attainment

AIOIC's Soil to Sky program not only increased levels of participation in training programs and the receipt of support services for the treatment group relative to the control group, but also it resulted in a positive impact on educational attainment. As shown in Exhibit 3.6, more treatment than control group members received a vocational credential (47 percent compared with 27 percent). These could include the healthcare credentials provided by the AIOIC program upon completion, as well as any state licensing exams required for the programs. The Soil to Sky program also increased the number of vocational credentials received for the treatment group, compared with the control group, a result that is due to more treatment group members participating in training.

Exhibit 3.6: Impacts on Educational Attainment, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Group	Control Group	Difference (Impact)
Received any education or training degree or credential (%)	55.1	33.2	21.9***
Vocational Credential			
Received vocational credential (%)	47.0	26.6	20.5***
Number of vocational credential earned	0.8	0.4	0.4***
Educational Degrees			
GED/high school diploma (%)	3.1	2.9	0.1
Associate's degree (%)	3.1	1.3	1.8
Bachelor's degree (%)	1.4	0.5	0.9
Other			
Received other type of credential (%)[a]	5.8	7.0	-1.2

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Other types of credentials and degrees include study skills, workplace skills, and general life skills credentials, in addition to master's degrees. No sample members received doctorate or professional degrees.
The total sample of 345 individuals includes 187 treatment group and 158 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

3.3.4 Factors Affecting Ability to Work

The 18-month follow-up survey asked sample members about a range of issues that might affect their ability to work, including problems with transportation or childcare and physical or other health conditions, both at the time of the survey and over the entire follow-up period. As shown in Exhibit 3.7, fewer treatment than control group members (statistically significant at the 10 percent level) had problems with transportation that affected their ability to work (27 percent compared with 37 percent) in the month before the follow-up period. This may be due to the two $50 vouchers AIOIC offered to those who secured employment to offset transportation expenses, although no impacts on this factor were detected over the entire random assignment period. No differences were found between the treatment and control groups in whether childcare availability or health conditions affected their reported ability to work either in the month before the survey or since random assignment.

Exhibit 3.7: Impacts on Factors That Affected Ability to Work, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Group	Control Group	Difference (Impact)
Factors that affected respondent's ability to work in the past month:			
Finding affordable quality childcare (%)	23.4	21.3	2.1
Problems with transportation (%)	26.5	36.7	-10.3*
Any physical, emotional, or other health conditions (%)	16.4	21.0	-4.6
Factors that affected respondent's ability to work between random assignment and last month:			
Finding quality childcare that respondent could afford (%)	27.5	21.5	6.0
Problems with transportation (%)	38.2	44.3	-6.1
Any physical, emotional, or other health conditions (%)	20.2	23.5	-3.3
Amount a job must pay per hour for respondent to take it ($)[a]	11.83	11.83	0.00

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] For respondents who reported a rate per week/month/year, the conversion to hourly rate assumes an average work week of 34.5 hours based on the Bureau of Labor Statistics estimates for the private sector.
The total sample of 345 individuals includes 187 treatment group and 158 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

The follow-up survey also asked about the lowest wage a respondent would accept to take a job (often called the "reservation wage"). AIOIC's Soil to Sky program was not shown to have resulted in an impact on this measure, with both the treatment group and control group members reporting that they were willing to accept a job that pays $11.83 per hour.

3.4 Impacts on Employment and Earnings Outcomes

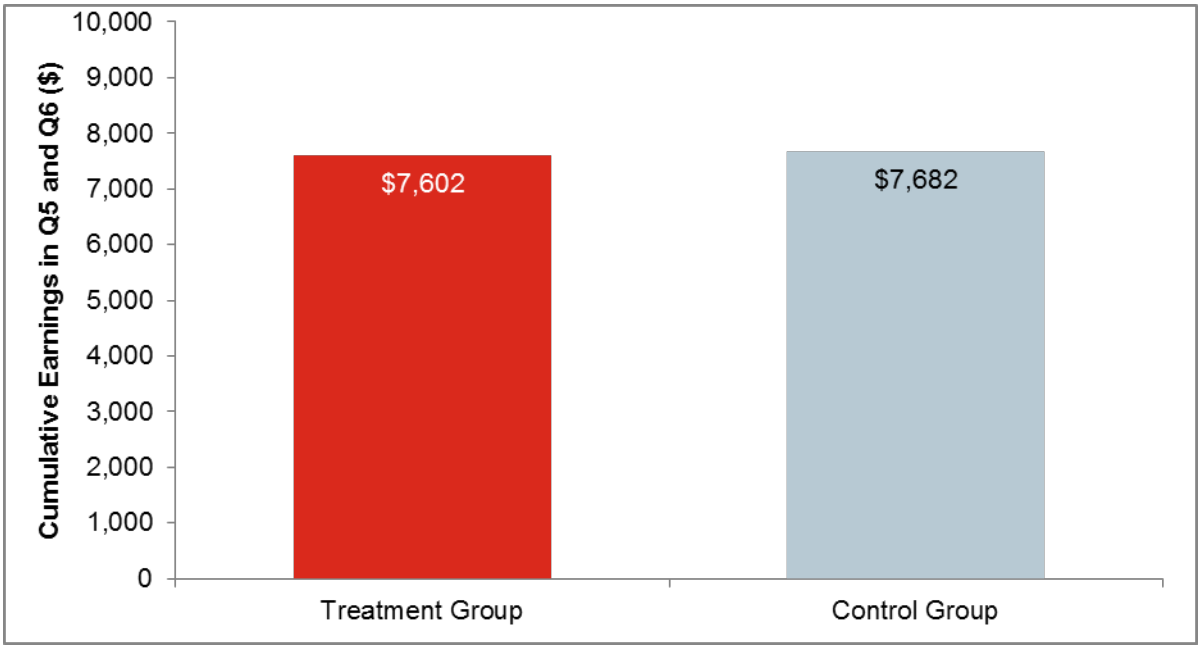
The evaluation's logic model (see Chapter 2) suggested that the program would increase receipt of training and support services, which would in turn increase employment and earnings. The previous section has shown that the hypothesized increase in receipt of training and support services did occur; this section shows that, nevertheless, the evaluation did not find evidence of an impact on employment or earnings.

3.4.1 Employment and Earnings

Exhibits 3.8 through 3.11 display the earnings and employment outcomes as measured by quarterly wage record data. As displayed in Exhibit 3.8 and reported in Exhibit 3.9, there is no evidence of the AIOIC Soil to Sky program producing a statistically significant impact on earnings in the fifth and sixth quarters ("Q5" and "Q6" in the exhibits below) after random assignment, the study's primary confirmatory outcome.[61] The average earnings for the treatment and control groups over these two quarters were $7,602 and $7,682, respectively, a difference that is not statistically significant. Moreover, the results do not show any impacts on earnings among those individuals who participated in the training and educational programs (the TOT estimate in Exhibit 3.9).

[61] See Appendix A for the minimum detectable impact (MDI) estimate.

Exhibit 3.8: Cumulative Earnings in the Fifth and Sixth Quarters After Random Assignment, by Random Assignment Group, AIOIC



Source: National Directory of New Hires.
Note: The total sample of 538 individuals includes 268 treatment group and 270 control group members. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. Pound signs are present only if the impact is statistically significant at the indicated level.

In addition to the confirmatory outcome of earnings in the fifth and sixth quarters after random assignment, impacts on quarterly earnings and employment rates over the entire 18-month follow-up period were examined. As reported in Exhibit 3.9, there is evidence (statistically significant at the 10 percent level) that the treatment group earned an average of $400 less (16 percent less) than the control group during the first quarter following random assignment, which is when the treatment group was participating in training. However, no positive impacts on earnings were detected once training ended. As displayed graphically in Exhibits 3.10 and 3.11, both the employment rates and quarterly earnings for the treatment and control groups showed a similar pattern of increasing over the follow-up period but with no differences between the two groups. Similar results on employment and earnings were found using the 18-month follow-up survey data, as reported in Appendix C, Exhibit C.12.

As with all four programs in this evaluation, employment and earnings data observed over a follow-up period of longer than six quarters (18 months) were also examined for the subset of cases randomized earlier (these smaller samples further limit the ability to detect impacts). Specifically, a follow-up period of 10 quarters (30 months) is available for an early enrolling AIOIC sample. However, these results also do not show that the AIOIC program produced impacts on earnings or employment measured over this longer follow-up period (see Appendix C, Exhibit C.11).

Exhibit 3.9: Impacts on Earnings and Employment, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Group	Control Group	Difference (Impact)	Percent Difference[a]
Confirmatory Outcome				
Cumulative earnings in Q5 and Q6 ($)	7,602	7,682	-79	-1.0%
Treatment-on-the-Treated (TOT) Estimate				
Cumulative earnings in Q5 and Q6 ($)	7,514	7,601	-87	-1.1%
Earnings				
Cumulative earnings in Q1 through Q6 ($)	19,165	19,641	-476	-2.4%
Earnings in Q1 ($)	2,077	2,478	-400*	-16.2%
Earnings in Q2 ($)	2,627	2,772	-145	-5.2%
Earnings in Q3 ($)	3,282	3,326	-44	-1.3%
Earnings in Q4 ($)	3,577	3,384	193	5.7%
Earnings in Q5 ($)	3,747	3,919	-172	-4.4%
Earnings in Q6 ($)	3,855	3,762	93	2.5%
Employment				
Ever employed during Q5 or Q6 (%)	79.9	82.5	-2.6	-3.2%
Ever employed during Q1 through Q6 (%)	87.5	87.9	-0.4	-0.5%
Ever employed during Q1 (%)	59.6	62.3	-2.7	-4.3%
Ever employed during Q2 (%)	65.6	67.5	-1.9	-2.9%
Ever employed during Q3 (%)	72.2	72.4	-0.2	-0.2%
Ever employed during Q4 (%)	71.9	73.1	-1.2	-1.7%
Ever employed during Q5 (%)	75.0	77.8	-2.7	-3.5%
Ever employed during Q6 (%)	74.6	77.5	-2.9	-3.7%

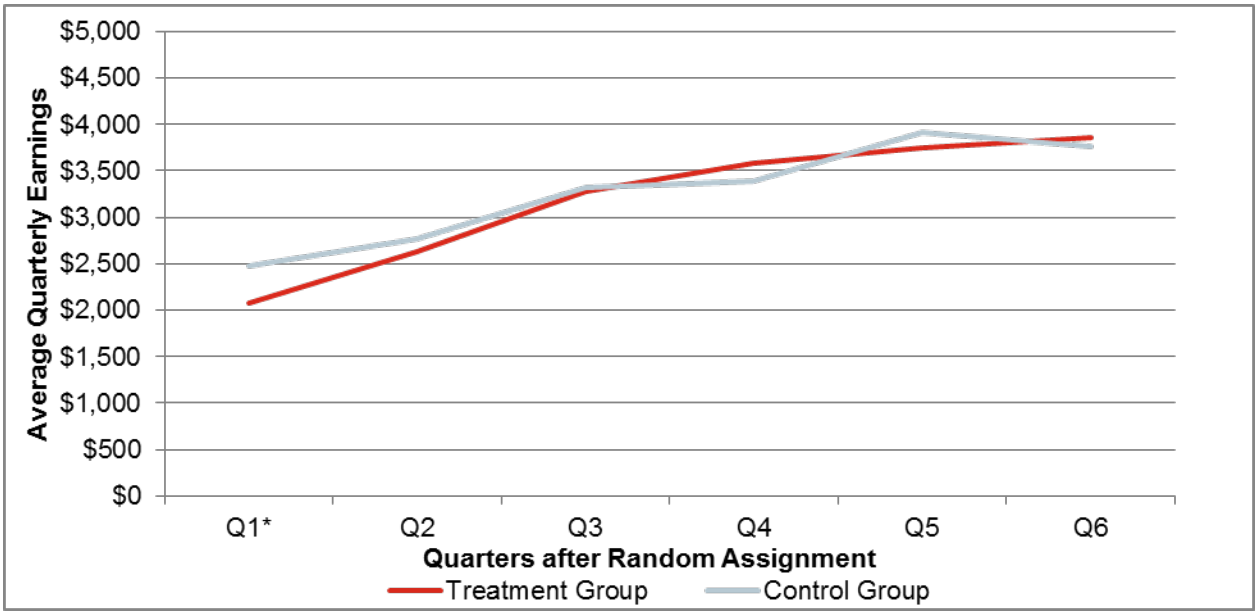
Source: National Directory of New Hires.

Note: The total sample of 538 individuals includes 268 treatment group and 270 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups. For the treatment-on-the-treated estimate, the no-show rate of 7.84 percent and the crossover rate of 0.0 percent were used. Treatment-on-the-treated estimate *p*-values are corrected for multiple comparisons in line with the adjustment on the confirmatory outcome.

[a] This indicates the percentage change between the treatment group average and the control group average.

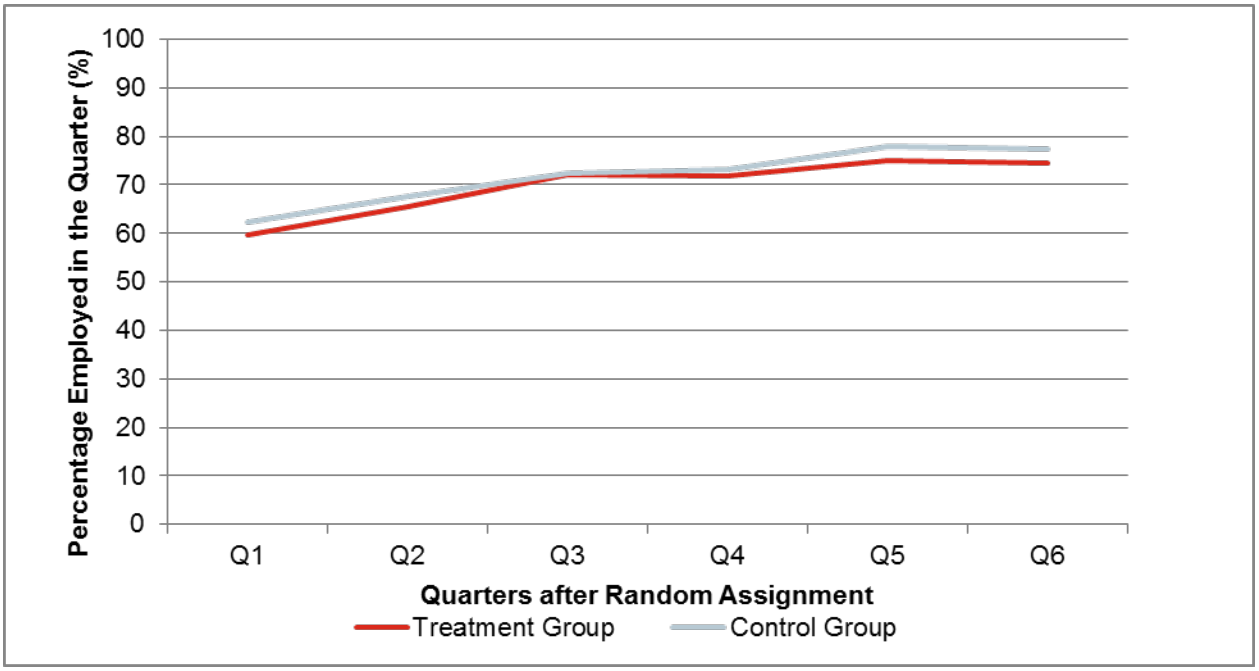
Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. *** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 3.10: Average Quarterly Earnings, by Random Assignment Group, 18-Month Follow-Up Period, AIOIC



Source: National Directory of New Hires.
Note: The total sample of 538 individuals includes 268 treatment group and 270 control group members.
*** Difference is statistically significant at the *p*<0.01 level. ** Difference is statistically significant at the *p*<0.05 level. * Difference is statistically significant at the *p*<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 3.11: Percentage Employed, by Random Assignment Group, 18-Month Follow-Up Period, AIOIC



Source: National Directory of New Hires.
Note: The total sample of 538 individuals includes 268 treatment group and 270 control group members.
*** Difference is statistically significant at the *p*<0.01 level. ** Difference is statistically significant at the *p*<0.05 level. * Difference is statistically significant at the *p*<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

3.4.2 Employment and Earnings for Subgroups

In addition to understanding the overall impact of AIOIC's Soil to Sky program, the evaluation examined whether the program was more or less effective for certain subgroups of the population served, defined by education level and employment status at the time of random assignment. Exhibits 3.12 and 3.13 show the employment and earnings impacts in quarters five and six for the two subgroups examined.

The first subgroup is those with at least a high school diploma versus those who had more than a high school diploma (this includes those who attended some college or have an associate's degree or higher), measured at the time of random assignment. The second subgroup is those who did not work in the year before random assignment compared with those who had been employed during this year.

The evaluation did not find any evidence of program impacts for either of these subgroups, and the impacts were not found to differ between the subgroups. There is no evidence of impacts on earnings and employment for those with higher levels of education, and these results did not differ from the impacts on earnings and employment for those with lower levels of education, nor did they differ for those with different employment histories.

Exhibit 3.12: Impacts on Earnings and Employment, by Employment Status in the Year Preceding Random Assignment, 18-Month Follow-Up Period, AIOIC

	Treatment Group	Control Group	Difference (Impact)	Subgroup Difference (Impact)[1]
Earnings in Q5 and Q6 post-random assignment ($)				
Not employed in any of the 4 quarters preceding random assignment	6,096	6,321	-224	323
Employed in any of the 4 quarters preceding random assignment	8,159	8,060	99	
Employed in Q5 and Q6 post-random assignment (%)				
Not employed in any of the 4 quarters preceding random assignment	69.0	69.8	-0.7	-0.1
Employed in any of the 4 quarters preceding random assignment	84.7	85.6	-0.8	

Source: National Directory of New Hires.

Note: [1] The "Subgroup Difference (Impact)" measures whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference *p*-value tests whether the $-224 impact among those not employed in any of the four quarters preceding random assignment is different than the $99 impact among those employed in any of the four quarters preceding random assignment.

The total sample of 538 individuals includes 268 treatment group and 270 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 3.13: Impacts on Earnings and Employment, by Educational Attainment at Random Assignment, 18-Month Follow-Up Period, AIOIC

	Treatment Group	Control Group	Difference (Impact)	Subgroup Difference (Impact)[1]
Earnings in Q5 and Q6 post-random assignment ($)				
High school diploma/GED or less	7,521	7,504	17	-119
More than high school diploma/ GED	7,738	7,840	-102	
Employed in Q5 and Q6 post-random assignment (%)				
High school diploma/GED or less	81.2	83.3	-2.1	2.1
More than high school diploma/GED	80.6	80.6	0.0	

Source: National Directory of New Hires.
Note: [1] The "Subgroup Difference (Impact)" measures whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference *p*-value tests whether the $17 impact among those with a high school diploma/GED or less is different than the $-102 impact among those with more than a high school diploma/GED.
The total sample of 538 individuals includes 268 treatment group and 270 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

3.4.3 Employment Status and Job Characteristics

As discussed, the AIOIC program provided a wide range of services to help members of the treatment group obtain and maintain employment. To provide in-depth information on their employment experiences, the 18-month follow-up survey included several questions regarding the employment status at the time of the survey and characteristics of their current or most recent job for both treatment and control group members.

Exhibit 3.14 shows the treatment and control groups' employment status, in terms of whether they were working, unemployed, or out of the labor force (defined as not looking for work), at the time of the follow-up survey. Based on these survey data, there is evidence (statistically significant at the 10 percent level) that more treatment than control group members were employed at the time of the follow-up survey (82 percent compared with 74 percent, respectively). However, the treatment and control groups appear to be equivalent in terms of the percentage who were unemployed and the percentage who were out of the labor force at the time of the follow-up survey. In addition, the lack of other evidence of impacts on other employment and earnings outcomes further suggests that this result should be interpreted cautiously.

Exhibit 3.14: Impacts on Employment Status, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Group	Control Group	Difference (Impact)
Employment Status at Time of Follow-Up Survey			
Employed (%)	81.9	73.9	8.0*
Unemployed (%)	10.1	14.8	-4.7
On temporary layoff (%)	1.0	1.1	-0.1
Looking for work (%)	9.1	13.7	-4.6
Out of the labor force (%)	8.0	11.3	-3.3
Retired (%)	0.0	0.5	-0.5
Unable to work because of disability (%)	2.5	1.9	0.6
Attending school or long-term training program (%)	3.3	6.2	-2.8
Not looking for work (%)	2.1	2.7	-0.5

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: The total sample of 345 individuals includes 187 treatment group and 158 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 3.15 provides information on sample members' job characteristics from their most recent or current job, as reported in the follow-up survey. These results include all survey respondents; in particular, those with no recent job were coded as zero on these outcomes. Thus, these are experimental comparisons and can be interpreted as estimates of program impact.

The AIOIC program was not shown to have produced impacts on weekly earnings or the number of hours worked per week. On average, the treatment group's weekly earnings in their current or most recent job were $327, and they worked 29 hours per week, the equivalent of earning $11.28 per hour. About half of both the treatment and control group members reported that their job was part of a career path.

No differences were detected between the treatment and control group in the types of benefits offered at their current or most recent job, such as health insurance, paid vacation, paid sick time, and retirement plans, nor in their job schedule. About 43 percent reported that their current or most recent job provided health insurance, and more than half reported working a regular daytime schedule.

Exhibit 3.15: Impacts on the Characteristics of Current or Most Recent Job, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Group	Control Group	Difference (Impact)
Pay and Hours of Job			
Weekly earnings ($)	327	287	40
Hours worked per week	28.7	26.0	2.7
Number of weeks at job[a]	72.3	83.3	-11.0
Job represented by a union (%)	15.9	18.3	-2.4
Job Benefits			
Job offers health insurance (%)	43.4	46.5	-3.1
Paid vacation (%)	43.7	40.1	3.6
Paid holiday (%)	48.9	51.5	-2.7
Paid sick time (%)	37.0	33.8	3.2
Retirement/pension plan (%)	39.9	39.7	0.2
Job Schedule			
Regular daytime schedule (%)	54.0	47.4	6.6
Regular evening shift (%)	15.5	14.3	1.2
Regular night shift (%)	7.2	7.4	-0.2
Rotating schedule (%)	6.7	6.4	0.3
Irregular schedule (%)	2.5	5.8	-3.3
Other schedule (%)	5.4	6.1	-0.8
Connection of Job to Training			
Respondent attributes getting a new job due to completing vocational training (%)	22.8	10.4	12.4***
Respondent employed in industry targeted by grant-funded training program (%)	44.9	33.3	11.6**
Job is part of a career path (%)	51.5	46.5	4.9

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Jobs that started before random assignment are included in these estimates.
The total sample of 345 individuals includes 187 treatment group and 158 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

The follow-up survey also asked treatment and control group members whether they attributed obtaining a new job to completing a vocational training program. As Exhibit 3.15 shows, 23 percent of the treatment group at AIOIC (including those who did not work or attend training) attributed getting a new job to completing a training program, compared with 10 percent of the control group. In part, this impact is due to more treatment than control group members participating in and completing vocational training (see Section 3.3.1 above).[62] Among those in the treatment and control groups who completed a training program, similar proportions of both groups (36 percent) reported they obtained a new job as a result of a of the training (not shown).

[62] These results are similar when examined among those who worked during the follow-up period (a non-experimental comparison), with 23 percent of the treatment group who worked reporting that they got a job due to a training program compared with 10 percent of the control group. See Exhibit C.15 in Appendix C.

Finally, the survey also collected information on the industry in which respondents were employed in their current or most recent job. This information was coded as to whether that job was in the "target" industry of AIOIC's Soil to Sky program (i.e., jobs in hospitals, ambulatory healthcare services, and nursing and residential care facilities). For the entire sample (including those who were not employed in the follow-up period), 45 percent of the treatment group obtained a job in these industries targeted by the grant compared with 33 percent of the control group.[63] Thus, the AIOIC program did increase participants' employment in these healthcare industries as intended, relative to the control group. Notably, one-third of the control group reported working in the healthcare field without accessing AIOIC's training programs.

3.5 Impacts on Income, Public Benefits Receipt, and Financial Circumstances

In addition to determining whether AIOIC's Soil to Sky program increased participants' employment and earnings relative to the control group, the evaluation examined whether the program produced impacts on household income, receipt of public benefits, and overall financial circumstances, as changes in these outcomes could follow changes in earnings and employment.

3.5.1 Household Income and Receipt of Public Benefits

As shown in Exhibit 3.16, the evaluation did not find evidence of Soil to Sky program impacts on household income, with total household income averaging approximately $21,000 per year for both the treatment and control groups. Additionally, for most of the public benefits outcomes, there were no significant results.

There is evidence (statistically significant at the 10 percent level) that the treatment group received less income through SNAP during the month of the follow-up survey ($89 compared with $123), and that fewer treatment group members reported receiving financial support from other sources such as alimony, child support, or friends and relatives (7 percent compared with 14 percent). Also, reflecting the treatment and control group members' increased employment levels over time (see Exhibits 3.9 and 3.11), a general reduction in benefits receipt was observed at the time of the follow-up survey compared with the time of random assignment (see Exhibit 3.3).

[63] Additionally, of those who worked during the follow-up period (a non-experimental comparison), 48 percent of the treatment group reported they had obtained employment in the healthcare industry compared with 38 percent of the control group (see Appendix C, Exhibit C.15).

Exhibit 3.16: Impacts on Household Income and Household Receipt of Public Benefits, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Group	Control Group	Difference (Impact)
Total household income before taxes last year ($)[a]	21,675	21,312	363
Temporary Assistance for Needy Families (TANF)			
Received TANF last month (%)	14.5	15.2	-0.6
Amount received ($)	48.40	59.67	-11.27
Supplemental Nutrition Assistance Program (SNAP)			
Received SNAP last month (%)	32.2	37.7	-5.5
Amount received ($)	88.98	122.57	-33.59*
Unemployment Insurance (UI)			
Received UI last month (%)	2.7	1.9	0.8
Amount received last month ($)	22.42	8.11	14.31
Other Federal Benefits			
Received other federal benefits last month (%)[b]	33.4	33.5	-0.1
Amount received last month ($)[b]	141.06	171.19	-30 .13
Other Payments			
Received alimony, child support, rent payments, or financial support from friends/relatives last month (%)	7.3	13.8	-6.4*
Amount received last month ($)	21.43	37.95	-16.52
Other Assistance Received			
Received any assistance from churches, food banks, or other private community organizations since random assignment (%)	27.6	23.8	3.8

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: For outcomes measured in dollars, the analytic sample includes all study members with non-missing outcome data (including those with a value of zero for the outcome). [a] Rather than providing a specific value for household income including transfers, some survey respondents indicated that their household income including transfers was in a specified range (e.g., between $45,000 and $60,000). For these individuals, income is defined as the midpoint of the specified range. [b] The other federal benefits include the following types: Supplemental Security Income; Social Security Disability Insurance; Women, Infants, and Children benefits; General Assistance; Trade Adjustment Assistance; Alternative Trade Adjustment Assistance; Workers' Compensation or Disability Insurance; and Social Security.
The total sample of 345 individuals includes 187 treatment group and 158 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

3.5.2 Financial Circumstances

In addition to exploring whether there were any changes in receipt of public benefits and total household income, the evaluation examined whether AIOIC's Soil to Sky program improved the financial circumstances of program participants. It was hypothesized that if the program services increased employment and earnings, this could also result in an improvement in overall financial circumstances. Specifically, the 18-month follow-up survey included questions regarding housing status and the ability of sample members (and their households) to meet household, mortgage and rent, credit card, and unplanned expenses.

As shown in Exhibit 3.17, there is evidence (statistically significant at the 10 percent level) that the treatment group was less likely than the control group to own a home (8 percent compared with 13 percent). The treatment group also was more likely to rent a residence (71 percent compared with 57

percent); as a result, a greater proportion of the treatment than control group was more likely to have faced difficulties in meeting rent payments (28 percent compared with 17 percent). Based on the available data, the evaluation cannot determine the specific reasons for the impacts on these housing measures, particularly given that no impacts on earnings were detected.

Exhibit 3.17: Impacts on Financial Circumstances, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Group	Control Group	Difference (Impact)
Housing Status			
Owned a home (%)	7.7	13.3	-5.6*
Rented a residence (%)	70.8	56.9	14.0**
Difficulty Covering Household Expenses			
Had difficulty covering all household expenses (%)	57.9	58.1	-0.2
Had difficulty covering all household expenses in the past month (%)	64.5	66.7	-2.2
Types of Financial Difficulty Experienced			
Mortgage payment: missed or been late (%)	1.2	1.3	-0.1
Rent payment missed or been charged a late fee (%)	28.1	16.8	11.3**
Been charged a late fee on any monthly credit payments (%)	32.4	22.8	9.6*
Postponed a major purchase that was planned or needed such as a car or major appliance (%)	25.8	27.0	-1.2

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 345 individuals includes 187 treatment group and 158 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

No evidence was found of impacts on households facing difficulties in meeting their household expenses, either in the last month or at any point during the follow-up period. More than half of households reported having faced difficulties in meeting their household expenses at some point during the follow-up period. However, the treatment group was more likely to have been charged a late fee on credit card payments (32 percent compared with 23 percent, statistically significant at the 10 percent level).

Given the lack of impacts on other measures of income or financial circumstances, this result on its own does not indicate a significant change in the financial circumstances of treatment and control group members.

4. Impact Findings for Grand Rapids Community College's Pathways to Prosperity Program

This chapter presents the impact findings for the Grand Rapids Community College's (GRCC) Pathways to Prosperity program.

Overall, GRCC's Pathways to Prosperity program was not found to have a statistically significant impact on the evaluation's confirmatory outcome: earnings of the treatment group in the fifth and sixth quarters after random assignment. In addition, the program did not result in a statistically significant impact on a range of other employment-related measures examined as part of the study, such as household income or public benefits receipt. The program did, however, result in impacts on short-term outcomes. Compared with the control group, more treatment group members participated in vocational training and work readiness classes and attained vocational credentials. More treatment group members also received a range of support services, particularly career counseling, financial assistance to attend training, and job search assistance. As discussed in Chapter 2, sample sizes for GRCC are the smallest among the four programs included in the evaluation, which limits the ability of the evaluation to detect impacts.

Similar to the other impact chapters in this report, this chapter is organized based on the logic model presented in Chapter 2. Section 4.1 provides an overview of program goals and main services. Section 4.2 provides information about the target population and characteristics of the research sample. Section 4.3 presents impacts on service receipt, educational attainment, and factors affecting the ability and willingness to work. Section 4.4 presents impacts on earnings and employment outcomes based on National Directory of New Hires data and 18-month follow-up survey data. Finally, Section 4.5 discusses impacts on income, public benefits receipt, and other financial measures.

4.1 GRCC's Pathways to Prosperity Program

Located in Grand Rapids, Michigan, the second largest city in this state, GRCC serves residents of Kent County (which includes Grand Rapids) as well as residents from surrounding counties, including the nearby suburbs of Wyoming and Kentwood. GRCC is the only Pathways Out of Poverty grantee in this evaluation and, as discussed in Chapter 2, began operating the Pathways to Prosperity program in January 2010, with the evaluation and random assignment starting in August 2011. The grant had a two-year operational period, but GRCC received a six-month extension so the program ended in July 2012.

During the study period, Kent County had a population of close to 610,000 residents, with a population of approximately 192,000 in Grand Rapids. In 2013, the majority of the population was white (82 percent) and nearly 10 percent was black or African American. About 10 percent was of Hispanic or Latino origin. The median household income in 2013 was $52,000, and about 16 percent of residents lived below the federal poverty level (see Appendix G).

In 2010, the year the grant was awarded, Kent County's unemployment rate was 10.1 percent; by 2013, unemployment decreased to 6.3 percent. In addition, the Grand Rapids metropolitan area experienced 10 percent job growth between 2010 and 2013 (see Appendix G). Key industries in the area included advanced manufacturing, life sciences, agribusiness, aerospace and defense, and information technology.

Exhibit 4.1 provides a summary of the primary services provided by GRCC's Pathways to Prosperity Program. The initial focus of the GRCC program was to provide vocational training to low-income adults

with low educational and basic skill levels for jobs in green industries, as GRCC staff anticipated significant regional growth in this job sector.[64] However, due to two factors the program changed its emphasis and services. First, program participants often did not have the basic skills and career orientation needed to enroll in and successfully complete occupational training. In response, the program increased its focus on providing pre-occupational training courses, specifically an eight-week "Career Prep" course designed to improve school and work readiness as well as ABE and GED preparation classes. Second, the range of occupational trainings supported with grant funds increased. Originally, GRCC's green focus included training in deconstruction, wind energy, and composite manufacturing. However, job openings in these fields grew more slowly than projected. GRCC staff reported that several wind farm projects were canceled or postponed, which made GRCC's training in wind energy and in composites related to the manufacturing of wind turbine blades less relevant. As a result, GRCC allowed participants to enroll in a range of other training programs aligned with the DOL definition of green jobs in the grant solicitation, such as commercial driver's license training, construction and remodeling, welding, and information technology (IT).

Exhibit 4.1: Primary Services Provided by GRCC's Pathways to Prosperity Program

Program Component	Description
Training and Resulting Credentials	Key courses were an eight-week Career Prep course and occupational training programs in green-related sectors, with some courses offered in basic skills. ABE and GED provided to those who needed them to increase their basic skills before starting training. Career Prep resulted in participants obtaining the Michigan Employability Certificate. Occupational trainings resulted in a GRCC certificate and prepared participants to sit for industry certification exams.
Academic Advising and Personal Supports	Program staff from GRCC and its four partners helped identify barriers and find necessary support services, such as transportation and childcare. Staff also helped participants navigate training choices and provided support during training.
Financial Assistance	Training was offered at no cost to participants. Program staff provided transportation assistance through gas cards and bus passes, as well as other types of assistance for items like work uniforms or tools on an as-needed basis.
Employment Assistance	Program staff helped navigate training choices and identify barriers to employment. Staff at organizational partners assisted participants in finding employment, including guidance on searching for jobs and submitting an application.
Connections with Employers	Initially employers were involved in developing curricula for the occupational training programs, with the intention of having them offer portions of the training on-site and hire program completers. However, the anticipated jobs did not materialize and, over time, the role of employers lessened.

Source: Interviews with program staff.

In addition to vocational training, GRCC's Pathways to Prosperity program included a number of supports to encourage participants to complete the program and enter employment. Program staff at GRCC and its four partner organizations helped participants navigate training choices and provided

[64] GRCC used the Workforce Investment Act (WIA) definition of low-income, which included those who had received Supplemental Nutrition Assistance Program or cash assistance benefits or who had a family income below a certain threshold. See Workforce Investment Act of 1998 (accessed June 5, 2015, http://www.doleta.gov/regs/statutes/wialaw.pdf).

support to encourage the completion of education and training. These staff also assessed participants' barriers to participation and identified and addressed their needs, such as insufficient transportation and the need for childcare or other support services. All basic skills and occupational training programs were offered at no cost to participants. When participants also had a need for transportation assistance to offset the costs of travel to and from training, help was provided in the form of gas cards or bus passes. As program conclusion neared, the program staff member and participant met more regularly to develop a career plan that articulated short- and long-term goals. Finally, a private human resources company helped participants to secure part-time work while in training, and staff at two of GRCC's community-based partner organizations assisted participants in finding employment upon training completion.

Overall, GRCC program administrative data indicate relatively high levels of participation, with 78 percent of those assigned to the treatment group attending at least one GRCC education or training activity.[65] Among those who attended at least one GRCC program, Exhibit 4.2 shows the proportion that participated in and completed each program, the groupings of programs attended and associated completion rates, and the average duration of participation. Of those who participated, the most common activity was Career Prep, with 42 percent of participants attending this program on its own and an additional 30 percent attending both Career Prep and an occupational training. For those who attended occupational training, participants enrolled in a wide range of programs, with commercial driver's license training being the most commonly subscribed.

Exhibit 4.2: Type of Program Attended, Completion Rates, and Average Length of Stay Among GRCC Program Participants over a 12-Month Follow-Up Period

Training Program	Participation Rate (%)	Completion Rate (%)	Months in Training
Attended one training:	61	54	1.7
ABE/GED	1	0	n/a
Career Prep	42	50	1.5
Occupational training	18	67	2.4
Attended two trainings:	36	75	5.2
ABE/GED and career prep	4	33	2.3
ABE/GED and occupational training	2	100	2.0
Career Prep and occupational training	30	80	5.8
Attended three trainings: ABE/GED, Career Prep, and occupational training	3	100	8.5
Attended any training	100	69	3.3

Source: Calculations from GRCC program records.

Note: Sample size is 67 and includes those who attended at least one Pathways to Prosperity program. Completion and length of stay measures are for those who attended the specific program or combination of programs. Percentages may not sum to total due to rounding. The completion rate for those who attended multiple programs includes those who completed all programs attended. Program end dates were not available for ABE/GED classes. The sample sizes are very small for those who attended ABE/GED only, ABE/GED and Career Prep, and ABE/GED and occupational training, so these completion rates and length of stay averages should be interpreted cautiously. Except for Career Prep, end dates are not available for those who did not complete their programs, so length of stay measures are based on those who completed the programs.

[65] See Copson et al., 2016 for additional information on the participation analysis.

Of those who attended both Career Prep and occupational training, 80 percent completed both courses. Completion rates were lower when individuals attended only one program. The duration of attendance was relatively short, as participants attended for an average of 3.3 months. Over half (53 percent) attended for one to three months; 25 percent attended for longer than 6 months (not on chart).

4.2 Target Group and Characteristics of the Research Sample

Based on guidelines for the Pathways Out of Poverty grant, GRCC's Pathways to Prosperity program aimed to serve individuals in high-poverty areas and targeted economically disadvantaged populations, specifically individuals who were unemployed, high school dropouts, and ex-offenders.

Exhibit 4.3 shows the characteristics of individuals in the treatment and control groups at baseline using data reported on the study's baseline information form that program applicants completed during the intake process for the program, before random assignment. Balance testing demonstrates that the 186 treatment group members and the 91 control group members do not statistically differ from one another. Additionally, among only the sample members who responded to the 18-month survey, and among the sample members for whom NDNH data were available, the treatment and control group members do not statistically differ from one another (see Appendix D, Exhibits D.1 and D.2). Therefore, any differences in the groups' outcomes reported in this chapter can be attributed to the GRCC program.[66] However, as discussed in Chapter 2, the sample sizes in GRCC are relatively small, which makes it difficult to detect statistically significant impacts, particularly those that are small in magnitude. The fact that only large impacts can be detected given the sample sizes should be considered in the review of the results.

As expected as a Pathways grantee, GRCC focused on serving a high-poverty area and served a relatively disadvantaged population. About two-thirds of the sample members were male (68 percent) with an average age of 40. A little more than half of the sample members were white (56 percent), 36 percent were black, and about 14 percent were Hispanic. In contrast to the other three programs in this evaluation, this program had a focus on serving ex-offenders, with about 25 percent having had a previous conviction.

Forty percent of the sample had a high school diploma or less at the time of random assignment, and a majority of the sample was not working (76 percent) at the time of random assignment. Moreover, 34 percent of the sample had not worked within the last year. Weekly earnings averaged $68.50.[67] At the time of application to the program, about 66 percent of the sample reported that they received one or more public benefit, which is not surprising given the programs' focus on serving an economically disadvantaged population. The Supplemental Nutrition Assistance Program was the most common public benefits received (by 46 percent of the sample). One in five reported they were receiving Unemployment Insurance.

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[66] The unadjusted *p*-value for a global F-test is 0.034, and the adjusted (for multiple comparisons) value is 0.137. With the multiple comparisons adjustment, one can conclude that, as a whole, the treatment and control groups do not differ across all items considered. Additionally, one of the 43 individual item tests is flagged as statistically significant, which is less than the two one would expect to appear significant due to chance (5 percent of 43). Therefore the treatment and control groups are not meaningfully different.

[67] Weekly earnings are calculated among both the employed and unemployed at the time of the baseline survey. Among those who were working, average weekly earnings were $283 for the entire sample ($301 for the treatment group and $233 for the control group).

Exhibit 4.3: Selected Characteristics of Study Sample at Baseline, GRCC

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	31.8	29.0	37.4	-8.3
Male	68.2	71.0	62.6	8.3
Race (%)				
American Indian or Alaskan Native	1.5	1.1	2.2	-1.1
Asian	2.2	2.2	2.2	0.0
Black or African American	35.8	36.9	33.7	3.2
Native Hawaiian or other Pacific Islander	0.7	0.6	1.1	-0.6
White	56.0	57.0	53.9	3.1
Multi-race	3.7	2.2	6.7	-4.5
Hispanic ethnicity (%)	14.1	15.1	12.1	3.0
Age (%)				
21 years or younger	5.4	4.8	6.6	-1.8
22 to 29 years	14.1	14.5	13.2	1.3
30 to 39 years	28.5	28.0	29.7	-1.7
40 years or older	52.0	52.7	50.5	2.1
Average age (years)	40.4	40.8	39.8	1.0
Citizenship (%)				
U.S. citizen	88.1	88.7	86.8	1.9
Legal resident	11.9	11.3	13.2	-1.9
Speaks a language other than English at home (%)	23.2	22.0	25.6	-3.5
Family Status				
Marital status (%)				
Married	25.0	23.2	28.6	-5.3
Widowed/divorced/separated	29.0	30.3	26.4	3.9
Never married	46.0	46.5	45.1	1.4
Number of children under age of 18 (%)				
None	63.4	64.8	60.4	4.4
One child	13.2	13.2	13.2	0.0
Two children	11.0	9.3	14.3	-4.9
Three or more children	12.5	12.6	12.1	0.5
Education				
Education level (%)				
Less than high school	12.6	11.3	15.4	-4.1
High school diploma or GED	27.1	25.8	29.7	-3.9
Technical or associate's degree	13.7	15.1	11.0	4.1
Some college credit but no degree	30.0	31.2	27.5	3.7
Bachelor's or master's degree	16.6	16.7	16.5	0.2
Currently enrolled in school or training program (%)	12.8	13.1	12.2	0.9
Employment				
Employed (%)	24.4	26.7	20.0	6.7
Currently employed full time (30+ hours)	13.3	15.6	8.9	6.7
Currently employed part time (<30 hours)	11.1	11.1	11.1	0.0

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Not employed (%)	75.6	73.3	80.0	-6.7
Employed in last 12 months but not employed currently	41.9	40.6	44.4	-3.9
Longer than 12 months since last worked	33.7	32.8	35.6	-2.8
Weekly earnings ($)	69	80	45	36
Factors That Affect Employment				
Hourly rate a job must pay for respondent to take ($)	11.29	11.43	10.99	0.44
Felony conviction (%)	25.4	29.2	17.6	11.6**
Job preferences (%)				
Prefers the kind of job that relates to training	42.3	43.2	40.4	2.7
Will take any job, even if the pay is low	55.7	54.6	57.8	-3.1
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	13.1	10.9	17.6	-6.7
Transportation problems limit ability to work	25.0	22.5	30.0	-7.5
Any kind of physical or mental disability	13.4	12.4	15.4	-3.0
Public Benefits				
Receiving any public benefits (%)	66.4	62.9	73.6	-10.7
Types of benefits received (%)[a]				
Temporary Assistance for Needy Families	4.7	4.8	4.5	0.3
Supplemental Nutrition Assistance Program	45.8	44.6	48.4	-3.7
Unemployment Insurance	22.4	19.9	27.5	-7.6
Section 8 or public housing assistance	12.6	12.4	13.2	-0.8

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).
Note: [a] Responses are not mutually exclusive.
Estimates in this table are computed based on the 186 GRCC treatment group members and 91 GRCC control group members who completed the baseline survey. All statistics are calculated for the full sample of treatment or control group members. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.
** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

About half of the sample members (56 percent) said they were willing to take any job, even if the pay was low, and 42 percent said they preferred a job related to their training. One quarter reported that access to transportation limited their ability to work.

4.3 Impacts on Service Receipt, Educational Attainment, and Factors Affecting Ability to Work

This section considers the impact of GRCC's program on education and training service receipt and educational attainment. It also examines whether program services had an impact on receipt of support services and factors that often negatively affect an individual's ability to work, including problems with transportation and with finding quality childcare services.

In sum, GRCC's Pathways to Prosperity program produced positive impacts on participation in vocational training and work and school readiness classes, and the receipt of a vocational credential. The program also had positive impacts on a range of supports, particularly on the receipt of career counseling, job placement assistance, and financial assistance to attend education or training.

4.3.1 Participation in Education and Training Programs

Exhibit 4.4 shows the program impacts on participants' receipt and completion of education and training programs. Most of the treatment group (90 percent) participated in some type of education or training program, compared with 39 percent of the control group, an impact of 51 percentage points. Specifically, more treatment than control group members participated in vocational training (49 percent compared with 16 percent) and classes on study skills, workplace skills, or general life skills (31 percent compared with 7 percent). These participation patterns reflect GRCC's focus on providing pre-vocational training courses in addition to vocational training, specifically an eight-week Career Prep course designed to improve school and work readiness as well as ABE/GED classes.

Exhibit 4.4: Impacts on Participation in Education and Training Programs, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Group	Control Group	Difference (Impact)
Participated in **any education or training** (%)	89.8	38.9	50.9***
Number of months attended education or training	3.8	2.6	1.2*
Number of courses attended	2.3	1.3	1.1***
Enrolled in education and training at time of follow-up survey	11.7	16.8	-5.2
Participated in **ABE/GED** (%)	21.6	9.7	12.0**
Average number of months attended	0.9	0.9	0.0
Completed any ABE/GED classes (%)	14.2	7.2	6.9
Participated in **vocational training** (%)	49.0	15.9	33.1***
Average number of months attended	1.5	0.3	1.2***
Completed any vocational trainings (%)	43.4	10.8	32.6***
Participated in **college level courses for credit** (%)	13.0	19.9	-6.9
Average number of months attended	0.7	1.1	-0.4
Completed any college level courses (%)	12.5	10.9	1.6
Participated in **classes on study skills, workplace skills, or general life skills** (%)	30.8	6.7	24.1***
Number of months attended	0.5	0.2	0.3
Completed any life skills classes (%)	23.6	<0†	24.6***

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: † The percent of the treatment/control group predicted to have a binary outcome cannot, in reality, be less than 0 percent or greater than 100 percent. However, on occasion, the estimates for these values as predicted by the linear probability regression model can fall below 0. In these cases, reported values are capped at zero in the exhibit and are denoted by "<0".
The total sample of 189 individuals includes 130 treatment group and 59 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

The GRCC program also had an impact (statistically significant at the 10 percent level) on the length of time individuals spent in education and training activities and the number of courses attended. Across all sample members (i.e., including those who did not attend training), the treatment group spent 3.8 months in education and training activities compared with 2.6 months for the control group. Treatment group members also attended approximately one more education or training course compared with the control group. However, when considering only those who participated in any education or training (a non-experimental comparison), the average amount of time in training was 4.5 months for the treatment group and 5.8 months for the control group, and the average number of courses attended was 2.6 courses for the

treatment group and 2.9 courses for the control group (see Appendix D, Exhibit D.4). Given that the control group members who attended training spent a longer time in training, on average, than the treatment group,[68] the overall impact on months in training is likely primarily due to the higher percentage of treatment than control group members attending training, rather than an increase in the time spent in training by those who did participate. Similarly, because the number of courses attended by treatment and control group members who participated in training was comparable, the impact on the average number of courses is likely primarily due to the higher percentage of treatment than control group members attending training.

Finally, across all treatment and control members, there was an impact on the completion rates of vocational training: 43 percent of the treatment group reported completing vocational training compared with 11 percent of the control group.[69] Among those who *attended* a vocational training program (a non-experimental comparison), completion rates for the treatment group are still higher than those for the control group. Forty-nine percent of the treatment group participated in vocational training and 43 percent completed (an 88 percent completion rate among those who attended). For the control group, 16 percent attended a vocational training program and 11 percent completed (a 68 percent completion rate among those who attended).

4.3.2 Receipt of Advising, Support, and Financial Assistance Services

In addition to technical training and basic skills and job readiness classes, the GRCC Pathways to Prosperity program provided a range of supports. In particular, GRCC program staff as well as staff from the program's partner organizations assisted participants in navigating courses and in addressing barriers to participation, such as childcare and transportation; staff also provided job placement assistance. The GRCC program also covered the tuition for the courses and transportation costs.

Compared with the control group, more treatment group members received advising as part of their training. As shown in Exhibit 4.5, more than two-thirds of treatment group members (68 percent) received some form of advising as part of an education and training program compared with only 29 percent of the control group. Specifically, more than half of the treatment group (52 percent) received career counseling compared with 21 percent of control group members. Moreover, 45 percent of treatment group members received job placement assistance compared with 12 percent of control members. In addition, there is evidence (significant at the 10 percent level) that more treatment group members received academic and financial aid advising than control group members.

The GRCC program also had significant impacts on the receipt of assistance with life skills, including having a good work ethic, communication skills, anger management, and money management and financial planning. More than half of the treatment group (52 percent) received assistance with life skills compared with 25 percent of the control group.

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[68] Statistical tests were not conducted on non-experimental comparisons, as described in Chapter 2.

[69] "Completion" of programs is self-reported and thus differs from figures presented above based on program administrative data. In addition, program completion may not necessarily mean that a credential was obtained, as some credentials require state licensing exams. See Section 4.3.3, below, for impacts on credential receipt.

Exhibit 4.5: Impacts on Receipt of Advising, Life Skills, Support Services, and Financial Assistance, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Group	Control Group	Difference (Impact)
Advising			
Received any type of advising as part of education and training program (%)	67.8	29.2	38.6***
Academic (%)	42.5	26.5	16.0*
Tutoring (%)	17.3	10.0	7.2
Career counseling (%)	52.4	20.9	31.5***
Financial aid advising (%)	27.0	14.1	12.8*
Job placement assistance (%)	44.8	12.0	32.8***
Life Skills			
Received any assistance on life skills issues (%)	52.2	24.8	27.4***
Having a good work ethic (%)	33.5	7.2	26.4***
How to communicate well with your boss and co-workers (%)	40.8	15.3	25.5***
How to manage any anger and frustrations (%)	33.8	8.8	25.0***
How to manage your money and plan your finances (%)	25.1	10.1	15.0**
Support Services			
Received support services to attend training or work (%)	58.0	27.7	30.3***
Clothes or uniforms (%)	27.8	7.2	20.7***
Childcare assistance (%)	8.1	1.9	6.1*
Assistance with transportation (%)	26.5	2.2	24.3***
Job-related tools (%)	15.2	2.5	12.6**
Books or supplies (%)	28.9	11.0	17.9**
Financial Assistance			
Received financial assistance to attend education and training (%)	81.3	22.4	58.9***
Paid out of pocket for some portion of classes (%)	12.6	15.3	-2.7
Received student loans to finance courses (%)	9.4	2.9	6.5

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 189 individuals includes 130 treatment group and 59 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Treatment group members also were much more likely to receive support services to attend training or work, including uniforms and job-related tools, childcare and transportation assistance, and books and supplies. The largest impact for these supports was for transportation services. Nearly 27 percent of the treatment group reported receiving transportation assistance compared with only 2 percent of the control group. For treatment group members, this support usually took the form of bus passes, gas cards, and occasional emergency car repair funds.

Finally, as expected given that all GRCC Pathways to Prosperity courses provided by the grantee were offered at no cost to treatment group members, the treatment group was much more likely to receive financial assistance to attend education or training. A large majority of treatment group members (81 percent) received some amount of financial assistance compared with less than a quarter of the control group.

4.3.3 Educational Attainment

GRCC's Pathways to Prosperity program not only increased levels of participation in training programs and the receipt of support services for the treatment group relative to the control group, but it also resulted in a positive impact on educational attainment. As shown in Exhibit 4.6, treatment group members were more likely than control group members to receive any education or training degree or credential, primarily vocational credentials and "other" types of credentials, most likely reflecting the Michigan Employability Certificate individuals received when they completed the Career Prep course. Overall, 36 percent of the treatment group received a vocational credential compared with 10 percent of the control group members, while 20 percent of the treatment group received an "other" type of credential, compared with 2 percent of the control group.

Exhibit 4.6: Impacts on Educational Attainment, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Group	Control Group	Difference (Impact)
Received any education or training degree or credential (%)	56.2	10.7	45.5***
Vocational Credentials			
Received vocational credential (%)	36.1	9.8	26.4***
Number of vocational credentials earned	0.4	0.1	0.3***
Educational Degrees			
GED/high school diploma (%)	11.4	3.2	8.3
Associate's degree (%)	1.1	0.2	1.0
Bachelor's degree (%)	0.4	0.5	-0.1
Other			
Received other type of credential (%)[a]	19.6	<0†	21.9***

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Other types of credentials and degrees include study skills, workplace skills, and general life skills credentials. No sample members received master's, doctorate, or professional degrees.
† The percent of the treatment/control group predicted to have a binary outcome cannot, in reality, be less than 0 percent or greater than 100 percent. However, on occasion, the estimates for these values as predicted by the linear probability regression model can fall below 0. In these cases, reported values are capped at zero in the exhibit and are denoted by "<0".
The total sample of 189 individuals includes 130 treatment group and 59 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

4.3.4 Factors Affecting Ability to Work

The 18-month follow-up survey asked respondents about several factors that might affect their ability to work, both at the time of the survey and over the entire follow-up period. As shown in Exhibit 4.7, no statistically significant differences appeared between the treatment and control groups with respect to common barriers. Similarly, there was no statistically significant difference in the minimum rate of pay for which treatment and control group members reported being willing to work.

Exhibit 4.7: Impacts on Factors That Affected Ability to Work, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Group	Control Group	Difference (Impact)
Factors that affected respondent's ability to work in the past month:			
Finding affordable quality childcare (%)	8.8	15.2	-6.4
Problems with transportation (%)	28.3	39.2	-10.8
Any physical, emotional, or other health conditions (%)	17.5	27.1	-9.6
Factors that affected respondent's ability to work between random assignment and last month:			
Finding quality childcare that respondent could afford (%)	10.9	17.4	-6.5
Problems with transportation (%)	33.0	46.4	-13.4
Any physical, emotional, or other health conditions (%)	17.1	28.1	-11.0
Amount a job must pay per hour for respondent to take it ($)[a]	11.35	11.04	0.31

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] For respondents who reported a rate per week/month/year, the conversion to hourly rate assumes an average work week of 34.5 hours based on the Bureau of Labor Statistics estimates for the private sector.
The total sample of 189 individuals includes 130 treatment group and 59 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

4.4 Impacts on Employment and Earnings Outcomes

The evaluation's logic model (see Chapter 2) suggested that the program would increase receipt of training and support services, which would in turn increase employment and earnings. The previous section has shown that the hypothesized increase in receipt of training and support services did occur; this section shows that, nevertheless, the evaluation did not find evidence of an impact on employment or earnings.

4.4.1 Employment and Earnings

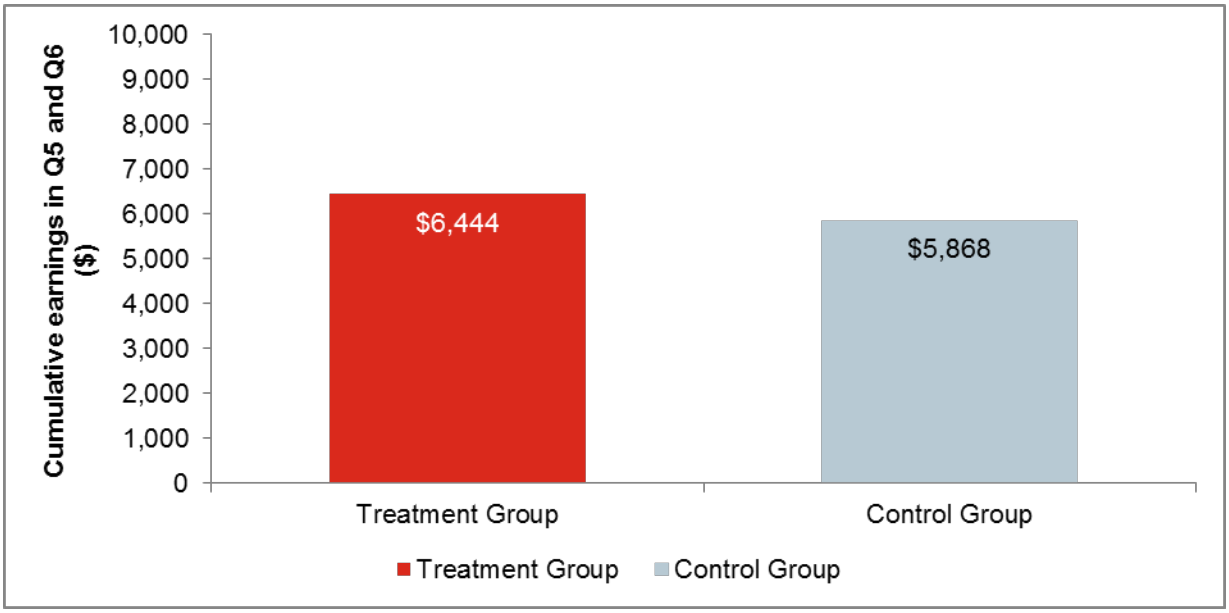
Exhibits 4.8 through 4.11 display the earnings and employment outcomes as measured by quarterly UI wage record data. As displayed in Exhibit 4.8 and reported in Exhibit 4.9, no evidence of a statistically significant impact on earnings in the fifth and sixth quarters ("Q5" and "Q6" in the exhibits below) after random assignment, the study's primary confirmatory outcome, was detected.[70] Exhibit 4.8 shows that the average earnings for the treatment and control groups over these two quarters were $6,444 and $5,868, respectively, a difference that is not statistically significant. Moreover, the results do not show impacts on earnings among those individuals who participated in the training and educational programs (the "treatment on the treated" estimate in Exhibit 4.9).

As with the confirmatory outcome of earnings in the fifth and sixth quarters after random assignment, no evidence of GRCC program impacts on other measures of earnings or employment levels was found. Although there is evidence (statistically significant at the 10 percent level) of a positive impact on employment levels during the first quarter after random assignment, this impact did not remain over quarters two through six after random assignment. As displayed graphically in Exhibits 4.10 and 4.11, both the employment rates and quarterly earnings for the treatment and control groups showed a similar

[70] See Appendix A for the minimum detectable impact (MDI) estimate.

pattern of increasing over the follow-up period but with no evidence of differences between the two groups.

Exhibit 4.8: Cumulative Earnings in the Fifth and Sixth Quarters After Random Assignment, by Random Assignment Group, GRCC



Source: National Directory of New Hires.

Note: The total sample of 274 individuals includes 183 treatment group and 91 control group members. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. Pound signs are present only if the impact is statistically significant at the indicated level.

Exhibit 4.9: Impacts on Earnings and Employment, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Group	Control Group	Difference (Impact)	Percent Difference[a]
Confirmatory Outcome				
Cumulative earnings in Q5 and Q6 ($)	6,444	5,868	576	9.8%
Treatment-on-the-Treated (TOT) Estimate				
Cumulative earnings in Q5 and Q6 ($)	7,308	6,547	761	11.6%
Earnings				
Cumulative earnings in Q1 through Q6 ($)	14,791	14,068	723	5.1%
Earnings in Q1 ($)	1,391	1,582	-190	-12.0%
Earnings in Q2 ($)	1,815	1,911	-96	-5.0%
Earnings in Q3 ($)	2,467	2,274	193	8.5%
Earnings in Q4 ($)	2,674	2,433	241	9.9%
Earnings in Q5 ($)	2,969	2,704	265	9.8%
Earnings in Q6 ($)	3,474	3,164	311	9.8%
Employment				
Ever employed during Q5 or Q6 (%)	70.4	64.0	6.4	10.0%
Ever employed during Q1 through Q6 (%)	82.4	77.1	5.3	6.8%
Ever employed during Q1 (%)	43.9	32.6	11.3*	34.8%
Ever employed during Q2 (%)	50.5	50.2	0.3	0.6%
Ever employed during Q3 (%)	59.3	53.3	5.9	11.1%
Ever employed during Q4 (%)	54.6	53.9	0.8	1.4%
Ever employed during Q5 (%)	64.2	54.4	9.8	18.0%
Ever employed during Q6 (%)	66.0	56.3	9.6	17.1%

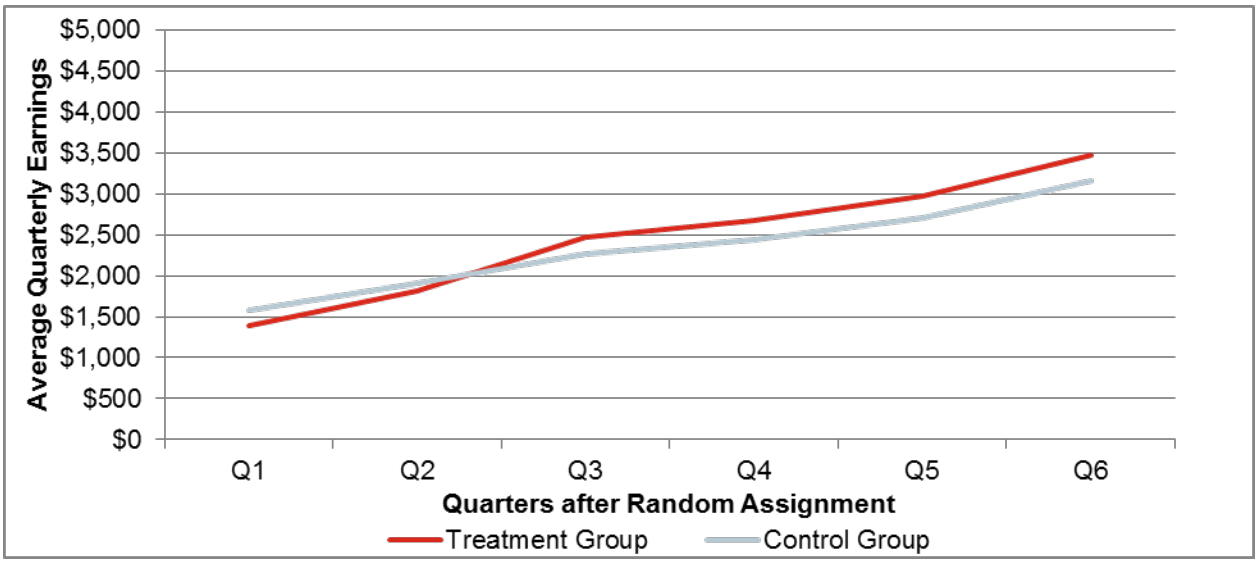
Source: National Directory of New Hires.

Note: The total sample of 274 individuals includes 183 treatment group and 91 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups. For the treatment-on-the-treated estimate, the no-show rate of 23.5 percent and the cross-over rate of 0.0 percent were used. Treatment-on-the-treated estimate *p*-values are corrected for multiple comparisons in line with the adjustment on the confirmatory outcome.

[a] This indicates the percentage change between the treatment group average and the control group average.

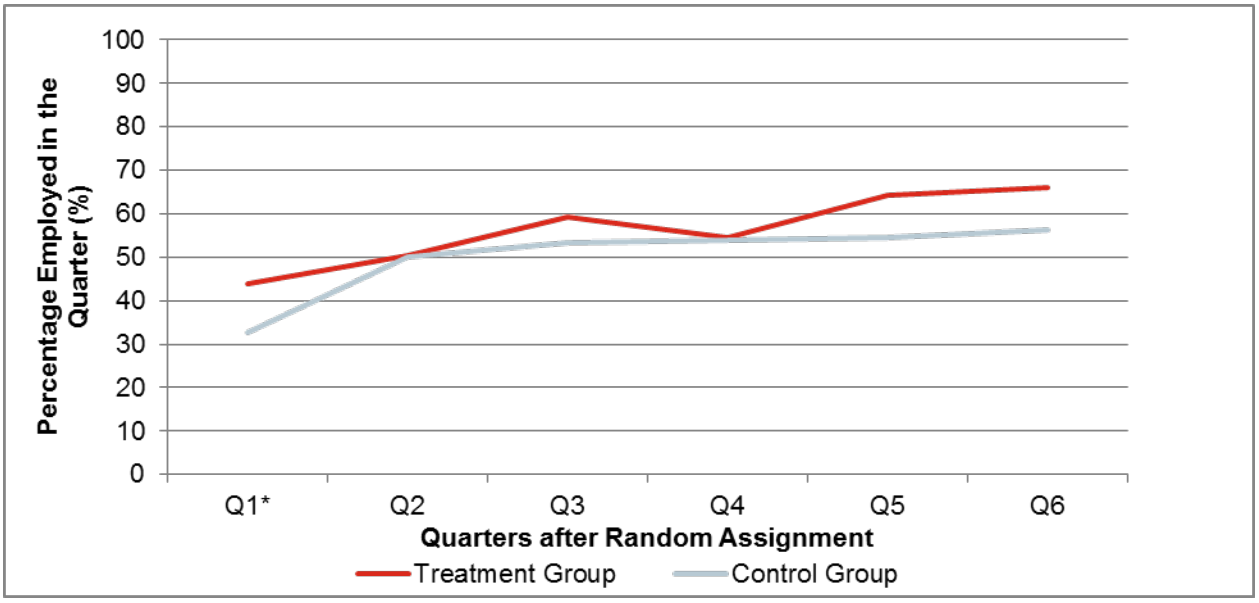
Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. *** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 4.10: Average Quarterly Earnings, by Random Assignment Group, 18-Month Follow-Up Period, GRCC



Source: National Directory of New Hires.
Note: The total sample of 274 individuals includes 183 treatment group and 91 control group members.
*** Difference is statistically significant at the *p*<0.01 level. ** Difference is statistically significant at the *p*<0.05 level. * Difference is statistically significant at the *p*<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 4.11: Percentage Employed, by Random Assignment Group, 18-Month Follow-Up Period, GRCC



Source: National Directory of New Hires.
Note: The total sample of 274 individuals includes 183 treatment group and 91 control group members.
*** Difference is statistically significant at the *p*<0.01 level. ** Difference is statistically significant at the *p*<0.05 level. * Difference is statistically significant at the *p*<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

Results from the 18-month follow-up survey also show no significant impacts on employment levels (Appendix D, Exhibit D.12). However, there were positive and significant impacts on earnings during the fourth, fifth, and sixth quarters after random assignment. Given that these results are not supported by the confirmatory outcome measure for the study or other earnings data from the NDNH, these data should be interpreted cautiously and do not provide strong support that the GRCC program produced impacts on earnings.

Employment and earnings data observed over a follow-up period of longer than six quarters (18 months) also were examined for the subset of cases randomized earlier (these smaller samples further limit the ability to detect impacts). Specifically, a follow-up period of 11 quarters (33 months) is available for an early enrolling sample. However, these results also do not show that the GRCC program produced impacts on earnings or employment measured over this longer follow-up period (see Appendix D, Exhibit D.11).

4.4.2 Employment and Earnings for Subgroups

In addition to understanding the overall impact of GRCC's Pathways to Prosperity program, the evaluation examined whether the program was more or less effective for certain subgroups of the population served, defined by their education level and employment status at the time of random assignment. Exhibits 4.12 and 4.13 show the employment and earnings impacts in quarters five and six for the two subgroups examined. The first subgroup is those with a high school diploma or less versus those who had more than a high school diploma (this includes those who attended some college or have an associate's degree or higher), measured at the time of random assignment. The second subgroup is those who did not work in the year before random assignment compared with those who had been employed during this year.

These exploratory analyses provide some evidence that impacts vary by sample members' characteristics at baseline. Specifically, there is a positive impact of 4 percentage points on employment in the fifth and sixth quarters after random assignment for those sample members who had been employed in the year before enrollment (see Exhibit 4.12). However, there is no evidence of impact for those not employed in any of the four quarters preceding random assignment. The difference between these impacts is statistically significant.

Consistent with that pattern are positive earnings impacts for those employed in the year preceding random assignment and negative impacts for those not employed during this time. However, this evidence is not as strong: these impacts are not statistically significant and the difference between these two groups is only significant at the 10 percent level. Overall, these results indicate that impacts may be larger for those with more recent employment.

The subgroup analysis did not find any statistically significant differences in terms of fifth and sixth quarter earnings or employment between those with higher versus lower education levels (see Exhibit 4.13).

Exhibit 4.12: Impacts on Earnings and Employment, by Employment Status in the Year Preceding Random Assignment, 18-Month Follow-Up Period, GRCC

	Treatment Group	Control Group	Difference (Impact)	Subgroup Difference (Impact)[1]
Earnings in Q5 and Q6 post-random assignment ($)				
Not employed in any of the 4 quarters preceding random assignment	4,010	5,436	-1,426.	3,092*
Employed in any of the 4 quarters preceding random assignment	7,726	6,060	1,666	
Employed in Q5 and Q6 post-random assignment (%)				
Not employed in any of the 4 quarters preceding random assignment	52.9	56.2	-3.3	7.3**
Employed in any of the 4 quarters preceding random assignment	77.1	73.0	4.0**	

Source: National Directory of New Hires.
Note: [1] The "subgroup difference (impact)" and "subgroup different (p-value)" measure whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $-1,426 impact among those not employed in any of the four quarters preceding random assignment is different than the $1,666 impact among those employed in any of the four quarters preceding random assignment.
The total sample of 274 individuals includes 183 treatment group and 91 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 4.13: Impacts on Earnings and Employment, by Educational Attainment at Random Assignment, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Group	Control Group	Difference (Impact)	Subgroup Difference (Impact)[1]
Earnings in Q5 and Q6 post-random assignment ($)				
High school diploma/GED or less	5,216	5,087	129	726.5
More than high school diploma/GED	7,241	6,385	856	
Employed in Q5 and Q6 post-random assignment (%)				
High school diploma/GED or less	66.3	62.4	3.9*	-3.9
More than high school diploma/GED	70.7	70.7	0.0	

Source: National Directory of New Hires.
Note: [1] The "subgroup difference (impact)" measures whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $129 earnings impact among those with a high school diploma/GED or less is different than the $856 earnings impact among those with more than a high school diploma/GED.
The total sample of 274 individuals includes 183 treatment group and 91 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

4.4.3 Employment Status and Job Characteristics

The Pathways to Prosperity program provided a range of education, training, and supports to help members of the treatment group obtain and maintain employment. Therefore, the 18-month follow-up survey included several questions regarding sample members' employment status at the time of the

survey and characteristics of their current or most recent job. As seen in Exhibit 4.14, the results do not show program impacts on the labor force status of the treatment group at the time of the 18-month follow-up survey. Three-quarters of treatment group members (75 percent) were employed at the time of the follow-up survey compared with 64 percent of the control group, but that difference was not statistically significant. In addition, the difference between the percentage of treatment group (10 percent) and control group (17 percent) members who were out of the labor force (defined as not looking for work for a number of reasons) is not statistically significantly different from zero.

Exhibit 4.14: Impacts on Employment Status, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Group	Control Group	Difference (Impact)
Employment Status at Time of Follow-Up Survey			
Employed (%)	74.6	64.4	10.2
Unemployed (%)	15.9	18.9	-3.0
On temporary layoff (%)	2.3	1.3	1.0
Looking for work (%)	13.6	17.6	-4.0
Out of the labor force (%)	9.5	16.7	-7.2
Retired (%)	0.2	0.8	-0.6
Unable to work because of disability (%)	6.0	9.5	-3.5
Attending school or long-term training program (%)	1.5	4.9	-3.4
Not looking for work (%)	1.7	1.5	0.2

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 189 individuals includes 130 treatment group and 59 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 4.15 provides information on the sample members' job characteristics from their most recent or current job, as reported in the follow-up survey. These results include all survey respondents; in particular, those with no recent job were coded as zero on these outcomes. Thus, these are experimental comparisons and can be interpreted as estimates of program impact.

The results do not show GRCC program impacts on weekly earnings or the number of hours worked per week. On average, the treatment group's weekly earnings in their current or most recent job were $365, and they worked 32 hours per week, so earnings were the equivalent of $11.49 per hour. Additionally, the study did not find evidence of impacts on job schedule or on the availability of most types of job-related benefits, including employer-provided health insurance coverage, availability of paid sick time, and paid holidays. However, a higher percentage of treatment than control group members received paid vacation days (43 percent and 22 percent, respectively). The program also had an impact (statistically significant at the 10 percent level) on having a current or most recent job that was part of a career path, with 51 percent of the treatment group reporting having such a job compared with 34 percent of the control group.

Exhibit 4.15: Impacts on the Characteristics of Current or Most Recent Job, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Group	Control Group	Difference (Impact)
Pay and Hours of Job			
Weekly earnings ($)	365	320	45
Hours worked per week	31.8	29.9	1.8
Number of weeks at job[a]	58.5	57.3	1.2
Job represented by a union (%)	6.3	6.7	-0.4
Job Benefits			
Job offers health insurance (%)	46.0	44.9	1.1
Paid vacation (%)	43.2	22.2	21.0**
Paid holiday (%)	41.7	38.5	3.3
Paid sick time (%)	26.7	20.8	5.9
Retirement/pension plan (%)	29.1	27.8	1.3
Job Schedule			
Regular daytime schedule (%)	58.0	44.4	13.6
Regular evening shift (%)	12.9	14.6	-1.7
Regular night shift (%)	2.7	6.3	-3.6
Rotating schedule (%)	6.4	7.3	-0.8
Irregular schedule (%)	5.3	4.5	0.8
Other schedule (%)	3.7	11.0	-7.4
Connection of Job to Training			
Respondent attributes getting a new job due to completing vocational training (%)	18.2	8.7	9.5
Respondent employed in industry targeted by grant-funded training program (%)	37.7	34.2	3.4
Job is part of a career path (%)	50.7	33.8	16.9*

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Jobs that started before random assignment are included in these estimates.
The total sample of 189 individuals includes 130 treatment group and 59 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

The follow-up survey also asked treatment and control group members whether they attributed obtaining a new job to completing a vocational training program. As Exhibit 4.15 shows, 18 percent of the treatment group and 9 percent of the control group at AIOIC (including those who did not work or attend training) attributed getting a new job to completing a training program; this difference is not statistically significant.[71] Among those in the treatment group who completed a training program, 40 percent, reported they obtained a new job as a result of the training (not shown).[72]

[71] These results are similar when examined among those who worked during the follow-up (a non-experimental comparison), with 20 percent of the treatment group who worked reporting that they got a job due to a training program compared with 9 percent of the control group. See Exhibit D.15 in Appendix D.

[72] The sample size of control group member who completed a training program (n=6) is too small to include in this analysis.

Finally, the survey also collected information on the industry in which respondents were employed in their current or most recent job. This information was coded as to whether that job was in a "target" industry of the GRCC program. Because of the range of trainings provided by the GRCC program, this covered a wide range of fields and included construction, crop production, metal product manufacturing, engineering, and transportation. No statistically significant differences were found between the treatment and control group members on industry in which they found employment. In addition, there is no evidence of impacts on the attribution of a job to completing the training program.

4.5 Impacts on Income, Public Benefits Receipt, and Financial Circumstances

In addition to determining whether GRCC's Pathways to Prosperity program increased participants' employment and earnings relative to the control group, the evaluation also examined whether the program produced impacts on household income, receipt of public benefits, and overall financial circumstances, as changes in these outcomes could follow changes to earnings and employment.

4.5.1 Household Income and Receipt of Public Benefits

Consistent with the earnings outcomes based on the NDNH data discussed earlier, analyses of survey data do not show program impacts on total household income during the calendar year before the 18-month follow-up survey. Average household income for treatment group members during that year was $22,887, compared with $18,759 for the control group; there was not a statistically significant difference between these amounts (Exhibit 4.16). Evidence (statistically significant at the 10 percent level) suggests that the program did have a positive but small impact (4 percentage points) on the proportion of treatment group members who received Temporary Assistance for Needy Families, and a larger impact on the proportion that received other federal benefits within the last month. However, there is no significant difference in the average amount of those benefits received during the month when non-recipients are included.

Exhibit 4.16: Impacts on Household Income and Household Receipt of Public Benefits, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Group	Control Group	Difference (Impact)
Total household income before taxes last year ($)[a]	22,887	18,759	4,128
Temporary Assistance for Needy Families (TANF)			
Received TANF last month (%)	4.0	0.4	3.7*
Amount received last month ($)	6.43	2.31	4.12
Supplemental Nutrition Assistance Program (SNAP)			
Received SNAP last month (%)	38.7	40.7	-2.0
Amount received last month ($)	86.00	94.34	-8.34
Unemployment Insurance (UI)			
Received UI last month (%)	3.9	4.7	-0.8
Amount received last month ($)	30.34	13.58	16.76
Other Federal Benefits			
Received other federal benefits last month (%)[b]	34.3	17.4	16.9*
Amount received last month ($)[b]	236.11	168.17	67.94
Other Payments			
Received alimony, child support, rent payments, or financial support from friends/relatives last month (%)	11.3	6.4	4.9
Amount received last month ($)	36.09	42.61	-6.52
Other Assistance Received			
Received any assistance from churches, food banks, or other private community organizations since random assignment (%)	29.1	37.5	-8.3

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: For outcomes measured in dollars, the analytic sample includes all study members with non-missing outcome data (including those with a value of zero for the outcome). [a] Rather than providing a specific value for household income including transfers, some survey respondents indicated that their household income including transfers was in a specified range (e.g., between $45,000 and $60,000). For these individuals, income is defined as the midpoint of the specified range. [b] The other federal benefits include the following types: Supplemental Security Income; Social Security Disability Insurance; Women, Infants, and Children benefits; General Assistance; Trade Adjustment Assistance; Alternative Trade Adjustment Assistance; Workers' Compensation or Disability Insurance benefits; and Social Security.
The total sample of 189 individuals includes 130 treatment group and 59 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

4.5.2 Financial Circumstances

The 18-month follow-up survey included questions to allow the evaluation to assess the program's impact on the financial health and stability of treatment and control group members. It was hypothesized that if the program services increased employment and earnings, this could also result in an improvement in the overall financial circumstances of the treatment group. Specifically, the survey included questions regarding housing status and the ability of sample members (and their households) to meet household, mortgage, credit card and unplanned expenses. As shown in Exhibit 4.17, three differences between the two groups were detected. Two of the three pertain to housing status: treatment group members were more likely to own a home and less likely to rent compared with control group members over the course of the follow-up period. In addition, treatment group members were less likely to experience difficulty covering household expenses during the month before completing the follow-up survey. The reason for

GRCC's impacts on these measures, particularly given that no impacts on earnings were detected, cannot be determined from the available data.

Exhibit 4.17: Impacts on Financial Circumstances, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Group	Control Group	Difference (Impact)
Housing Status			
Owned a home (%)	38.5	20.5	18.0**
Rented a residence (%)	46.4	64.3	-17.9**
Difficulty Covering Household Expenses			
Had difficulty covering all household expenses (%)	64.3	75.9	-11.6
Had difficulty covering all household expenses in the past month (%)	63.0	86.0	-23.0***
Types of Financial Difficulty Experienced			
Mortgage payment: missed or been late (%)	8.7	11.9	-3.2
Rent payment missed or been charged a late fee (%)	16.0	18.8	-2.8
Been charged a late fee on any monthly credit payments (%)	36.2	32.3	3.9
Postponed a major purchase that was planned or needed such as a car or major appliance (%)	38.7	41.2	-2.5

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 189 individuals includes 130 treatment group and 59 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

5. Impact Findings for Kern Community College District's Clean Energy Center Program

This chapter presents impact findings for the Kern Community College District's (KCCD's) Clean Energy Center.

Results presented in this chapter show that the program funded by the DOL grant statistically significantly increased the earnings of the treatment group relative to the control group in the fifth and sixth quarters after random assignment, which is the study's primary confirmatory outcome. The impact is $1,540, a 20 percent increase in the treatment group earnings compared with the control group during those two quarters. The KCCD program also produced impacts on participation in vocational training; the receipt of a range of supports, including career counseling, financial assistance to attend the training, and job placement assistance; and the attainment of vocational credentials. This chapter discusses these results in detail.

This chapter is organized following the logic model presented in Chapter 2. Section 5.1 provides a description of KCCD's Clean Energy Center program. Section 5.2 describes the characteristics of the research sample. Section 5.3 presents impacts of the grant-funded program on service receipt, credential attainment, and other factors that may affect an individual's ability and willingness to work. Section 5.4 presents impacts on earnings and employment outcomes based on the National Directory of New Hires data and the 18-month follow-up survey data. Finally, Section 5.5 discusses impacts on income, public benefits receipt, and other financial measures.[73]

5.1 KCCD's Clean Energy Center Program

KCCD is located in Bakersfield, California, in the southern San Joaquin Valley. KCCD used its Health Care and Other High Growth and Emerging Industries grant to support the establishment of the Clean Energy Center. This center provided tuition-free, non-credit wind and solar technician training for dislocated, underemployed, and unemployed residents of the region. Random assignment to a treatment or control group for the evaluation began in August 2011 and continued through May 2013.

Kern County, home to Bakersfield, the largest city in KCCD's service area, had a population of 848,000 in 2013 according to the American Community Survey, with 364,000 in Bakersfield. As shown in Appendix G, the majority of the population in the county was white (72 percent), with about 6 percent reporting a race of black or African American. Half of the population was Hispanic or Latino. Less than a quarter of the county's population held an associate's degree or higher, and about a quarter of the population had less than a high school diploma. The median household income was approximately $49,000 annually and 23 percent of the population lived below the federal poverty level (see Appendix G).

[73] As discussed in the evaluation's implementation study, not all individuals assigned to the treatment group participated in the KCCD training programs, although most (85 percent) did, according to program administrative data. As a result, the impacts reported in this chapter reflect the effect of the *offer* to participate. That is, as explained in Chapter 2, the reported impacts reflect the difference between the outcomes of those in the entire treatment group (including those who did and did not participate in training) and of those in the entire control group.

The Kern County economy has strong links to agriculture and petroleum extraction. In 2010, the year the grant was awarded, Bakersfield County's unemployment rate was high at 15.6 percent, and by 2013, unemployment decreased to 11.7 percent. In addition, the Bakersfield metropolitan area experienced 11 percent job growth between 2010 and 2013 (see Appendix G).

Exhibit 5.1 summarizes the primary services that KCCD's Clean Energy Center programs provided. As shown, the Clean Energy Center offered three connected training programs: PowerTech, WindTech, and SolarTech. All participants started with PowerTech, a six-week foundational training providing instruction on workplace safety and basic math and electrical skills. The foundational training also introduced the tools and equipment used in the field. This course was designed to provide participants with a set of technical and transferrable skills that would be applicable beyond the renewable energy sector. In particular, it included non-technical material related to communication, teamwork skills, and job search techniques.

After completing PowerTech, participants could seek entry-level employment or pursue the WindTech or SolarTech trainings (or both), which were nine and seven weeks long, respectively. These two training programs involved classroom instruction on technology, systems, installation, and maintenance of wind or solar power, as well as experiential field trips that provided hands-on learning opportunities. KCCD staff were consistently reevaluating and adjusting the curricula for these courses, with the goal of meeting the needs of both participants and employers.

Those who completed any of the three trainings earned a KCCD-developed certification in the relevant field. Those who completed SolarTech also were prepared to sit for the North American Board of Certified Energy Practitioners (NABCEP) exam, which confers an industry-recognized certification. At the time the center operated, there was no standard industry certification for those completing the PowerTech or WindTech programs. Because KCCD developed these certifications, they were not generally known in the industry, although staff conducted outreach to numerous employers to inform them of the training programs.

Exhibit 5.1: Primary Services Provided by KCCD's Clean Energy Center

Program Component	Description
Training and resulting credentials	Three training courses, starting with the foundational PowerTech course that focused on traditional utilities, followed by WindTech or SolarTech. Each training ranged in length from six to nine weeks. Students completing PowerTech could subsequently enroll in WindTech and/or SolarTech. Each course resulted in a KCCD certificate and SolarTech trainees received an industry-recognized certificate for solar technician.
Academic advising and personal supports	Instructors offered tutoring and academic advising and personal guidance on managing school, work, and family. One instructor had a reduced workload to handle these responsibilities. Early in the grant period, American Job Center (AJC) staff were available to provide assistance with WIA-funded supports in this area.
Financial assistance	Training was offered at no cost to participants. Vouchers for equipment (specifically work boots) were provided as needed.
Employment assistance	Instructors played the lead role in providing employment services; they provided career advice, served as job references, and assisted with interview and resume preparation. When possible, instructors drew on their own professional networks to facilitate connections. All training courses incorporated resume development, interview skills, and job search strategies into the curricula. Early in the grant period, AJC staff were available to provide job search assistance through WIA-funded activities.

Program Component	Description
Connections with employers	Staff cultivated and maintained relationships with employers and shared job announcements with participants. Employers provided guidance on course content, offered labor market information, hosted experiential field trips for students, and at times hired those who completed the program.

Source: Interviews with program staff.

In addition to the training, participants had access to academic and personal supports and job search assistance services. KCCD instructors offered tutoring and informal academic advising to participants who sought this assistance. Instructors also provided students with counseling and guidance on career and personal issues. One PowerTech instructor who had previous program administration and student counseling experience was given fewer teaching responsibilities so that he could dedicate time to advising participants, both on academic and non-academic issues.

Instructors, some of whom had previous work experience in the industry, also provided participants with assistance in applying for job opportunities and reported that they typically provided career advice, served as job references, and assisted with interview and resume preparation on request. When possible, instructors said that they drew on their own professional networks to facilitate student connections with industry contacts. Staff also sought to cultivate and maintain relationships with employers and share job announcements with participants. PowerTech included exercises in teamwork and communication and introduced resume development and basic job search techniques. During WindTech and SolarTech trainings, participants revised their resumes to keep them current, practiced interview skills, and continued to focus on job search strategies. Early in the grant period, support and employment services funded through WIA were provided by the AJC in the region. Later in the grant, due to KCCD's dissatisfaction with the services the AJC was providing, KCCD dissolved this partnership and took over these activities.

Over the course of the grant, program managers built relationships with a number of employers. These employers provided guidance on course content, offered labor market information, and at times hired those who completed the program. Over time, KCCD staff found that jobs in the solar and wind industries did not materialize at the level KCCD staff had originally anticipated. Staff reported this was due, in part, to wind farm developers anticipating the expiration of federal tax credits that encouraged the development of the farms, and because solar power plant projects had lengthy approvals and permitting processes that slowed construction. When this occurred, staff cultivated relationships with employers in related industries, particularly construction and residential installation, and incorporated more broadly applicable skills into the curricula, such as residential electrical wiring.

Program administrative data analyzed for the GJ-HC implementation study indicate high levels of participation in Clean Energy Center programs, with 85 percent of those in the treatment group attending at least one training program within a 12-month follow-up period.[74] As shown in Exhibit 5.2, among those who attended at least one Clean Energy Center program, a large proportion (two-thirds) attended more than one program. About one-third of the participants attended only PowerTech, but 32 percent combined PowerTech with WindTech, 22 percent combined PowerTech with SolarTech, and 12 percent attended all three courses.

[74] See Copson et al., 2016 for more details on the participation analyses.

Exhibit 5.2: Type of Program Attended, Completion Rates, and Average Length of Stay Among KCCD Program Participants over a 12-Month Follow-Up Period

Training Program	Participation Rate (%)	Completion Rate (%)	Months in Training
PowerTech only	34	93	1.0
PowerTech and SolarTech	22	100	2.8
PowerTech and WindTech	32	92	3.1
PowerTech, SolarTech, and WindTech	12	89	4.5
Any program	100	97	2.5

Source: Calculations from KCCD program records.
Note: Sample size is 152 and includes those who attended at least one Clean Energy Center program. Completion and length of stay measures are for those who attended the specific program or combination of programs. The completion rate for those who attended multiple programs includes those who completed all programs attended. End dates are not available for those who did not complete their program, so length of stay measures are based on those who completed the programs.

Completion rates were high regardless of course enrollment, ranging from 89 percent among those who enrolled in PowerTech, SolarTech, and WindTech to 100 percent among those who enrolled in PowerTech and SolarTech. Considering all programs, the average completion time for those who completed any program was 2.5 months. Over three-quarters of participants attended training for one to three months, with only 1 percent attending less than one month and 3 percent for longer than six months (not shown in Exhibit 5.2).

5.2 Target Group and Characteristics of the Research Sample

The Clean Energy Center's trainings targeted unemployed, underemployed, and dislocated workers residing in KCCD's service area. To be eligible for the program, applicants needed a high school diploma or to have passed the GED exam; have scores of four or higher on three WorkKeys® skills assessments; have a valid driver's license; have no violent felony convictions; and have a negative result on a drug test. These requirements were intended to ensure that participants had the educational skills needed for the course content and to screen out individuals whose backgrounds would make employment in these industries difficult.

Exhibit 5.3 shows the characteristics of individuals in the treatment and control groups using data reported on the baseline information form that program applicants completed during the intake process for the program, before random assignment. Balance testing demonstrates that the 414 treatment group members and the 415 control group members do not statistically differ from one another. Additionally, among only the sample members who responded to the 18-month survey, and among the sample members for whom NDNH data was available, the treatment and control group members still do not statistically differ from one another (see Appendix E, Exhibits E.1 and E.2). Therefore, any differences in the groups' outcomes reported in this chapter can be attributed to the program.[75]

[75] The unadjusted *p*-value for a global F-test is 0.796, which is not statistically significant, implying that collectively the treatment and control groups do not differ across all items considered.

Exhibit 5.3: Selected Characteristics of Study Sample at Baseline, KCCD

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	10.3	10.4	10.1	0.3
Male	89.7	89.6	89.9	-0.3
Race (%)				
American Indian or Alaskan Native	6.4	5.9	7.0	-1.1
Asian	4.3	3.5	5.2	-1.6
Black or African American	11.2	10.9	11.6	-0.7
Native Hawaiian or other Pacific Islander	0.6	0.6	0.6	0.0
White	72.0	72.9	71.0	1.8
Multi-race	5.4	6.2	4.6	1.6
Hispanic ethnicity (%)	48.5	44.9	52.2	-7.3**
Age (%)				
21 years or younger	19.2	19.8	18.6	1.3
22 to 29 years	30.8	30.9	30.6	0.3
30 to 39 years	24.8	25.6	24.1	1.5
40 years or older	25.2	23.7	26.7	-3.1
Average age (years)	32.3	32.0	32.6	-0.6
Citizenship (%)				
U.S. citizen	92.6	93.9	91.2	2.7
Legal resident	7.4	6.1	8.8	-2.7
Speaks a language other than English at home (%)	38.4	36.2	40.7	-4.5
Family Status				
Marital status (%)				
Married	27.3	26.4	28.1	-1.7
Widowed/divorced/separated	15.6	17.7	13.4	4.2
Never married	57.2	55.9	58.4	-2.5
Number of children under age of 18 (%)				
None	51.9	48.1	55.6	-7.4**
One child	17.5	19.1	15.9	3.2
Two children	16.9	18.6	15.1	3.5
Three or more children	13.8	14.1	13.4	0.7
Education				
Education level (%)				
Less than high school	2.4	2.7	2.2	0.5
High school diploma or GED	45.8	46.1	45.4	0.7
Technical or associate's degree	13.3	13.3	13.3	0.0
Some college credit but no degree	31.4	32.5	30.3	2.2
Bachelor's or master's degree	7.0	5.3	8.7	-3.4
Currently enrolled in school or training program (%)	8.4	6.9	10.0	-3.1
Employment				
Employed (%)	17.5	17.7	17.3	0.4
Currently employed full time (30+ hours)	8.4	9.2	7.5	1.8
Currently employed part time (<30 hours)	9.1	8.5	9.8	-1.3
Not employed (%)	82.5	82.3	82.7	-0.4

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Employed in last 12 months but not employed currently	48.8	48.1	49.5	-1.4
Longer than 12 months since last worked	33.7	34.2	33.2	0.9
Weekly earnings ($)	53	58	48	10
Factors That Affect Employment				
Hourly rate a job must pay for respondent to take ($)	12.45	12.54	12.35	0.19
Felony conviction (%)	12.4	12.3	12.4	0.0
Job preferences (%)				
Prefers the kind of job that relates to training	37.7	36.3	39.3	-3.0
Will take any job, even if the pay is low	64.2	62.2	66.3	-4.1
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	9.3	8.1	10.4	-2.4
Transportation problems limit ability to work	12.9	12.9	13.0	-0.1
Any kind of physical or mental disability	2.5	3.1	1.9	1.2
Public Benefits				
Receiving any public benefit (%)	42.3	45.9	38.8	7.1**
Types of benefits received (%)[a]				
Temporary Assistance for Needy Families	4.4	4.9	3.9	1.0
Supplemental Nutrition Assistance Program	21.5	23.6	19.4	4.2
Unemployment Insurance	23.4	25.8	21.1	4.7
Section 8 or public housing assistance	3.6	3.2	3.9	-0.8

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).
Note: [a] Responses are not mutually exclusive.
Estimates in this table are computed based on the 414 KCCD treatment group members and 415 KCCD control group members who completed the baseline survey. All statistics are calculated for the full sample of treatment or control group members. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.
** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

The vast majority of sample members (90 percent) were male, and most were not working at the time of random assignment (83 percent). About half were unemployed but had worked within the 12 months before random assignment, and 34 percent had been unemployed for more than a year. Weekly earnings (including those who were unemployed at baseline) averaged $53.[76] Almost half of the sample members at KCCD (42 percent) received some type of public benefit, with 22 percent receiving Supplemental Nutrition Assistance Program benefits and 23 percent receiving Unemployment Insurance.

The Clean Energy Center trainings required at least a high school diploma or GED, and a vast majority of treatment group members (97 percent) reported having attained one of these or a higher level of education; and about one-third (31 percent) had attended some college. The Clean Energy Center served a relatively large minority population. Approximately half of the sample reported being of Hispanic or Latino ethnicity, and 38 percent spoke a language other than English at home. The average age was 32, and about half had children 18 years old or younger living in their households.

[76] Weekly earnings are calculated among both the employed and unemployed at the time of the baseline survey. Among those who were working, average weekly earnings were $322 for the entire sample ($346 for the treatment group and $296 for the control group).

Nearly two-thirds said that they were willing to take any job even if the pay was low, and about one-third indicated that they preferred a job related to their training. Sample members did not report that access to transportation or affordable childcare posed a particular barrier to their ability to work, with only 13 percent and 9 percent of the sample, respectively, indicating these as challenges.

5.3 Impacts on Service Receipt, Educational Attainment, and Factors Affecting Ability to Work

This section reports on the impact of KCCD's Clean Energy Center's training programs on receipt of education and training services, a range of support services, and educational attainment, including the receipt of credentials or degrees. It also examines whether the program services affected any of the factors that limited study members' ability to work, including problems with transportation, finding quality childcare, and other health or emotional issues.

In sum, the KCCD program produced positive impacts on participation in education and training activities, particularly vocational training. The program also had positive impacts on receipt of a range of supports, particularly the receipt of career counseling, job placement assistance, and financial assistance to attend education or training. The program also produced a positive impact on the receipt of a vocational credential.

5.3.1 Participation in Education and Training Programs

Exhibit 5.4 shows the program impacts on participants' receipt and completion of education and training programs within the 18-month follow-up period. Almost all of the treatment group (95 percent) participated in some type of education or training program,[77] although it is notable that many control group members (44 percent) also did so. The impact on participation in any education or training program represents more than a doubling of participation levels compared with the control group. In terms of types of services received, the largest impact was on participation in vocational training (84 percent of the treatment group compared with 30 percent of the control group).

The KCCD program also produced an impact on participation in classes on study skills, workplace skills, and general life skills (15 percent compared with 8 percent). This impact likely reflects that some of these topics were covered in the Clean Energy Center courses. However, overall reported receipt levels are low, indicating that the treatment group may not have viewed the instruction they received on these topics as a separate class because most of these topics were integrated into the technical curriculum. There is also evidence (statistically significant at the 10 percent level) that the program produced an impact of three percentage points on participation in ABE or GED courses. While the KCCD Clean Energy Center did not offer these courses, participation in the training programs potentially could have prompted some individuals to take additional classes focused on improving their basic skills.

[77] This proportion (95 percent) represents the percentage of treatment group members who reported on the follow-up survey that they participated in any education and training program, whether at KCCD or elsewhere. This value differs from the 85 percent that participated in a program based on administrative data. This difference is in part due to variation in the data source (self-reported measures are subject to recall error). In addition, treatment group members who did not enroll in the KCCD Clean Energy Center may have enrolled in other education and training programs in the community.

Exhibit 5.4: Impacts on Participation in Education and Training Programs, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Group	Control Group	Difference (Impact)
Participated in **any education or training** (%)	95.0	43.8	51.2***
Number of months attended education or training	3.8	1.7	2.2***
Number of courses attended	2.7	1.4	1.3***
Enrolled in education and training at time of follow-up survey	11.5	10.9	0.6
Participated in **ABE/GED** (%)	5.5	2.6	2.9*
Average number of months attended	0.1	0.1	0.0
Completed any ABE/GED classes (%)	4.3	1.5	2.8**
Participated in **vocational training** (%)	83.6	29.5	54.1***
Average number of months attended	3.0	0.7	2.3***
Completed any vocational trainings (%)	76.6	24.2	52.5***
Participated in **college level courses for credit** (%)	12.9	15.9	-3.0
Average number of months attended	0.7	0.8	-0.1
Completed any college level courses (%)	8.9	13.9	-5.0*
Participated in **classes on study skills, workplace skills, or general life skills** (%)	15.1	8.4	6.7**
Number of months attended	0.2	0.1	0.1**
Completed any life skills classes (%)	11.9	7.2	4.7

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 570 individuals includes 294 treatment group and 276 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

There was also an impact on the length of time individuals spent in education and training activities and the number of courses attended. Across all sample members (i.e., including those who did not attend training), the treatment group spent 4 months in education or training activities compared with 2 months for the control group. However, when considering only those who participated in any education or training (a non-experimental comparison),[78] the average amount of time in training was four months for both the treatment and control group, and the number of courses attended was 2.9 courses for the treatment group and 3.5 courses for the control group (see Appendix E, Exhibit E.4). Given that the treatment/control differences in months of training conditional on getting any training was minimal, the impact on average months of training is likely primarily due to the higher percentage of treatment than control group members attending training, rather than to an increase in the length of time or number or courses taken by those who did participate.

Finally, across all treatment and control members, there was an impact on the completion rates of vocational training: 77 percent of the treatment group reported completing vocational training compared to 24 percent of the control group.[79] However, among those who *attended* a vocational training program

[78] Statistical tests were not conducted on non-experimental comparisons, as described in Chapter 2.

[79] "Completion" of programs is self-reported and thus differs from figures presented above based on program administrative data. In addition, program completion may not necessarily mean that a credential was obtained, as some credentials require state licensing exams. See Section 5.3.3, below, for impacts on credential receipt.

(a non-experimental comparison), completion rates for the treatment and control group are comparable: the treatment group had a 92 percent completion rate among those who attended, compared with the control group's 82 percent completion rate among those who attended.[80] Although the completion rate was somewhat higher for treatment group members who attended training, the 53 percentage point impact on the completion rate for training likely primarily stems from the higher percentage of treatment than control group members who attended training.

One exception to these positive impacts is for the completion of college-level courses. Although participation rates were similar across the treatment and control groups, evidence (statistically significant at the 10 percent level) suggests that fewer treatment group members (9 percent) than control group members (14 percent) reported completing these courses. Among those who attended a college-level course, this pattern holds: the treatment group had a 70 percent completion rate among those who attended, compared with the control group's 87 percent completion rate.[81]

5.3.2 Receipt of Advising, Support, and Financial Assistance Services

In addition to the technical skills training discussed above, the KCCD Clean Energy Center provided a range of supports, including advising on academic and career issues and assistance in finding a job. These services were primarily provided by Clean Energy Center instructors, although early in the grant period they were provided through the staff at the AJC. All of the Clean Energy Center training courses also incorporated resume development, interview skills, and job search strategies into the curricula. Vouchers for equipment (particularly work boots) also were provided as needed.

Reflecting this approach to providing supports, the KCCD program resulted in more treatment than control group members receiving advising as part of their training. As shown in Exhibit 5.5, more than three-quarters of treatment group members (76 percent) received some form of advising as part of an education and training program compared with only 27 percent of control group members. Specifically, more than half of the treatment group (51 percent) received career counseling compared with 15 percent of the control group. Moreover, 63 percent of treatment group members received job placement assistance compared with 15 percent of control group members. More treatment than control group members also reported receipt of as academic advising (26 percent compared with 19 percent) and tutoring (10 percent compared with 5 percent).

The KCCD program also had impacts on the receipt of assistance with life skills, including having a good work ethic, communication skills, anger management, and money management and financial planning. More than half of the treatment group (56 percent) received assistance with life skills compared with 21 percent of the control group..

Treatment group members also were more likely to receive support services to attend training or work, including assistance purchasing books or supplies and job-related tools. The largest impact for these supports was for books or supplies, with 25 percent of the treatment group reporting receipt of this assistance compared with 8 percent of the control group. However, slightly fewer treatment than control

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[80] Eighty-four percent of the treatment group participated in vocational training and 77 percent completed; 30 percent of the control group attended a vocational training program and 24 percent completed.

[81] Thirteen percent of the treatment group attended a college level course and 9 percent completed; 16 percent of the control group attended a vocational training program and 14 percent completed.

group members reported receipt of childcare assistance (a difference of three percentage points).The KCCD program also produced impacts on the proportion of participants who received assistance with job-related tools and books.

Finally, a very high proportion of the treatment group reported receiving financial assistance to attend education or training compared with the control group (86 percent compared with 29 percent), reflecting that the Clean Energy Center training programs were tuition free. There is also evidence (statistically significant at the 10 percent level) to suggest that a larger proportion of the control group paid for classes "out of pocket."

Exhibit 5.5: Impacts on Receipt of Advising, Life Skills, Support Services, and Financial Assistance, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Group	Control Group	Difference (Impact)
Advising			
Received any type of advising as part of education and training program (%)	76.2	27.4	48.8***
Academic (%)	25.5	18.9	6.6*
Tutoring (%)	9.9	4.6	5.3**
Career counseling (%)	51.2	14.7	36.5***
Financial aid advising (%)	11.4	9.9	1.5
Job placement assistance (%)	63.3	14.9	48.3***
Life Skills			
Received any assistance on life skills issues (%)	56.4	21.2	35.2***
Having a good work ethic (%)	36.1	13.9	22.2***
How to communicate well with your boss and co-workers (%)	52.3	15.8	36.4***
How to manage any anger and frustrations (%)	41.1	12.4	28.7***
How to manage your money and plan your finances (%)	16.5	9.9	6.6**
Support Services			
Received support services to attend training or work (%)	48.0	33.8	14.3***
Clothes or uniforms (%)	20.9	17.1	3.8
Childcare assistance (%)	1.1	3.9	-2.8**
Assistance with transportation (%)	5.4	5.8	-0.4
Job-related tools (%)	8.6	2.9	5.7***
Books or supplies (%)	24.6	8.2	16.4***
Financial Assistance			
Received financial assistance to attend education and training (%)	86.1	28.8	57.3***
Paid out of pocket for some portion of classes (%)	13.9	21.0	-7.1*
Received student loans to finance courses (%)	1.6	3.5	-1.9

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 570 individuals includes 294 treatment group and 276 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

5.3.3 Educational Attainment

In addition to increasing participation in education and training programs and receipt of a range of supports, the KCCD program also resulted in impacts on educational attainment, particularly on the

receipt of vocational credentials. Overall, 77 percent of the treatment group earned a degree or credential, while only 23 percent of control group members did so (Exhibit 5.6), a three-fold difference. Most of this impact can be attributed to the receipt of vocational credentials: 72 percent of the treatment group received a vocational credential compared with 21 percent of the control group. The KCCD program also had an impact of 3 percentage points on the receipt of a GED or high school diploma, and a 6 percentage point impact on receipt of other types of credential or degrees (e.g., certificates on workplace skills, general life skills, or other higher education degrees). Finally, there was an impact on the number of credentials earned. The Clean Energy Center also increased the number of vocational credentials received by the treatment group compared with the control group, a result that is due to more treatment group members participating in training.

Exhibit 5.6: Impacts on Educational Attainment, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Group	Control Group	Difference (Impact)
Received any education or training degree or credential (%)	76.9	23.4	53.5***
Vocational Credentials			
Received vocational credential (%)	71.9	20.5	51.4***
Number of vocational credentials earned	1.1	0.4	0.7***
Educational Degrees			
GED/high school diploma (%)	3.2	0.6	2.6**
Associate's degree (%)	0.0	0.4	-0.4
Bachelor's degree (%)	0.0	0.4	-0.4
Other			
Received other type of credential (%)[a]	9.1	3.3	5.7***

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Other types of credentials and degrees include study skills, workplace skills, and general life skills credentials. No sample members received master's, doctorate, or professional degrees.
The total sample of 570 individuals includes 294 treatment group and 276 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

5.3.4 Factors Affecting Ability to Work

The 18-month follow-up survey asked sample members about a range of issues that might affect their ability to work, including problems with transportation or childcare and physical or other health conditions, both at the time of the survey and over the entire follow-up period. In addition, it examined whether a job must pay a certain amount for the individual to take it (often called the "reservation wage"). As shown in Exhibit 5.7, the treatment group members reported that a job must pay at least $14.19 per hour for them to be willing to accept it, compared with $12.83 for the control group, an 11 percent difference. While the reason for this impact cannot be determined specifically, it may reflect that students wanted a higher wage to take a job because of the investment they had made in the training program, or perhaps because the program raised their expectations in terms of what they could earn. No differences were found between the treatment and control groups regarding whether childcare availability, transportation, and health conditions affected their reported ability to work.

Exhibit 5.7: Impacts on Factors That Affected Ability to Work, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Group	Control Group	Difference (Impact)
Factors that affected respondent's ability to work in the past month:			
Finding affordable quality childcare (%)	12.3	10.8	1.5
Problems with transportation (%)	22.4	25.5	-3.1
Any physical, emotional, or other health conditions (%)	10.7	8.6	2.1
Factors that affected respondent's ability to work between random assignment and last month:			
Finding quality childcare that respondent could afford (%)	11.9	12.6	-0.7
Problems with transportation (%)	31.0	28.2	2.8
Any physical, emotional, or other health conditions (%)	11.8	10.5	1.3
Amount a job must pay per hour for respondent to take it ($)[a]	14.19	12.83	1.36***

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] For respondents who reported a rate per week/month/year, the conversion to hourly rate assumes an average work week of 34.5 hours based on the Bureau of Labor Statistics estimates for the private sector.
The total sample of 570 individuals includes 294 treatment group and 276 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

5.4 Impacts on Employment and Earnings Outcomes

The evaluation's logic model (see Chapter 2) suggested that the program would increase receipt of training and support services, which would in turn increase employment and earnings. The previous section has shown that the hypothesized increase in receipt of training and a range of supports did occur. This section shows that positive impacts on employment and earnings during the 18-month follow-up period also occurred. These impacts on earnings appear to be driven by both an increase in the hourly wage and an increase of the hours worked by the treatment group compared with the control group. An exploratory analysis of a smaller sample of treatment and control group members who enrolled early, for whom longer follow-up data (27 months) are available, indicates that there is some evidence that the difference between the treatment and control group in earnings fades after the sixth quarter after random assignment.

These results, along with information on the characteristics of the jobs individuals took, including wages, benefits, and schedules, as measured through the 18-month survey are discussed below. (The survey also examined impacts on employment and earnings, and as described in Appendix E, these are similar to those observed using NDNH data).

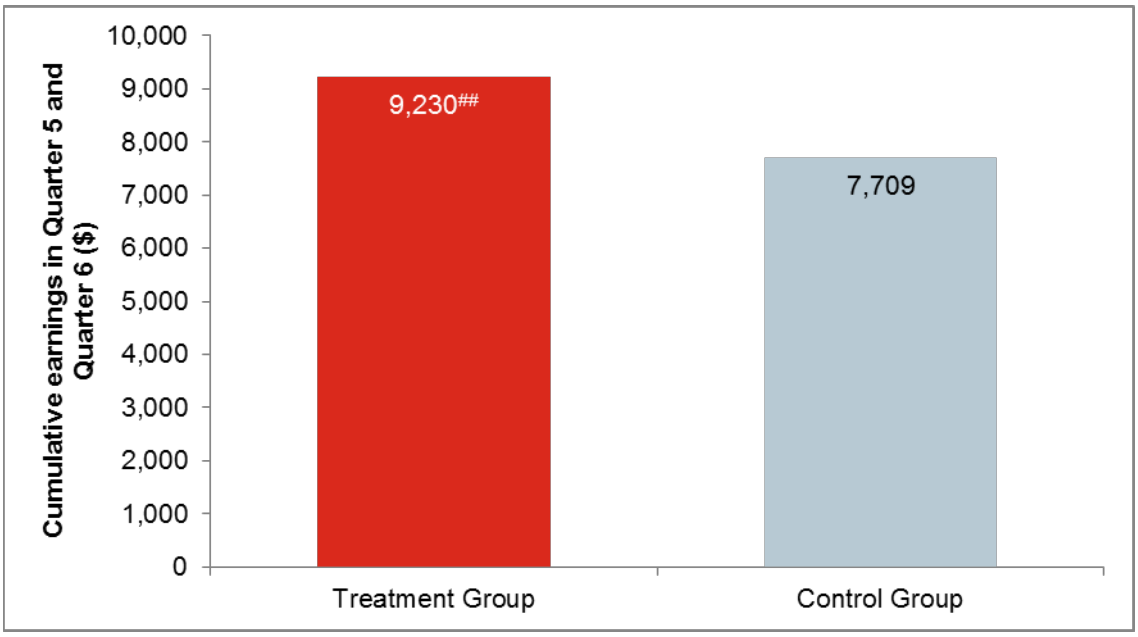
5.4.1 Employment and Earnings

Exhibits 5.8 through 5.11 display the earnings and employment outcomes as measured by quarterly wage record data. As shown in Exhibit 5.8 and Exhibit 5.9, being offered the KCCD program substantially increased earnings in the treatment group compared with the control group in the fifth and sixth quarters ("Q5" and "Q6" in the exhibits below) after random assignment, the study's primary confirmatory outcome.[82] Treatment group earnings were $9,230; control group earnings were $7,709. This impact of $1,520 (with rounding) represents a 20 percent increase in earnings compared with the control group (see

[82] See Appendix A for the minimum detectable impact (MDI) estimate.

Table 5.9). Considering the earnings of just those who participated in the program (that is, the "treatment on the treated" estimate), the impact is estimated to be $1,810,[83] which represents a 24 percent increase compared with the control group.

Exhibit 5.8: Cumulative Earnings in the Fifth and Sixth Quarters After Random Assignment, by Random Assignment Group, KCCD



Source: National Directory of New Hires.
Note: The total sample of 816 individuals includes 407 treatment group and 409 control group members. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. Pound signs are present only if the impact is statistically significant at the indicated level.

As shown in Exhibit 5.9 and graphically in Exhibit 5.10, in the first quarter after random assignment the treatment group earned about $551 less than the control group, reflecting the treatment group's enrollment and participation in the training program. On average, the treatment group earned $1,277 in the first quarter compared with the control group's average of $1,828. This initial negative effect is commonly seen in evaluations of training programs.[84]

The training "pay off" begins to be seen at about the third quarter after random assignment, when the treatment group earned, on average, $783 more than the control group. In both groups, average earnings increased by over $1,000 between the first and third quarter: in the third quarter after random assignment, treatment group members earned, on average, $3,805 (an increase of $2,528 compared with the first quarter), and control group members earned, on average, $3,022 (an increase of $1,194 compared with the first quarter).

83 See Chapter 2 for a discussion of the TOT estimate.

84 Maguire et al., 2009

The difference in earnings between the treatment and control groups increased through the fourth quarter after random assignment. The decline in level of the earnings impacts, in the fifth and sixth quarters, is not statistically significant (although the difference between treatment and control group earnings remains statistically significant).[85] Study members in the treatment group also had, on average, higher reported cumulative earnings than the control group in the first through sixth quarters after random assignment (a difference of $2,857). Across the six quarters of data (one-and-a-half years), the treatment group earned, on average, $21,459, and the control group earned $18,602.

KCCD treatment group members also had overall higher rates of employment than the control group (see Exhibits 5.9 and 5.11). In the first quarter after random assignment (when treatment group members were participating in the program), fewer treatment than control group members were employed (39 percent versus 54 percent, respectively). By the third and fourth quarters, a treatment-control differential emerges, with 13 percent more treatment group than control group members employed in the third quarter and 17 percent more in the fourth quarter. However, this impact diminishes and the difference in the employment rates for the treatment and control groups is not statistically significant in the fifth and sixth quarters after random assignment.

Exhibit 5.9: Impacts on Earnings and Employment, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Group	Control Group	Difference (Impact)	Percent Difference[a]
Confirmatory Outcome				
Cumulative earnings in Q5 and Q6 ($)	9,230	7,709	1,520##	19.7%
Treatment-on-the-Treated (TOT) Estimate				
Cumulative earnings in Q5 and Q6 ($)	9,334	7,524	1,810##	24.1%
Earnings				
Cumulative earnings in Q1 through Q6 ($)	21,459	18,602	2,857**	15.4%
Earnings in Q1 ($)	1,277	1,828	-551***	-30.2%
Earnings in Q2 ($)	2,801	2,746	55	2.0%
Earnings in Q3 ($)	3,805	3,022	783***	25.9%
Earnings in Q4 ($)	4,347	3,296	1,051***	31.9%
Earnings in Q5 ($)	4,639	3,701	938***	25.3%
Earnings in Q6 ($)	4,591	4,008	583*	14.5%
Employment				
Ever employed during Q5 or Q6 (%)	74.0	69.4	4.7	6.8%
Ever employed during Q1 through Q6 (%)	88.9	83.9	4.9**	5.9%
Ever employed during Q1 (%)	39.2	53.7	-14.5***	-27.1%
Ever employed during Q2 (%)	58.5	58.2	0.3	0.5%
Ever employed during Q3 (%)	67.3	59.6	7.7**	12.9%
Ever employed during Q4 (%)	71.4	61.2	10.3***	16.8%
Ever employed during Q5 (%)	67.6	63.3	4.3	6.7%
Ever employed during Q6 (%)	68.2	64.9	3.3	5.1%

Source: National Directory of New Hires.

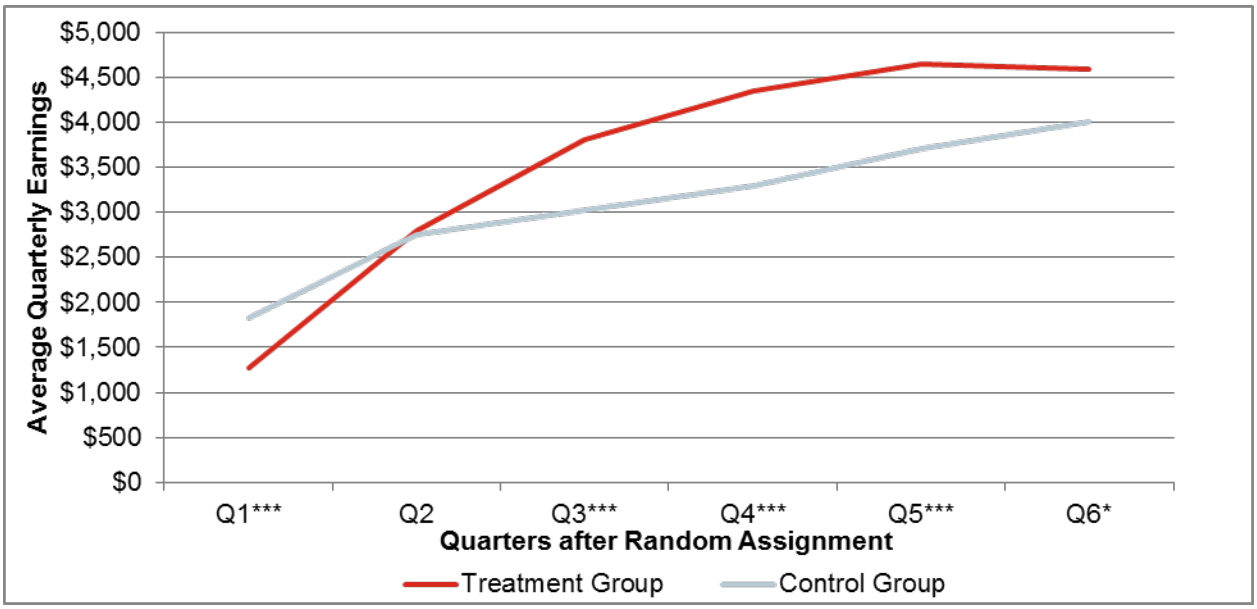
[85] Analyses of these between-quarter changes in earnings provide evidence (statistically significant at the ten percent level) of a decline in earnings between quarter five and six ($233) ($p<0.10$, two-tailed t-test). The differences in earnings impacts between quarters 3 to 4, quarters 4 to 5, and quarters 4 to 6 were not found to be statistically significantly different.

Note: The total sample of 816 individuals includes 407 treatment group and 409 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups. For the treatment-on-the-treated estimate, the no-show rate of 14.0 percent and the cross-over rate of 1.22 percent were used. Treatment-on-the-treated estimate p-values are corrected for multiple comparisons in line with the adjustment on the confirmatory outcome.

[a] This indicates the percentage change between the treatment group average and the control group average.

Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. *** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 5.10: Average Quarterly Earnings, by Random Assignment Group, 18-Month Follow-Up Period, KCCD

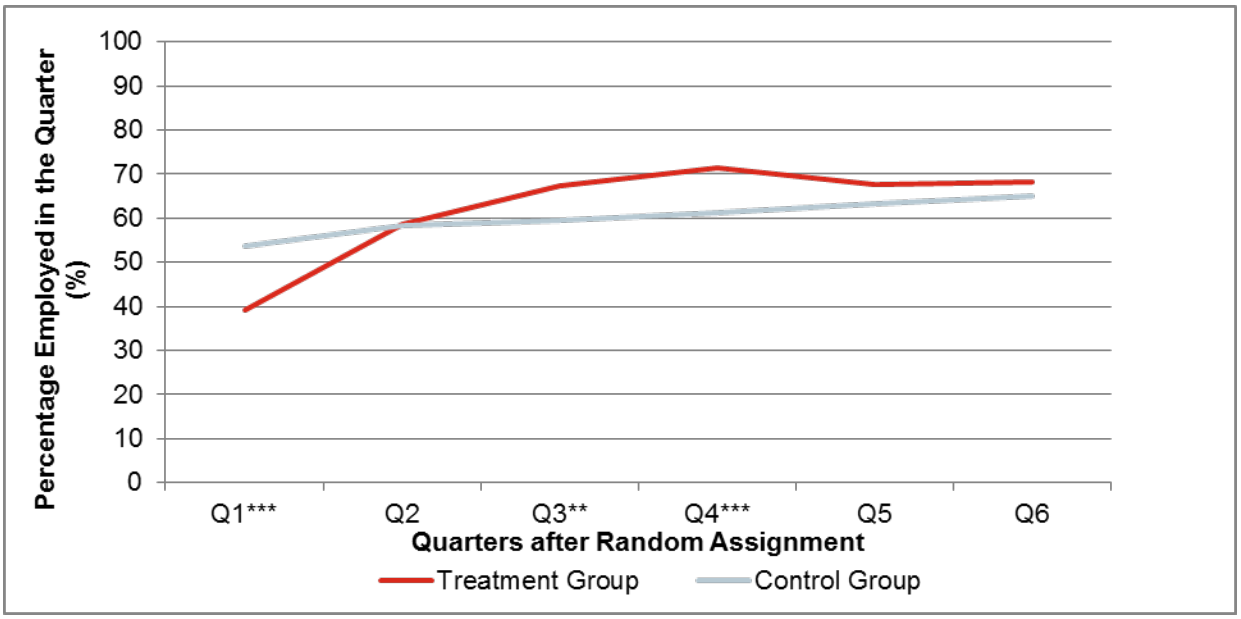


Source: National Directory of New Hires.

Note: The total sample of 816 individuals includes 407 treatment group and 409 control group members.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 5.11: Percentage Employed, by Random Assignment Group, 18-Month Follow-Up Period, KCCD

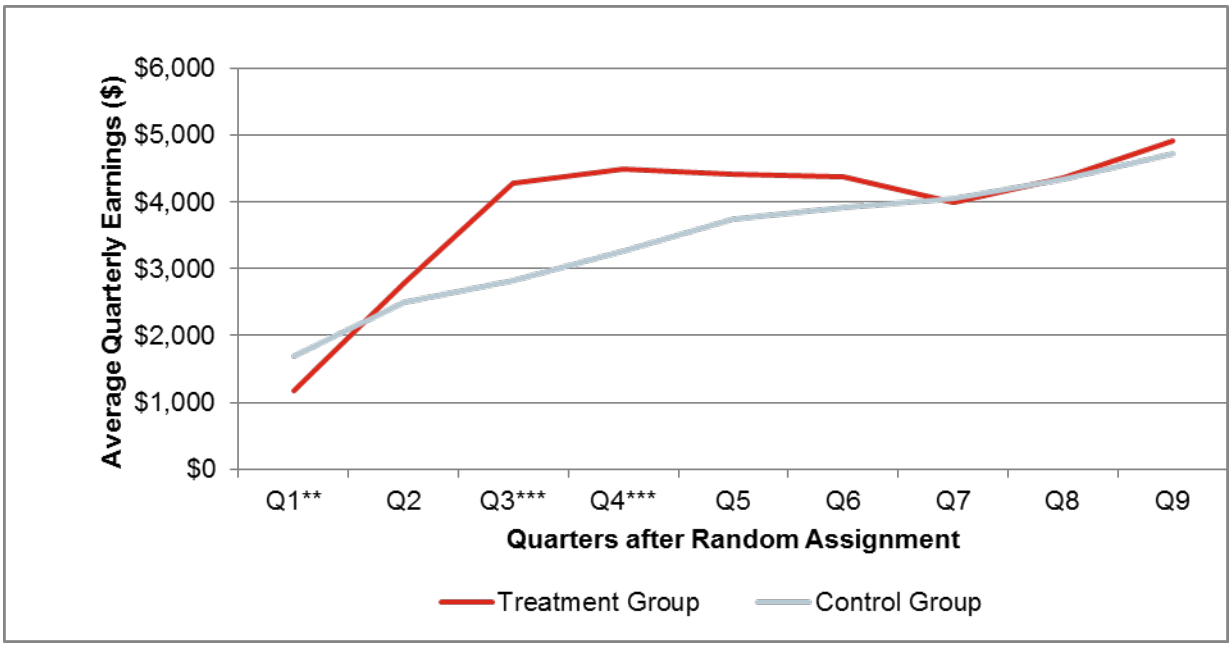


Source: National Directory of New Hires.
Note: The total sample of 816 individuals includes 407 treatment group and 409 control group members.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

In addition to these observed earnings impacts, the evaluation also examined earnings through the ninth quarter (27 months) after random assignment for the subset of cases randomized earlier (these smaller samples limit the ability to detect impacts). These results, as shown in Exhibit 5.12 and reported in full in Appendix E, Exhibit E.11, show the same pattern of impacts in this smaller sample: negative earnings impacts at first, turning positive in the third follow-up quarter, and diminishing after the fifth quarter such that no evidence of differences between the treatment and control groups' earnings is found by the seventh quarter (21 months) after random assignment. While the treatment group's earnings do decline slightly after the sixth quarter, the diminishing impact is due primarily to the control group "catching up" to the treatment group. These results, while exploratory in nature, suggest that the KCCD Clean Energy Center did not sustain its program impacts over the long run.[86]

[86] Analyses of the between-quarter changes in earnings for the smaller cohort of early enrolling sample members provide the evidence that the earnings impacts decline between quarter five and quarter seven ($620; $p<0.10$, two-tailed paired t-test). Specifically, the analysis team stacked the earnings in relevant quarters and then used survey regression with clustering at the person level to estimate the coefficient on the interaction between quarter and treatment status. The differences in earning impacts between quarters six and seven were not found to be statistically significant.

Exhibit 5.12: Average Quarterly Earnings, by Random Assignment Group, 27-Month Follow-Up Period, KCCD



Source: National Directory of New Hires.
Note: The total sample of 467 individuals includes 233 treatment group and 234 control group members for whom nine quarters of NDNH data were available. This sample is 43 percent smaller than the sample used for Q1 through Q6 estimates. Appendix tables report item-specific sample sizes.
*** Difference is statistically significant at the p<0.01 level. ** Difference is statistically significant at the p<0.05 level. * Difference is statistically significant at the p<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

While the KCCD program produced impacts on both earnings and employment, the impacts on earnings are greater than the impacts on employment. For example, the treatment group earned 15 percent more than the control group in the first through sixth quarters, but only 6 percent more treatment group members were employed during this time. And, for the confirmatory outcome of earnings in the fifth and sixth quarters, the treatment group earned 20 percent more than the control group, but only 7 percent more treatment group members were employed in these quarters. This indicates that the impact on earnings may be due to treatment group members earning higher wages or working more hours, rather than more treatment group members being employed. This issue is explored further in Section 5.4.3.

5.4.2 Employment and Earning for Subgroups

In addition to understanding the overall impact of KCCD's Clean Energy Center program, the evaluation examined whether the program was more or less effective for certain subgroups of the population served, defined by their employment status and education level at the time of random assignment. Exhibits 5.13 and 5.14 show the employment and earnings impacts in the fifth and sixth quarters after random assignment for the two subgroups examined. The first subgroup is those who did not work in the year before random assignment compared with those who had been employed during this year. The second subgroup is those with a high school diploma or less versus those who had more than a high school diploma (including those who attended some college or have an associate's degree or higher), as reported at the time of random assignment.

These exploratory analyses provide evidence (statistically significant at the 10 percent level) that impacts vary by sample members' employment status at baseline (that is, at the time of random assignment). Specifically, there is a significant, positive impact on employment in the fifth and sixth quarters after random assignment for those sample members who had not been employed in the year before enrollment (see Exhibit 5.13). Among this group, 59 percent of treatment group members were employed in the fifth and sixth quarters after random assignment, compared with 55 percent of the control group. Although the impact on employment appears to vary by baseline employment status, no evidence of varying impacts on earnings was found.

Finally, no evidence of varying earnings or employment impacts over the 18-month follow-up period was found based on sample members' educational attainment at the time of random assignment (Exhibit 5.14).

Exhibit 5.13: Impacts on Earnings and Employment, by Employment Status in the Year Preceding Random Assignment, 18-Month Follow-Up Period, KCCD

	Treatment Group	Control Group	Difference (Impact)	Subgroup Difference (Impact)[1]
Earnings in Q5 and Q6 post-random assignment ($)				
Not employed in any of the 4 quarters preceding random assignment	6,819	4,842	1,978**	-347
Employed in any of the 4 quarters preceding random assignment	10,718	9,086	1,631**	
Employed in Q5 and Q6 post-random assignment (%)				
Not employed in any of the 4 quarters preceding random assignment	59.1	55.2	3.9**	-3.7*
Employed in any of the 4 quarters preceding random assignment	79.7	79.5	0.3	

Source: National Directory of New Hires.
Note: [1] The "Subgroup Difference (Impact)" measures whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $1,978 earnings impact among those not employed in any of the four quarters preceding random assignment is different than the $1,631 earnings impact among those employed in any of the four quarters preceding random assignment.
The total sample of 816 individuals includes 407 treatment group and 409 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 5.14: Impacts on Earnings and Employment, by Educational Attainment at Random Assignment, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Group	Control Group	Difference (Impact)	Subgroup Difference (Impact)[1]
Earnings in Q5 and Q6 post-random assignment ($)				
High school diploma/GED or less	8,477	7,416	1,061	971
More than high school diploma/GED	9,937	7,906	2,031**	
Employed in Q5 and Q6 post-random assignment (%)				
High school diploma/GED or less	73.0	71.1	1.8	-0.7
More than high school diploma/GED	71.6	70.4	1.2	

Source: National Directory of New Hires.

Note: [1] The "Subgroup Difference (Impact)" measures whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $1,061 earnings impact among those with a high school diploma/GED or less is different than the $2,031 earnings impact among those with more than a high school diploma/GED. The total sample of 816 individuals includes 407 treatment group and 409 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

5.4.3 Employment Status and Job Characteristics

Further details on sample members' employment status and characteristics of their current jobs are available from the follow-up survey. As shown in Exhibit 5.15, similar to the results from the NDNH data, there is no evidence of impacts on the proportion of those working at the time of the 18-month survey: about two-thirds of both groups are working at the time of the survey and about one-quarter are unemployed but looking for work or on temporary layoff. The results do show program impacts on unemployment due to a temporary layoff, which is higher in the treatment group.

Exhibit 5.15: Impacts on Employment Status, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Group	Control Group	Difference (Impact)
Employment Status at Time of Follow-Up Survey			
Employed (%)	66.4	61.7	4.7
Unemployed (%)	25.7	26.4	-0.7
On temporary layoff (%)	6.8	2.6	4.2**
Looking for work (%)	19.0	23.8	-4.9
Out of the labor force (%)	7.9	11.9	-4.0
Retired (%)	0.1	1.3	-1.2
Unable to work because of disability (%)	1.8	1.9	-0.1
Attending school or long-term training program (%)	4.8	5.5	-0.7
Not looking for work (%)	1.2	3.2	-2.0

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 570 individuals includes 294 treatment group and 276 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 5.16 reports characteristics of sample members' current or most recent job since random assignment. These results include all survey respondents, including those who did not work during the follow-up period. Thus, these are experimental comparisons and can be interpreted as estimates of program impact.

As shown, the KCCD Clean Energy Center program produced an impact on weekly earnings and hours worked at the time of the 18-month survey. Weekly earnings are $133 higher in the treatment than control group. Also, the treatment group worked four more hours per week than did the control group. The 33 percent difference in weekly earnings at the time of the follow-up survey is similar in magnitude to the impacts on earnings measured in the NDNH data in the third, fourth, and fifth quarters after random assignment (as reported in Exhibit 5.9), which ranged from 26 percent to 32 percent.

The evaluation also estimated KCCD's impact on hourly wages (computed as the ratio of average weekly earnings to average hours worked, as the hourly wage is not well defined for those not working at the time

of the follow-up survey) to determine which of hours worked or hourly wages appeared to be the greater driver of the weekly earnings impact (see Appendix A for details).[87] For all sample members (including those who did not report having a job during the follow-up period), the treatment group's hourly wage as defined above was estimated to be $15.16, compared with $12.84 per hour for the control group; this $2.31 impact, or 18 percent difference, is statistically significant (see Appendix E, Exhibit E.16). In addition, among all sample members, the treatment group worked about 4 hours more per week than the control group, which is equivalent to a 14 percent difference in hours worked (see Exhibit 5.16). This indicates that the $133 impact on weekly earnings is due to roughly equal increases in both the hourly wage and hours worked per week for the treatment group compared with the control group.

Exhibit 5.16: Impacts on the Characteristics of Current or Most Recent Job, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Group	Control Group	Difference (Impact)
Pay and Hours of Job			
Weekly earnings ($)	531	398	133***
Hours worked per week	35.3	30.9	4.4***
Number of weeks at job[a]	60.4	54.7	5.8
Job represented by a union (%)	16.1	8.7	7.5**
Job Benefits			
Job offers health insurance (%)	53.3	48.9	4.4
Paid vacation (%)	37.6	39.0	-1.4
Paid holiday (%)	36.7	40.2	-3.5
Paid sick time (%)	28.4	30.1	-1.7
Retirement/pension plan (%)	36.7	32.8	3.9
Job Schedule			
Regular daytime schedule (%)	66.8	57.1	9.8**
Regular evening shift (%)	7.2	3.6	3.6*
Regular night shift (%)	3.5	4.2	-0.8
Rotating schedule (%)	4.8	6.7	-1.9
Irregular schedule (%)	7.1	7.3	-0.3
Other schedule (%)	2.4	3.7	-1.3
Connection of Job to Training			
Respondent attributes getting a new job due to completing vocational training (%)	34.8	7.5	27.3***
Respondent employed in industry targeted by grant-funded training program (%)	24.8	8.5	16.3***
Job is part of a career path (%)	55.6	47.4	8.1*

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Jobs that started before random assignment are included in these estimates.
The total sample of 570 individuals includes 294 treatment group and 276 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

[87] The employment rate did not contribute to the weekly earnings impact, as the treatment and control groups' employment rates are not statistically significantly at the time of the follow-up survey (see Exhibit 5.15).

Measures of other job characteristics also show differences between the treatment and control groups for KCCD. Notably, more treatment than control group members held a job in which they were represented by a union (16 percent compared with 9 percent), and more treatment than control group members had jobs that were part of a career path (56 percent compared with 47 percent, statistically significant at the 10 percent level). Additionally, more treatment group members worked a regular daytime schedule (67 percent compared with 57 percent) or a regular evening shift (7 percent compared with 4 percent, (statistically significant at the 10 percent level), indicating more stability within the treatment group's work schedule. No differences between the treatment and control groups were found in terms of the benefits in their current or most recent job.

The follow-up survey also asked treatment and control group members whether they attributed obtaining a new job to completing a vocational training program. As Exhibit 5.16 shows, about one-third of the treatment group at KCCD (including those who did not work or attend training) attributed getting a new job to completing a training program, compared with 8 percent of the control group. In part, this impact is due to more treatment than control group members participating in and completing vocational training (see Section 5.3.1 above).[88] Among those in the treatment group who completed a training program, 46 percent reported they obtained a new job as a result of the training they attended, compared with 34 percent of the control group (not shown).

Finally, the survey also collected information on the industry in which respondents were employed in their current or most recent job. This information was coded as to whether it was in a "target" industry of the KCCD Clean Energy Center program; target industries included construction, engineering, manufacturing, utilities, and special trade contractors. For the entire sample (including those who were not employed in the follow-up period), 25 percent of the treatment group obtained a job in these targeted industries compared with 9 percent of the control group. Thus, the KCCD program did increase the treatment group's employment in these green industries as intended, relative to the control group, in part because there may not have been other opportunities for the control group to receive training in this area.

5.5 Impacts on Income, Public Benefits Receipt, and Financial Circumstances

The evaluation's follow-up survey also examined whether the KCCD's Clean Energy Center program resulted in higher reported total household income, lower benefit receipt, and overall improved financial circumstances for participants. Although the offer to enroll at KCCD produced overall positive impacts on employment and earnings, the study found no differences between the treatment and control groups on these outcomes.

5.5.1 Household Income and Receipt of Public Benefits

Exhibit 5.17 shows the total household income in the last year and receipt of public benefits, as reported by treatment and control group members. Despite earnings gains, the results do not show impacts on reported annual household income. Total household income—which includes earnings as well as other sources of income such as public assistance, child support, or alimony—averaged about $31,000 in the last year for both groups. The study could not determine the reason the treatment group's earnings gains

[88] These results are similar when examined among those who worked during the follow-up (a non-experimental comparison), with 38 percent of the treatment group who worked reporting that they got a job due to a training program compared with 8 percent of the control group. See Exhibit E.15 in Appendix E.

did not translate into increased income for the treatment group relative to the control group, although it may be due to offsetting income from other sources.

Exhibit 5.17: Impacts on Household Income and Household Receipt of Public Benefits, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Group	Control Group	Difference (Impact)
Total household income before taxes last year ($)[a]	30,756	30,791	-35
Temporary Assistance for Needy Families (TANF)			
Received TANF last month (%)	5.9	7.0	-1.1
Amount received ($)	27.79	27.71	0.07
Supplemental Nutrition Assistance Program (SNAP)			
Received SNAP last month (%)	24.0	25.0	-1.0
Amount received ($)	74.19	65.56	8.64
Unemployment Insurance (UI)			
Received UI last month (%)	10.3	7.4	3.0
Amount received last month ($)	84.64	58.36	26.28
Other Federal Benefits			
Received other federal benefits last month (%)[b]	26.3	25.7	0.6
Amount received last month ($)[b]	184.48	167.44	17 .04
Other Payments			
Received alimony, child support, rent payments, or financial support from friends/relatives last month (%)	8.7	9.7	-1.0
Amount received last month ($)	67.73	66.49	1.24
Other Assistance Received			
Received any assistance from churches, food banks, or other private community organizations since random assignment (%)	15.6	15.8	-0.1

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: For outcomes measured in dollars, the analytic sample includes all study members with non-missing outcome data (including those with a value of zero for the outcome). [a] Rather than providing a specific value for household income including transfers, some survey respondents indicated that their household income including transfers was in a specified range (e.g., between $45,000 and $60,000). For these individuals, income is defined as the midpoint of the specified range. [b] The other federal benefits include the following types: Supplemental Security Income; Social Security Disability Insurance; Women, Infants, and Children benefits; General Assistance; Trade Adjustment Assistance; Alternative Trade Adjustment Assistance; Workers' Compensation or Disability Insurance benefits; and Social Security.

The total sample of 570 individuals includes 294 treatment group and 276 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Also, the results do not show impacts on the receipt of public benefits, including TANF, SNAP, and UI. However, receipt of UI is lower in both groups compared with what was reported at baseline. At baseline, about one-quarter reported receiving UI across both the treatment and control groups, but 10 percent or less reported receiving this benefit at the time of the follow-up survey. About one-quarter of both the treatment and control groups reported receiving SNAP benefits in the month before the survey (similar to the level reported at baseline).

5.5.2 Financial Circumstances

The 18-month follow-up survey included questions to allow the evaluation to assess the program's impact on the financial health and stability of treatment and control group members. It was hypothesized that if the program services increased employment and earnings, this could also result in an improvement in the overall financial circumstances of the treatment group. Specifically, the survey included questions regarding housing status and the ability of sample members (and their households) to meet household, mortgage, credit card and unplanned expenses. As shown in Exhibit 5.18, only one measure of financial circumstances differs between the treatment and control groups: a smaller share of the treatment group (51 percent) than control group (61 percent) reported having any difficulty covering household expenses in the past month.

Exhibit 5.18: Impacts on Financial Circumstances, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Group	Control Group	Difference (Impact)
Housing Status			
Owned a home (%)	17.9	16.8	1.1
Rented a residence (%)	50.6	47.8	2.8
Difficulty Covering Household Expenses			
Had difficulty covering all household expenses (%)	59.4	55.5	3.9
Had difficulty covering all household expenses in the past month (%)	51.0	61.3	-10.3**
Types of Financial Difficulty Experienced			
Mortgage payment: missed or been late (%)	6.8	7.8	-0.9
Rent payment missed or been charged a late fee (%)	14.3	15.0	-0.7
Been charged a late fee on any monthly credit payments (%)	31.0	28.5	2.6
Postponed a major purchase that was planned or needed such as a car or major appliance (%)	32.2	31.7	0.5

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 570 individuals includes 294 treatment group and 276 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

For all other outcomes related to the general financial circumstances of sample members, there is no evidence of differences between treatment and control group members' outcomes. Slightly more than half of the sample members reported that they had difficulty (at one or more points during the follow-up period) covering all of their household expenses since random assignment. Also, almost one-third of the treatment and control group reported that they had postponed a major purchase, with similar proportions reporting that they had been charged a late fee on a monthly credit payment.

6. Impact Findings for North Central Texas College's Health Matrix Grant Program

This chapter presents impact findings for the North Central Texas College (NCTC) Health Matrix Grant scholarship program.

Unlike the other programs examined in the GJ-HC evaluation that used grant funds to provide training and related supports, NCTC used grant funds to provide partial scholarships to offset participants' tuition expenses for existing healthcare training programs. For the GJ-HC evaluation at NCTC, eligible applicants were randomly assigned to either receive a scholarship (the treatment group) or not (the control group).[89]

The NCTC Health Matrix Grant program did not have an impact on the study's primary confirmatory outcome: earnings of the treatment group in the fifth and sixth quarters after random assignment. In addition, the program did not have an impact on a range of other employment-related outcomes, such as the characteristics of jobs or financial circumstances. The scholarship program did, however, result in impacts on several short-term outcomes, including receipt of financial assistance to attend training; participation in vocational training; receipt of a range of supports, including academic advising, career counseling, and job search assistance; and the attainment of a vocational credential.

This chapter is organized following the logic model presented in Chapter 2. Section 6.1 provides an overview of NCTC's Health Matrix Grant scholarship program goals, target population, and main services. Section 6.2 provides information about the characteristics of the research sample. Section 6.3 presents impacts of the grant-funded scholarship on service receipt, educational attainment, and factors affecting the ability and willingness to work. Section 6.4 presents impacts on earnings and employment outcomes based on National Directory of New Hires data and the 18-month follow-up survey data. Finally, Section 6.5 discusses impacts on income, public benefits receipt, and other financial measures.[90]

6.1 NCTC's Health Matrix Grant Scholarship Program

North Central Texas College serves four counties in northern Texas with five campuses stretching from just north of Dallas to just south of the Oklahoma border. The community college's Lifelong Learning division offers short-term, non-credit courses in an effort to meet the training needs of local residents and employers. With its DOL Health Care and Other High Growth and Emerging Industries grant, Lifelong Learning at NCTC offered scholarships targeted at unemployed, underemployed, and dislocated workers who sought technical training for a range of healthcare occupations. The scholarship, referred to as the Health Matrix Grant, was designed to remove a financial barrier to training for those in the region who

[89] Individuals in the study's control group could enroll in the same programs as scholarship recipients if they were willing to pay for tuition on their own.

[90] As discussed in evaluation's implementation study, not all individuals assigned to the treatment group participated in the NCTC training programs, although most (81 percent) did according to program administrative data. As a result, the impacts reported in this chapter reflect the effect of the *offer* to participate. That is, as explained in Chapter 2, the reported impacts reflect the difference between the outcomes of those in the entire treatment group (including those who did and did not participate in training) and of those in the entire control group.

otherwise might not have been able to afford college courses. The DOL grant operated from March 2010 through June 2013; random assignment occurred between July 2011 and April 2013.[91]

NCTC serves an expansive four-county region to the north and northwest of Dallas with five campuses (Gainesville, Corinth, Flower Mound, Graham, and Bowie) and several distinct labor markets. The service area includes Denton County, a suburb of Dallas where the Corinth and Flower Mound campuses are located; rural Cooke County, the home of NCTC's main campus; and Young (Graham campus), and Montague (Bowie campus) counties Overall, Denton residents were more highly educated, had higher incomes, and experienced less poverty than individuals in Cooke, Young, and Montague counties. For example, the median household income in Denton County was approximately $74,000, and in Cooke County it was $50,000. Although the two counties had similar annual average unemployment rates in 2010 (about 7 percent) and 2013 (about 5 percent), the poverty rate among was higher in Cooke County (15 percent compared with 9 percent). (See Appendix G for demographic and economic information on Cooke and Denton counties; results for Young and Montague are similar to Cooke county).

In 2010, the year the grant was awarded, the Cooke and Denton county unemployment rate were 7.3 and 7.1 percent respectively, and by 2013, unemployment decreased to 4.9 and 5.3 percent. Moreover, between 2010 and 2013, the Dallas metropolitan area experienced job growth of 9 percent (see Appendix G). NCTC staff reported that when the grant was awarded, healthcare professionals were needed throughout the college's service area. In the last year of the grant, however, staff said that while demand for new healthcare workers remained strong in the southern counties that were closer to the Dallas metropolitan area, hiring had slowed in the northern counties.

Exhibit 6.1 provides a summary of the primary services provided by NCTC's Health Matrix Grant. The evaluation examines the scholarships provided for eight non-credit programs in allied health offered through Lifelong Learning, and one for-credit program offered through NCTC's School of Health Sciences. Ranging in length from one to six months (including an externship), the non-credit programs were Certified Medication Aide, Clinical Medical Assistant, Certified Nurse Aide (CNA), EKG Technician, Medical Billing and Coding, Pharmacy Technician I, Phlebotomy, and Physical Therapy Aide. The for-credit program in the School of Health Sciences was Licensed Vocational Nurse, which lasted 12 months. Most programs resulted in a certificate in the designated field and, if applicable, eligibility to sit for a state licensing exam (available for CNA, Certified Medication Aide, Clinical Medical Assistant, EKG Technician, Pharmacy Technician I, and Phlebotomy).

Although NCTC participated in the federal Pell Grant program for its undergraduate certificate and associate's degree programs, the college's non-credit Lifelong Learning programs did not.[92] By offering scholarships, Lifelong Learning hoped to attract candidates for healthcare training who may never have considered a college education an option. Licensed Vocational Nurse, a credit-based program that was eligible for Pell Grants, was included as part of the Health Matrix Grant since even with federal financial aid, NCTC staff reported that the courses could be too costly for some in the community.

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91 NCTC received a six-month extension to operate the grant program.

92 Many non-credit training programs are not eligible for Pell Grants because they do not meet grant requirements in terms of length and/or hours of instruction (accessed March 10, 2016, http://ifap.ed.gov/fsahandbook/attachments/1415FSAHbkVol2Ch2.pdf).

Exhibit 6.1: Primary Services Provided by NCTC's Health Matrix Grant Program

Program Component	Description
Training and Resulting Credentials	Partial scholarships for eight non-credit programs in Allied Health (Certified Medication Aide, Clinical Medical Assistant, Certified Nurse Aide, EKG Technician, Medical Billing and Coding, Pharmacy Technician I, Phlebotomy, and Physical Therapy Aide) that ranged in length from one to six months (including externship) and one 12-month for-credit program (Licensed Vocational Nurse). The trainings resulted in a certificate or a degree in a specified area.
Academic Advising and Personal Supports	Advisors provided initial guidance on course selection and were available to provide assistance during training. Tutoring was provided by instructors as needed.
Financial Assistance	The average amount of the scholarship was $816, which on average covered 60 percent of tuition. Scholarships initially ranged from 25 to 82 percent of tuition but increased to cover 95 percent of tuition for non-credit programs. Most course materials and certification exam fees were included in the scholarship. Childcare reimbursement was available for up to 70 percent of cost at licensed facilities, with a cap of $1,500.
Employment Assistance	Scholarship recipients were required to complete a six-hour job readiness class focused on resume development and interview skills. Staff provided one-on-one job search assistance near the end of the grant period, including assistance with resumes and interviewing.
Connections with Employers	For some programs, instructors engaged a few employers for input on aligning curricula. Employers also served as clinical externship sites for those trainings that required them.

Source: Interviews with program staff.

As shown in Exhibit 6.2, the value of the scholarships initially varied by program and covered between 24 percent and 82 percent of the tuition. Over the course of the grant period, NCTC increased the scholarship amount several times so that in the final months the grant covered 95 percent of tuition for the allied health programs and 35 percent of tuition for the Licensed Vocational Nurse program. Health Matrix Grant recipients were eligible to receive multiple scholarships and therefore could take more than one healthcare course, although the programs were not explicitly sequenced. Across all the courses, the amount of the scholarship ranged from $565 to $2,800.

Exhibit 6.2: Tuition and Health Matrix Grant Scholarship Amounts

Course	Cost of Course ($)	Scholarship Amount over Study Period ($)	Percent of Tuition Covered by Scholarship over Study Period (%)
Certified Medication Aide	999	795–950	80–95
Certified Nurse Aide	799	655–759	82–95
Clinical Medical Assistant	2,949	725–2,800	25–95
EKG Technician	1,049	565–997	54–95
Medical Billing and Coding	1,599	925 –1,520	58–95
Pharmacy Technician I	4999	735–950	74–95
Phlebotomy Technician	1,649	765–1,567	46–95
Physical Therapy Aide	1,049	795–997	76–95
Licensed Vocational Nurse	5,716	1,400–2,000	24–35

Source: NCTC program materials.
Note: Over the course of the grant period, NCTC increased the scholarship amount several times. For the scholarship amount and percent of tuition covered columns, the range on the table shows the amount provided at the start of the grant period and the amount provided by the end of the grant period.

In addition to financial assistance, NCTC provided advising to students receiving a Health Matrix Grant that was intended to help participants articulate a career plan and identify coursework that contributed to achieving professional goals. These advisors primarily worked with students when they initially enrolled in the training program, and NCTC staff reported that few students who received a scholarship attended additional meetings. Scholarship recipients also were required to attend a six-hour job search preparation class designed to prepare students to apply for, secure, and retain jobs. This class covered resume development, cover letter writing, interview skills, workplace communication skills, leadership and team building skills, and conflict resolution. Finally, childcare reimbursement was available for up to 70 percent of cost at licensed facilities, with a cap of $1,500.

For much of the grant period, in addition to the job search class, Health Matrix Grant recipients could access the employment services available to all students at NCTC. This included a "job board" on Lifelong Learning's website that all students could use to search for job announcements and group emails to students when employers notified the college of job opportunities. For the final eight months of the grant, NCTC hired a career advisor to provide one-on-one job search assistance to participants, including assistance with resume development, interviews, and identifying job opportunities.

Program administrative data analyzed for the evaluation's implementation study indicate high levels of participation in NCTC healthcare training programs, with 81 percent of those in the treatment group attending at least one training program (not shown), most commonly the Certified Nurse Aide or Pharmacy Technician I. As shown in Exhibit 6.3, of those who participated in an NCTC program, the vast majority (92 percent) took only one healthcare training program (i.e., individuals generally did not progress through a sequence of healthcare courses). Completion rates for those who attended one program were relatively high, above 80 percent for five of the eight short-term programs. Phlebotomy Technician and Physical Therapy Aide had somewhat lower completion rates, 63 percent and 67 percent, respectively. The length of participation was relatively short. Across all the programs, the average length of program attendance among those who participated was 2.4 months; more than half of the participants attended training programs for one to three months (not on table).[93]

Exhibit 6.3 also shows the average scholarship amount received by participants in each of the programs based on NCTC's program administrative data. Across all program participants, the average amount of the scholarship grant was $816, which on average covered 60 percent of tuition.

[93] See Copson et al., 2016 for additional information on the participation analysis.

Exhibit 6.3: Type of Program Attended, Completion Rates, and Average Length of Stay Among NCTC Program Participants over a 12-Month Follow-Up Period

Training Program	Participation Rate (%)	Completion Rate (%)	Months in Training	Average Scholarship Amount Received ($)	Average Percent of Tuition Covered by Scholarship (%)
Attended one healthcare program	92	84	1.8	755	65
Certified Medication Aide	4	91	3.0	795	80
Certified Nurse Aide	23	91	1.0	662	83
Clinical Medical Assistant	4	73	6.0	725	25
EKG Technician	8	80	1.0	565	54
Medical Billing and Coding	11	86	2.0	96	60
Pharmacy Technician I	23	95	1.0	764	76
Phlebotomy Technician	12	63	5.2	865	52
Physical Therapy Aide	6	67	1.0	795	76
Attended two healthcare programs	7	44	8.1	1,323	44
Attended three programs	0.3	100	9.0	4,080	50
Attended any program	100	85	2.4	816	60

Source: Calculations from NCTC program records.
Note: Sample size is 249 and includes those who attended at least one Matrix Grant healthcare training program. Completion and length of stay measures are for those who attended the specific program or combination of programs. The completion rate for those who attended multiple programs includes those who completed all programs attended. End dates are not available for those who did not complete their program, so length of stay measures are based on those who completed the programs. Percentages do not sum to 100 percent due to rounding.

6.2 Target Group and Characteristics of the Research Sample

The Health Matrix Grant targeted unemployed, underemployed, and dislocated workers who sought technical training for healthcare occupations. To encourage their enrollment in healthcare training, NCTC designed the scholarship for English language learners and first-generation college students. To be eligible for the Health Matrix Grant, applicants had to be unemployed, working part time, working full time without benefits, or receiving Supplemental Security Income (SSI). Applicants also had to be U.S. citizens or legal residents. Several of the healthcare programs deemed convicted felons ineligible because requirements for employment in the field would make them ineligible for employment. Some of the programs also required proof of immunizations that were needed to work in a hospital or clinical setting.

Exhibit 6.4 shows the characteristics of individuals in the treatment and control groups using data reported on the study's baseline information form that program applicants completed during the intake process for the program, before random assignment. Balance testing demonstrates that the 555 treatment group members and 440 control group members do not statistically differ from one another. Additionally, among only the sample members who responded to the 18-month survey, and among the sample members for whom NDNH data was available, the treatment and control group members still do not statistically

differ from one another (see Appendix F, Exhibits F.1 and F.2). Therefore, any differences in the groups' outcomes reported in this chapter can be attributed to the program.[94]

Exhibit 6.4: Selected Characteristics of Study Sample at Baseline, NCTC

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	85.1	83.8	86.8	-3.0
Male	14.9	16.2	13.2	3.0
Race (%)				
American Indian or Alaskan Native	3.0	3.0	3.1	-0.1
Asian	5.3	5.5	5.2	0.3
Black or African American	18.3	18.3	18.4	-0.2
Native Hawaiian or other Pacific Islander	0.3	0.4	0.2	0.1
White	69.1	69.5	68.6	0.9
Multi-race	3.9	3.4	4.5	-1.1
Hispanic ethnicity (%)	19.8	20.6	18.7	1.9
Age (%)				
21 years or younger	28.6	29.5	27.5	2.0
22 to 29 years	27.6	26.8	28.6	-1.8
30 to 39 years	17.9	18.0	17.7	0.3
40 years or older	25.8	25.6	26.1	-0.6
Average age (years)	31.1	31.2	31.1	0.1
Citizenship (%)				
U.S. citizen	92.5	91.5	93.8	-2.3
Legal resident	7.5	8.5	6.2	2.3
Speaks a language other than English at home (%)	22.3	24.1	19.9	4.3
Family Status				
Marital status (%)				
Married	31.8	29.3	34.9	-5.6
Widowed/divorced/separated	17.1	18.3	15.7	2.5
Never married	51.1	52.4	49.4	3.0
Number of children under age of 18 (%)				
None	47.7	50.5	44.1	6.3**
One child	24.2	23.9	24.7	-0.8
Two children	16.7	15.2	18.7	-3.5
Three or more children	11.4	10.5	12.5	-2.0
Education				
Education level (%)				
Less than high school	3.8	3.4	4.4	-0.9
High school diploma or GED	26.1	26.1	26.1	-0.1
Technical or associate's degree	10.6	10.3	11.0	-0.7
Some college credit but no degree	48.1	49.8	45.9	3.9

[94] The unadjusted *p*-value for a global F-test is 0.309, which is not statistically significant, implying that collectively the treatment and control groups do not differ across all items considered.

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Bachelor's or master's degree	11.3	10.3	12.6	-2.3
Currently enrolled in school or training program (%)	26.1	28.3	23.4	4.9
Employment				
Employed (%)	54.9	55.8	53.7	2.1
Currently employed full time (30+ hours)	29.8	30.0	29.5	0.5
Currently employed part time (<30 hours)	25.1	25.8	24.2	1.6
Not employed (%)	45.1	44.2	46.3	-2.1
Employed in last 12 months but not employed currently	27.2	26.2	28.5	-2.4
Longer than 12 months since last worked	17.9	18.0	17.7	0.3
Weekly earnings ($)	159	163	155	8
Factors That Affect Employment				
Hourly rate a job must pay for respondent to take ($)	10.77	10.89	10.62	0.27
Felony conviction (%)	0.2	0.4	0.0	-0.4
Job preferences (%)				
Prefers the kind of job that relates to training	53.6	49.9	58.2	-8.3**
Will take any job, even if the pay is low	53.0	53.2	52.7	0.5
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	17.2	16.1	18.7	-2.6
Transportation problems limit ability to work	5.8	5.5	6.1	-0.6
Any kind of physical or mental disability	2.9	3.1	2.7	0.3
Public Benefits				
Receiving any public benefits (%)	23.4	22.0	25.2	-3.2
Types of benefits received (%)[a]				
Temporary Assistance for Needy Families	0.7	0.7	0.7	0.0
Supplemental Nutrition Assistance Program	16.0	14.9	17.4	-2.5
Unemployment Insurance	8.1	7.7	8.5	-0.9
Section 8 or public housing assistance	3.6	2.7	4.8	-2.1

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).
Note: [a] Responses are not mutually exclusive.
Estimates in this table are computed based on the 555 NCTC treatment group members and 440 NCTC control group members who completed the baseline survey. All statistics are calculated for the full sample of treatment or control group members. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.
** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

As shown, the majority of NCTC sample members were female (85 percent). More than half were working at the time of random assignment (55 percent), and over one-quarter had worked in the year before random assignment. Weekly earnings (including those who were not working at baseline) averaged $159.[95] Relatively few sample members were receiving public benefits, with 16 percent receiving Supplemental Nutrition Assistance Program (SNAP) benefits and 8 percent receiving Unemployment Insurance.

[95] The weekly earnings reported in Exhibit 6.4 are calculated for both the employed and unemployed at the time of the baseline survey. Among those who were working, average weekly earnings were $295 for the entire sample ($297 for the treatment group and $291 for the control group).

More than two-thirds of the sample reported being white (69 percent) and a fifth were black or African American and a fifth Hispanic or Latino. About a fifth (22 percent) spoke a language other than English at home. Nearly all (96 percent) of the sample had a high school diploma or higher, nearly half of whom had attained some college credit but no degree and 11 percent of whom had a bachelor's degree or higher. The average age was 31 years, and about half had children 18 years old or younger living in their households (48 percent).

About half the sample members reported that they were willing to take any job, even if the pay was low and a similar proportion said they preferred a job related to their training. A sixth indicated that finding affordable childcare limited their ability to work (17 percent) and 6 percent said that transportation access limited their ability to work.

6.3 Impacts on Service Receipt, Educational Attainment, and Factors Affecting Ability to Work

This section reports on the impact of NCTC's Health Matrix Grant scholarship program on the receipt of financial assistance and education and training services; receipt of a range of support services; and educational attainment including the receipt of credentials or degrees. It also examines whether the program services affected any of the factors that limited study members' ability to work, including problems with transportation, finding quality childcare, and other health or emotional issues.

Overall, the scholarships provided through the NCTC Health Matrix Grant program resulted in positive impacts on the receipt of financial assistance, participation in education or training programs (particularly in vocational training programs), and the receipt of a vocational credential. The program also had positive impacts on the receipt of academic advising and career counseling. Finally, the scholarship had a positive impact on the amount sample members expected to earn in their jobs.

6.3.1 Receipt of Financial Assistance and Participation in Education and Training Programs

The Health Matrix Grant scholarship program was designed to remove a financial barrier to training and thereby increase participation in NCTC's healthcare training programs. As shown in Exhibit 6.5, the program had both of these desired effects. The Health Matrix scholarship produced a positive impact on receipt of financial assistance to attend education or training, with 81 percent of the treatment group and 30 percent of the control group reporting receipt of this type of assistance, an impact of 51 percentage points.[96] There is also evidence (statistically significant at the 10 percent level) of a positive impact on paying for some portion of one's classes "out of pocket," with 55 percent of treatment group members doing so compared to 47 percent of the control. This likely reflects that while more treatment group members received financial assistance, many of the scholarships covered only part of the tuition, and thus treatment group members were more likely to have out-of-pocket expenses even with the tuition assistance.

As a result of these scholarships, the Health Matrix Grant program also produced an impact on participation in any type of education or training program, with 94 percent of treatment group members

[96] As discussed above, the Health Matrix Grant program scholarship was available to all those in the treatment group that attended a healthcare training program, but approximately 20 percent of the treatment group did not attend any of the training programs and thus did not receive the scholarship.

participating compared with 64 percent of control group members,[97] a 30 percentage point impact. In particular, the Health Matrix Grant program increased participation in vocational training, the activity that could be funded by the Health Matrix scholarship, for the treatment group compared with the control group. As shown, 73 percent of the treatment group participated in vocational training compared with 44 percent of the control group, a 29 percentage point impact. The NCTC Health Matrix Grant also produced a 6 percentage point impact on participation in classes on study skills, workplace skills, and general life skills (14 percent compared with 8 percent), which likely reflects the six-hour job readiness class provided to Health Matrix scholarship recipients, although overall reported receipt levels are low (perhaps due to recall issues).

While the NCTC program had a positive impact on participation in education or training programs, a large proportion of the control group also accessed education and training opportunities during the follow-up period (even though they did not receive a Health Matrix Grant scholarship). Almost two-thirds of the control group (64 percent) participated in some type of education or training program. As noted, individuals assigned to the control group could enroll in the same NCTC healthcare training program if they paid for the tuition on their own (these courses were not eligible for federal Pell Grants). An analysis of follow-up survey data, which also collected information on the institution or organization where sample members attended training, found that 31 percent of the control group attended a vocational training program at NCTC (See Appendix F, Exhibit F.5). NCTC administrative data show that most of these individuals paid the tuition and attended the healthcare program without receiving a scholarship, although they could have attended other training programs at NCTC as well.[98] However, while some control group members attended the healthcare training without the scholarship, the Health Matrix Grant program still had an impact on participation levels in vocational training programs.

There was also an impact on the length of time individuals spent in education and training activities and the number of courses attended. Across all sample members (i.e., including those who did not attend training), the treatment group spent 4.8 months in education or training activities compared with 3.8 months for the control group. However, when considering only those who participated in any education or training (a non-experimental comparison), the average amount of time in training was 5.2 months for the treatment group and 5.9 months for the control group, and the average number of courses attended was 3.0 courses for the treatment group and 3.3 courses for the control group (see Appendix F, Exhibit F.4).[99] Given that months of training conditional on getting any training appear to be similar for the treatment and control groups , the impact on overall average months of training is likely primarily due to the higher percentage of treatment group members than control group members who attended training, rather than to an increase in the length of time or number of courses taken by those who did participate. Notably, more

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97 This proportion (94 percent) represents the percentage of treatment group members who reported on the follow-up survey that they participated in any education and training program, whether at NCTC or elsewhere. This value differs from the 81 percent that participated in a program based on administrative data, as reported in the GJ-HC Implementation Study Report. This difference is in part due to variation in the data source (self-reported measures are subject to recall error). In addition, treatment group members who did not enroll in the training programs covered by the NCTC Health Matrix Grant scholarship program may have enrolled in other education and training programs in the community.

98 NCTC administrative data show that 40 percent of the control group enrolled in healthcare training programs that were eligible for a Health Matrix Grant (but they did not receive the scholarship).

99 Statistical tests were not conducted on non-experimental comparisons, as described in Chapter 2.

treatment than control group members were participating in education or training activities at the end of the follow-up period (18 percent compared with 12 percent).

Exhibit 6.5: Impacts on Receipt of Financial Assistance and Participation in Education and Training Programs, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Group	Control Group	Difference (Impact)
Received **financial assistance** to attend education and training (%)	80.7	29.9	50.8***
Paid out of pocket for some portion of classes (%)	54.6	47.3	7.3*
Received student loans to finance courses (%)	9.6	8.3	1.3
Participated in **any education or training** (%)	94.2	64.4	29.8***
Number of months attended education or training	4.8	3.8	1.0***
Number of courses attended	2.8	2.2	0.5***
Enrolled in education and training at time of follow-up survey	18.1	12.0	6.1**
Participated in **ABE/GED** (%)	3.7	4.0	-0.3
Average number of months attended	0.1	0.1	0.0
Completed any ABE/GED classes (%)	1.8	2.8	-1.0
Participated in **vocational training** (%)	73.4	44.0	29.3***
Average number of months attended	2.8	1.5	1.2***
Completed any vocational trainings (%)	68.1	39.7	28.4***
Participated in **college level courses for credit** (%)	34.0	33.5	0.5
Average number of months attended	2.0	2.2	-0.3
Completed any college level courses (%)	28.8	27.6	1.2
Participated in **classes on study skills, workplace skills, or general life skills** (%)	13.7	8.0	5.6**
Number of months attended	0.3	0.2	0.1
Completed any life skills classes (%)	11.8	6.7	5.1**

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 750 individuals includes 436 treatment group and 314 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Finally, across all treatment and control members, there was an impact on the completion rates of vocational training: 68 percent of the treatment group reported completing vocational training, compared with 40 percent of the control group.[100] However, among those who *attended* a vocational training program, completion rates for the treatment and control group are similar: the treatment group had a completion rate of 93 percent, compared with the control group's completion rate of 91 percent.[101] Thus, given that there is little difference between the treatment and control groups in completion rates among those who attended, the impact on the overall completion rate for training stems from the higher percentage of treatment group members than control group members attending training.

[100] "Completion" of programs is self-reported and thus differs from figures presented above based on program administrative data. In addition, program completion may not necessarily mean that a credential was obtained, as some credentials require state licensing exams. See Section 6.3.3, below, for impacts on credential receipt.

[101] Seventy-three percent of the treatment group participated in vocational training and 68 percent completed; 44 percent of the control group attended a vocational training program and 40 percent completed.

6.3.2 Receipt of Advising and Support Services

In addition to financial assistance, the NCTC Health Matrix Grant program provided a range of supports including advising on academic, career, and employment issues. These supports were provided primarily through advisors who met with students when they enrolled in the program, but who were available to provide assistance on an ongoing basis. In addition, as mentioned above, a six-hour job readiness class was provided, and toward the end of the grant period an advisor was available to provide one-on-one job search assistance to scholarship recipients.

Compared with the control group, more treatment group members received advising as part of their training. As shown in Exhibit 6.6, almost three-quarters of treatment group members (72 percent) received some form of advising as part of an education and training program compared with 40 percent of the control group. Specifically, 42 percent of treatment group members received job placement assistance compared with 13 percent of control group members. Moreover, the NCTC scholarship produced impacts of 16 percentage points on both the receipt of academic advising and the receipt of financial aid advising, along with an impact of 15 percentage points on career counseling.

The NCTC scholarship program also resulted in impacts on the receipt of assistance with life skills, including having a good work ethic, communication skills, and anger management. Thirty-six percent of the treatment group received assistance with life skills compared with 27 percent of the control group.

Finally, more treatment group than control group members received support services to attend training or work. Thirty-one percent of the treatment group reported receiving such services, compared with 23 percent of the control group. There is evidence (statistically significant at the 10 percent level) that shows the NCTC program produced an impact on receiving assistance with books or supplies, which treatment group members received as part of the scholarship. While the Health Matrix Grant program did offer to provide childcare assistance of up to 70 percent of childcare costs (up $1,500 per month) at licensed facilities, the results do not show impacts on the receipt of childcare assistance. NCTC staff reported that scholarship recipients often did not take up the offer of childcare funds, which was limited to payment at licensed facilities, because they were not using this type of arrangement and did not want to change providers to attend a relatively short-term training program.[102]

[102] Copson et al., 2016

Exhibit 6.6: Impacts on Receipt of Advising, Life Skills, and Support Services, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Group	Control Group	Difference (Impact)
Advising			
Received any type of advising as part of education and training program (%)	72.3	39.8	32.5***
Academic (%)	44.6	28.2	16.4***
Tutoring (%)	11.5	11.8	-0.3
Career counseling (%)	33.9	18.5	15.4***
Financial aid advising (%)	32.2	16.1	16.1***
Job placement assistance (%)	41.5	12.7	28.8***
Life Skills			
Received any assistance on life skills issues (%)	35.5	27.0	8.5**
Having a good work ethic (%)	26.0	12.0	13.9***
How to communicate well with your boss and co-workers (%)	31.5	17.8	13.7***
How to manage any anger and frustrations (%)	24.8	14.0	10.8***
How to manage your money and plan your finances (%)	15.2	12.4	2.8
Support Services			
Received support services to attend training or work (%)	30.5	22.6	7.9**
Clothes or uniforms (%)	7.0	6.8	0.2
Childcare assistance (%)	4.9	4.2	0.6
Assistance with transportation (%)	1.7	1.4	0.3
Job-related tools (%)	4.2	2.7	1.5
Books or supplies (%)	14.8	10.0	4.8*

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 750 individuals includes 436 treatment group and 314 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

6.3.3 Educational Attainment

The scholarships provided through NCTC's Health Matrix Grant program resulted not only in increased levels of participation in education and training programs and receipt of support services for the treatment group relative to the control group, but also in a positive impact on educational attainment. More treatment than control group members received a vocational credential (55 percent versus 35 percent). These vocational credentials could include the healthcare credentials provided by the NCTC program upon completion, as well as any state licensing exams required for the programs.[103] There also was an impact of 3.5 percentage points on receipt of other types of credentials, such as study skills, workplace skills, and general life skills credentials.

[103] While an impact was also found on the number of vocational certificates received, this is likely due to more treatment than control group members participating in and completing the programs, rather than treatment group members obtaining more than one degree. In order to maintain the experimental comparison, all treatment and control group members are included in this analysis, including those who did not participate. Among only those who participated, the treatment group received an average of 0.8 certificates, and the control group received an average of 0.7 certificates.

Exhibit 6.7: Impacts on Educational Attainment, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Group	Control Group	Difference (Impact)
Received any education or training degree or credential (%)	59.7	38.3	21.4***
Vocational Credentials			
Received vocational credential (%)	55.0	34.9	20.1***
Number of vocational credentials earned	0.7	0.4	0.2***
Educational Degrees			
GED/high school diploma (%)	0.4	1.9	-1.5*
Associate's degree (%)	1.6	2.1	-0.5
Bachelor's degree (%)	0.4	0.4	0.0
Other			
Received other type of credential (%)[a]	5.7	2.2	3.5**

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Other types of credentials and degrees include study skills, workplace skills, and general life skills credentials. No sample members received master's, doctorate, or professional degrees.
The total sample of 750 individuals includes 436 treatment group and 314 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Although there was no statistically significant impact on participation in ABE or GED classes (see Exhibit 6.5), there is evidence (statistically significant at the 10 percent level) that participation in the NCTC scholarship program slightly depressed attainment of a GED or high school diploma (0.4 percent for the treatment group compared with 1.9 percent in the control group).

6.3.4 Factors Affecting Ability to Work

The 18-month follow-up survey asked sample members about a range of issues that might affect their ability to work, including problems with transportation and childcare and physical or other health conditions, both at the time of the survey and over the entire follow-up period. In addition, the survey asked about the lowest wage a respondent would accept to take a job (often called the "reservation wage"). As shown in Exhibit 6.8, the treatment group had a higher reservation wage ($12.37 per hour) than did the control group ($11.93 per hour) (statistically significant at the 10 percent level). Although the survey does not allow the reasons for this impact to be identified, it could be due to a variety of factors, including the time investment they had made in the training program, or perhaps because the program raised their expectations in terms of what they could earn. (There was no difference in the reservation wage between the two groups at baseline, but it was lower (less than $11 per hour) for both (see Exhibit 6.4).

There is no evidence of differences between the treatment and control groups in whether childcare availability, transportation, and health conditions affected their reported ability to work, either in the month before the survey or since random assignment.

Exhibit 6.8: Impacts on Factors That Affected Ability to Work, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Group	Control Group	Difference (Impact)
Factors that affected respondent's ability to work in the past month:			
Finding affordable quality childcare (%)	16.5	18.2	-1.7
Problems with transportation (%)	13.9	11.2	2.7
Any physical, emotional, or other health conditions (%)	8.7	9.1	-0.4
Factors that affected respondent's ability to work between random assignment and last month:			
Finding quality childcare that respondent could afford (%)	20.7	23.2	-2.5
Problems with transportation (%)	19.0	18.2	0.8
Any physical, emotional, or other health conditions (%)	9.8	12.2	-2.4
Amount a job must pay per hour for respondent to take it ($)[a]	12.37	11.93	0.44*

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] For respondents who reported a rate per week/month/year, the conversion to hourly rate assumes an average work week of 34.5 hours based on the Bureau of Labor Statistics estimates for the private sector.
The total sample of 750 individuals includes 436 treatment group and 314 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

6.4 Impacts on Employment and Earnings Outcomes

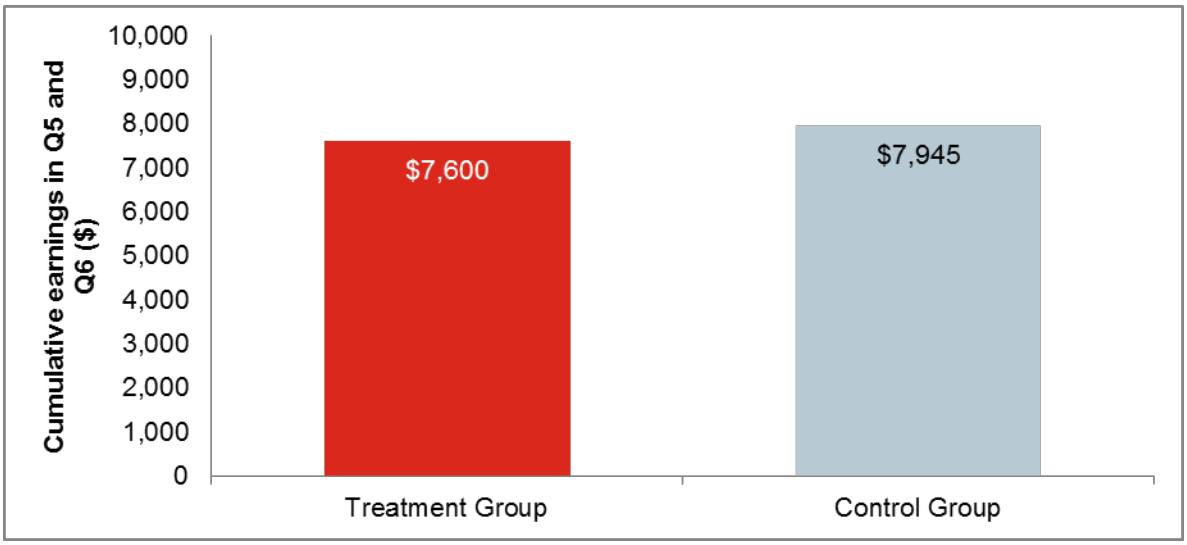
The evaluation's logic model (see Chapter 2) suggested that the program would increase receipt of training and support services, which would in turn increase employment and earnings. The previous section has shown that the hypothesized positive impacts on receipt of training and support services did occur; this section shows that, however, the evaluation found no evidence of an impact on employment or earnings.

6.4.1 Employment and Earnings

Exhibits 6.9 through 6.12 display the earnings and employment outcomes as measured by quarterly wage record data. As displayed in Exhibit 6.9 and reported in Exhibit 6.10, there is no evidence of an impact on earnings in the fifth and sixth quarters ("Q5" and "Q6" in the exhibits below) after random assignment, the study's primary confirmatory outcome.[104] Exhibit 6.9 shows that the average earnings for the treatment and control groups over these two quarters were $7,600 and $7,945, respectively, a difference that is not statistically significant. Moreover, no evidence of impacts was detected on earnings among those individuals who participated in training (the "treatment on the treated" estimate in Exhibit 6.10).

[104] See Appendix A for the minimum detectable impact (MDI) estimate.

Exhibit 6.9: Cumulative Earnings in the Fifth and Sixth Quarters After Random Assignment, by Random Assignment Group, NCTC



Source: National Directory of New Hires.
Note: The total sample of 984 individuals includes 550 treatment group and 434 control group members. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. Pound signs are present only if the impact is statistically significant at the indicated level.

In addition to the confirmatory outcome of earnings in the fifth and sixth quarters after random assignment, impacts on quarterly earnings and employment rates over the entire 18-month follow-up period were examined, as shown in Exhibit 6.10. Employment rates for the treatment group were lower than those for the control group over the entire 18-month follow-up period. The difference is not statistically significant in any single quarter, although pooling across all quarters it is statistically significant (at the 10 percent level). In addition, no other impacts on earnings or employment levels during the six individual quarters (18 months) of follow-up were detected. For both the treatment and control groups, employment rates and earnings showed a similar pattern of increasing over the follow-up period (Exhibits 6.11 and 6.12).

Employment and earnings data observed over a follow-up period of longer than six quarters (18 months) also were examined for the subset of cases randomized earlier (these smaller samples further limit the ability to detect impacts). Specifically, a follow-up period of nine quarters (27 months) is available for an early enrolling sample. However, these results also do not show that the Health Matrix Grant program produced impacts on earnings or employment measured over this longer follow-up period (see Appendix F, Exhibit F.12).

Exhibit 6.10: Impacts on Earnings and Employment, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Group	Control Group	Difference (Impact)	Percent Difference[a]
Confirmatory Outcome				
Cumulative earnings in Q5 and Q6 ($)	7,600	7,945	-345	-4.3%
Treatment-on-the-Treated (TOT) Estimate				
Cumulative earnings in Q5 and Q6 ($)	7,344	7,750	-406	-5.2%
Earnings				
Cumulative earnings in Q1 through Q6 ($)	19,335	19,883	-548	-2.8%
Earnings in Q1 ($)	2,379	2,369	10	0.4%
Earnings in Q2 ($)	2,814	2,786	29	1.0%
Earnings in Q3 ($)	3,194	3,275	-81	-2.5%
Earnings in Q4 ($)	3,347	3,507	-160	-4.6%
Earnings in Q5 ($)	3,725	3,819	-94	-2.5%
Earnings in Q6 ($)	3,876	4,127	-251	-6.1%
Employment				
Ever employed during Q5 or Q6 (%)	80.0	82.3	-2.3	-2.8%
Ever employed during Q1 through Q6 (%)	88.2	91.6	-3.4*	-3.7%
Ever employed during Q1 (%)	61.9	64.5	-2.6	-4.0%
Ever employed during Q2 (%)	67.3	68.7	-1.4	-2.0%
Ever employed during Q3 (%)	67.9	71.3	-3.3	-4.7%
Ever employed during Q4 (%)	69.3	73.4	-4.1	-5.5%
Ever employed during Q5 (%)	71.3	74.8	-3.5	-4.6%
Ever employed during Q6 (%)	72.8	75.3	-2.5	-3.4%

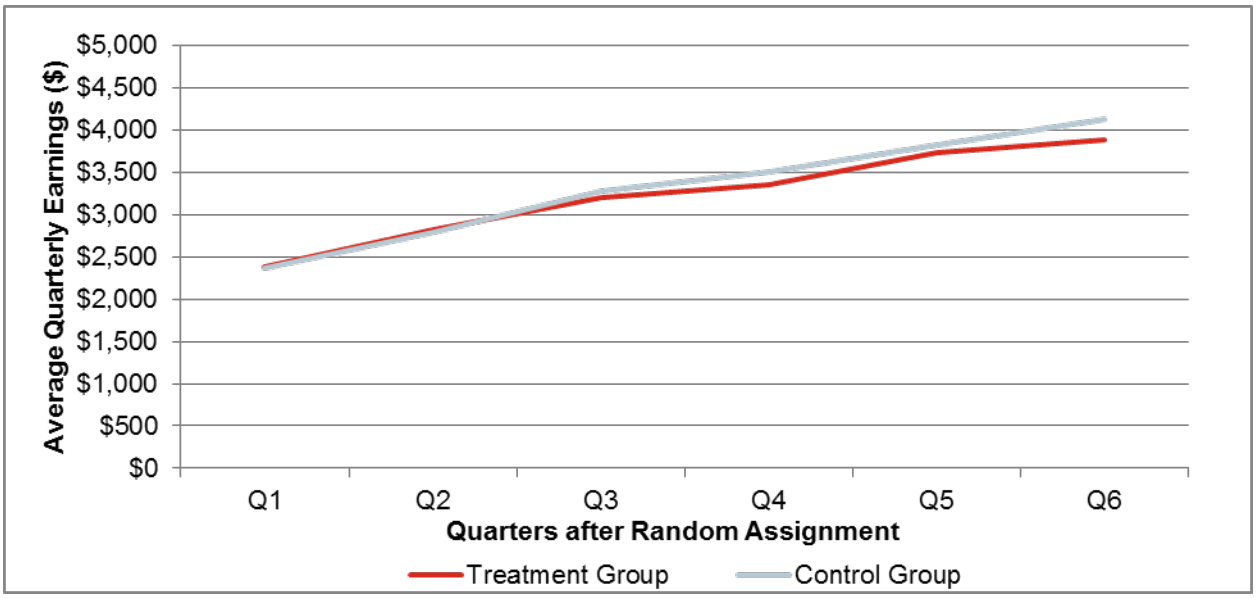
Source: National Directory of New Hires.

Note: The total sample of 984 individuals includes 550 treatment group and 434 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups. For the treatment-on-the-treated estimate, show rate of 15.09 percent and the cross-over rate of 0.0 percent were used. Treatment-on-the-treated estimate p-values are corrected for multiple comparisons in line with the adjustment on the confirmatory outcome.

[a] This indicates the percentage change between the treatment group average and the control group average.

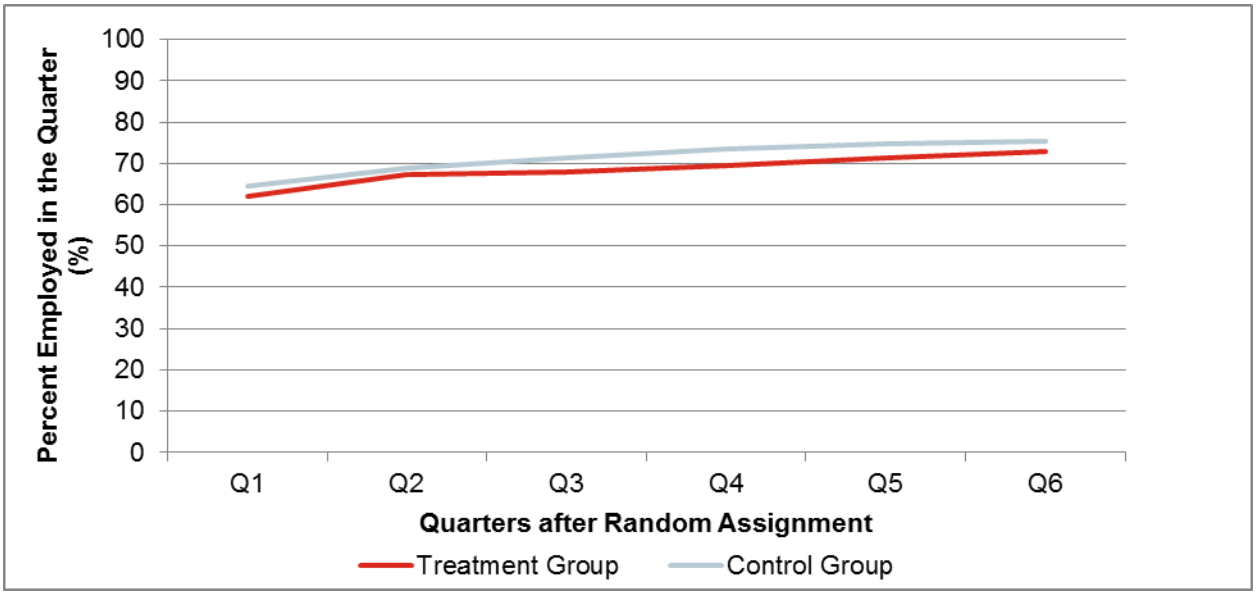
Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. *** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 6.11: Average Quarterly Earnings, by Random Assignment Group, 18-Month Follow-Up Period, NCTC



Source: National Directory of New Hires.
Note: The total sample of 984 individuals includes 550 treatment group and 434 control group members.
*** Difference is statistically significant at the p<0.01 level. ** Difference is statistically significant at the p<0.05 level. * Difference is statistically significant at the p<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 6.12: Percentage Employed, by Random Assignment Group, 18-Month Follow-Up Period, NCTC



Source: National Directory of New Hires.
Note: The total sample of 984 individuals includes 550 treatment group and 434 control group members.
*** Difference is statistically significant at the p<0.01 level. ** Difference is statistically significant at the p<0.05 level. * Difference is statistically significant at the p<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

6.4.2 Employment and Earnings for Subgroups

In addition to understanding the overall impact of NCTC's Health Matrix Grant program, the evaluation examined whether the scholarship program was more or less effective for certain subgroups of the population served. Exhibits 6.13 and 6.14 below show the employment and earnings impacts in quarters five and six for the two subgroups examined. The first subgroup is those with a high school diploma or less versus those who had more than a high school diploma, measured at the time of random assignment (this includes those who attended some college or have an associate's degree or higher). The second subgroup is those who did not work in the year before random assignment compared with those who had been employed during this year.

Subgroup analyses provide some exploratory evidence that the program unexpectedly lowered employment and earnings for those with more than a high school diploma or GED at the time of random assignment (see Exhibit 6.14). For this subgroup, the treatment group earned an average of $848 less than the control group in the fifth and sixth quarters after random assignment (significant at the 10 percent level) and 2 percent fewer treatment than control group members were employed in these quarters (significant at the 5 percent level). The difference between the groups was statistically significant. There is no evidence of earnings or employment impacts for those with a high school diploma/GED or less. Additionally, no evidence of impacts varying by employment status at baseline was found, as reported in Exhibit 6.13.

Exhibit 6.13: Impacts on Earnings and Employment, by Employment Status in the Year Preceding Random Assignment, 18-Month Follow-Up Period, NCTC

	Treatment Group	Control Group	Difference (Impact)	Subgroup Difference (Impact)[1]
Earnings in Q5 and Q6 post-random assignment ($)				
Not employed in any of the 4 quarters preceding random assignment	4,299	4,245	54	-164
Employed in any of the 4 quarters preceding random assignment	8,591	8,701	-110	
Employed in Q5 and Q6 post-random assignment (%)				
Not employed in any of the 4 quarters preceding random assignment	58.0	58.0	0.0	-0.8
Employed in any of the 4 quarters preceding random assignment	86.5	87.3	-0.8	

Source: National Directory of New Hires.
Note: [1] The "Subgroup Difference (Impact)" measures whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference *p*-value tests whether the $54 impact among those not employed in any of the four quarters preceding random assignment is different than the $-110 impact among those employed in any of the four quarters preceding random assignment.
The total sample of 984 individuals includes 550 treatment group and 434 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit 6.14: Impacts on Earnings and Employment, by Educational Attainment at Random Assignment, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Group	Control Group	Difference (Impact)	Subgroup Difference (Impact)[1]
Earnings in Q5 and Q6 post-random assignment ($)				
High school diploma/GED or less	7,444	6,612	832	-1,679**
More than high school diploma/GED	7,650	8,498	-848*	
Employed in Q5 and Q6 post-random assignment (%)				
High school diploma/GED or less	81.8	79.5	2.3	-4.2***
More than high school diploma/GED	80.2	82.1	-2.0**	

Source: National Directory of New Hires.
Note: [1] The "Subgroup Difference (Impact)" measures whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $832 impact among those with a high school diploma/GED or less is different than the $-848 impact among those with more than a high school diploma/GED.
The total sample of 984 individuals includes 550 treatment group and 434 control group members. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

6.4.3 Employment Status and Job Characteristics

Exhibit 6.15 shows the employment status of the treatment group and control group, in terms of whether they were working, unemployed, or out of the labor force (defined as not looking for work) at the time of the follow-up survey. Not surprisingly given that similar proportions of the treatment and control groups were employed over the follow-up period based on the NDNH data, the two groups are equivalent in terms of the percentage who were employed (about 80 percent in each group), the percentage who were unemployed, and the percentage who were out of the labor force at the time of the follow-up survey. There is a negative impact (statistically significant at the 10 percent level) on the proportion of the treatment group that was not looking for work (1.7 percent for the treatment group compared with 4 percent for the control group).

Exhibit 6.15: Impacts on Employment Status, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Group	Control Group	Difference (Impact)
Employment Status at Time of Follow-Up Survey			
Employed (%)	79.8	81.0	-1.3
Unemployed (%)	10.3	7.1	3.2
On temporary layoff (%)	0.0	0.3	-0.3
Looking for work (%)	10.3	6.8	3.5
Out of the labor force (%)	10.0	11.9	-2.0
Retired (%)	1.3	0.6	0.7
Unable to work because of disability (%)	2.0	1.3	0.6
Attending school or long-term training program (%)	5.0	5.9	-1.0
Not looking for work (%)	1.7	4.0	-2.3*

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 750 individuals includes 436 treatment group and 314 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

The follow-up survey also collected information on the characteristics of the current or most recent job held by treatment and control group members at the time of the follow-up survey. These results include all survey respondents; those with no recent job were coded as zero on these outcomes. Thus, these are experimental comparisons and can be interpreted as estimates of program impact. For the most part, the treatment and control groups' job characteristics did not statistically significantly differ.

As shown in Exhibit 6.16, no evidence of Health Matrix Grant program impacts on weekly earnings or the number of hours worked per week was found. On average, the treatment group's weekly earnings in their current or most recent job were $376, and they worked 31 hours per week; the equivalent of earning $12.14 per hour. The control group earned an average of $361 per week and worked an average of 32 hours; the equivalent of earning $11.36 per hour. Just over half of the treatment group and the control group reported that their job was part of a career path (a non-statistically significant difference). More treatment than control group members had jobs with union representation (8 percent compared with 4 percent, statistically significant at the 10 percent level).

Exhibit 6.16: Impacts on the Characteristics of Current or Most Recent Job, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Group	Control Group	Difference (Impact)
Pay and Hours of Job			
Weekly earnings ($)	376	361	15
Hours worked per week	31.0	31.8	-0.8
Number of weeks at job[a]	78.7	79.0	-0.3
Job represented by a union (%)	7.5	4.4	3.1*
Job Benefits			
Job offers health insurance (%)	59.0	64.1	-5.1
Paid vacation (%)	53.5	55.4	-2.0
Paid holiday (%)	53.4	57.8	-4.4
Paid sick time (%)	43.3	50.8	-7.5**
Retirement/pension plan (%)	47.1	50.3	-3.2
Job Schedule			
Regular daytime schedule (%)	58.7	59.2	-0.4
Regular evening shift (%)	8.0	9.1	-1.2
Regular night shift (%)	6.2	7.3	-1.1
Rotating schedule (%)	6.9	6.8	0.0
Irregular schedule (%)	5.4	4.2	1.2
Other schedule (%)	5.4	4.6	0.8
Connection of Job to Training			
Respondent attributes getting a new job due to completing vocational training (%)	22.4	14.7	7.7**
Respondent employed in industry targeted by grant-funded training program (%)	40.9	39.6	1.3
Job is part of a career path (%)	54.1	54.7	-0.6

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Jobs that started before random assignment are included in these estimates.
The total sample of 750 individuals includes 436 treatment group and 314 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Additionally, no differences were detected between the treatment and control group for most types of benefits offered at the current or most recent job, including health insurance, paid vacation, paid holidays, and retirement plans. The only job benefit that showed an impact was paid sick time, with control group members reporting a higher rate of paid sick time benefits (43 percent of the treatment group had sick time benefits compared with 51 percent of the control group).

The follow-up survey also asked treatment and control group members whether they attributed obtaining a new job to completing a vocational training program. Across all treatment and control group members (including those who those who did not work or attend training), more treatment than control group members (22 percent compared with 15 percent) attributed getting a new job to completion of the vocational training. In part, this impact is due to more treatment than control group members participating in and completing vocational training (see Section 6.3.1 above).[105] Among those in the treatment and control groups who completed a training program, similarly proportions of both groups, 35 percent and 38 percent, respectively, reported they obtained a new job as a result of a of the training (not shown in Exhibit 6.16).

Finally, the survey also collected information on the industry in which respondents were employed in their current or most recent job. This information was coded as to whether that job was in the "target" industry of the Health Matrix Grant program (e.g., jobs in hospitals, ambulatory healthcare services, administrative and support services, and nursing and residential care facilities, etc.). No statistically significant differences were found between the treatment and control group members as to whether they were employed in healthcare-related jobs; about 40 percent of each group worked in the healthcare field during the follow-up period.

6.5 Impacts on Income, Public Benefits Receipt, and Financial Circumstances

In addition to determining whether the Health Matrix Grant program increased participants' employment and earnings relative to the control group, the evaluation also examined whether the program produced impacts on household income, receipt of public benefits, and overall financial circumstances, as changes in these outcomes could follow changes to earnings and employment. Based on data collected from the follow-up survey and consistent with the non-statistically significant findings on employment and earnings, there is no evidence of impacts on these outcomes.

6.5.1 Household Income and Receipt of Public Benefits

As shown in Exhibit 6.17, the results do not show any Health Matrix Grant program impacts on income or on the types and amounts of public (and other) benefits received, with total household income averaging approximately $40,000 per year for both the treatment and control groups. Reflecting their increased employment levels over time (see Exhibit 6.12), for both treatment and control group members, a smaller percentage received Unemployment Insurance at the time of the follow-up survey (2 percent) compared with baseline (8 percent, see Exhibit 6.4). However, the proportion receiving SNAP at the time of the follow-up survey remained at the same levels as at baseline (approximately 14 percent).

[105] These results are similar when examined among those who worked during the follow-up (a non-experimental comparison), with 25 percent of the treatment group reporting that they got a job due to a training program compared with 17 percent of the control group. See Appendix F, Exhibit F.16.

Exhibit 6.17: Impacts on Household Income and Household Receipt of Public Benefits, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Group	Control Group	Difference (Impact)
Total household income before taxes last year ($)[a]	39,205	40,379	-1,175
Temporary Assistance for Needy Families (TANF)			
Received TANF last month (%)	0.7	1.1	-0.4
Amount received ($)	1.78	3.81	-2.03
Supplemental Nutrition Assistance Program (SNAP)			
Received SNAP last month (%)	14.2	14.8	-0.6
Amount received ($)	43.47	39.63	3.85
Unemployment Insurance (UI)			
Received UI last month (%)	1.9	1.8	0.1
Amount received last month ($)	21.53	12.43	9.10
Other Federal Benefits			
Received other federal benefits last month (%)[b]	18.3	18.3	0.0
Amount received last month ($)[b]	137.00	159.95	-22.94
Other Payments			
Received alimony, child support, rent payments, or financial support from friends/relatives last month (%)	14.0	12.9	1.1
Amount received last month ($)	87.00	60.37	26.63
Other Assistance Received			
Received any assistance from churches, food banks, or other private community organizations since random assignment (%)	7.9	10.6	-2.8

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: For outcomes measured in dollars, the analytic sample includes all study members with non-missing outcome data (including those with a value of zero for the outcome). [a] Rather than providing a specific value for household income including transfers, some survey respondents indicated that their household income including transfers was in a specified range (e.g., between $45,000 and $60,000). For these individuals, income is defined as the midpoint of the specified range. [b] The other federal benefits include the following types: Supplemental Security Income; Social Security Disability Insurance; Women, Infants, and Children benefits; General Assistance; Trade Adjustment Assistance; Alternative Trade Adjustment Assistance; Worker's Compensation or Disability Insurance; and Social Security.
The total sample of 750 individuals includes 436 treatment group and 314 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

6.5.2 Financial Circumstances

In addition to exploring whether there were any changes in receipt of public benefits, the evaluation examined whether the Health Matrix Grant program improved the financial circumstances of program participants. It was hypothesized that if the program services increased employment and earnings, this could also result in an improvement in the overall financial circumstances of the treatment group. Specifically, the evaluation examined whether there was a difference between the treatment and control groups in the extent to which they experienced difficulty meeting expenses, were late with a rent or mortgage payment, were ever charged a late fee on a credit card, or had postponed a major purchase. Overall, there were no statistically significant differences between treatment and control group members' outcomes in these areas (see Exhibit 6.18). About half of both the treatment and control group reported that they had difficulty (at one or more points during the follow-up period) covering all of their household expenses since random assignment. Also, almost one-third of both groups reported that they had

postponed a major purchase, with similar proportions reporting that they had been charged a late fee on a monthly credit payment.

Exhibit 6.18: Impacts on Financial Circumstances, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Group	Control Group	Difference (Impact)
Housing Status			
Owned a home (%)	28.2	28.4	-0.2
Rented a residence (%)	51.1	52.2	-1.1
Difficulty Covering Household Expenses			
Had difficulty covering all household expenses (%)	49.5	51.3	-1.8
Had difficulty covering all household expenses in the past month (%)	48.8	44.7	4.1
Types of Financial Difficulty Experienced			
Mortgage payment: missed or been late (%)	5.7	5.6	0.1
Rent payment missed or been charged a late fee (%)	12.6	12.1	0.5
Been charged a late fee on any monthly credit payments (%)	31.8	29.2	2.6
Postponed a major purchase that was planned or needed such as a car or major appliance (%)	30.5	30.0	0.5

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: The total sample of 750 individuals includes 436 treatment group and 314 control group members who completed the 18-month survey. Appendix tables report item-specific sample sizes. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

7. Discussion and Implications of the Findings

There is a great deal of interest at the federal, state, and local levels in developing effective training strategies to improve the employment prospects and subsequent earnings of unemployed individuals and other individuals with barriers to work. As summarized in Exhibit 7.1, this evaluation found that, over the 18 month follow-up period, the four programs in the study produced impacts on participation in vocational training and the receipt of credentials. However, only the program at KCCD produced evidence of an impact on cumulative earnings during the fifth and sixth calendar quarters after random assignment—the time period on which the evaluation focused for assessing post-training effects. In addition, there is some evidence the impacts at KCCD do not continue over a longer follow-up period. Finally, there were no detectable impacts on other employment-related outcomes such as household income or public benefits receipt.

Exhibit 7.1: Summary of Impacts, by Grantee

Outcome	AIOIC Treatment Group	AIOIC Control Group	AIOIC Difference (Impact)	GRCC Treatment Group	GRCC Control Group	GRCC Difference (Impact)	KCCD Treatment Group	KCCD Control Group	KCCD Difference (Impact)	NCTC Treatment Group	NCTC Control Group	NCTC Difference (Impact)
Education and Training [a]												
Participated in any education or training activity	92.8%	66.6%	26.2%***	89.8%	38.9%	50.9%***	95.0%	43.8%	51.2%***	94.2%	64.4%	29.8%***
Participated in vocational training	63.5%	37.9%	25.6%***	49.0%	15.9%	33.1%***	83.6%	29.5%	54.1%***	73.4%	44.0%	29.3%***
Supports [a]												
Received financial assistance to attend education and training	83.6%	53.2%	30.0%***	81.3%	22.4%	58.9%***	86.1%	28.8%	57.3%***	80.7%	29.9%	50.8%***
Received academic advising	54.7%	38.3%	16.3%***	42.5%	26.5%	16.0%*	25.5%	18.9%	6.6%*	44.6%	28.2%	16.4%***
Received career counseling	48.0%	28.3%	19.7%***	52.4%	20.9%	31.5%***	51.2%	14.7%	36.5%***	33.9%	18.5%	15.4%***
Received job placement assistance	50.1%	19.7%	30.4%***	44.8%	12.0%	32.8%***	63.3%	14.9%	48.3%***	41.5%	12.7%	28.8%***
Earnings (Confirmatory Outcome) [b]												
Cumulative earnings in Q5 and Q6	$7,602	$7,682	$-79	$6,444	$5,868	$576	$9,230	$7,709	$1,520##	$7,600	$7,945	$-345

Source: [a] Green Jobs and Health Care 18-Month Follow-Up Survey. [b] National Directory of New Hires.

Note: For 18-Month Follow-Up Survey outcomes, sample sizes are as follows. For AIOIC, the total sample of 345 individuals includes 187 treatment group and 158 control group members. For GRCC, the total sample of 189 individuals includes 130 treatment group and 59 control group members. For KCCD, the total sample of 570 individuals includes 294 treatment group 276 control group members. For NCTC, the total sample of 750 individuals includes 436 treatment group 314 control group members.

For the National Directory of New Hires outcome, sample sizes are as follows. For AIOIC, the total sample of 538 individuals includes 268 treatment group and 270 control group members. For GRCC, the total sample of 274 individuals includes 183 treatment group and 91 control group members. For KCCD, the total sample of 816 individuals includes 407 treatment group 409 control group members. For NCTC, the total sample of 984 individuals includes 550 treatment group 434 control group members.

Appendix tables report item-specific sample sizes. Due to rounding, reported impacts (T-C differences) may differ from differences between reported regression-adjusted means for the treatment and control groups.

Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. *** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Several implications can be drawn from these results.

Funding for short-term training programs can significantly raise both participation levels in training and receipt of vocational credentials among unemployed individuals and those with work barriers. The large and consistent impacts on service and credential receipt across the grantees show that these programs were effective in increasing participation in and completion of training among diverse and disadvantaged target populations. While the participants and the barriers they faced varied by grantee program, each program engaged the targeted group in program services and facilitated their attainment of vocational credentials.

Consideration should be given to targeting training resources to populations not typically served by available training services, or in areas where training is unavailable or oversubscribed. As the control group experience suggests, to varying degrees, individuals would have participated in training activities even without the grant-funded program. The proportion of the control group who participated in education and training activities ranged from 39 percent in GRCC to as much as 67 percent in AIOIC. Moreover, KCCD had the largest impact among the four grantee programs on training participation, and the control group there participated in training at relatively low rates (the control group had a 44 percent participation rate). This may reflect the limited training opportunities in the relatively rural area that KCCD served, particularly in green industries targeted by the grant. In contrast, in AIOIC and NCTC, both healthcare training programs, the control group participated in training programs at much higher rates, potentially reflecting general availability of healthcare training programs other than those available under the grant. While DOL emphasized funding training in high-demand occupations when it established these grant initiatives, the evaluation results indicate that identifying training that is not generally available or is oversubscribed could also be important.

Although the study cannot determine the specific KCCD program services that produced the earnings impact observed there, this program included a structured sequence of training courses and a strong role for instructors in all aspects of service delivery. The KCCD program included three green-related training courses with a clear sequence; a curriculum that was adapted over time to align to participant and employer interests; instructor-provided academic and personal supports; instructor-provided job-readiness and job placement assistance, often integrated with classroom training; and ongoing staff commitment to cultivating and maintaining relationships with employers. KCCD's employer partners provided guidance on course content, offered labor market information, and at times hired those who completed the program. Instructors, some of whom had previously worked in the industry, reported that when possible, they drew on their own professional networks to facilitate student connections with industry contacts.

A more substantial investment in developing job-related skills might be needed to increase the employment and earnings of disadvantaged populations. The short-term nature of the training (which averaged 2.4 to 3.3 months depending on the grantee program) and the resulting credentials appear not to have been sufficient to result in changes to the earnings trajectory of program participants within the 18-month follow-up period of this study, as evidenced by the limited employment and earnings impacts for sample members for three grantee programs and the low incomes at the end of the study period. These results are consistent with other studies that show positive earnings gains resulting from educational degrees requiring a year or more of training at community colleges, and limited evidence of positive

economic outcomes from shorter-term credentials like the ones offered through the four grantee programs.[106]

The training programs studied in this evaluation were designed with a career pathways approach, which is based on the theory of human capital development programs, when after an initial investment in training individuals experience sustained increases in earnings. However, the findings of this study are more consistent with the effects of short-term job search assistance programs, which have been shown to increase the speed to employment but do not necessarily to result in long-term changes to earnings.[107] Even for KCCD, where earning impacts were observed in the fifth and sixth quarters of the follow-up period, the preliminary evidence of diminishing impacts over a longer follow-up period (27 months) appears more consistent with the effects of short-term job search assistance programs. In addition, while the training provided may have been a "first step" on a career ladder, there is no evidence that individuals continued beyond this initial training step (at least within the follow-up period for this study).

Ongoing attention should be given to ensuring that the training offered reflects employer demand for related positions. Among those in the treatment group who worked during the follow-up period, 35 percent in KCCD and one-quarter or less in the other programs attributed getting a job to completing the training program. Moreover, except for KCCD, treatment and control group members were employed at the same rates over the 18-month follow-up period. That employment levels were similar for treatment and control groups and that few members in the treatment group attributed job attainment to the training could indicate that jobs were not available in the fields for which they trained and, as a result, they took other types of jobs that were similar in pay to those of the control group. The evaluation cannot determine the extent to which a lack of job opportunities in the training field contributed to this result: Data are not available on the demand for openings for the specific training fields in the geographic areas where these grantee programs operated.

Grantee staff at the four programs, however, reported that employer demand for jobs in the training fields changed from what the grantees initially projected (i.e., when the grants were awarded). Notably, both GRCC and KCCD, the green industry programs, reported that jobs did not materialize as anticipated, and each made adjustments to its training program. GRCC provided training for different occupations than originally planned, while KCCD incorporated more broadly applicable skills into its curriculum. In contrast, the two healthcare grantee programs generally did not report a lack of jobs for trainees, although demand changed over the course of the grant period. Staff at AIOIC reported that job opportunities increased, as the economy recovered from the recession; staff at NCTC reported some decline in demand for some healthcare positions in more remote parts of its service region.

Overall, while targeting industries and occupations with a high demand for workers was a focus of the DOL grant initiatives, the experiences of these grantees suggest that doing so is challenging. One response to this challenge is to monitor the economy and job growth projections over time and make adjustments to the program services as needed.

When developing training initiatives, consideration should be given to the wages for positions resulting from the training. As noted, except for KCCD, the treatment and control groups had similar levels of employment and earnings over the follow-up period, and earnings levels were low. In particular,

[106] Jepson et al., 2012; Bahr et al., 2015

[107] Klerman et al., 2012

the two healthcare programs (AIOIC and NCTC) focused on training for Nursing Assistants, a field that has drawn attention for its relatively low pay;[108] and their control group members found jobs at the same rate and level of pay as those in the treatment group. And as discussed, while Nursing Assistant may be a first step on a career ladder in healthcare, follow-on training, and then progression to higher wage positions was not observed in the follow-up period for this study. In contrast, KCCD achieved earnings impacts, by increasing its participants' wages and hours worked. These results indicate the importance of providing training not only for in-demand occupations, but also for occupations that result in better-paying jobs than individuals could obtain without the training.

Attention should be given to strategies for connecting training to employment, potentially through strong connections to employers. To improve connections between training and employment, more effective employment assistance may be needed to help people find jobs in the field of training. Although the programs in this study did provide some types of job placement assistance (the content of which varied across the grantees), the evaluation results suggest that an increased focus on job placement services in training programs would be beneficial. In addition, because the impact on credential receipt did not translate into earnings impacts for three of the programs, it was not clear that employers valued the credentials obtained. Working with employers to ensure that the curricula match needed job skills and that the credentials granted are recognized and valued within the industry could help to make stronger connections between training and employment.

Financial assistance to attend training programs appears to be important for promoting engagement in the training activities. Except at NCTC (which provided a mix of full and partial scholarships), all the courses provided through the grantee programs were tuition-free, and across all the programs in the study, the largest impact in terms of services received was on financial assistance to attend education or training. The much lower rates of financial assistance received by the control group suggest that there is a lack of resources to support attendance in training programs; notably, some short-term training programs are not eligible for federal Pell Grants to cover tuition.

Some control group members attended training without financial assistance, but it seems plausible that the lack of financial assistance contributed to lower rates of training received in the control group. Consistent with this interpretation, it is notable that NCTC, which provided a relatively small scholarship (averaging $816, or 60 percent of tuition), was able to boost participation and credential receipt in its existing training programs by a large margin.

[108] For example, one study found that more than 90 percent of nursing assistants earned less than $20,000 per year (Carey, 2014).

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Appendix A: Additional Technical Information on Methodology

This Appendix includes additional technical material about various aspects of the study's sample, methods, and analyses. Section A.1 discusses baseline covariates. Section A.2 discusses how missing data are handled. The final section discusses multiple comparisons and significance testing.

A.1. Baseline Covariates

This part of Appendix A presents information on the inclusion of baseline covariates in the regression models described in Section 2.3. Note that the Measures Appendix (Appendix B) details the construction of each measure. As detailed below, the set of baseline covariates included in each regression model varies by the source of the outcome data (i.e., 18-month follow-up survey or NDNH), and in some instances, by the site being analyzed. These differences occur for three reasons.

First, pre-random assignment employment and earnings data from the NDNH are not linked to the 18-month survey data. This is because a condition for receipt of the NDNH data was that the data could not be linked to the survey data or other information that would allow for the identification of the individuals to whom the NDNH data pertain. Therefore, these pre-random assignment measures are only included in the NDNH-based analyses (and are not included in the survey-based analyses).

Second, as noted above, the U.S. Department of Health and Human Services (HHS), which maintains the NDNH data, required the evaluation team to recode some baseline items to ensure that individuals could not be identified in the NDNH data.[109] For example, the analysts made the continuous baseline variable *weekly earnings at the current or most recent job* into a categorical measure to attach the baseline survey data to the NDNH data.

Finally, in some sites certain baseline covariates have little or no variation. Therefore, the set of baseline covariates varies by grantee program, such that covariates with little or no variation are excluded from the regression model used for observations from that site. In order for a binary variable to be included in the regression model, the study team imposed a rule stating that at least 5 percent of the sample must have a 1 (or 0).[110] For instance, the analysis does not include an indicator for *convicted of a felony* when estimating impacts on NCTC study members because 0.2 percent of NCTC study members reported a felony conviction at baseline. This process ensures that there is adequate variation in each covariate included in each program's regression model. Exhibit A.1 lists the covariates included in the NDNH and 18-month survey impact analysis models, their definition, and for which grantees they are included.

[109] HHS de-identified the NDNH data before providing the data to the research team. HHS allowed Abt to submit baseline data to be linked to the NDNH data before de-identification but also required that the baseline data be recoded so that no individuals could be re-identified by the research team.

[110] A rule was imposed only on binary variables, as no issues of variation occurred in continuous variables.

Exhibit A.1: Baseline Covariates Included in Models Estimating Impacts, by Outcome Data Source and Grantee

Measure	Reference Category	Data Source	Included in Analysis of NDNH Outcomes	Included in Analysis of Survey Outcomes			
				AIOIC	GRCC	KCCD	NCTC
Indicator for female	Male	BIF[111]	✓	✓	✓	✓	✓
Indicator for 21 years or younger	40 years or older	BIF	✓	✓	✓	✓	✓
Indicator for 22–29 years	40 years or older	BIF	✓	✓	✓	✓	✓
Indicator for 30–39 years	40 years or older	BIF	✓	✓	✓	✓	✓
Indicator for married	Never married	BIF	✓	✓	✓	✓	✓
Indicator for divorced/separated/widowed	Never married	BIF	✓	✓	✓	✓	✓
Indicator for Spanish, Hispanic, or Latino origin	Not Spanish, Hispanic, or Latino	BIF	✓	✓	✓	✓	✓
Indicator for white	Black or African American	BIF	✓	✓	✓	✓	✓
Indicator for other race (American Indian or Alaskan Native; Asian; Native Hawaiian or other Pacific Islander; or multi-race)	Black or African American	BIF	✓	✓	✓	✓	✓
Indicator for speaks a language other than English at home	Does not speak a language other than English at home	BIF	✓	✓	✓	✓	✓
One child (18 years or younger) currently lives in household	No children (18 years or younger) currently live in household	BIF	✓	✓	✓	✓	✓
Two children (18 years or younger) currently live in household	No children (18 years or younger) currently live in household	BIF	✓	✓	✓	✓	✓
Three or more children (18 years or younger) currently live in household	No children (18 years or younger) currently live in household	BIF	✓	✓	✓	✓	✓

[111] The Baseline Information Form (BIF) and 18-Month Follow-Up Survey can be found in *The Green Jobs and Health Care Impact Evaluation: User's Guide for Public-Use and Restricted-Use Data*.

Measure	Reference Category	Data Source	Included in Analysis of NDNH Outcomes	Included in Analysis of Survey Outcomes			
				AIOIC	GRCC	KCCD	NCTC
Indicator for U.S. citizen	Indicator for legal resident (non-U.S. citizen)	BIF	✓	✓	✓	✓	✓
Indicator for not convicted of a felony	Indicator for convicted of a felony	BIF	✓	-	✓	✓	-
Indicator for disabled	Not disabled	BIF	✓	-	✓	-	-
Indicator for finding quality, affordable childcare limits ability to work (Very much; A little)	Finding quality, affordable childcare limits ability to work (Not at all; No children in household)	BIF	✓	✓	✓	✓	✓
Indicator for problems with transportation (car, public transit) limit ability to work (Very much; A little)	Problems with transportation (car, public transit) limit ability to work (Not at all)	BIF	✓	✓	✓	✓	✓
Indicator for will take any job even if the pay is low (Agree; Strongly agree)	I will take any job even if the pay is low (Disagree; Strongly disagree)	BIF	✓	✓	✓	✓	✓
Indicator for only want the kind of job trained for (Agree; Strongly agree)	Only want the kind of job trained for (Disagree; Strongly disagree)	BIF	✓	✓	✓	✓	✓
Indicator for minimum hourly wage rate that would be acceptable to sample member $8.99 or less	Indicator for minimum hourly wage rate that would be acceptable to sample member $12 or above	BIF	✓	✓	✓	✓	✓
Indicator for minimum hourly wage rate that would be acceptable to sample member $9–$9.99	Indicator for minimum hourly wage rate that would be acceptable to sample member $12 or above	BIF	✓	✓	✓	✓	✓
Indicator for minimum hourly wage rate that would be acceptable to sample member $10–$11.99	Indicator for minimum hourly wage rate that would be acceptable to sample member $12 or above	BIF	✓	✓	✓	✓	✓
Indicator for bachelor's degree; Master's degree or higher	High school diploma; No high school diploma or GED	BIF	✓	✓	✓	✓	✓
Indicator for technical, trade or vocational degree; associate's degree	High school diploma; No high school diploma or GED	BIF	✓	✓	✓	✓	✓
Indicator for some college credit but no degree	High school diploma; No high school diploma or GED	BIF	✓	✓	✓	✓	✓

Measure	Reference Category	Data Source	Included in Analysis of NDNH Outcomes	Included in Analysis of Survey Outcomes			
				AIOIC	GRCC	KCCD	NCTC
Indicator for currently enrolled in school or any other training program	Not currently enrolled in school or any other training program	BIF	✓	✓	✓	✓	✓
Indicator for currently receiving Section 8 or Public Housing Assistance	Not currently receiving Section 8 or Public Housing Assistance	BIF	✓	✓	✓	-	-
Indicator for currently receiving Temporary Assistance for Needy Families (TANF)	Not currently receiving TANF	BIF	✓	✓	-	-	-
Indicator for currently receiving Supplemental Nutrition Assistance Program (SNAP)	Not currently receiving SNAP	BIF	✓	✓	✓	✓	✓
Indicator for currently receiving Unemployment Insurance (UI)	Not currently receiving UI	BIF	✓	✓	✓	✓	✓
Indicator for currently employed in the quarter of random assignment	Not employed during the last 4 quarter and not employed in the quarter of random assignment	NDNH Data	✓	-	-	-	-
Indicator for employed during the last 4 quarters but not employed in the quarter of random assignment	Not employed during the last 4 quarter and not employed in the quarter of random assignment	NDNH Data	✓	-	-	-	-
Earnings for 12 months before random assignment (in thousands)	n/a	NDNH Data	✓	-	-	-	-
Indicator for currently employed full time	Not employed during the last 12 months	BIF	-	✓	✓	✓	✓
Indicator for currently employed part time	Not employed during the last 12 months	BIF	-	✓	✓	✓	✓
Indicator for employed during the last 12 months but not employed currently	Not employed during the last 12 months	BIF	-	✓	✓	✓	✓
Weekly earnings at main job (zero if unemployed at time of baseline survey)	n/a	BIF	-	✓	✓	✓	✓

A.2. Missing Data

This section discusses how the evaluation addresses missing data related to the follow-up survey and baseline covariates.

A.2.1 Missing Survey Data and Non-Response Weights

As discussed in Chapter 2, while NDNH administrative records data can produce analysis data for almost 100 percent of the sample, survey data are available only for those who completed the survey, which ranged from 64 percent at AIOIC to 76 percent at KCCD (see Exhibit 2.3 in Chapter 2). Where follow-up survey outcome data are completely missing for a given individual, the analysis follows the recommendation of Puma et al.[112] to case delete the observations with missing outcome data. This method has the benefit of ease of implementation and interpretation.[113] For survey-based outcomes for which individuals provided part of the information needed to create the outcome, the analysis team imputed the remainder of the required information to the extent feasible.[114]

With complete follow-up data, a random assignment design guarantees a treatment-control balance for both observable outcomes and unobservable outcomes (on average for large enough samples). However, survey response rates may differ between the treatment and control groups, with differential response rates—if unadjusted—introducing bias into impact estimates. Further, survey respondents (be they treatment or control group members) may differ from the sample that was recruited into the study, and survey response weights take into account how respondents and non-respondents differ along observed variables and allow re-weighting accordingly. To adjust for survey non-response, the analysis team generated weights and used them for all analyses of follow-up survey data (unless otherwise noted). The following procedures were used to create the non-response weights.

- *Step 1: Coding data for non-response weighting*. Using the BIF data for all treatment and control group members, the analysis team re-categorized and collapsed the raw variables in order to assign coherent classifications for modeling. For example, yes/no items coded as 1 or 2, respectively, on the BIF were recoded to 0 (indicating "no") and 1 (indicating "yes"). Categorical variables were collapsed into fewer categories based on similar values (e.g., high school diploma or lower, some postsecondary education up to an associate's degree, bachelor's degree or higher). The analysis team

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[112] Puma et al., 2009

[113] Missing outcome data may lead to biased impact estimates if study members who respond to follow-up surveys differ from those who do not respond to follow-up surveys. Unfortunately, Puma et al. (2009) could not identify any methods for handling missing outcome data that produced impact estimates with bias under a specified threshold when data are not missing at random.

[114] For example, creating the outcome "ever worked for pay during the 18 months after random assignment" requires valid information for start and end dates of all jobs held during the 18-month period. If an individual remembered the month when a job started but not the exact day, the individual was asked whether it was in the beginning, middle, or end of the month. For individuals who reported "beginning," "middle," or "end" of the month, as well as those who did not remember when in the month the job started, the analysis team used an imputed day of the month to reduce the number of missing dates. If an individual did not remember the month and day when a job started, the individual was asked the year when it started. For individuals who indicated only the year, the analysis team assumes the job started on July 1 of the year mentioned.

then accounted for missing data by setting the value of the missing variable to the modal category for that variable.

- *Step 2: CHAID modeling*. The analysis team used a data mining technique known as Chi Squared Automatic Interaction Detection (CHAID) to identify potential interaction effects between categorical variables for inclusion in the logistic regression models (see below). CHAID is a decision tree algorithm that splits observations into groups based on tests of significance between nested groupings of categorical variables. The resulting decision tree was then used to find interactions between categorical variables from the BIF that were statistically significantly associated with having responded to the 18-month survey. The threshold for statistical significance was set at $p<0.30$ in order to identify moderate to strong interaction effects (relative to conventional thresholds for tests of the statistical significance of impact estimates, less restrictive significance tests are often used for non-response modeling as associations between covariates and response are not generally strong). For each grantee program, the statistically significant interactions were identified using the CHAID results and retained for possible use in the general non-response adjustment model. This approach provided a parsimonious list of interaction effects to test in the logistic regression models, rather than testing all possible interaction effects sequentially.
- *Step 3: Multivariate logistic regression*. For each of the four programs, the analysis team estimated multivariate logistic regression models of the probability of responding to the survey (i.e., being a survey respondent) as a function of covariates from the BIF data and the interaction effects identified by CHAID. Candidate predictor variables included the variables collected in the BIF and the significant interactions of these variables identified by the CHAID modeling in Step 2. For covariates with missing values, the analysis team also included a missing value dummy variable[115] in the model. For each site, the logistic regression models were estimated two ways. The first approach used a backward selection procedure in which a full model (inclusive of all BIF covariates and selected interaction terms) was first estimated and then subsequently re-estimated after dropping variables that failed to meet an established threshold for statistical significance of $p<0.20$. This procedure ended when all of the p-values associated with coefficients of the covariates met the $p<0.20$ significance criterion for inclusion in the model. The second approach used a forward selection procedure in which a logistic regression model was first estimated with a single covariate and then augmented to include additional covariates based on the statistical significance of the added covariates (again using an established threshold for statistical significance of $p<0.20$). This procedure ended when none of the p values associated with coefficients of the most recently added covariates met the $p<0.20$ significance criterion for inclusion in the model. The recently added covariates that did not meet the $p<.20$ threshold were then dropped from the final model.

  The variables retained for the final models were those that were retained by both the backward and forward selection approaches, and met the $p<0.20$ significance criterion in the final model.[116] For variables with missing responses that were included in the final model, the analysis team included the missing flags regardless of the level of statistical significance. This approach relies on empirical associations to select the models. Missing important associations between any predictor variables and

[115] The merits and approach for using missing flags is described in more detail in the next section in the context of missing covariates data, although the conceptual approach is similar the context discussed here.

[116] Wun et al., 2005

response due to model selection order was precluded by using both backward and forward selection. Missing flags also were retained in the model if they were statistically significantly related to response even if the main effect variable was not predictive of response. Additionally, the final models also included a treatment status indicator variable regardless of its statistical significance (to control for the possibility that treatment status alone may have impacted the probability of responding to the survey, which also is evidenced by differential response rates between treatment and control groups).

- *Step 4: Creating non-response weights*. The predicted probability of responding to the survey was estimated for each individual sample member at the four sites based on the final logistic regression models. This predicted probability of responding to the 18-month survey conditional on the logistic regression model served as the denominator in the weight calculation. The numerator used to construct the weights was the response rate for a given site, which varied slightly across the four grantee programs. Thus, for a respondent in NCTC for example, his or her weight would be the ratio of the NCTC response rate divided by that respondent's predicted probability of responding to the survey conditional on the covariates used in the logistic regression model for that site. The weight in this case is the inverse probability of an individual's response relative to the average response probability for the site. As a result, sample members with response propensities above the site average are weighted down while those with below-average propensities to respond to the survey are weighted up.
- *Step 5: Post-stratification of non-response weights*. After calculating non-response weights for all respondents, the analysis team examined the weighted proportions of treatment and control groups within each site and compared them to the unweighted proportions of treatment and control groups within each site in the original sample. A ratio adjustment was implemented to bring the balance of the weighted sample back to that of the original full treatment and control proportions.
- *Step 6: Detecting outlier weights and trimming*. Before finalizing the weights, the analysis team examined the distribution of weights to detect outliers (i.e., those that had extremely low or high values relative to the overall distribution of weights). To guard against the influence of extreme weights, the analysis team used a weight trimming macro in Statistical Analysis System (SAS) version 9 that detects and trims extreme weights in order to reduce the variance in the weights. Trimming was performed post-strata, so the post-stratification totals were unaffected by trimming. Only the non-response weights for the Kern program site required any trimming.

Applying non-response weights as described above adjusts only for differences in observed characteristics between respondents and non-respondents. Thus, as is true for all survey-based random assignment analyses, the evaluators cannot rule out the possibility of non-response bias being introduced in the impact estimates due to differences in unobserved characteristics between respondents in the treatment and control groups.

A.2.2 Missing Baseline Covariate Data

This section discusses the evaluation's approach to missing covariate data. A dummy variable adjustment approach was used to address item-non-response in the baseline covariate data. This strategy sets missing cases to a constant and adds "missing data flags" to the impact analysis model. This approach is easy to

implement, and Puma et al.[117] show that it works well for experimentally designed evaluations. As detailed by Puma et al.,[118] the dummy variable adjustment approach involves the following three steps:

- **Step 1**. For each baseline covariate *X* with missing data, create a new variable *Z* that is set equal to *X* for all cases where *X* is non-missing and set to a constant value for those cases where X is missing.
- **Step 2.** Create a new variable *D*, which is set equal to one for cases where *X* is missing and set equal to zero for cases where *X* is not missing.
- **Step 3.** In the impact analysis model use *Z* and *D* (not *X*). This allows for the impact model to estimate the relationship between *Y* and *X* when *X* is not missing and to estimate the relationship between *Y* and *D* when *X* is missing.

A.3. Multiple Comparisons and Significance Testing

When seeking to determine the overall effectiveness of an intervention (i.e., asking whether a program has a statistically significant impact as opposed to no impact) testing for impacts on a variety of outcomes across multiple sites or for a variety of participant subgroups needs to be done in an analytically sound way. Even if there are no true impacts (i.e., all true impacts are zero), the likelihood of finding at least one statistically significant effect and therefore rejecting the null hypothesis of no impact increases rapidly with the number of tests, to well above the stated 5 or 10 percent threshold for a single test. As discussed in Chapter 2, this situation, referred to as the "multiple comparisons" problem, can arise either when different research questions are asked for a single site (that is, different outcomes are examined for the same study sample) or when a single research question is examined across different sites or for different subgroups (that is, a single outcome with different study samples).

To address the multiple comparisons problem in practice, researchers can either (1) limit the number of hypothesis tests or (2) conduct statistical adjustments to take into account the higher likelihood of detecting a spuriously significant result when multiple hypothesis tests are involved. In this evaluation, as discussed next, both approaches are utilized.

A.3.1. Selecting a Confirmatory Outcome

Following Schochet (2009), the evaluation team addresses the multiple comparisons problem first by identifying a single outcome as confirmatory: earnings pooled across the fifth and sixth quarters after random assignment, as measured in the NDNH data. The confirmatory analysis establishes very strong evidence of program effectiveness because it is based on a well-implemented randomized experimental design coupled with an adjustment that takes into account the four tests conducted for the primary confirmatory outcome across the grantee programs.

A.3.2 Making a Multiple-Comparison Adjustment

The Bonferroni-Holm procedure is used to adjust for the four tests of the impact on NDNH-based earnings during the fifth and sixth quarters after random assignment in the four sites.[119] Specifically,

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[117] Puma et al., 2009

[118] Puma et al., 2009

[119] Although the evaluation team originally planned to use the Benjamini-Hochberg adjustment, subsequent research revealed that the Bonferroni-Holm (also known as the Bonferroni "step down" method) was more

following the procedure reported in Gubits et al.,[120] Bonferroni-Holm adjusted *p*-values are computed using the following steps:

- Let $p^{raw}_{IMPACT\,1}, p^{raw}_{IMPACT\,2}, p^{raw}_{IMPACT\,3}, p^{raw}_{IMPACT\,4}$ = the "raw" (i.e. unadjusted) *p*-values from the four site-specific t-tests of impact estimates in order from smallest to largest.
- Then, the Bonferroni–Holm adjusted *p*-values can be computed as follows:

$$p^{adj}_{IMPACT\,1} = \min(4\, p^{raw}_{IMPACT\,1}, 1)$$
$$p^{adj}_{IMPACT\,2} = \max(p^{adj}_{IMPACT\,1}, 3\, p^{raw}_{IMPACT\,2})$$
$$p^{adj}_{IMPACT\,3} = \max(p^{adj}_{IMPACT\,2}, 2\, p^{raw}_{IMPACT\,3})$$
$$p^{adj}_{IMPACT\,4} = \max(p^{adj}_{IMPACT\,3}, p^{raw}_{IMPACT\,4})$$

The significance tests for confirmatory impact estimates compare the adjusted *p*-values with the thresholds of 0.10, 0.05, and 0.01.

A.3.3 Considering Exploratory Outcomes and Hypotheses

While the primary confirmatory analysis examines the programs' effects on NDNH-based earnings during the fifth and sixth quarters after random assignment, the evaluation also includes exploratory analyses of a wide range of other outcomes and subgroups. The exploratory analyses augment understanding of the main impact estimates by providing insight about how and why the main impact findings are what they are and the extent to which services were helpful for all or only a subset of participants. Exploratory results are not formally adjusted for multiple comparisons but the evaluators qualitatively interpret results with attention to the fact that many outcomes are considered concurrently. Accordingly, statistically significant exploratory findings will not be used to determine the success of the programs; only the estimated impact on the confirmatory outcome will be used in this way. Instead, the evaluators interpret statistically significant exploratory impact findings as *suggestive* of potential impacts that, based on the best available evidence, one could *hypothesize* to have occurred.

A.4. Minimum Detectable Impacts

Given that the evaluation detected a statistically significant impact on earnings in the fifth and sixth calendar quarters after random assignment in one of the four sites (KCCD), a reasonable question might be: what would the impact estimate needed to have been in the other three sites in order for them to be detected as statistically significant (that is, what are the "minimum detectable impacts (MDIs)")? While the study produced and reported expected MDIs at the design phase,[121] those MDIs relied on the best available information —on sample size, earnings' standard deviation, and the influence of baseline

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appropriate to this situation. Specifically, the Benjamini-Hochberg adjustment controls the false discovery rate in situations where one has many (likely correlated) outcomes, whereas this evaluation has a single outcome being tested across four grantees.

[120] Gubits et al., 2014

[121] "Green Jobs and Health Care Impact Evaluation: OMB Clearance Package for Follow-Up Data Collection, Part B."

report is written, sample size, earnings' standard deviation, and the influence of baseline variables on increasing precision, are known, so that updated MDIs can be computed.

This section reports the updated MDIs. The MDIs for each grantee program are calculated using 80% power and a statistical significance level of 0.05 with a two-tailed test. Additional inputs based on the grantee program are: final sample size; treatment-to-control ratio; standard deviation of control group earnings; and the impact model R-squared (reported in Exhibit A.2 below).

Exhibit A.2 shows the MDIs for the cumulative fifth and sixth quarter earnings impact that the study would have been able to detect with 80 percent confidence at a 5 percent statistically significant level for each grantee program.

Exhibit A.2: Minimum Detectable Impacts

	AIOIC	GRCC	KCCD	NCTC
MDI Measure				
Impact on cumulative earnings in Q5 and Q6	$1,272	$1,592	$1,260	$941
Grantee Program-Specific Inputs				
Sample size	538	274	816	984
Treatment:control ratio	0.498	0.668	0.499	0.339
Standard deviation of control group earnings	$7,478	$7,058	$8,213	$7,248
R-squared	0.372	0.503	0.225	0.339

Note that the MDI for KCCD, where a statistically significant impact was detected, is in the middle of the estimated MDIs. The MDI for NCTC is moderately smaller (i.e., the study could have detected a smaller impact than in KCCD); the MDI for AIOIC is similar to the one for KCCD; and the MDI for GRCC is larger (i.e., the study could only have detected a larger impact than was detectable in KCCD).

A.5. Estimating Longer-Term Impacts On Employment And Earnings

The main analyses of this report consider outcomes through 18 months post-randomization. For those randomized earlier, the evaluation can explore slightly longer-term outcomes—but with (often much) smaller samples. These exploratory analyses are referred to in this report as "early cohort analyses."

For longer follow-up periods, the sample is smaller. In order to decide how long of an extended follow-up period to analyze, the analysis team instituted a rule requiring that at least 57 percent of the full sample in each site can be included in the early cohort analysis.[122] The NDNH data extract used for all NDNH-based analyses in this report covered quarterly earnings from quarter 3 of 2010 through the end of quarter 4 of 2014. Therefore, for AIOIC, the early cohort analysis includes individuals who were randomized through quarter two of 2012, which allowed for the consideration of ten follow-up quarters rather than just six. For GRCC, the early cohort subsample includes those randomized through quarter one of 2012, which permits analyzing 11 follow-up quarters. For the KCCD and NCTC, the analysis considers individuals randomized through quarter three of 2012, which allows for nine follow-up quarters. In the

[122] The evaluators borrowed a related criteria (on attrition) from the What Works Clearinghouse (note, DOL's Clearinghouse for Labor Evaluation and Research guidelines are also based upon these WWC evidence standards (accessed May 22, 2015, http://clear.dol.gov/sites/default/files/CLEAR_EvidenceGuidelinesV2.0.pdf). See What Works Clearinghouse.

early cohort sample, internal validity is not a concern: the differences between treatment and control outcomes are unbiased for that subsample because the subsample is defined by a pre-random-assignment characteristic; namely, the date of random assignment.

Two tests suggest that early entrants to the sample do not differ from the later entrants to the sample. First, a global F-test across all baseline characteristics showed that the baseline characteristics of the two subsets of the sample are not statistically significantly different from each other, in each of the sites. Second, impacts on the confirmatory outcome (earnings in the fifth and sixth quarters after random assignment) for the early cohort and the later cohort are not statistically different. Together, these two results suggest that it reasonable to treat the longer-term follow-up within the early cohort as applying also to the full sample.[123]

The impacts results for the early cohorts are discussed in the specific grantee program chapters, with detailed estimates provided in Appendices C through F (the supplementary exhibit appendices for each site). In AIOIC, GRCC, and NCTC, none of the differences in treatment and control mean outcomes are statistically significant. KCCD was the only site where the full sample analysis revealed earnings impacts. As seen in Exhibit E.11 (Appendix E), these corresponding impacts for the early cohort subsample are slightly larger in magnitude in the quarters where they are statistically significant (quarters 1, 3 and 4). But, within the early cohort subsample, the quarter 5 and 6 impacts are not statistically significant, and the later quarters' differences in treatment and control earnings are indistinguishable from zero. As a result, the $1,127 difference in cumulative earnings in quarter 5 and 6 is not statistically significant as in the full sample analysis, even though it is a 15 percent difference. This statistically null result could be attributed to the small sample size (42 percent of the full sample size).

A.6. Estimating Hourly Wages for All KCCD Sample Members at Follow-Up

A supplemental analysis for the KCCD grantee considers to what extent the observed impacts on earnings (*E*) arose because of an increase in hours worked (*H*), or from higher (average) earnings per hour (wage *w*), for the treatment group relative to the control group, where $E = H * w$. The classical justification for job training is that it increases "human capital" leading to higher (hourly) wages. Yet there is some evidence that earnings impacts instead come from faster reemployment and more hours once employed (Ashenfelter, 1978; Heckman and Smith, 1999) and the relative importance of each is informative about the pathway through which any impact on earnings occurs. Thus it is of substantive interest to decompose (i.e., allocate) any earnings impacts into impacts on hours and the (average pseudo) hourly wage.

A key complication in addressing this question is that a comparison of average wages among treatment and control group participants will not be experimentally defined. In particular, one cannot observe a wage for those who are not employed. Furthermore, employment is not random. Thus, wages are only observed for a selected sample. A comparison of average reported wages of *employed* treatments and controls therefore does not hold the properties of random assignment.

[123] There are only 38 participants in the later cohort sample for GRCC. As a result, one cannot compare the quarter 5-6 earnings impact between the early and later cohorts in this site. That said, that the later cohort is small offers confidence that the longer-term outcomes as estimated within the early cohort should be generalizable to the entire randomized sample.

To consider the impact of training on hours worked versus earnings per hour, the analysis team instead defined a pseudo wage, *p*, as:

$$p \equiv \frac{\overline{E}}{\overline{H}} \Leftrightarrow \overline{E} = \overline{H} * p$$

where $\overline{E}$ is average earnings in a given group, and $\overline{H}$ is average hours worked.[124] Thus *p* is defined to be the value, such that its product with average hours is equal to average earnings.

One can then define the impact on *p*, , $\hat{\delta}_p$ as the difference in pseudo wages between treatment and control participants:

$$\hat{\delta}_p = p_T - p_C = \frac{\overline{E}_T}{\overline{H}_T} - \frac{\overline{E}_C}{\overline{H}_C}.$$

The terms on the right hand side of this equation (i.e., mean earnings and hours, separately for treatment and control) are estimated by (weighted) averages from the survey, yielding an estimate of the left hand side; i.e., the impact on the pseudo wage. Then, the standard delta method technique can be used to derive a standard error for the left hand side.

Furthermore, as is standard in models of this form, for small changes, percent change in earnings is approximately additive in the percent changes in its underlying components, hours (*H)* and the pseudo wage (*p*): $\hat{\pi}_E \approx \hat{\pi}_H + \hat{\pi}_p$, where for each element π, is the percent change of the impact, measured in terms of the control-group mean (e.g., $\pi_E = \hat{\delta}_E / \overline{E}_C$).[125]

[124] Note that *p* cannot be defined at the individual level because *p* would be undefined for individuals who work zero hours.

[125] Jane Herr and Jacob Klerman of Abt Associates developed this method.

Appendix B: Creation of Baseline and Outcome Measures

This appendix presents additional information on variable construction for baseline measures and reported-on outcomes. This level of detail is provided to ensure transparency and aid in future analysts' ability to replicate the evaluation team's work. After detailing measures from the baseline survey (Section B.1), the appendix details variables constructed from the 18-month follow-up survey in these domains:

- Receipt of Education and Training Programs (Section B.2)
- Educational Attainment (Section B.3)
- Employment and Earnings (Section B.4)
- Characteristics of Current Job (Section B.5)
- Employment Sector (Section B.6)

Finally, this appendix reports on variable construction of employment and earnings measures from the NDNH (Section B.7).

B.1. Construction of Baseline Covariates

This section details the process and guidelines that were used to code the baseline survey data in creating measures used as covariates in the impact analysis models.[126] All eligible people who consent to be in the study complete the baseline information form (BIF), which collects information from study members on the following elements:

1. Demographic and socioeconomic characteristics (e.g., gender, race, educational attainment)
2. Employment (e.g., employment status, hours worked, wage)
3. Public assistance receipt and housing status (e.g., receipt of TANF, SNAP, UI benefits)
4. Opinions about work (e.g., factors that limit ability to work, lowest acceptable hourly wage)

Based on the answers that respondents provided to the BIF, the study team created baseline measures that together provide a comprehensive description of the sample of respondents prior to participation in program services, as well as being used as covariates in the impact models.

B.1.1. Coding Process

Some measures included in the BIF were used as covariates with minimal recoding. For example, the BIF contains information on the gender of each respondent and, with minimal coding, this information was used to construct a baseline covariate for gender. However, some baseline covariates required more-complicated coding to convert the information provided in the BIF to the baseline covariates used in the impact models. Exhibit B.1 provides further details related to the coding of specific baseline covariate measures. For example, the BIF indicates whether each respondent identifies as American Indian or Alaskan Native; Asian; Black or African American; Native Hawaiian or other Pacific Islander; White; or

[126] For a full description of the baseline measures included in the site-specific impact models, see Exhibit A.1 in Appendix A.

Other. Using this information, the study team coded a baseline measure of race defined based on the following categories: White, Black or African American, Other race, or Multi-race.

While the BIF contains complete or nearly complete information for each respondent on a number of baseline measures, some measures do have missing data. For the race baseline covariate, if race is missing from the BIF for a given study member, then the study member's race was imputed based on the person's responses to race questions from the follow-up survey. This imputation procedure is detailed in Exhibit B.1.

The study team examined the range of responses of continuous baseline measures to determine whether extreme values were present (which potentially represent miscodes). For example, the study team checked the range of values for the constructed measure of weekly earnings. The values of weekly earnings ranged from $0 (as expected if respondents were unemployed) to a high of $1,500 (which was not considered an extreme value). Similarly, few extreme values for other continuous baseline measures were found.

Exhibit B.1: Creation of Baseline Measures, All Domains

Baseline Measure	Intake Survey Questions	Coding Process, Decisions
Any kind of physical or mental disability	Q#19–24	DISABLED_RECODE is set equal to 1 if the study member reports that he/she has serious difficulty hearing; is blind or has serious difficulty seeing even when wearing glasses; has serious difficulty concentrating, remembering, or making decisions due to a physical, mental, or emotional condition; has serious difficulty walking or climbing stairs; has serious difficulty dressing or bathing; or has difficulty doing errands alone such as visiting a doctor's office or shopping due to a physical, mental, or emotional condition. DISABLED_RECODE is set equal to 2 otherwise.
Current employment status	Q#25	EMPLOYMENTSTATUS_RECODE 1 if currently employed and working 30 hours or more per week at main job 2 if currently employed and working less than 30 hours per week at main job 3 if currently not working, but worked in last 12 months 4 if longer than 12 months since last worked
How much must a job pay for it to make sense to work?	Q#30	MINPAY_RECODE = 1 if minimum pay rate is $2–$8.99 per hour 2 if minimum pay rate is $9–$9.99 per hour 3 if minimum pay rate is $10–$11.99 per hour 4 if minimum pay rate is $12 per hour or more
How many children under 18 currently live in your household?	Q#16	numberOfChildren2= 1 if number of children is 1 2 if number of children is 2 3 if number of children is 3 or more 4 if number of children is 0
I will take any job even if the pay is low	Q#28	opinionanyjob2 = 1 if "agrees" or "strongly agrees" with statement *I will take any job even if the pay is low* 2 if "disagrees" or "strongly disagrees" with statement *I will take any job even if the pay is low*

Baseline Measure	Intake Survey Questions	Coding Process, Decisions
Finding quality childcare that I can afford limits my ability to work	Q#26, Q#16	opinionarrange2= 1 if respondent notes that *finding quality childcare that I can afford limits my ability to work* "very much" or "a little" 2 if respondent does not have children or if respondent notes that *finding quality childcare that I can afford limits my ability to work* "not at all"
I only want the kind of job that I trained for	Q#29	opiniontraining2 = 1 if "agrees" or "strongly agrees" with statement *I only want the kind of job that I trained for* 2 if "disagrees" or "strongly disagrees" with statement *I only want the kind of job that I trained for*
Problem with transportation limits my ability to work	Q#27	opiniontransport2= 1 if respondent notes that *problem with transportation limits my ability to work* "very much" or "a little" 2 if respondent notes that *problem with transportation limits my ability to work* "not at all"
Race	Q#13. The following measures from the follow-up survey were used to impute missing values from Q#13: f3_1, f3_2, f3_3, f3_4, f3_5, f3_99, f3spec	race_new_recode= 1 if the respondent indicates that he or she is white and does not indicate that he or she is any other race besides white 2 if the respondent indicates that he or she is American Indian or Alaskan Native, Asian, Native Hawaiian or Pacific Islander, or Multi-race 3 if the respondent indicates that he or she is black and does not indicate that he or she is any other race besides black If race is missing from Q#13 of the baseline survey for a given study member, then the study member's race was imputed based on the person's responses to f3_1, f3_2, f3_3, f3_4, and f3_5. If the respondent indicated race "other" for f3_99, then the respondent was asked to denote his or her race and the response was coded in f3spec. If the respondent included the word "Native" in the response to f3spec, then race_new_recode= 2 (Other).
How much do you/did you earn per week at your main job?	Q#25	If the respondent is not currently employed, then weeklyearnings = 0 Otherwise, weekly earnings = number of hours worked per week at main job* hourly wage at main job
Treatment		If assignment = "Treatment" then treatment = 1 if assignment = "Control" then treatment = 0

B.2. Construction of Receipt of Education and Training Programs Outcomes

This section provides a summary of the process and guidelines that were used to create the education and training receipt measures that come from Section D of the 18-month follow-up survey. In the survey's Section D, the respondent was asked about the various types of classes, courses, and training participated in over the prior 18 months. The types of classes and training fall into five categories: (1) adult basic education classes, English language learning classes, or GED classes; (2) classes to prepare for a high school diploma; (3) courses for credit toward a college degree; (4) vocational courses or training

programs for a specific job, trade, or occupation; and (5) life skills classes, including study skills, workplace skills, and general life skills. For each of these categories, questions were asked about the number of classes taken. For each class reported by class type, the respondent looped through a series of questions about each course taken at each provider. Questions concerned the length of the class, status of class (completed, dropped out, ongoing), whether a degree/credential was obtained, and sources of payment for the class. Questions were also asked about whether the respondent had obtained a job as a result of completing these courses. All respondents were also asked a series of questions about other services or assistance they might have received. These included academic advice, financial aid advice, career counseling, tutoring, and job placement assistance.

Using the answers that respondents provided for each class by class type, the analysis team created aggregate outcome measures that identified the outcome of interest across all class types. For example, the team identified whether the respondent had received any training or education during the follow-up period, based on whether the respondent reported participating in any adult basic education, high school, college, vocational, or life skills courses.

B.2.1. Coding Process

Each of the outcome variables is an aggregate created based on respondents' answers about class participation by class type. First, the analysis team cleaned the data (as discussed below) by class type, and then aggregated the data across class type.

Certain questions were asked multiple times but in different ways, such as the total number of courses by class type. The survey first asked for the number of classes taken for each class type since the random assignment date (RAD); the respondent was then asked to list the classes taken at each provider. When reporting the number of classes taken for each class type, the analysis team used the sum of the classes listed by provider. For the most part, the number of classes listed by provider matched the total number of post RAD classes the respondent indicated that he or she had taken. When these numbers did not match, it was assumed that respondents were more likely to accurately recall the number of courses when thinking about each different provider.

The number of classes taken since RAD was used to create the denominators for variables identifying participation in any classes. For example, when creating the variable that indicates whether a respondent had completed any adult basic education classes (ABE), the value is set to "yes" if the respondent reported the class status as "completed the course" for any of the ABE classes listed, and "no" if the respondent reported a different status for all ABE classes listed. If the respondent did not indicate status for one or more of the ABE classes listed (i.e., the status question was left blank for at least one ABE class, or the response was "don't know" or "refused"), the evaluators could not confidently say whether any classes were completed, and thus set this "any" variable to missing. In some cases, the analysis team created both a descriptive variable (which applies only to the observations that meet a certain criterion, such as having completed a class) and an experimental variable, where observations that do not meet the criteria would take on a value of 0. For example, any respondents who did not complete vocational training would have a value of 0 for whether they obtained a job as a result of completing vocational training.

While preparing the data for analysis, the analysis team noticed that some respondents had provided information about classes that were taken before their random assignment date. Since these classes could

not have been taken as a result of the intervention being evaluated, all data on classes that either ended before RAD or started more than 30 days before RAD was deleted.[127]

Exhibit B.2: Creation of Derived Outcomes, Receipt of Education, and Training Programs Domain

Outcome Measure	18-Month Survey Questions	Coding Process, Decisions
Participated in any education or training program	Created variable using D1a, D2, D3_1, D4 and D9a (for adult basic education), D1b, D3_2, D5 and D9c (for high school), D1c, D3_3, D6, D9e (for college), D1e, D3_5, D8, and D9k (for life skills), and D1d, D3_4, D7 and D9h (for vocational)	First, variables were created to identify any participation in education or training by class type. For each of the class types, respondents were identified as having participated in that type of class if they listed having taken one or more of those classes. If any of these variables by class type indicate that at least one class was taken, the aggregate participation in any education or training variable was set to 1; else if all of these variables equal 0, then this variable equals 0.
Average number of months attended education or training	Created variable using D10a, D10c/D10d, D11a, D11c/D11d, D12a, D12c/D12d, D13a, D13c/D13d, D14a, D14c/D14d	First, the number of days that the respondent was participating in any class, based on class start and finish dates, was calculated. If the finish date was later than the survey date, the survey date was used instead. If multiple classes were taken on a particular day, that day was only counted once. If a valid start and/or finish date was not entered for a class that the respondent was taking, the corresponding day count variable was set to missing. The total number of months was then calculated as the number of days divided by 30.42 and rounded to nearest hundredth.
Total number of courses attended	Created variable using D9a, D9a1, D9c, D9c1, D9e, D9e1, D9h, D9h1, D9k, D9k1 and class/training participation variable	First, variables were created to identify the number of courses taken by class type. For each class type, the number of classes taken with each different provider was summed. If responses indicate that the respondent did take at least one class of this type but no classes were listed, this count variable was set to missing (instead of zero). Second, the number of courses taken for each class type was summed to calculate the total number of education and training courses taken since RAD. If any of the class-specific course count variables was set to null due to missing data, this variable was also set to null.

[127] The evaluators added the 30-day threshold when it became apparent that a large number of classes had started within a short period before RAD; the evaluators believe that this is likely due to recall issues, where respondents may not remember the exact start date for each class. Evidence for this hypothesis may be seen in the high frequency of these classes with a start month and year that match RAD; the start day for a large number of these classes equals 1 or 15. In total, 152 respondents (109 Treatment; 43 Control) entered data on at least one class that had started within 30 days before RAD and ended after RAD.

Outcome Measure	18-Month Survey Questions	Coding Process, Decisions
Got a new job as a result of completing vocational training—experimental sample	Created variable using D13l_P1C1 through D13l_P5C5, D13b	If the respondent reported having completed vocational training, then this variable takes on a value of 1 for those who reported having obtained a job as a result of completing this training, and 0 if the person did not find a job. For all respondents who did not complete any vocational training, this variable takes on a value of 0 to create the experimental sample. If data are missing about completion of vocational training, then this variable is marked as missing. It is also marked as missing if the respondent reported completing vocational training but did not answer this question.
Got a new job as a result of completing vocational training—descriptive sample	Created variable using D13l_P1C1 through D13l_P5C5, D13b	If the respondent reported having completed vocational training, then this variable takes on a value of 1 for those who reported having obtained a job as a result of completing this training, and 0 if the person did not find a job. For all respondents who did not complete any vocational training or whose data are missing for completion of vocational training, this variable is marked as missing. If a respondent reported having completed vocational training but did not answer this question, then the data are left as missing.

B.3. Construction of Educational Attainment Outcomes

This section provides a summary of the process and guidelines that were used to code the educational attainment measures that come from Section D of the 18-month follow-up survey. In this section, the respondent was asked whether he or she had completed one or more of each of the following: a GED,[128] a high school diploma, a college degree, a vocational credential, or another skills credential (described in the survey as the result of "study skills, workplace skills, or general life skills course(s)." Respondents who had completed one or more college degrees were further asked whether they had earned a degree at one or more of the following levels: associate's, bachelor's, master's, doctorate, professional, or other. All of this was asked with respect to the period of the 18 months prior to the survey date.

Using this information on each of the credentials listed above, the analysis team constructed a derived outcome on whether a respondent had received any type of education or training degree or credential. The other two main outcomes were whether a respondent had received a vocational credential and how many he or she had received.

B.3.1. Coding Process

The survey is structured so that the respondent could theoretically report up to 25 credentials of each type; there is room to provide up to five classes at each of five providers, and one credential could be attached to each class record. The analysis team manually checked every credential reported, looking at the field of study for the vocational credentials and the college degrees (these were the only two credential types that had a reported field of study). The team counted a separate credential for each distinct field of study,

[128] Other completed ABE certificates are also labelled as GEDs in this coding.

within each of these types of credentials. Only one study member reported earning two college degrees, but multiple vocational credentials were frequent.

As was done in the case of the receipt of education and training programs outcomes, any reported credentials that were received before RAD were excluded, along with classes that had either ended before RAD or started more than 30 days before RAD. The analysis team set to missing any flags for receipt of a credential (and the counts of that credential) if the respondent did not provide information on what classes were taken and on credentials received.

Exhibit B.3: Creation of Derived Outcomes, Educational Attainment Domain

Outcome Measure	18-Month Survey Questions	Coding Process, Decisions
Received Any Education or Training Degree or Credential	D10F, D11F, D12F, D13F, D14F	There is a version of each of these variables for each of 25 provider/class combinations. If, for these combinations, any of these versions of these variables is reported as "YES" and the associated class is within the date range as described in the text, then this outcome is set to "YES." If they are all marked as "NO," then this outcome is set to "NO." If at least one is missing and none are set to "YES," then this outcome is set to missing.
Received Vocational Credential	D13F	There is a version of this variable for each of 25 provider/class combinations. If any one of the versions of D13F is reported as "YES" and the associated class is within the date range as described in the text, then this outcome is set to "YES." If they are all marked as "NO," then this outcome is set to "NO." If at least one is missing and none are set to "YES," then this outcome is set to missing.
Number of Vocational Credentials	D13F	See description of manual process in text.

B.4. Construction of Employment and Earnings Outcomes

This section details the process and guidelines that were used to code Section B of the 18-month follow-up survey for the employment and earnings outcomes.

To determine whether a respondent had ever been employed for a certain duration, such as the time from random assignment to the interview date, the analysis team used the cleaned version of the job start and end date for each job to see whether any jobs for a person coincided with the duration examined. For example, if a person had any job (as deemed by the start and end date of each job) during the period between the random assignment date and interview date, then he or she was coded as 1 for the outcome "ever employed since random assignment," and 0 otherwise.

Aggregate earnings measures were calculated using weekly earnings at each job, weeks worked during a particular duration, and the percentage of days worked during the particular duration relative to the days worked at the job. For example, if a respondent had had two jobs since random assignment—one with weekly earnings of $1,000 and another with per job earnings of $100—the analysis team calculated the total earnings for the first job by multiplying $1,000 by the number of weeks the person had worked since random assignment, and the total earnings for the second job by prorating the $100 based on the percentage of days worked since random assignment relative to the number of days the person had

worked for the second job. The analysis team then combined the total earnings since random assignment for the first and the second job to calculate "earnings since random assignment" for this person.

B.4.1. Coding Process

The "ever employed" variables are based on survey questions B5, B8, and B10. Question B5 asked people to indicate the number of different jobs held since random assignment; if a person had held at least one job, he or she was asked to indicate the date each job started (B8) and ended (B10), where a possible response to the end date was "still at job." If a person remembered the month when a job had started but not the exact day, it is assumed that the job had started on the 15th day of the month. If the person did not remember the date at all, the person was asked the year when the job had started. For people who indicated only the year, it is assumed the job had started on January 15 of the year mentioned.

The "ever employed since random assignment" outcome was set equal to 0 if a person had not held a job between random assignment and the interview date, or the person had held at least one job, but the start dates for all of the jobs indicated that they were held more than 18 months after random assignment. The latter is possible, since many respondents were surveyed more than 18 months after random assignment and, therefore, the only time they worked after random assignment might have been after the 18-month follow-up period of interest. For people who held at least one job during the 18 months after random assignment, the outcome was set equal to 1. This coding of 1 applies to jobs where the end date was not provided, but the start date indicated that the job had started before or during the 18 months after random assignment. This coding of 1 also applies to jobs where the start date was not provided, but the end date indicated that the job had ended during the 18 months after random assignment. In all other cases, this outcome was coded as missing. For example, it was coded as missing for people who did not know or refused to indicate the number of jobs held since random assignment, and for people who had held at least one job but did not know, or refused to indicate, both the start and end dates of all the jobs held.

The six quarterly measures of employment after random assignment were constructed in a similar way as the "ever employed since random assignment" summary measure just described. For example, the "ever employed during Q1" outcome was set equal to 0 if a person had not held a job since random assignment, or the person had held at least one job but the start dates for all of the jobs indicated that they were not held during the first quarter after random assignment. For people who had held at least one job during the first quarter after random assignment, the outcome was set equal to 1. This coding of 1 applies to jobs where the end date was not provided, but the start date indicated that the job had started before or during the first quarter after random assignment. This coding of 1 also applies to jobs where the start date was not provided, but the end date indicated that the job had ended during the first quarter after random assignment. In all other cases, the outcome was coded as missing.

The "earnings" measures are based on survey questions B12–B15, where questions B12 and B13 asked people to indicate the beginning and ending hours worked per week at each job, and questions B14 and B15 asked for earnings per pay period, where pay period included choices such as per hour, per week, per job, or specify. First, the analysis team identified outliers based on questions B12–B15, and manually cleaned the data when possible. For example, if a person reported earnings of $1,000 per week when the job started but an earnings of $10 per week when the job ended, then it was assumed the ending wage was a typo and corrected it to $1,000 per week after consulting the person's occupation and hours worked per week for the job. Once the data was clean, the analysis team calculated the starting and ending weekly wages. The analysis team then averaged the two to obtain average weekly wages for each job. Finally, the

team used the job start and job end dates to determine the weeks worked, and multiplied average weekly wages by the number of weeks worked during a particular period to calculate the "earnings" variables.

The "earnings since random assignment" outcome, for example, equals zero if B5, or the number of different jobs held since random assignment, equals zero. If a person was ever employed since random assignment, the process for constructing the outcome involves determining the earnings obtained at each job held during that period and summing up the earnings across those jobs. The specific steps involved in this process are:

- For each job, the analysis team first placed the starting and ending/current earnings in weekly units. Survey questions B14 and B15 indicate, for each job held, total starting and ending/current earnings. People could have reported those earnings in various units, such as hourly, weekly, or yearly. If a person did not know or refused to indicate those earnings, the person was asked (in questions B14a and B15a) to indicate which earnings range included the person's annual earnings, such as less than $10,000, $10,000 to $20,000, etc. For any earnings (starting or ending/current) that were not expressed as a weekly unit, the analysis team placed them in that unit. For example, if a person reported hourly earnings at the start of a job, their hourly earnings was multiplied by the number of hours worked per week at the start of the job (question B12). For people who reported a range that included their annual earnings (such as $10,000 to $20,000), it was assumed their annual earnings were equal to the midpoint in that range, and divided by 52 to arrive at weekly earnings. One possible range was $100,000 or more—for people who reported this range, it was assumed their earnings equaled $100,000.
- For each job, the analysis team calculated the average weekly earnings, where the average equals the sum of the starting and ending/current weekly earnings divided by two.
- For each job, the analysis team calculated the number of weeks worked at the job since random assignment. If a job started and ended within the 18 months after random assignment, the number of weeks worked at the job equaled the number of days from the start date to the end date divided by seven. If a job started before random assignment and ended within the 18-month period, the number of weeks worked at the job equaled the number of days from the random assignment date to the end date divided by seven. If the job just described ended after the 18-month period, the 18-month period end date was used to calculate the number of weeks worked at the job. Finally, if a job started during the 18 months after random assignment but ended after the 18-month period, the number of weeks worked at the job equaled the number of days from start date to the 18-month period end date divided by seven.
- For each job, the analysis team calculated earnings obtained during the 18 months after random assignment. For each job, this calculation involved multiplying the job's weekly earnings by the number of weeks worked during the 18 months after random assignment. If a person reported any earnings on the basis of "per job," "in-kind only," or "commission," the earnings were prorated by multiplying the job's total earnings by the proportion of days worked since random assignment over the total number of days worked for the job.
- For each person, the analysis team calculated his or her total earnings since random assignment, which involved the summing up of the earnings obtained at each job held since random assignment.

The six quarterly measures of earnings after random assignment were constructed in a similar way as the "earnings since random assignment" summary measure just described.

Exhibit B.4: Creation of Derived Outcomes, Survey-Based Employment and Earnings Domain

Outcome Measure	18-Month Survey Questions	Coding Process, Decisions
Ever employed since random assignment	Created variable using B5, B8, and B10	= 0 if B5 = 0 or (B5 > 0 and looping over the start dates in B8 for all jobs held indicates that all were started more than 18 months after random assignment). = 1 if B5 > 0, and looping over start and end dates in B8 and B10 for all jobs held indicates at least one was within 18 months since random assignment. This includes jobs where (i) the end date was not provided, but the start date indicated that the job started before or during the 18 months after random assignment, or (ii) the start date was not provided, but the end date indicated that the job ended during the 18 months after random assignment. For people who indicated only the year when a job started, it was assumed the job started on January 15 of the year mentioned. = . otherwise
Ever employed during Q1 –Q6	Created variable using B5, B8, and B10	= 0 if B5 = 0 or (B5 > 0 and looping over the start dates in B8 for all jobs held indicates that all were started after quarter X since random assignment) = 1 if B5 > 0, and looping over start and end dates in B8 and B10 for all jobs held indicates at least one was within quarter X since random assignment. This includes jobs where (i) the end date was not provided, but the start date indicated that the job had started before or during quarter X after random assignment, or (ii) the start date was not provided, but the end date indicated that the job had ended during quarter X after random assignment. For people who indicated only the year when a job started, it was assumed the job started on January 15th of the year mentioned. = . otherwise

Outcome Measure	18-Month Survey Questions	Coding Process, Decisions
Earnings since random assignment	Created variable using B5, B8, B10 (for ever worked since random assignment), B12, B13, B14, and B15 (for average weekly wages)	= 0 if "ever employed since random assignment" = 0 If "ever employed since random assignment"= 1, then the following was done for each job held during the 18-month period: - The analysis team placed the starting and ending/current earnings in B14 and B15 in weekly units. If, instead, an annual earnings range was reported for the starting and/or ending/current earnings in B14a and B15b, the analysts assumed that annual earnings equaled the midpoint in the range, and divided the midpoint by 52.14 weeks to arrive at weekly earnings. For people who reported the highest range for annual earnings, the analysts set the annual earnings equal to $100,000. - The analysis team calculated the average weekly earnings, where the average equaled the sum of B14/B14a and B15/B15a (in weekly units) divided by two. - The analysis team calculated the number of weeks worked after random assignment using start and end date in B8 and B10, respectively. - The analysts multiplied the average weekly earnings by number of weeks worked during the 78-week period corresponding to the 18 months after random assignment. The outcome was then set = sum of earnings obtained at each job held after random assignment = . otherwise

Outcome Measure	18-Month Survey Questions	Coding Process, Decisions
Earnings in Q1–Q6	Created variable using B5, B8, B10 (for ever employed since random assignment), B12, B13, B14, and B15 (for average weekly wages)	= 0 if "every employed during QX" = 0 If "every employed during QX" = 1, the following was done for each job held during quarter X: - The analysis team placed the starting and ending/current earnings in B14 and B15 in weekly units. If, instead, an annual earnings range was reported for the starting and/or ending/current earnings in B14a and B15b, it was assumed that annual earnings equaled the midpoint in the range, and divided the midpoint by 52.14 weeks to arrive at weekly earnings. For people who reported the highest range for annual earnings, the team set the annual earnings equal to $100,000. - The analysis team calculated average weekly earnings, where the average equaled the sum of B14/B14a and B15/B15a (in weekly units) divided by two. - The analysis team calculated number of weeks worked during quarter X after random assignment, using start and end date in B8 and B10, respectively. - The analysis team multiplied average weekly earnings by number of weeks worked during the period corresponding to quarter X after random assignment. The outcome was then set = sum of earnings obtained at each job held during quarter X after random assignment = . otherwise

B.5. Construction of Characteristics of Current Job Outcomes

This section describes the process and guidelines that were used to code Section B of the 18-month follow-up survey for the current job characteristics.

To determine whether a particular job was current, the analysis team looked at B8 (job start date) and B10 (job end date). If the job start date was not missing but the job end date was missing for a particular job, then that job was coded as current. If the desired outcome pertained to only one current job, then the first job was used to indicate the dominant job.

Weekly earnings at the current (dominant) job were calculated by averaging the starting and ending earnings for the first job. Hours worked per week were calculated by summing the ending hours worked per week for any job deemed as current. Finally, number of weeks at current (dominant) job was constructed by dividing the total number of days between a person's first job and his or her interview date by seven.

To determine whether study members were employed in a target industry, trained coders first matched each study member's verbatim response to question B17 to both a 3-digit North American Industry Classification System (NAICS) code (naics_2012_code) and a 6-digit Standard Occupational Classification (SOC) code (soc_occ_2010_code). Abt staff then reviewed these 3- and 6-digit codes to

determine whether or not the job was in an industry targeted by the training. Training-targeted industries were identified in the implementation study, through review of program documents and interviews with staff.

B.5.1. Coding Process

For the "weekly earnings" outcome, if B2, or whether the respondent is currently employed, equaled 0, then this outcome was set to zero. If B2 equaled 1, then the analysis team first converted the starting and ending earnings for the first job into weekly units. Survey questions B14 and B15 indicate, for each job held, total starting and ending/current earnings. People could have reported those earnings in various units, such as hourly, weekly, or yearly. If a person did not know or refused to indicate those earnings, the person was asked (in questions B14a and B15a) to indicate which earnings range includes their annual earnings, such as less than $10,000, $10,000 to $20,000, etc. For any earnings (starting or ending/current) that were not expressed as weekly units, they were placed into that unit. For example, if a person reported hourly earnings at the start of a job, the analysis team multiplied those hourly earnings by the number of hours worked per week at the start of the job (question B12). For people who reported a range that included their annual earnings (such as $10,000 to $20,000), it was assumed their annual earnings equaled the midpoint in that range, and divided that midpoint by 52 to arrive at weekly earnings. One possible range was $100,000 or more—for people who reported this range, it was assumed their earnings equaled $100,000. Using the weekly starting and ending wages for the first job, the analysis team took the average of the two to calculate "weekly earnings." The remaining cases were coded as missing.

For people who were working at the time of the survey, the "hours worked per week" outcome was based on survey question B13 (number of hours worked per week when the job ended) to code the number of hours the person was currently working in a typical week. If a person held more than one job at the time of the survey, the outcome equaled the sum of the number of hours the person was currently working in a typical week at all the jobs. If the person did not have any current jobs, then "hours worked per week" was set to missing.

Number of weeks at the current job was set to 0 if "ever employed since random assignment" is 0. For people who were working at the time of the survey, the outcome was based on the start date (survey question B8) of the first (dominant) job to calculate the number of weeks at the current job. Specifically, if a person's first job started before the survey date, then the construct equaled the total number of days worked between the start date of the first job and the survey date divided by seven.

Employed in target industry was set to 1 if Abt staff determined that the study member was employed in an industry targeted by the training, and set to 0 if Abt staff determined that the study member was not employed in an industry targeted by the training. Two different versions of this measure were created: one defined for the full experimental sample (which included both study members who had been and had not been employed since random assignment), and one defined for a subset of the experimental sample (which included only study members who were employed since random assignment). More details related to the coding process are located in Exhibit B.5 below.

Exhibit B.5: Creation of Derived Outcomes, Characteristics of Current Job Domain

Outcome Measure	18-Month Survey Questions	Coding Process, Decisions
Weekly earnings ($)	Created variable using B2 (for currently employed), B12, B13, B14, and B15 (for average weekly wages)	If B2 = 1, then the analysis team placed starting and ending/current earnings of job #1 in B14 and B15 in weekly units. If, instead, an annual earnings range was reported for the starting and/or ending/current earnings in B14a and B15b, it was assumed that annual earnings equaled the midpoint in the range, and the analysts divided the midpoint by 52.14 weeks to arrive at weekly earnings. For people who reported the highest range for annual earnings, the analysis team set the annual earnings equal to $100,000. Then, the analysts calculated the average weekly earnings for job #1, where the average equaled the sum of B14/B14a and B15/B15a (in weekly units) divided by two. = 0 if B2 = 0 = missing otherwise
Hours worked per week	Created variable using B8, B10 (for whether a job is current), and B13 (for number of hours worked per week when the job ended)	For each job, if the job is current—i.e. job start date (B8) is not missing but the job end date (B10) is missing—then = sum of number of hours worked per week at end of each job (B13) = missing otherwise
Number of weeks at job	Created variable using B5, B8, B10 (for "ever employed since random assignment"), and interview_date	= 0 if "employed since random assignment" = 0 if "employed since random assignment" = 1 and the job #1 started before the interview date, then set the outcome = (interview_date – jobstart1 + 1) / 7 = missing otherwise
Employed in target industry—experimental sample	Created variable using B17, naics_2012_code, soc_occ_2010_code, and sitename	= 1 if Abt staff determined that the study member was employed in an industry targeted by the training = 0 if Abt staff determined that the study member was not employed in an industry targeted by the training; if the study member was unemployed since random assignment; or if Abt staff could not determine whether the study member was employed in an industry targeted by the training
Employed in target industry—non-experimental sample	Created variable using B17, naics_2012_code, soc_occ_2010_code, and sitename	= 1 if Abt staff determined that the study member was employed in an industry targeted by the training = 0 if Abt staff determined that the study member was not employed in an industry targeted by the training =. if the study member was unemployed since random assignment or if Abt staff could not determine whether the study member was employed in an industry targeted by the training

B.6. Construction of Employment Industry Outcome

This section provides a summary of the process and guidelines that were used to code the "current job industry" measure that comes from Section B of the 18-month follow-up survey. Based on survey question B17, which asked respondents to indicate what kind of company they worked for in each job, the analysis team coded the response for job 1—the most recent job—according to the Census Bureau's North American Industry Classification System (NAICS) 2012 industry codes.

B.6.1. Coding Process

Trained coders from Mathematica's Survey Operation Center used the NAICS 2012 industry codes to match the verbatim responses to question B17. For example, if a respondent answered "install solar panels" to question B17 for his or her current or most recent job, the industry was coded as 238, or Specialty Trade Contractors.

Exhibit B.6: Creation of Derived Outcomes, Employment Status Domain

Outcome Measure	18-Month Survey Questions	Coding Process, Decisions
Current job industry	B17	For each person's current or most recent job, the verbatim response to question B17 was matched with a three-digit NAICS industry code.

B.7. Construction of Employment and Earnings Measures from the NDNH

This part of the appendix describes the process of creating earnings and employment baseline and outcome measures from the National Directory of New Hires (NDNH) database. Before explaining in detail the creation of these measures, the process of combining and cleaning the data obtained from NDNH is described.

NDNH files contain several sources of information, of which two are used for these analyses: the Quarterly Wage (QW) File and the Notification File. Records in the QW File include an ID for each observation/individual, submitting state code, year and quarter, and earnings amount.[129] The Notification File includes the ID of any individual that does not match to a record in the SSA database based on a combination of name and SSN. These individuals are not submitted for matching to the NDNH. The evaluators consider these individuals as missing. NDNH data have less than 5 percent missing.

Abt Associates received 11 files, one for each quarter between Q4 2012 and Q2 2015. Each file contains study members' quarterly wage data for the previous eight quarters. For example, the matched file for Q1 2015 (processed date) has information from Q4 2012 to Q3 2014.[130] The file from each subsequent quarter, therefore, overlaps seven quarters with the previous quarterly file. When constructing the analysis file, it was assumed that more-recent files contain more-up-to-date, and therefore more accurate, information. All records from the most recent file are kept, and any holes are filled with data from previous files. After merging, there is a file with one record for each study member's employment report (for each quarter and each state that provided the record). There can be multiple records for one person in a given quarter, which could indicate multiple jobs or an error in the data (e.g., duplicate records or the

[129] The file also contains additional information such as reporting period, reporting state, etc.

[130] Each file also may contain updated records from previous quarters.

presence of both an updated and outdated record). However, after discussing with state UI data experts, the evaluation team is convinced that these indicate multiple jobs as updated records replace outdated records.

The evaluation team used the analysis file to construct several measures related to study members' earnings and employment. In particular, the analysts created a dummy variable indicating either meaningful earnings or employment for each quarter in the file. Several aggregate measures that indicate whether or not an individual was employed or, separately, had earnings across different periods of time were also created.

B.7.1. Coding Process

In order to construct quarterly earnings measures, the analysis team made several assumptions. First, where there were multiple records per person per quarter, it was assumed each record indicated a distinct job. It is likely that records from different states indicate different jobs, but it was also assumed that multiple records from the same state in the same quarter indicate distinct jobs. There are several reasons for making that assumption:

- The analysis team calculated the number of multiple job holders assuming each record was a distinct job, and compared it to estimates from the Current Population Survey (CPS). The percentage of multiple job holders in the sample is slightly higher than CPS estimates of multiple job holders, but it is expected that the evaluation sample will have more jobs than the general population because they are more likely to switch jobs frequently, or because they are more likely to need multiple jobs to make ends meet.
- Individuals who have several jobs in a given quarter consistently have multiple jobs in other quarters, suggesting it is not a one-time error.
- There is good balance in the frequency of multiple record person quarters between the treatment and control group.
- The number of multiple record person quarters was fairly consistent across time. If multiple records were remnants of the updating process, one would expect the number to either increase over time as more updates collected, or decrease as the data became cleaner.
- Colleagues having experience working with state UI reporting suggest state systems automatically purge old records and maintain only the most current record for a given employer.

The analysis team ran frequencies on each quarterly wage observation to detect extreme values. A small number of records indicated quarterly earnings of over $40,000, at which point there was a break from the rest of the distribution. The analysts recoded values over $100,000 by dividing by 100 based on a visual inspection of records that suggested a typo in omitting the decimal place. In these cases, previous and future quarters looked to be of the same magnitude, and approximately 1/100th the total of the outlying quarter. The analysis team either top-coded values between $40,000 and $99,999 to $40,000, or recoded the value by dividing by 10 or 100 based on a visual inspection. If the earnings in previous and future quarters were fairly consistent in magnitude, the extreme value was divided by 10 or 100 to make it of similar magnitude. If the team was unsure whether the value was a typo or real data, it was top-coded to $40,000. There also were some extremely low values. The analysis team treated quarterly earnings between $0 and $58 as zero-based on cutoff for one 8-hour day of work at federal minimum wage ($7.25/hour).

An individual's employment status in a given quarter is defined as having positive earnings in the quarter (after taking into account the cleaning described above).

Individuals who appear in the Notification File do not match any record in the SSA database based on name and SSN. These individuals are treated as missing for all analyses. The analysis team treated individuals who are not in the Notification File, but are missing records in the QW File, as having no earnings for that quarter. Less than 1 percent of the sample appears in both the Notification File and the QW File. The analysis team removed these individuals from the analysis, unless other files filled in the missing quarters from the file that contained the individual who was in the Notification File.

Exhibit B.7: Creation of NDNH Measures

Outcome Measure	Source Question(s)/Variable(s)	Coding Process, Decisions
Indicator for employed during the last 12 months but not employed currently	NDNH data/ prehasearn1_4_noearn0	=1 if quarterly wages are greater than $58 (equal to 8 hours times the federal minimum wage of $7.25/hour) in any of the previous 4 quarters =0 otherwise
Earnings for 12 months prior to random assignment (in thousands)	NDNH data/ preqearn1_4	= sum of quarterly earnings in previous 4 quarters for all jobs. Quarterly earnings over $100,000 are recoded by dividing by 100. Quarterly earnings between $40,000 and $99,999 were either top-coded to $40,000 or recoded by dividing by 10 or 100 based on what seemed consistent with prior and future quarters' earnings.
Ever worked since random assignment, Qs 1–6	NDNH data/ postqhasearn1_6	=1 if quarterly wages are greater than $58 in any post-random assignment quarter =0 otherwise
Ever worked, Qs 5–6	NDNH data/ postqhasearn5_6	=1 if quarterly wages are greater than $58 in either the 5th or 6th quarter post-random assignment =0 otherwise
Ever worked, quarterly (one variable for each quarter)	NDNH data/ postqhasearn1, postqhasearn2, postqhasearn3, postqhasearn4, postqhasearn5, postqhasearn6	=1 if quarterly wages are greater than $58 for a given quarter =0 otherwise
Earnings since random assignment, Qs 1–6	NDNH data/ postqearn1-6	= sum of quarterly earnings. Quarterly earnings over $100,000 are recoded by dividing by 100. Quarterly earnings between $40,000 and $99,999 were either top-coded to $40,000 or recoded by dividing by 10 or 100 based on what seemed consistent with prior and future quarters' earnings.
Earnings, Qs 5–6	NDNH data/ postqearn5_6	= sum of quarterly earnings in the 5th and 6th quarters post-random assignment. Quarterly earnings over $100,000 are recoded by dividing by 100. Quarterly earnings between $40,000 and $99,999 were either top-coded to $40,000 or recoded by dividing by 10 or 100 based on what seemed consistent with prior and future quarters' earnings.
Earnings, quarterly (one variable for each quarter)	NDNH data/ postqearn1, postqearn2, postqearn3, postqearn4, postqearn5, postqearn6	= sum of quarterly earnings for all jobs in each quarter. Quarterly earnings over $100,000 are recoded by dividing by 100. Quarterly earnings between $40,000 and $99,999 were either top-coded to $40,000 or recoded by dividing by 10 or 100 based on what seemed consistent with prior and future quarters' earnings.

Appendix C: Supplementary Exhibits for Chapter 3

This appendix provides supplementary exhibits for the analysis of program impacts for AIOIC's Soil to Sky Program presented in Chapter 3.

Exhibit C.1: Selected Characteristics at Baseline, 18-Month Survey Sample, AIOIC

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	79.4	80.2	78.5	1.7
Male	20.6	19.8	21.5	-1.7
Race (%)				
American Indian or Alaskan Native	8.0	7.6	8.4	-0.8
Asian	3.8	5.4	1.9	3.5
Black or African American	56.9	57.1	56.8	0.3
Native Hawaiian or other Pacific Islander	0.6	0.0	1.3	-1.3
White	23.3	24.5	21.9	2.5
Multi-race	7.4	5.4	9.7	-4.2
Hispanic ethnicity (%)	6.1	6.4	5.7	0.7
Age (%)				
21 years or younger	20.6	19.8	21.5	-1.7
22 to 29 years	31.3	32.1	30.4	1.7
30 to 39 years	17.1	15.5	19.0	-3.5
40 years or older	31.0	32.6	29.1	3.5
Average age (years)	32.9	32.9	32.9	0.0
Citizenship (%)				
U.S. citizen	78.2	78.1	78.3	-0.3
Legal resident	21.8	21.9	21.7	0.3
Speaks a language other than English at home (%)	41.7	38.5	45.6	-7.1
Family Status				
Marital status (%)				
Married	22.6	19.8	25.9	-6.2
Widowed/divorced/separated	16.8	17.1	16.5	0.7

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Never married	60.6	63.1	57.6	5.5
Number of children under age of 18(%)				
None	49.9	51.1	48.4	2.7
One child	23.4	23.4	23.5	-0.2
Two children	13.6	13.0	14.4	-1.3
Three or more children	13.1	12.5	13.7	-1.2
Education				
Education level (%)				
Less than high school	4.7	5.9	3.2	2.7
High School diploma or GED	29.3	23.7	36.1	-12.5**
Technical or associate's degree	15.0	16.7	12.9	3.8
Some college credit but no degree	39.0	39.8	38.1	1.7
Bachelor's or master's degree	12.0	14.0	9.7	4.3
Currently enrolled in school or training program (%)	25.5	26.2	24.7	1.5
Employment				
Employed (%)	43.5	45.5	41.1	4.4
Currently employed full time (30+ hours)	17.9	18.5	17.2	1.3
Currently employed part time (<30 hours)	25.5	27.0	23.8	3.1
Not employed (%)	56.5	54.5	58.9	-4.4
Employed in last 12 months but not employed currently	34.7	34.3	35.1	-0.8
Longer than 12 months since last worked	21.9	20.2	23.8	-3.6
Weekly earnings ($)	113	117	108	9
Factors That Affect Employment				
Amount a job must pay for respondent to take ($)	10.50	10.53	10.47	0.07
Felony conviction (%)	0.6	0.5	0.6	0.1
Job preferences (%)				
Prefers the kind of job that relates to training	50.2	49.2	51.3	-2.2
Will take any job, even if the pay is low	66.4	68.9	63.4	5.5
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	20.9	23.0	18.6	4.4
Transportation problems limit ability to work	29.7	31.6	27.5	4.2
Any kind of physical or mental disability	4.1	3.7	4.4	-0.7

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Public Benefits				
Receiving any public benefits (%)	54.5	55.6	53.2	2.5
Types of benefits received (%)				
Temporary Assistance for Needy Families	20.1	22.0	17.7	4.3
Supplemental Nutrition Assistance Program	42.0	44.3	39.2	5.1
Unemployment Insurance	8.5	6.5	10.9	-4.4
Section 8 or public housing assistance	21.2	22.0	20.3	1.8

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).
Note: The p-value for a global F-test is 0.349, which is not statistically significant, implying that collectively the treatment and control groups do not differ across all items considered. Estimates in this table are computed based on the 187 AIOIC treatment group members and 158 AIOIC control group members who completed the baseline and 18-month follow-up surveys. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.
** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

Exhibit C.2. Selected Characteristics at Baseline, NDNH Sample, AIOIC

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	78.8	78.7	78.9	-0.2
Male	21.2	21.3	21.1	0.2
Race (%)				
White	18.5	19.9	17.1	2.7
Black	64.4	62.6	66.2	-3.6
All other races	17.1	17.6	16.7	0.8
Age (%)				
21 years or younger	18.8	17.9	19.6	-1.7
22 to 29 years	33.3	34.7	31.9	2.9
30 to 39 years	21.0	19.0	23.0	-3.9
40 years or older	27.0	28.4	25.6	2.8

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Citizenship (%)				
U.S. citizen	78.0	77.2	78.8	-1.6
Legal resident	22.0	22.8	21.2	1.6
Speaks a language other than English at home (%)	42.9	41.4	44.4	-3.0
Family Status				
Marital status (%)				
Married	21.8	20.9	22.6	-1.7
Widowed/divorced/separated	15.1	14.6	15.6	-1.0
Never married	63.2	64.6	61.9	2.7
Number of children under age of 18 (%)				
None	49.9	53.9	46.0	7.9
One child	21.8	20.2	23.4	-3.2
Two children	14.3	12.8	15.7	-2.9
Three children	14.1	13.2	14.9	-1.8
Education				
Education level (%)				
Less than high school	6.8	6.4	7.1	-0.8
High school diploma or GED	31.3	27.7	35.0	-7.3
Technical or associate's degree	14.1	18.0	10.2	7.8**
Some college credit but no degree	38.3	37.5	39.1	-1.6
Bachelor's or master's degree	9.6	10.5	8.7	1.8
Currently enrolled in school or training program (%)	74.3	73.9	74.6	-0.7
Employment				
Employment status (%)				
Currently not employed	59.3	59.0	59.6	-0.7
Employed in last 12 months but not employed currently	22.1	24.3	20.0	4.3
Average quarterly earnings for the past year ($)	8724	9193	8259	933

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Factors That Affect Employment				
Amount a job must pay for respondent to take (%)				
$2.00 to $8.99 per hour	18.6	16.7	20.6	-4.0
$9.00 to $9.99 per hour	10.8	10.5	11.0	-0.5
$10.00 to $11.99 per hour	42.2	42.5	41.7	0.8
$12.00 per hour or more	28.5	30.3	26.6	3.7
Job preferences (%)				
Prefers the kind of job that relates to training	50.6	49.6	51.6	-2.0
Will take any job, even if the pay is low	67.6	71.3	64.0	7.3
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	20.9	21.1	20.7	0.4
Transportation problems limit ability to work	30.3	30.6	30.1	0.4
Any kind of physical or mental disability	3.2	3.4	3.0	0.4
Public Benefits				
Receiving any public benefits (%)	55.9	54.9	56.9	-2.0
Types of benefits received (%)				
Temporary Assistance for Needy Families	18.5	19.1	17.8	1.3
Supplemental Nutrition Assistance Program	41.7	42.5	40.9	1.6
Unemployment Insurance	8.3	6.8	9.7	-3.0
Section 8 or public housing assistance	21.3	20.7	21.9	-1.2

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).

Note: The p-value for a global F-test is 0.9155, which is not statistically significant, implying that collectively the treatment and control groups do not differ across all items considered. Estimates in this table are computed based on the 270 AIOIC treatment group members and 268 AIOIC control group members for whom six follow-up quarters of NDNH data are available. The set of baseline measures used for balance testing within the NDNH sample differs from the set of baseline measures tested among the full study sample and 18-month survey sample, due to NDNH requirements to de-identify baseline data before attaching baseline data to NDNH data. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.

** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

Exhibit C.3: Impacts on Participation in Education and Training Programs, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Participated in **any education or training** (%)	182	158	92.8	66.6	26.2***	39.4	4.49	0.000	(18.9, 33.6)
Number of months attended education or training	153	138	5.0	3.7	1.3**	33.8	0.55	0.022	(0.4, 2.2)
Total number of courses attended	165	149	3.3	2.5	0.8***	32.8	0.28	0.004	(0.4, 1.3)
Enrolled in education and training at time of follow-up survey	161	150	13.3	18.4	-5.1	-27.7	4.34	0.242	(-12.2, 2.1)
Participated in **ABE/GED** (%)	182	158	10.4	10.7	-0.4	-3.6	3.72	0.918	(-6.5, 5.7)
Average number of months attended	176	154	0.3	0.2	0.1	31.4	0.15	0.642	(-0.2, 0.3)
Completed any ABE/GED classes	177	157	4.1	5.0	-0.9	-18.4	2.72	0.735	(-5.4, 3.5)
Participated in **vocational training** (%)	182	158	63.5	37.9	25.6***	67.7	5.57	0.000	(16.5, 34.8)
Average number of months attended	168	148	2.2	1.2	1.0***	79.8	0.33	0.004	(0.4, 1.5)
Completed any vocational trainings	174	153	54.3	30.2	24.1***	80.0	5.64	0.000	(14.8, 33.4)
Participated in **college level courses for credit** (%)	182	157	34.6	34.8	-0.2	-0.6	4.91	0.967	(-8.3, 7.9)
Average number of months attended	174	151	2.3	2.4	-0.1	-2.4	0.42	0.895	(-0.8, 0.6)
Completed any college level courses (%)	177	155	29.3	26.7	2.6	9.7	4.60	0.576	(-5.0, 10.1)
Participated in classes on **study skills, workplace skills, or general life skills (**%)	182	157	11.9	13.3	-1.3	-10.1	3.73	0.721	(-7.5, 4.8)
Average number of months attended	177	155	0.4	0.2	0.1	61.7	0.17	0.394	(-0.1, 0.4)
Completed any life skills classes	178	156	8.8	11.2	-2.4	-21.4	3.34	0.472	(-7.9, 3.1)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.4: Descriptive Statistics on Participation in Education and Training Programs, Among Those Who Participated In Education or Training, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group
Participated in **any education or training** (%)	169	105	100.0	100.0
Number of months attended	140	85	5.4	5.8
Total number of courses attended	152	96	3.6	3.5
Enrolled in education and training at time of follow-up survey (%)	148	97	14.6	25.4
Participated in **ABE/GED** (%)	169	105	10.4	16.4
Number of months attended	163	101	0.3	0.4
Completed any ABE/GED classes (%)	164	104	4.0	8.9
Participated in **vocational training** (%)	169	105	68.8	57.7
Average number of months attended	155	95	2.4	1.9
Completed any vocational trainings (%)	161	100	59.7	45.4
Participated in **college level courses for credit** (%)	169	104	37.7	49.2
Number of months attended	161	98	2.5	3.4
Completed any college level courses (%)	164	102	31.7	38.3
Participated in classes on **study skills, workplace skills, or general life skills** (%)	169	104	13.1	20.7
Number of months attended	164	102	0.4	0.4
Completed any life skills classes (%)	165	103	10.1	17.7

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Significance testing was not conducted on descriptive statistics. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

Exhibit C.5: Impacts on Receipt of Advising, Life Skills, Support Services, and Financial Assistance, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Advising									
Received any type of advising as part of education and training program (%)	171	155	78.2	51.4	26.9***	52.3	5.51	0.000	(17.8, 35.9)
Academic (%)	171	156	54.7	38.3	16.3***	42.6	5.80	0.005	(6.8, 25.9)
Tutoring (%)	167	154	17.7	18.1	-0.4	-2.0	4.47	0.936	(-7.7, 7.0)
Career counseling (%)	171	155	48.0	28.3	19.7***	69.8	5.74	0.001	(10.3, 29.2)
Financial aid advising (%)	171	155	29.4	25.5	3.9	15.3	5.23	0.456	(-4.7, 12.5)
Job placement assistance (%)	171	155	50.1	19.7	30.4***	154.7	5.37	0.000	(21.6, 39.3)
Life Skills									
Received any assistance on life skills issues (%)	187	158	48.6	35.8	12.8**	35.7	5.87	0.030	(3.1, 22.4)
Having a good work ethic (%)	187	158	35.2	14.8	20.4***	137.9	4.81	0.000	(12.5, 28.3)
How to communicate well with your boss and co-workers (%)	187	158	40.9	23.5	17.4***	73.8	5.26	0.001	(8.7, 26.0)
How to manage any anger and frustrations (%)	187	158	33.9	15.6	18.3***	117.5	5.07	0.000	(10.0, 26.7)
How to manage your money and plan your finances (%)	187	158	24.7	16.0	8.7*	54.3	4.84	0.073	(0.7, 16.7)
Support Services									
Received support services to attend training or work (%)	187	157	59.4	48.0	11.4**	23.7	5.66	0.045	(2.1, 20.7)
Clothes or uniforms (%)	187	157	32.5	18.6	13.9***	74.6	5.08	0.007	(5.5, 22.2)
Childcare assistance (%)	187	157	10.4	13.6	-3.2	-23.6	3.49	0.360	(-8.9, 2.5)
Assistance with transportation (%)	187	157	38.1	15.3	22.7***	148.2	5.02	0.000	(14.5, 31.0)
Job-related tools (%)	187	157	9.8	2.6	7.1***	268.7	2.66	0.008	(2.7, 11.5)
Books or supplies (%)	187	157	27.3	12.5	14.8***	118.1	4.46	0.001	(7.4, 22.1)
Financial Assistance									
Received financial assistance to attend education and training	170	152	83.6	53.2	30.3***	57.0	5.25	0.000	(21.7, 39.0)
Paid out of pocket for some portion of classes	159	150	17.5	23.0	-5.5	-23.9	4.74	0.247	(-13.3, 2.3)
Received student loans to finance courses	159	147	9.8	12.3	-2.5	-20.6	3.98	0.526	(-9.1, 4.0)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.6: Impacts on Educational Attainment, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Received any education or training degree or credential (%)	187	158	55.1	33.2	21.9***	65.9	5.72	0.000	(12.5, 31.3)
Vocational Credentials									
Received vocational credential (%)	187	158	47.0	26.6	20.5***	77.1	5.38	0.000	(11.6, 29.3)
Number of vocational credentials received	187	158	0.8	0.4	0.4***	117.1	0.10	0.000	(0.3, 0.6)
Educational Degrees									
GED/high school diploma (%)	187	158	3.1	2.9	0.1	4.2	2.07	0.952	(-3.3, 3.5)
Associate's degree (%)	187	158	3.1	1.3	1.8	143.4	1.58	0.255	(-0.8, 4.4)
Bachelor's degree (%)	187	158	1.4	0.5	0.9	171.0	1.05	0.405	(-0.9, 2.6)
Other									
Received other type of credential (%)[a]	187	158	5.8	7.0	-1.2	-16.5	2.80	0.681	(-5.8, 3.5)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: [a] Other types of credentials and degrees include study skills, workplace skills, and general life skills credentials, in addition to master's degrees. No sample members received PhD or professional degrees.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.7: Impacts on Factors That Affected Ability to Work, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Factors that affected respondent's ability to work in the past month:									
Finding affordable quality childcare (%)	187	158	23.4	21.3	2.1	9.8	4.29	0.628	(-5.0, 9.1)
Problems with transportation (%)	187	158	26.5	36.7	-10.3*	-28.0	5.28	0.052	(-19.0, -1.6)
Any physical, emotional, or other health conditions (%)	187	158	16.4	21.0	-4.6	-21.8	4.22	0.278	(-11.5, 2.4)
Factors that affected respondent's ability to work between random assignment and last month:									
Finding quality childcare that respondent could afford (%)	187	158	27.5	21.5	6.0	28.1	4.37	0.169	(-1.2, 13.2)
Problems with transportation (%)	187	158	38.2	44.3	-6.1	-13.7	5.20	0.244	(-14.6, 2.5)
Any physical, emotional, or other health conditions (%)	187	158	20.2	23.5	-3.3	-14.1	4.48	0.460	(-10.7, 4.1)
Amount a job must pay per hour for respondent to take it ($)[a]	185	155	11.83	11.83	0.00	0.0	0.39	0.997	(-0.64, 0.64)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: [a] For respondents who reported a rate per week/month/year, the conversion to hourly rate assumes an average work week of 34.5 hours based on the Bureau of Labor Statistics estimates for the private sector.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.8: Impacts on Earnings and Employment, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Confirmatory Outcome									
Cumulative earnings in Q5 and Q6 ($)	268	270	7,602	7,682	-79	-1.0	607	0.896	(-1,078, 919)
Treatment-on-the-Treated (TOT) Estimate									
Cumulative earnings in Q5 and Q6 ($)	268	270	7,514	7,601	-87	-1.1	633.26	1.000	(-1129, 955)
Earnings									
Cumulative earnings in Q1 through Q6 ($)	268	270	19,165	19,641	-476	-2.4	1,316	0.718	(-2,641, 1,690)
Earnings in Q1 ($)	268	270	2,077	2,478	-400*	-16.2	229	0.082	(-778, -23)
Earnings in Q2 ($)	268	270	2,627	2,772	-145	-5.2	240	0.547	(-540, 251)
Earnings in Q3 ($)	268	270	3,282	3,326	-44	-1.3	270	0.871	(-488, 400)
Earnings in Q4 ($)	268	270	3,577	3,384	193	5.7	282	0.494	(-271, 657)
Earnings in Q5 ($)	268	270	3,747	3,919	-172	-4.4	320	0.591	(-699, 355)
Earnings in Q6 ($)	268	270	3,855	3,762	93	2.5	313	0.766	(-421, 607)
Employment									
Ever employed during Q5 or Q6 (%)	268	270	79.9	82.5	-2.6	-3.2	3.36	0.436	(-8.2, 2.9)
Ever employed during Q1 through Q6 (%)	268	270	87.5	87.9	-0.4	-0.5	2.87	0.888	(-5.1, 4.3)
Ever employed during Q1 (%)	268	270	59.6	62.3	-2.7	-4.3	3.71	0.475	(-8.8, 3.4)
Ever employed during Q2 (%)	268	270	65.6	67.5	-1.9	-2.9	3.93	0.624	(-8.4, 4.5)
Ever employed during Q3 (%)	268	270	72.2	72.4	-0.2	-0.2	3.78	0.965	(-6.4, 6.1)
Ever employed during Q4 (%)	268	270	71.9	73.1	-1.2	-1.7	3.79	0.749	(-7.4, 5.0)
Ever employed during Q5 (%)	268	270	75.0	77.8	-2.7	-3.5	3.60	0.448	(-8.7, 3.2)
Ever employed during Q6 (%)	268	270	74.6	77.5	-2.9	-3.7	3.62	0.425	(-8.8, 3.1)

Source: National Directory of New Hires.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups. For the treatment-on-the-treated estimate, the no-show rate of 7.84 percent and the cross-over rate of 0.0 percent were used. Treatment-on-the-treated estimate p-values are corrected for multiple comparisons in line with the adjustment on the confirmatory outcome.

Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. *** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.9: Impacts on Earnings and Employment, by Employment Status in the Year Preceding Random Assignment, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Standard Error	p-Value	Subgroup Difference (Impact)[1]	Subgroup Difference (p-Value)[1]
Earnings in Q5 and Q6 post-random assignment ($)									
Not employed in any of the 4 quarters preceding random assignment	57	77	6,096	6,321	-224	1,168	0.848	323	0.805
Employed in at least one of the 4 quarters preceding random assignment	211	193	8,159	8,060	99	705	0.889		
Employed in Q5 and Q6 post-random assignment (%)									
Not employed in any of the 4 quarters preceding random assignment	57	77	69.0	69.8	-0.7	2.44	0.760	-0.1	0.971
Employed in at least one of the 4 quarters preceding random assignment	211	193	84.7	85.6	-0.8	1.08	0.436		

Source: National Directory of New Hires.

Note: [1] The "subgroup difference (impact)" and "subgroup difference (p-value)" measure whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $-224 impact among those not employed in any of the four quarters preceding random assignment is different than the $99 impact among those employed in any of the four quarters preceding random assignment.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.10: Impacts on Earnings and Employment, by Educational Attainment at Random Assignment, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Standard Error	p-Value	Subgroup Difference (Impact)[1]	Subgroup Difference (p-Value)[1]
Earnings in Q5 and Q6 post-random assignment ($)									
High school diploma/GED or less	91	112	7,521	7,504	17	825	0.984	-119	0.919
More than high school diploma/GED	176	154	7,738	7,840	-102	811	0.900		
Employed in Q5 and Q6 post-random assignment (%)									
High school diploma/GED or less	91	112	81.2	83.3	-2.1	1.63	0.194	2.1	0.317
More than high school diploma/GED	176	154	80.6	80.6	0.0	1.30	0.989		

Source: National Directory of New Hires.

Note: [1] The "subgroup difference (impact)" and "subgroup difference (p-value)" measure whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $17 impact among those with a high school diploma/GED or less is different than the $-102 impact among those with more than a high school diploma/GED.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.11: Impacts on Earnings and Employment, 30-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Earnings									
Cumulative earnings in Q5 and Q6 ($)	157	159	6,855	7,808	-953	-12.2	823	0.248	(-2,307, 401)
Earnings in Q1 ($)	157	159	2,018	2,288	-271	-11.8	267	0.311	(-709, 168)
Earnings in Q2 ($)	157	159	2,608	2,698	-91	-3.4	320	0.777	(-617, 436)
Earnings in Q3 ($)	157	159	2,927	3,136	-209	-6.7	351	0.553	(-786, 369)
Earnings in Q4 ($)	157	159	3,070	3,172	-102	-3.2	334	0.761	(-651, 448)
Earnings in Q5 ($)	157	159	3,313	3,993	-680	-17.0	438	0.122	(-1,400, 41)
Earnings in Q6 ($)	157	159	3,541	3,814	-273	-7.2	420	0.516	(-964, 417)
Earnings in Q7 ($)	157	159	3,930	3,719	211	5.7	365	0.564	(-390, 812)
Earnings in Q8 ($)	157	159	3,941	3,699	242	6.5	395	0.541	(-408, 892)
Earnings in Q9 ($)	157	159	4,124	4,308	-183	-4.3	439	0.677	(-906, 539)
Earnings in Q10 ($)	157	159	4,245	4,396	-151	-3.4	429	0.724	(-857, 554)
Cumulative earnings in Q1 through Q6 ($)	157	159	17,478	19,102	-1,624	-8.5	1,671	0.332	(-4,374, 1,125)
Cumulative earnings in Q1 through Q9 ($)	157	159	29,472	30,828	-1,355	-4.4	2,558	0.597	(-5,563, 2,853)
Cumulative earnings in Q1 through Q10 ($)	157	159	34,257	34,693	-436	-1.3	787	0.580	(-1,731, 859)
Employment									
Ever employed during Q5 or Q6 (%)	157	159	79.0	83.0	-4.0	-4.8	4.55	0.386	(-11.4, 3.5)
Ever employed during Q1 (%)	157	159	55.1	60.7	-5.6	-9.3	5.11	0.272	(-14.0, 2.8)
Ever employed during Q2 (%)	157	159	62.1	68.9	-6.9	-10.0	5.36	0.202	(-15.7, 2.0)
Ever employed during Q3 (%)	157	159	68.7	70.6	-1.9	-2.7	5.41	0.728	(-10.8, 7.0)
Ever employed during Q4 (%)	157	159	67.9	71.3	-3.4	-4.8	5.28	0.514	(-12.1, 5.2)
Ever employed during Q5 (%)	157	159	73.4	76.6	-3.3	-4.2	5.05	0.521	(-11.6, 5.1)
Ever employed during Q6 (%)	157	159	72.1	76.6	-4.6	-6.0	4.96	0.359	(-12.7, 3.6)
Ever employed during Q7 (%)	157	159	77.5	71.3	6.2	8.7	5.08	0.221	(-2.1, 14.6)
Ever employed during Q8 (%)	157	159	76.8	70.7	6.0	8.5	5.19	0.246	(-2.5, 14.6)
Ever employed during Q9 (%)	157	159	76.4	74.9	1.6	2.1	5.19	0.763	(-7.0, 10.1)
Ever employed during Q10 (%)	157	159	78.1	80.7	-2.6	-3.2	4.85	0.599	(-10.5, 5.4)
Ever employed during Q1 through Q6 (%)	157	159	88.1	87.8	0.3	0.4	4.03	0.933	(-6.3, 7.0)
Ever employed during Q1 through Q9 (%)	157	159	92.2	91.9	0.3	0.3	0.93	0.736	(-1.2, 1.8)
Ever employed during Q1 through Q10 (%)	157	159	92.6	92.2	0.5	0.5	0.92	0.624	(-1.1, 2.0)

Source: National Directory of New Hires.
Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the *p*<0.01 level. ** Difference is statistically significant at the *p*<0.05 level. * Difference is statistically significant at the *p*<0.10 level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.12: Impacts on Earnings and Employment from Survey Data, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Earnings									
Total earnings, since random assignment ($)	186	157	20,876.6	19,928.1	948.5	4.8	1,661.25	0.568	(-1,784.3, 3,68
Total earnings, Q1 ($)	186	157	1,820.6	2,165.6	-344.9	-15.9	265.48	0.195	(-781.7, 91.8)
Total earnings, Q2 ($)	186	157	2,481.3	2,764.7	-283.3	-10.2	296.81	0.340	(-771.6, 204.9)
Total earnings, Q3 ($)	186	157	3,196.7	3,156.1	40.6	1.3	294.01	0.890	(-443.1, 524.2)
Total earnings, Q4 ($)	186	157	3,661.4	3,303.4	357.9	10.8	308.92	0.247	(-150.2, 866.1)
Total earnings, Q5 ($)	186	157	3,876.9	3,444.1	432.8	12.6	343.52	0.209	(-132.3, 997.9)
Total earnings, Q6 ($)	186	157	3,868.8	3,503.9	364.9	10.4	347.40	0.294	(-206.6, 936.4)
Employment									
Ever employed, since random assignment (%)	187	158	91.1	87.3	3.8	4.3	3.50	0.284	(-2.0, 9.5)
Employed, Q1 (%)	187	158	47.5	60.4	-12.8***	-21.3	4.93	0.010	(-21.0, -4.7)
Employed, Q2 (%)	187	158	58.1	70.3	-12.2**	-17.3	5.18	0.019	(-20.7, -3.6)
Employed, Q3 (%)	187	158	69.4	74.8	-5.4	-7.3	4.79	0.256	(-13.3, 2.4)
Employed, Q4 (%)	187	158	75.7	73.9	1.8	2.4	4.69	0.709	(-6.0, 9.5)
Employed, Q5 (%)	187	158	82.2	78.7	3.4	4.3	4.45	0.442	(-3.9, 10.7)
Employed, Q6 (%)	187	158	83.5	79.4	4.2	5.2	4.30	0.335	(-2.9, 11.2)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the *p*<0.01 level. ** Difference is statistically significant at the *p*<0.05 level. * Difference is statistically significant at the *p*<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.13: Impacts on Employment Status, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Employment Status at Time of Follow-Up Survey									
Employed (%)	184	150	81.9	73.9	8.0*	10.8	4.61	0.084	(0.4, 15.6)
Unemployed (%)	184	150	10.1	14.8	-4.7	-32.0	3.97	0.233	(-11.3, 1.8)
On temporary layoff (%)	184	150	1.0	1.1	-0.1	-10.0	1.12	0.924	(-1.9, 1.7)
Looking for work (%)	184	150	9.1	13.7	-4.6	-33.8	3.85	0.229	(-11.0, 1.7)
Out of the labor force (%)	184	150	8.0	11.3	-3.3	-29.0	3.32	0.327	(-8.7, 2.2)
Retired (%)	184	150	0.0	0.5	-0.5	-96.9	0.47	0.309	(-1.3, 0.3)
Unable to work because of disability (%)	184	150	2.5	1.9	0.6	30.7	1.92	0.759	(-2.6, 3.8)
Attending school or long-term training program (%)	184	150	3.3	6.2	-2.8	-45.8	2.36	0.232	(-6.7, 1.1)
Not looking for work (%)	184	150	2.1	2.7	-0.5	-20.4	1.60	0.735	(-3.2, 2.1)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.14: Impacts on Characteristics of Current or Most Recent Job, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Pay and Hours of Job									
Weekly earnings ($)	185	158	327	287	40	14.0	25.31	0.114	(-1.5, 81.8)
Hours worked per week	185	158	28.7	26.0	2.7	10.4	1.76	0.124	(-0.2, 5.6)
Number of weeks at job[a]	187	158	72.3	83.3	-11.0	-13.2	13.73	0.424	(-33.6, 11.6)
Job represented by a union (%)	180	156	15.9	18.3	-2.4	-13.1	4.42	0.590	(-9.7, 4.9)
Job Benefits									
Job offers health insurance (%)	186	156	43.4	46.5	-3.1	-6.6	5.78	0.598	(-12.6, 6.4)
Paid vacation (%)	186	155	43.7	40.1	3.6	8.9	5.74	0.534	(-5.9, 13.0)
Paid holiday (%)	185	157	48.9	51.5	-2.7	-5.2	5.65	0.638	(-12.0, 6.6)
Paid sick time (%)	185	153	37.0	33.8	3.2	9.4	5.72	0.579	(-6.2, 12.6)
Retirement/pension plan (%)	185	153	39.9	39.7	0.2	0.5	5.80	0.973	(-9.3, 9.7)
Job Schedule									
Regular daytime schedule (%)	186	158	54.0	47.4	6.6	13.8	5.64	0.246	(-2.7, 15.8)
Regular evening shift (%)	186	158	15.5	14.3	1.2	8.1	4.33	0.789	(-6.0, 8.3)
Regular night shift (%)	186	158	7.2	7.4	-0.2	-2.6	3.02	0.949	(-5.2, 4.8)
Rotating schedule (%)	186	158	6.7	6.4	0.3	4.4	2.75	0.919	(-4.2, 4.8)
Irregular schedule (%)	186	158	2.5	5.8	-3.3	-56.3	2.24	0.148	(-6.9, 0.4)
Other schedule (%)	186	158	5.4	6.1	-0.8	-12.3	2.70	0.781	(-5.2, 3.7)
Connection of Job to Training									
Respondent attributes getting a new job due to completing vocational training (%)	167	149	22.8	10.4	12.4***	119.2	4.24	0.004	(5.5, 19.4)
Respondent employed in industry targeted by grant-funded training program (%)	187	158	44.9	33.3	11.6**	34.9	5.39	0.032	(2.8, 20.5)
Job is part of a career path (%)	184	150	51.5	46.5	4.9	10.6	5.44	0.364	(-4.0, 13.9)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: [a] Jobs that started before random assignment are included in these estimates.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.15: Descriptive Statistics on Current or Most Recent Job Characteristics from Survey Data, Among Individuals Who Held At Least One Job, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group
Pay and Hours of Job				
Weekly earnings ($)	170	140	356	326
Hours worked per week	170	140	31.6	29.5
Number of weeks at job[a]	172	140	77.7	94.0
Job represented by a union (%)	165	138	16.2	20.1
Job Benefits				
Job offers health insurance (%)	171	138	47.5	53.3
Paid vacation (%)	171	137	48.2	45.8
Paid holiday (%)	170	139	53.3	58.2
Paid sick time (%)	170	135	41.2	38.5
Retirement/pension plan (%)	170	135	43.3	45.2
Job Schedule				
Regular daytime schedule (%)	171	140	58.7	53.7
Regular evening shift (%)	171	140	17.3	17.0
Regular night shift (%)	171	140	7.9	8.7
Rotating schedule (%)	171	140	7.4	7.2
Irregular schedule (%)	171	140	2.8	7.1
Other schedule (%)	171	140	6.0	6.2
Connection of Job to Training				
Respondent attributes getting a new job due to completing vocational training (%)	155	133	24.9	12.9
Respondent employed in industry targeted by grant-funded training program (%)	172	140	48.1	38.1
Job is part of a career path (%)	169	132	56.3	53.5

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Jobs that started before random assignment are included in these estimates.
Significance testing was not conducted on descriptive statistics. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

Exhibit C.16: Impacts on Household Income and Household Receipt of Public Benefits, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Total household income before taxes last year ($) [a]	179	148	21,675	21,312	363	1.7	1,937	0.852	(-2,823, 3,549)
Temporary Assistance for Needy Families (TANF)									
Received TANF last month (%)	185	157	14.5	15.2	-0.6	-4.3	3.54	0.855	(-6.5, 5.2)
Amount received ($)	183	156	48.40	59.67	-11.27	-18.9	14.72	0.445	(-35.49, 12.95)
Supplemental Nutrition Assistance Program (SNAP)									
Received SNAP last month (%)	186	156	32.2	37.7	-5.5	-14.5	4.63	0.237	(-13.1, 2.1)
Amount received ($)	186	155	88.98	122.57	-33.59*	-27.4	17.34	0.053	(-62.11, -5.07)
Unemployment Insurance (UI)									
Received UI last month (%)	185	158	2.7	1.9	0.8	39.9	1.55	0.624	(-1.8, 3.3)
Amount received last month ($)	185	158	22.42	8.11	14.31	176.4	12.89	0.268	(-6.89, 35.52)
Other Federal Benefits									
Received other federal benefits last month (%)[b]	185	157	33.4	33.5	-0.1	-0.4	5.36	0.981	(-9.0, 8.7)
Amount received last month ($) [b]	185	157	141.06	171.19	-30 .13	-17.6	42.21	0.476	(-99.57, 39.31)
Other Payments									
Received alimony, child support, rent payments, or financial support from friends/relatives last month (%)	186	156	7.3	13.8	-6.4*	-46.6	3.67	0.082	(-12.4, -0.4)
Amount received last month ($)	186	155	21.43	37.95	-16.52	-43.5	13.47	0.221	(-38.68, 5.64)
Other Assistance Received									
Received any assistance from churches, food banks, or other private community organizations since random assignment (%)	187	157	27.6	23.8	3.8	16.2	4.93	0.437	(-4.3, 12.0)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: For outcomes measured in dollars, the analytic sample includes all study members with non-missing outcome data (including those with a value of zero for the outcome).

[a] Rather than providing a specific value for household income including transfers, some survey respondents indicated that their household income including transfers was in a specified range (e.g., between $45,000 and $60,000). For these individuals, income is defined as the midpoint of the specified range.

[b] The other federal benefits include the following types: Supplemental Security Income; Social Security Disability Insurance; Women, Infants, and Children benefits; General Assistance; Trade Adjustment Assistance; Alternative Trade Adjustment Assistance; Workers' Compensation or Disability Insurance benefits; and Social Security.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit C.17: Impacts on Financial Circumstances, 18-Month Follow-Up Period, AIOIC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Housing Status									
Owned a home (%)	187	158	7.7	13.3	-5.6*	-41.9	3.13	0.076	(-10.7, -0.4)
Rented a residence (%)	187	156	70.8	56.9	14.0**	24.5	5.40	0.010	(5.1, 22.8)
Difficulty Covering Household Expenses									
Had difficulty covering all household expenses (%)	186	157	57.9	58.1	-0.2	-0.3	5.69	0.978	(-9.5, 9.2)
Had difficulty covering all household expenses in the past month (%)	185	157	64.5	66.7	-2.2	-3.3	5.48	0.685	(-11.2, 6.8)
Types of Financial Difficulty Experienced									
Mortgage payment missed or been late (%)	187	158	1.2	1.3	-0.1	-7.1	0.80	0.906	(-1.4, 1.2)
Rent payment missed or been charged a late fee (%)	187	156	28.1	16.8	11.3**	67.1	4.70	0.017	(3.6, 19.0)
Been charged a late fee on any monthly credit payments (%)	187	157	32.4	22.8	9.6*	42.2	5.21	0.066	(1.1, 18.2)
Postponed a major purchase that was planned or needed such as a car or major appliance (%)	186	157	25.8	27.0	-1.2	-4.3	5.08	0.818	(-9.5, 7.2)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Appendix D: Supplementary Exhibits for Chapter 4

This appendix provides supplementary exhibits for the analysis of program impacts for GRCC's Pathways to Prosperity program presented in Chapter 4.

Exhibit D.1: Selected Characteristics at Baseline, 18-Month Survey Sample, GRCC

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	34.9	33.8	37.3	-3.4
Male	65.1	66.2	62.7	3.4
Race (%)				
American Indian or Alaskan Native	1.1	0.8	1.7	-0.9
Asian	2.7	3.1	1.7	1.4
Black or African American	36.9	39.1	32.2	6.9
Native Hawaiian or other Pacific Islander	0.5	0.0	1.7	-1.7
White	56.1	55.5	57.6	-2.2
Multi-race	2.7	1.6	5.1	-3.5
Hispanic ethnicity (%)	11.1	11.5	10.2	1.4
Age (%)				
21 years or younger	4.8	3.1	8.5	-5.4
22 to 29 years	13.2	13.1	13.6	-0.5
30 to 39 years	27.5	26.2	30.5	-4.4
40 years or older	54.5	57.7	47.5	10.2
Average age (years)	41.2	42.2	38.9	3.3
Citizenship (%)				
U.S. citizen	89.4	90.8	86.4	4.3
Legal resident	10.6	9.2	13.6	-4.3
Speaks a language other than English at home (%)	19.7	19.2	20.7	-1.5
Family Status				
Marital status (%)				
Married	25.0	24.8	25.4	-0.6
Widowed/divorced/separated	29.3	31.0	25.4	5.6

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Never married	45.7	44.2	49.2	-5.0
Number of children under age of 18 (%)				
None	62.0	61.7	62.7	-1.0
One child	11.2	13.3	6.8	6.5
Two children	13.4	11.7	16.9	-5.2
Three or more children	13.4	13.3	13.6	-0.3
Education				
Education level (%)				
Less than high school	11.6	9.2	16.9	-7.7
High School diploma or GED	20.6	18.5	25.4	-7.0
Technical or associate's degree	14.8	16.9	10.2	6.8
Some college credit but no degree	33.3	35.4	28.8	6.6
Bachelor's or master's degree	19.6	20.0	18.6	1.4
Currently enrolled in school or training program (%)	13.5	15.0	10.3	4.6
Employment				
Employed (%)	27.2	28.8	23.7	5.1
Currently employed full time (30+ hours)	14.7	15.2	13.6	1.6
Currently employed part time (<30 hours)	12.5	13.6	10.2	3.4
Not employed (%)	72.8	71.2	76.3	-5.1
Employed in last 12 months but not employed currently	38.0	40.0	33.9	6.1
Longer than 12 months since last worked	34.8	31.2	42.4	-11.2
Weekly earnings ($)	77	85	60	25
Factors That Affect Employment				
Amount a job must pay for respondent to take ($)	11.41	11.52	11.13	0.39
Felony conviction	22.3	26.4	13.6	12.8
Job preferences (%)				
Prefers the kind of job that relates to training	38.7	38.3	39.7	-1.4
Will take any job, even if the pay is low	55.9	53.9	60.3	-6.4
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	13.4	10.9	18.6	-7.7
Transportation problems limit ability to work	22.6	20.3	27.6	-7.3
Any kind of physical or mental disability	13.2	10.0	20.3	-10.3

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Public Benefits				
Receiving any public benefits (%)	66.1	66.2	66.1	0.1
Types of benefits received (%)				
Temporary Assistance for Needy Families	3.7	3.8	3.4	0.4
Supplemental Nutrition Assistance Program	46.6	49.2	40.7	8.6
Unemployment Insurance	22.8	22.3	23.7	-1.4
Section 8 or public housing assistance	12.7	12.3	13.6	-1.3

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).
Note: The unadjusted p-value for a global F-test is 0.027 and the adjusted (for multiple comparisons) value is 0.110. With the multiple comparisons adjustment, one can conclude that, as a whole, the treatment and control groups do not differ across all items considered. Additionally, none of the individual item tests are flagged as statistically significant. Therefore the treatment and control groups are not meaningfully different.
Estimates in this table are computed based on the 130 GRCC treatment group members and 59 GRCC control group members who completed the baseline and 18-month follow-up surveys. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.
** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

Exhibit D.2: Selected Characteristics at Baseline, NDNH Sample, GRCC

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	31.4	28.4	37.4	-9.0
Male	68.6	71.6	62.6	9.0
Race (%)				
White	56.4	57.7	53.9	3.8
Black	37.5	38.3	36.0	2.3
All other races	6.1	4.0	10.1	-6.1**
Age (%)				
21 years or younger	5.5	4.9	6.6	-1.7
22 to 29 years	14.2	14.8	13.2	1.6
30 to 39 years	27.7	26.8	29.7	-2.9
40 years or older	52.6	53.6	50.6	3.0
Citizenship (%)				
U.S. citizen	88.3	89.1	86.8	2.3
Legal resident	11.7	10.9	13.2	-2.3
Speaks a language other than English at home (%)	23.1	21.9	25.6	-3.7
Family Status				
Marital status (%)				
Married	24.5	22.5	28.6	-6.0
Widowed/divorced/separated	29.3	30.8	26.4	4.4
Never married	46.2	46.7	45.1	1.7
Number of children under age of 18 (%)				
None	63.7	65.4	60.4	4.9
One child	13.0	12.9	13.2	-0.3
Two children	10.7	8.9	14.3	-5.4
Three children	12.6	12.9	12.1	0.8
Education				
Education level (%)				
Less than high school	12.8	11.5	15.4	-3.9
High school diploma or GED	27.4	26.2	29.7	-3.4

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Technical or associate's degree	13.5	14.8	11.0	3.8
Some college credit but no degree	30.3	31.7	27.5	4.2
Bachelor's or master's degree	16.1	15.9	16.5	-0.6
Currently enrolled in school or training program (%)	87.0	86.7	87.8	-1.1
Employment				
Employment status (%)				
Currently not employed	41.6	43.2	38.5	4.7
Employed in last 12 months but not employed currently	28.1	26.2	31.9	-5.6
Average quarterly earnings for the past year ($)	7356	7377	7316	61
Factors That Affect Employment				
Amount a job must pay for respondent to take (%)				
$2.00 to $8.99 per hour	15.6	14.0	18.9	-4.9
$9.00 to $9.99 per hour	9.1	8.9	9.5	-0.5
$10.00 to $11.99 per hour	30.3	28.0	35.1	-7.1
$12.00 per hour or more	45.0	49.0	36.5	12.6
Felony conviction	25.3	29.1	17.6	11.5**
Job preferences (%)				
Prefers the kind of job that relates to training	42.8	43.9	40.5	3.4
Will take any job, even if the pay is low	55.6	54.4	57.8	-3.3
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	12.5	9.9	17.6	-7.6
Transportation problems limit ability to work	24.9	22.4	30.0	-7.7
Any kind of physical or mental disability	13.9	12.9	16.1	-3.2
Public Benefits				
Receiving any public benefits (%)	67.2	63.9	73.6	-9.7
Types of benefits received (%)				
Temporary Assistance for Needy Families	4.8	4.9	4.5	0.4
Supplemental Nutrition Assistance Program	46.4	45.4	48.4	-3.0
Unemployment Insurance	22.6	20.2	27.5	-7.3
Section 8 or public housing assistance	12.8	12.6	13.2	-0.6

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).

Note: The unadjusted p-value for a global F-test is 0.034, and the adjusted (for multiple comparisons) value is 0.138. With the multiple comparisons adjustment, one can conclude that, as a whole, the treatment and control groups do not differ across all items considered. Additionally, two of the 43 individual item tests are flagged as statistically significant, which is equivalent to the two one would expect to appear significant due to chance (5 percent of 43). Therefore the treatment and control groups are not meaningfully different.
Estimates in this table are computed based on the 183 GRCC treatment group members and 91 GRCC control group members for whom six follow-up quarters of NDNH data are available. The set of baseline measures used for balance testing within the NDNH sample differs from the set of baseline measures tested among the full study sample and 18-month survey sample, due to NDNH requirements to de-identify baseline data before attaching baseline data to NDNH data. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.
** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

Exhibit D.3: Impacts on Participation in Education and Training Programs, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Participated in **any education or training** (%)	123	59	89.8	38.9	50.9***	130.8	7.43	0.000	(38.7, 63.1)
Number of months attended training or training	100	55	3.8	2.6	1.2*	47.2	0.73	0.096	(0.0, 2.4)
Total number of courses attended	112	58	2.3	1.3	1.1***	82.7	0.32	0.001	(0.5, 1.6)
Enrolled in education and training at time of follow-up survey	107	55	11.7	16.8	-5.2	-30.7	4.65	0.269	(-12.8, 2.5)
Participated in **ABE/GED** (%)	123	59	21.6	9.7	12.0**	123.8	5.94	0.045	(2.2, 21.7)
Average number of months attended	118	59	0.9	0.9	0.0	-4.8	0.35	0.898	(-0.6, 0.5)
Completed any ABE/GED classes	120	59	14.2	7.2	6.9	95.9	5.37	0.198	(-1.9, 15.8)
Participated in **vocational training** (%)	123	59	49.0	15.9	33.1***	208.4	7.99	0.000	(20.0, 46.3)
Average number of months attended	115	59	1.5	0.3	1.2***	360.4	0.45	0.009	(0.5, 1.9)
Completed any vocational trainings	117	59	43.4	10.8	32.6***	302.1	7.59	0.000	(20.1, 45.1)
Participated in **college level courses for credit** (%)	123	59	13.0	19.9	-6.9	-34.7	6.84	0.315	(-18.1, 4.4)
Average number of months attended	120	56	0.7	1.1	-0.4	-35.3	0.44	0.375	(-1.1, 0.3)
Completed any college level courses (%)	122	57	12.5	10.9	1.6	14.8	5.59	0.774	(-7.6, 10.8)
Participated in classes on **study skills, workplace skills, or general life skills (**%)	123	59	30.8	6.7	24.1***	359.9	7.71	0.002	(11.4, 36.8)
Average number of months attended	117	58	0.5	0.2	0.3	150.5	0.23	0.177	(-0.1, 0.7)
Completed any life skills classes	119	58	23.6	<0†	24.6***	-2,356.9	6.13	0.000	(14.5, 34.7)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: † The percent of the treatment/control group predicted to have a binary outcome cannot, in reality, be less than 0 percent or greater than 100 percent. However, on occasion, the estimates for these values as predicted by the linear probability regression model can fall below 0. In these cases, reported values are capped at zero in the exhibit and are denoted by "<0".

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.4: Descriptive Statistics on Participation in Education and Training Programs, Among Those Who Participated In Education or Training, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group
Participated in **any education or training** (%)	112	20	100.0	100.0
Number of months attended	89	16	4.5	5.8
Total number of courses attended	101	19	2.6	2.9
Enrolled in education and training at time of follow-up survey (%)	96	16	13.1	29.6
Participated in **ABE/GED** (%)	112	20	23.4	9.8
Number of months attended	107	20	1.1	1.3
Completed any ABE/GED classes (%)	109	20	15.5	6.6
Participated in **vocational training** (%)	112	20	53.5	44.4
Average number of months attended	104	20	1.8	1.1
Completed any vocational trainings (%)	106	20	47.2	35.8
Participated in **college level courses for credit** (%)	112	20	15.5	54.4
Number of months attended	109	17	0.8	3.0
Completed any college level courses (%)	111	18	14.3	32.5
Participated in classes on **study skills, workplace skills, or general life skills** (%)	112	20	34.5	7.4
Number of months attended	106	19	0.6	0.2
Completed any life skills classes (%)	108	19	27.3	-1.2

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Significance testing was not conducted on descriptive statistics. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

Exhibit D.5: Impacts on Receipt of Advising, Life Skills, Support Services, and Financial Assistance, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Advising									
Received any type of advising as part of education and training program (%)	115	58	67.8	29.2	38.6***	131.8	8.66	0.000	(24.3, 52.8)
Academic (%)	115	58	42.5	26.5	16.0*	60.3	8.12	0.051	(2.6, 29.3)
Tutoring (%)	115	58	17.3	10.0	7.2	72.2	4.80	0.134	(-0.7, 15.1)
Career counseling (%)	115	58	52.4	20.9	31.5***	150.7	7.68	0.000	(18.8, 44.1)
Financial aid advising (%)	114	58	27.0	14.1	12.8*	90.6	6.70	0.057	(1.8, 23.8)
Job placement assistance (%)	115	58	44.8	12.0	32.8***	274.2	6.84	0.000	(21.5, 44.0)
Life Skills									
Received any assistance on life skills issues (%)	130	59	52.2	24.8	27.4***	110.3	7.81	0.001	(14.5, 40.2)
Having a good work ethic (%)	130	59	33.5	7.2	26.4***	366.7	6.49	0.000	(15.7, 37.0)
How to communicate well with your boss and co-workers (%)	130	59	40.8	15.3	25.5***	166.7	7.68	0.001	(12.9, 38.2)
How to manage any anger and frustrations (%)	130	59	33.8	8.8	25.0***	285.7	6.36	0.000	(14.6, 35.5)
How to manage your money and plan your finances (%)	130	59	25.1	10.1	15.0**	148.5	6.22	0.017	(4.8, 25.2)
Support Services									
Received support services to attend training or work (%)	130	59	58.0	27.7	30.3***	109.1	8.65	0.001	(16.0, 44.5)
Clothes or uniforms (%)	130	59	27.8	7.2	20.7***	288.7	6.62	0.002	(9.8, 31.6)
Childcare assistance (%)	130	59	8.1	1.9	6.1*	318.6	3.40	0.073	(0.5, 11.7)
Assistance with transportation (%)	130	59	26.5	2.2	24.3***	1,114.9	5.48	0.000	(15.3, 33.3)
Job-related tools (%)	130	59	15.2	2.5	12.6**	495.6	5.81	0.031	(3.0, 22.2)
Books or supplies (%)	130	59	28.9	11.0	17.9**	161.9	7.14	0.013	(6.1, 29.6)
Financial Assistance									
Received financial assistance to attend education and training	109	55	81.3	22.4	58.9***	263.2	7.42	0.000	(46.7, 71.1)
Paid out of pocket for some portion of classes	105	54	12.6	15.3	-2.7	-17.6	6.93	0.698	(-14.1, 8.7)
Received student loans to finance courses	105	54	9.4	2.9	6.5	223.2	4.62	0.160	(-1.1, 14.1)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.6: Impacts on Educational Attainment, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Received any education or training degree or credential (%)	130	59	56.2	10.7	45.5***	424.8	7.91	0.000	(32.5, 58.5)
Vocational Credentials									
Received vocational credential (%)	130	59	36.1	9.8	26.4***	269.4	7.48	0.001	(14.1, 38.6)
Number of vocational credentials received	130	59	0.4	0.1	0.3***	213.5	0.09	0.002	(0.1, 0.4)
Educational Degrees									
GED/high school diploma (%)	130	59	11.4	3.2	8.3	261.8	5.19	0.113	(-0.3, 16.8)
Associate's degree (%)	130	59	1.1	0.2	1.0	595.8	1.43	0.499	(-1.4, 3.3)
Bachelor's degree (%)	130	59	0.4	0.5	-0.1	-28.3	0.52	0.771	(-1.0, 0.7)
Other									
Received other type of credential (%)[a]	130	59	19.6	<0[†]	21.9***	-964.2	5.42	0.000	(13.0, 30.8)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: [a] Other types of credentials and degrees include study skills, workplace skills, and general life skills credentials. No sample members received master's, PhD, or professional degrees.

† The percent of the treatment/control group predicted to have a binary outcome cannot, in reality, be less than 0 percent or greater than 100 percent. However, on occasion, the estimates for these values as predicted by the linear probability regression model can fall below 0. In these cases, reported values are capped at zero in the exhibit and are denoted by "<0".

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.7: Impacts on Factors That Affected Ability to Work, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Factors that affected respondent's ability to work in the past month:									
Finding affordable quality childcare (%)	130	59	8.8	15.2	-6.4	-42.2	5.04	0.204	(-14.7, 1.9)
Problems with transportation (%)	130	59	28.3	39.2	-10.8	-27.6	8.99	0.231	(-25.6, 4.0)
Any physical, emotional, or other health conditions (%)	130	59	17.5	27.1	-9.6	-35.4	7.73	0.216	(-22.3, 3.1)
Factors that affected respondent's ability to work between random assignment and last month:									
Finding quality childcare that respondent could afford (%)	130	59	10.9	17.4	-6.5	-37.6	5.12	0.204	(-15.0, 1.9)
Problems with transportation (%)	130	59	33.0	46.4	-13.4	-29.0	9.27	0.149	(-28.7, 1.8)
Any physical, emotional, or other health conditions (%)	130	59	17.1	28.1	-11.0	-39.1	7.65	0.153	(-23.6, 1.6)
Amount a job must pay per hour for respondent to take it ($)[a]	130	56	11.35	11.04	0.31	2.8	0.54	0.568	(-0.57, 1.19)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: [a] For respondents who reported a rate per week/month/year, the conversion to hourly rate assumes an average work week of 34.5 hours based on the Bureau of Labor Statistics estimates for the private sector.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.8: Impacts on Earnings and Employment, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Confirmatory Outcome									
Cumulative earnings in Q5 and Q6 ($)	183	91	6,444	5,868	576	9.8	938	0.540	(-967, 2,119)
Treatment-on-the-Treated (TOT) Estimate									
Cumulative earnings in Q5 and Q6 ($)	183	91	7,308	6,547	761	11.6	1126.28	1.000	(-1091.46, 2613.67)
Earnings									
Cumulative earnings in Q1 through Q6 ($)	183	91	14,791	14,068	723	5.1	2,107	0.732	(-2,744, 4,190)
Earnings in Q1 ($)	183	91	1,391	1,582	-190	-12.0	555	0.732	(-1,103, 722)
Earnings in Q2 ($)	183	91	1,815	1,911	-96	-5.0	395	0.808	(-747, 554)
Earnings in Q3 ($)	183	91	2,467	2,274	193	8.5	437	0.659	(-526, 913)
Earnings in Q4 ($)	183	91	2,674	2,433	241	9.9	464	0.604	(-522, 1,003)
Earnings in Q5 ($)	183	91	2,969	2,704	265	9.8	498	0.594	(-553, 1,084)
Earnings in Q6 ($)	183	91	3,474	3,164	311	9.8	493	0.529	(-500, 1,121)
Employment									
Ever employed during Q5 or Q6 (%)	183	91	70.4	64.0	6.4	10.0	6.29	0.309	(-3.9, 16.7)
Ever employed during Q1 through Q6 (%)	183	91	82.4	77.1	5.3	6.8	5.26	0.318	(-3.4, 13.9)
Ever employed during Q1 (%)	183	91	43.9	32.6	11.3*	34.8	6.15	0.067	(1.2, 21.4)
Ever employed during Q2 (%)	183	91	50.5	50.2	0.3	0.6	5.91	0.958	(-9.4, 10.0)
Ever employed during Q3 (%)	183	91	59.3	53.3	5.9	11.1	6.23	0.342	(-4.3, 16.2)
Ever employed during Q4 (%)	183	91	54.6	53.9	0.8	1.4	6.56	0.908	(-10.0, 11.5)
Ever employed during Q5 (%)	183	91	64.2	54.4	9.8	18.0	6.66	0.142	(-1.1, 20.8)
Ever employed during Q6 (%)	183	91	66.0	56.3	9.6	17.1	6.78	0.156	(-1.5, 20.8)

Source: National Directory of New Hires.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups. For the treatment-on-the-treated estimate, the no-show rate of 23.5 percent and the cross-over rate of 0.0 percent were used. Treatment-on-the-treated estimate p-values are corrected for multiple comparisons in line with the adjustment on the confirmatory outcome.

Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. *** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.9: Impacts on Earnings and Employment, by Employment Status in the Year Preceding Random Assignment, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Standard Error	p-Value	Subgroup Difference (Impact)[1]	Subgroup Difference (p-Value)[1]
Earnings in Q5 and Q6 post-random assignment ($)									
Not employed in any of the 4 quarters preceding random assignment	63	29	4,010	5,436	-1,426	1,251	0.255	3,092*	0.070
Employed in at least one of the 4 quarters preceding random assignment	120	62	7,726	6,060	1,666	1,212	0.171		
Employed in Q5 and Q6 post-random assignment (%)									
Not employed in any of the 4 quarters preceding random assignment	63	29	52.9	56.2	-3.3	2.57	0.203	7.3**	0.022
Employed in at least one of the 4 quarters preceding random assignment	120	62	77.1	73.0	4.0**	1.83	0.028		

Source: National Directory of New Hires.

Note: [1] The "subgroup difference (impact)" and "subgroup difference p-value" measure whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $-1,426 impact among those not employed in any of the four quarters preceding random assignment is different than the $1,666 impact among those employed in any of the four quarters preceding random assignment.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.10: Impacts on Earnings and Employment, by Educational Attainment at Random Assignment, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Standard Error	p-Value	Subgroup Difference (Impact)[1]	Subgroup Difference (p-Value)[1]
Earnings in Q5 and Q6 post-random assignment ($)									
High school diploma/GED or less	69	41	5,216	5,087	129	1,382	0.926	727	0.687
More than high school diploma/GED	114	50	7,241	6,385	856	1,210	0.480		
Employed in Q5 and Q6 post-random assignment (%)									
High school diploma/GED or less	69	41	66.3	62.4	3.9*	2.36	0.096	-3.9	0.214
More than high school diploma/GED	114	50	70.7	70.7	0.0	1.99	0.988		

Source: National Directory of New Hires.

Note: [1] The "subgroup difference (impact)" and "subgroup difference p -value" measure whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $129 earnings impact among those with a high school diploma/GED or less is different than the $856 earnings impact among those with more than a high school diploma/GED.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.11: Impacts on Earnings and Employment, 33-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Earnings									
Cumulative earnings in Q5 and Q6 ($)	158	80	6,139	5,936	203	3.4	988	0.838	(-1,422, 1,827)
Earnings in Q1 ($)	158	80	1,298	1,794	-496	-27.7	594	0.405	(-1,474, 481)
Earnings in Q2 ($)	158	80	1,554	2,091	-536	-25.6	397	0.178	(-1,189, 117)
Earnings in Q3 ($)	158	80	2,259	2,345	-86	-3.7	466	0.854	(-852, 681)
Earnings in Q4 ($)	158	80	2,385	2,487	-102	-4.1	484	0.833	(-899, 695)
Earnings in Q5 ($)	158	80	2,765	2,747	18	0.7	521	0.973	(-839, 875)
Earnings in Q6 ($)	158	80	3,374	3,189	185	5.8	512	0.719	(-658, 1,027)
Earnings in Q7 ($)	158	80	3,464	2,796	668	23.9	566	0.239	(-263, 1,599)
Earnings in Q8 ($)	158	80	3,094	3,038	56	1.8	563	0.921	(-871, 983)
Earnings in Q9 ($)	158	80	3,247	2,741	507	18.5	551	0.359	(-400, 1,413)
Earnings in Q10 ($)	158	80	3,640	3,488	152	4.3	580	0.794	(-803, 1,106)
Earnings in Q11 ($)	158	80	3,986	3,992	-6	-0.1	653	0.993	(-1,079, 1,068)
Cumulative earnings in Q1 through Q6 ($)	158	80	13,635	14,653	-1,018	-6.9	2,197	0.644	(-4,632, 2,596)
Cumulative earnings in Q1 through Q9 ($)	158	80	23,441	23,228	213	0.9	3,247	0.948	(-5,128, 5,554)
Cumulative earnings in Q1 through Q11 ($)	158	80	30,986	30,896	91	0.3	960	0.925	(-1,488, 1,669)
Employment									
Ever employed during Q5 or Q6 (%)	158	80	70.4	63.4	7.1	11.1	6.56	0.284	(-3.7, 17.8)
Ever employed during Q1 (%)	158	80	42.6	38.3	4.3	11.2	6.67	0.519	(-6.7, 15.3)
Ever employed during Q2 (%)	158	80	50.4	50.5	-0.1	-0.3	6.40	0.984	(-10.7, 10.4)
Ever employed during Q3 (%)	158	80	59.1	54.5	4.6	8.5	6.77	0.495	(-6.5, 15.8)
Ever employed during Q4 (%)	158	80	54.8	53.1	1.7	3.3	7.34	0.814	(-10.4, 13.8)
Ever employed during Q5 (%)	158	80	63.7	54.1	9.6	17.7	6.91	0.167	(-1.8, 20.9)
Ever employed during Q6 (%)	158	80	66.9	56.6	10.3	18.1	7.22	0.157	(-1.6, 22.1)
Ever employed during Q7 (%)	158	80	62.3	54.4	8.0	14.7	7.70	0.302	(-4.7, 20.6)
Ever employed during Q8 (%)	158	80	60.3	58.3	2.0	3.4	7.33	0.784	(-10.0, 14.1)
Ever employed during Q9 (%)	158	80	61.9	57.7	4.3	7.4	7.27	0.555	(-7.7, 16.2)
Ever employed during Q10 (%)	158	80	64.7	61.0	3.7	6.0	7.42	0.623	(-8.6, 15.9)
Ever employed during Q11 (%)	158	80	63.8	62.7	1.1	1.8	7.25	0.878	(-10.8, 13.0)
Ever employed during Q1 through Q6 (%)	158	80	83.2	75.8	7.4	9.7	5.72	0.199	(-2.0, 16.8)

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Ever employed during Q1 through Q9 (%)	158	80	85.3	85.3	0.0	0.1	1.20	0.969	(-1.9, 2.0)
Ever employed during Q1 through Q11 (%)	158	80	86.4	86.7	-0.2	-0.3	1.13	0.827	(-2.1, 1.6)

Source: National Directory of New Hires.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.12: Impacts on Earnings and Employment from Survey Data, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Earnings									
Total earnings, since random assignment ($)	130	59	23,243.3	18,005.2	5,238.0	29.1	3,515.88	0.138	(-545.6, 11,021
Total earnings, Q1 ($)	130	59	1,894.2	1,686.0	208.3	12.4	461.21	0.652	(-550.4, 967.0)
Total earnings, Q2 ($)	130	59	2,572.6	2,453.5	119.1	4.9	568.96	0.834	(-816.9, 1,055.
Total earnings, Q3 ($)	130	59	3,438.7	2,738.5	700.2	25.6	723.81	0.335	(-490.5, 1,890.
Total earnings, Q4 ($)	130	59	3,996.5	2,628.1	1,368.4**	52.1	687.50	0.048	(237.5, 2,499.4
Total earnings, Q5 ($)	130	59	4,225.6	2,970.2	1,255.4*	42.3	645.77	0.053	(193.1, 2,317.7
Total earnings, Q6 ($)	130	59	4,578.3	3,443.5	1,134.8*	33.0	626.04	0.071	(105.0, 2,164.7
Employment									
Ever employed, since random assignment (%)	130	59	89.3	88.4	0.8	0.9	6.09	0.891	(-9.2, 10.9)
Employed, Q1 (%)	130	59	53.5	45.5	8.0	17.6	9.23	0.388	(-7.2, 23.2)
Employed, Q2 (%)	130	59	56.1	53.3	2.9	5.4	8.94	0.748	(-11.8, 17.6)
Employed, Q3 (%)	130	59	66.4	60.5	5.8	9.6	8.77	0.507	(-8.6, 20.3)
Employed, Q4 (%)	130	59	72.3	63.5	8.8	13.8	8.21	0.288	(-4.8, 22.3)
Employed, Q5 (%)	130	59	79.5	72.6	6.9	9.5	7.56	0.360	(-5.5, 19.4)
Employed, Q6 (%)	130	59	82.3	73.8	8.5	11.5	7.54	0.263	(-3.9, 20.9)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.13: Impacts on Employment Status, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Employment Status at Time of Follow-Up Survey									
Employed (%)	128	59	74.6	64.4	10.2	15.9	7.94	0.199	(-2.8, 23.3)
Unemployed (%)	128	59	15.9	18.9	-3.0	-15.8	7.00	0.669	(-14.5, 8.5)
On temporary layoff (%)	128	59	2.3	1.3	1.0	75.6	1.31	0.448	(-1.2, 3.1)
Looking for work (%)	128	59	13.6	17.6	-4.0	-22.6	6.86	0.562	(-15.3, 7.3)
Out of the labor force (%)	128	59	9.5	16.7	-7.2	-43.3	6.49	0.266	(-17.9, 3.4)
Retired (%)	128	59	0.2	0.8	-0.6	-69.4	0.71	0.440	(-1.7, 0.6)
Unable to work because of disability (%)	128	59	6.0	9.5	-3.5	-36.6	4.65	0.457	(-11.1, 4.2)
Attending school or long-term training program (%)	128	59	1.5	4.9	-3.4	-69.5	3.34	0.306	(-8.9, 2.1)
Not looking for work (%)	128	59	1.7	1.5	0.2	14.3	2.89	0.941	(-4.5, 5.0)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.14: Impacts on Characteristics of Current or Most Recent Job, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Pay and Hours of Job									
Weekly earnings ($)	129	59	365	320	45	14.0	40.38	0.267	(-21.5, 111.4)
Hours worked per week	129	59	31.8	29.9	1.8	6.1	3.04	0.549	(-3.2, 6.8)
Number of weeks at job[a]	130	59	58.5	57.3	1.2	2.1	25.99	0.964	(-41.6, 43.9)
Job represented by a union (%)	129	58	6.3	6.7	-0.4	-5.5	5.40	0.945	(-9.2, 8.5)
Job Benefits									
Job offers health insurance (%)	129	58	46.0	44.9	1.1	2.5	9.73	0.909	(-14.9, 17.1)
Paid vacation (%)	129	59	43.2	22.2	21.0**	94.4	8.55	0.015	(6.9, 35.0)
Paid holiday (%)	130	59	41.7	38.5	3.3	8.5	9.27	0.725	(-12.0, 18.5)
Paid sick time (%)	129	59	26.7	20.8	5.9	28.1	7.95	0.462	(-7.2, 18.9)
Retirement/pension plan (%)	127	57	29.1	27.8	1.3	4.7	8.43	0.877	(-12.6, 15.2)
Job Schedule									
Regular daytime schedule (%)	129	59	58.0	44.4	13.6	30.7	9.00	0.132	(-1.2, 28.4)
Regular evening shift (%)	129	59	12.9	14.6	-1.7	-11.8	5.82	0.768	(-11.3, 7.9)
Regular night shift (%)	129	59	2.7	6.3	-3.6	-57.6	4.21	0.393	(-10.5, 3.3)
Rotating schedule (%)	129	59	6.4	7.3	-0.8	-11.5	4.80	0.862	(-8.7, 7.1)
Irregular schedule (%)	129	59	5.3	4.5	0.8	18.4	3.79	0.828	(-5.4, 7.1)
Other schedule (%)	129	59	3.7	11.0	-7.4	-66.9	5.66	0.194	(-16.7, 1.9)
Connection of Job to Training									
Respondent attributes getting a new job due to completing vocational training (%)	117	59	18.2	8.7	9.5	110.3	5.81	0.102	(0.0, 19.1)
Respondent employed in industry targeted by grant-funded training program (%)	130	59	37.7	34.2	3.4	10.0	8.73	0.695	(-10.9, 17.8)
Job is part of a career path (%)	128	58	50.7	33.8	16.9*	49.8	9.76	0.086	(0.8, 32.9)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a]Jobs that started before random assignment are included in these estimates.
Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.15: Descriptive Statistics on Current or Most Recent Job from Survey Data, Among Individuals Who Held At Least One Job, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group
Pay and Hours of Job				
Weekly earnings ($)	116	51	402	353
Hours worked per week	116	51	34.9	34.4
Number of weeks at job[a]	117	51	64.6	67.1
Job represented by a union (%)	116	50	6.6	7.3
Job Benefits				
Job offers health insurance (%)	116	50	50.6	50.8
Paid vacation (%)	116	51	48.9	23.8
Paid holiday (%)	117	51	47.2	42.2
Paid sick time (%)	116	51	30.5	23.3
Retirement/pension plan (%)	114	49	33.2	29.9
Job Schedule				
Regular daytime schedule (%)	116	51	66.2	46.7
Regular evening shift (%)	116	51	14.4	18.6
Regular night shift (%)	116	51	2.6	7.8
Rotating schedule (%)	116	51	7.3	9.5
Irregular schedule (%)	116	51	6.0	4.0
Other schedule (%)	116	51	3.5	13.4
Connection of Job to Training				
Respondent attributes getting a new job due to completing vocational training (%)	106	51	19.6	9.2
Respondent employed in industry targeted by grant-funded training program (%)	118	51	40.9	39.3
Job is part of a career path (%)	115	50	57.3	37.7

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Jobs that started before random assignment are included in these estimates.
Significance testing was not conducted on descriptive statistics. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

Exhibit D.16: Impacts on Household Income and Household Receipt of Public Benefits, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Total household income before taxes last year ($) [a]	128	56	22,887	18,759	4,128	22.0	2,757	0.136	(-408, 8,664)
Temporary Assistance for Needy Families (TANF)									
Received TANF last month (%)	130	59	4.0	0.4	3.7*	991.3	2.21	0.100	(0.0, 7.3)
Amount received ($)	126	59	6.43	2.31	4.12	178.6	5.21	0.430	(-4.44, 12.68)
Supplemental Nutrition Assistance Program (SNAP)									
Received SNAP last month (%)	130	59	38.7	40.7	-2.0	-5.0	8.82	0.819	(-16.5, 12.5)
Amount received ($)	128	59	86.00	94.34	-8.34	-8.8	26.38	0.752	(-51.74, 35.06)
Unemployment Insurance (UI)									
Received UI last month (%)	130	59	3.9	4.7	-0.8	-17.2	3.62	0.824	(-6.8, 5.1)
Amount received last month ($)	129	58	30.34	13.58	16.76	123.4	23.47	0.476	(-21.85, 55.36)
Other Federal Benefits									
Received other federal benefits last month (%)[b]	129	58	34.3	17.4	16.9*	97.3	8.60	0.051	(2.8, 31.1)
Amount received last month ($) [b]	129	58	236.11	168.17	67.94	40.4	76.17	0.374	(-57.35, 193.23)
Other Payments									
Received alimony, child support, rent payments, or financial support from friends/relatives last month (%)	130	59	11.3	6.4	4.9	77.6	4.16	0.237	(-1.9, 11.8)
Amount received last month ($)	130	59	36.09	42.61	-6.52	-15.3	29.93	0.828	(-55.76, 42.71)
Other Assistance Received									
Received any assistance from churches, food banks, or other private community organizations since random assignment (%)	130	59	29.1	37.5	-8.3	-22.3	8.56	0.331	(-22.4, 5.7)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: For outcomes measured in dollars, the analytic sample includes all study members with non-missing outcome data (including those with a value of zero for the outcome).

[a] Rather than providing a specific value for household income including transfers, some survey respondents indicated that their household income including transfers was in a specified range (e.g., between $45,000 and $60,000). For these individuals, income is defined as the midpoint of the specified range. [b] The other federal benefits include the following types: Supplemental Security Income; Social Security Disability Insurance; Women, Infants, and Children benefits; General Assistance; Trade Adjustment Assistance; Alternative Trade Adjustment Assistance; Workers' Compensation or Disability Insurance benefits; and Social Security.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the *p*<0.01 level. ** Difference is statistically significant at the *p*<0.05 level. * Difference is statistically significant at the *p*<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit D.17: Impacts on Financial Circumstances, 18-Month Follow-Up Period, GRCC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Housing Status									
Owned a home (%)	130	59	38.5	20.5	18.0**	87.6	8.33	0.032	(4.3, 31.7)
Rented a residence (%)	130	59	46.4	64.3	-17.9**	-27.8	8.91	0.046	(-32.5, -3.2)
Difficulty Covering Household Expenses									
Had difficulty covering all household expenses (%)	129	58	64.3	75.9	-11.6	-15.3	9.08	0.203	(-26.5, 3.3)
Had difficulty covering all household expenses in the past month (%)	129	59	63.0	86.0	-23.0***	-26.8	8.13	0.005	(-36.4, -9.6)
Types of Financial Difficulty Experienced									
Mortgage payment missed or been late (%)	130	59	8.7	11.9	-3.2	-27.1	5.37	0.548	(-12.1, 5.6)
Rent payment missed or been charged a late fee (%)	130	59	16.0	18.8	-2.8	-14.8	6.91	0.689	(-14.1, 8.6)
Been charged a late fee on any monthly credit payments (%)	130	59	36.2	32.3	3.9	12.1	8.64	0.653	(-10.3, 18.1)
Postponed a major purchase that was planned or needed such as a car or major appliance (%)	130	59	38.7	41.2	-2.5	-6.0	9.80	0.800	(-18.6, 13.6)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the *p*<0.01 level. ** Difference is statistically significant at the *p*<0.05 level. * Difference is statistically significant at the *p*<0.10 level. Asterisks are present only if the impact is statistically significant at the indicated level.

Appendix E: Supplementary Exhibits for Chapter 5

This appendix provides supplementary exhibits for the analysis of program impacts for KCCD's Clean Energy Center Program presented in Chapter 5.

Exhibit E.1: Selected Characteristics at Baseline, 18-Month Survey Sample, KCCD

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	10.5	11.2	9.8	1.4
Male	89.5	88.8	90.2	-1.4
Race (%)				
American Indian or Alaskan Native	7.8	6.9	8.8	-1.9
Asian	3.7	3.2	4.1	-0.9
Black or African American	10.1	9.3	11.1	-1.7
Native Hawaiian or other Pacific Islander	0.9	0.8	0.9	-0.1
White	71.6	72.9	70.0	2.8
Multi-race	6.0	6.9	5.1	1.8
Hispanic ethnicity (%)	50.2	44.9	55.8	-10.9**
Age (%)				
21 years or younger	19.6	20.7	18.5	2.3
22 to 29 years	31.2	29.9	32.6	-2.7
30 to 39 years	24.2	23.1	25.4	-2.2
40 years or older	24.9	26.2	23.6	2.6
Average age (years)	32.2	32.3	32.1	0.2
Citizenship (%)				
U.S. citizen	92.4	93.2	91.6	1.5
Legal resident	7.6	6.8	8.4	-1.5
Speaks a language other than English at home (%)	40.0	38.0	42.0	-4.0
Family Status				
Marital status (%)				
Married	29.1	28.0	30.3	-2.3

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Widowed/divorced/separated	14.1	17.7	10.2	7.5**
Never married	56.8	54.3	59.5	-5.2
Number of children under age of 18 (%)				
None	51.3	48.3	54.5	-6.2
One child	16.8	18.5	14.9	3.6
Two children	18.1	20.3	15.7	4.6
Three or more children	13.9	12.9	14.9	-2.0
Education				
Education level (%)				
Less than high school	2.8	3.4	2.2	1.3
High School diploma or GED	45.4	43.8	47.1	-3.3
Technical or associate's degree	13.9	13.4	14.5	-1.1
Some college credit but no degree	31.5	33.9	29.0	4.9
Bachelor's or master's degree	6.3	5.5	7.2	-1.8
Currently enrolled in school or training program (%)	8.8	8.0	9.6	-1.6
Employment				
Employed (%)	17.6	16.9	18.5	-1.6
Currently employed full time (30+ hours)	8.8	9.2	8.5	0.7
Currently employed part time (<30 hours)	8.8	7.7	10.0	-2.3
Not employed (%)	82.4	83.1	81.5	1.6
Employed in last 12 months but not employed currently	49.8	49.6	50.0	-0.4
Longer than 12 months since last worked	32.5	33.5	31.5	1.9
Weekly earnings ($)	52	52	53	-1
Factors That Affect Employment				
Amount a job must pay for respondent to take ($)	12.36	12.40	12.31	0.09
Felony conviction	11.2	11.2	11.3	0.0
Job preferences (%)				
Prefers the kind of job that relates to training	36.7	35.6	37.8	-2.2
Will take any job, even if the pay is low	61.3	58.8	64.0	-5.2
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	10.0	8.2	11.9	-3.6
Transportation problems limit ability to work	12.2	12.2	12.1	0.2

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Any kind of physical or mental disability	2.3	2.7	1.8	0.9
Public Benefits				
Receiving any public benefits (%)	43.7	45.9	41.3	4.6
Types of benefits received (%)				
Temporary Assistance for Needy Families	4.1	4.8	3.3	1.5
Supplemental Nutrition Assistance Program	21.7	23.3	19.9	3.4
Unemployment Insurance	25.6	27.7	23.2	4.5
Section 8 or public housing assistance	4.1	3.4	4.8	-1.4

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).

Note: The p-value for a global F-test is 0.302, which is not statistically significant, implying that collectively the treatment and control groups do not differ across all items considered. Estimates in this table are computed based on the 294 KCCD treatment group members and 276 KCCD control group members who completed the baseline and 18-month follow-up surveys. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.

** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

Exhibit E.2: Selected Characteristics at Baseline, NDNH Sample, KCCD

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	10.2	10.3	10.0	0.3
Male	89.8	89.7	90.0	-0.3
Race (%)				
White	71.6	73.0	70.0	3.0
Black	13.7	13.5	14.0	-0.5
All other races	14.7	13.5	16.0	-2.5
Age (%)				
21 years or younger	19.0	19.9	18.1	1.8
22 to 29 years	31.3	31.5	31.1	0.4
30 to 39 years	24.9	25.6	24.2	1.4
40 years or older	24.9	23.1	26.7	-3.6
Citizenship (%)				
U.S. citizen	93.2	94.1	92.4	1.7
Legal resident	6.8	5.9	7.7	-1.7
Speaks a language other than English at home (%)	37.9	35.8	40.1	-4.3
Family Status				
Marital status (%)	26.7	25.9	27.5	-1.7
Widowed/divorced/separated	15.6	17.5	13.7	3.8
Never married	57.7	56.7	58.8	-2.2
Number of children under age of 18 (%)				
None	52.0	48.1	55.9	-7.8**
One child	17.5	19.1	15.9	3.3
Two children	16.6	18.4	14.9	3.5
Three or more children	13.9	14.4	13.4	1.0
Education				
Education level (%)				
Less than high school	2.3	2.5	2.2	0.3
High school diploma or GED	45.8	46.2	45.3	0.9
Technical or associate's degree	13.2	13.1	13.3	-0.2
Some college credit but no degree	31.9	33.1	30.8	2.3

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Bachelor's or master's degree	6.8	5.2	8.4	-3.2
Currently enrolled in school or training program (%)	91.4	93.0	89.9	3.1
Employment				
Employment status (%)				
Currently not employed	39.0	35.9	42.1	-6.2
Employed in last 12 months but not employed currently	30.5	32.7	28.4	4.3
Average quarterly earnings for the past year ($)	10209	10926	9496	1,430
Factors That Affect Employment				
Amount a job must pay for respondent to take (%)				
$2.00 to $8.99 per hour	17.2	17.3	17.1	0.3
$9.00 to $9.99 per hour	8.2	9.0	7.3	1.6
$10.00 to $11.99 per hour	24.0	22.0	26.2	-4.3
$12.00 per hour or more	50.6	51.7	49.4	2.3
Job preferences (%)				
Prefers the kind of job that relates to training	37.4	36.2	38.6	-2.4
Will take any job, even if the pay is low	64.0	62.0	66.0	-4.0
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	9.3	8.0	10.6	-2.6
Transportation problems limit ability to work	12.8	12.4	13.2	-0.8
Any kind of physical or mental disability	2.5	3.0	2.0	1.0
Public Benefits				
Receiving any public benefits (%)	43.5	46.5	40.5	6.1
Types of benefits received (%)				
Temporary Assistance for Needy Families	4.5	5.0	4.0	1.0
Supplemental Nutrition Assistance Program	21.6	23.5	19.7	3.8
Unemployment Insurance	23.7	26.0	21.4	4.6
Section 8 or public housing assistance	3.6	3.2	4.0	-0.8

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).
Note: The p-value for a global F-test is 0.739, which is not statistically significant, implying that collectively the treatment and control groups do not differ across all items considered. Estimates in this table are computed based on the 407 KCCD treatment group members and 409 KCCD control group members for whom six follow-up quarters of NDNH data are available. The set of baseline measures used for balance testing within the NDNH sample differs from the set of baseline measures tested among the full study sample and 18-month survey sample, due to NDNH requirements to de-identify baseline data before attaching baseline data to NDNH data. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.
** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

Exhibit E.3: Impacts on Participation in Education and Training Programs, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Participated in **any education or training** (%)	292	276	95.0	43.8	51.2***	117.0	3.46	0.000	(45.5, 56.9)
Number of months attended education or training	263	258	3.8	1.7	2.2***	131.3	0.30	0.000	(1.7, 2.7)
Total number of courses attended	272	263	2.7	1.4	1.3***	90.1	0.25	0.000	(0.9, 1.7)
Enrolled in education and training at time of follow-up survey	270	266	11.5	10.9	0.6	5.8	2.94	0.830	(-4.2, 5.5)
Participated in **ABE/GED** (%)	292	276	5.5	2.6	2.9*	114.0	1.58	0.062	(0.4, 5.5)
Average number of months attended	289	273	0.1	0.1	0.0	19.3	0.10	0.804	(-0.1, 0.2)
Completed any ABE/GED classes	290	273	4.3	1.5	2.8**	185.9	1.42	0.050	(0.5, 5.1)
Participated in **vocational training** (%)	292	276	83.6	29.5	54.1***	183.1	3.68	0.000	(48.0, 60.1)
Average number of months attended	272	265	3.0	0.7	2.3***	314.3	0.20	0.000	(2.0, 2.6)
Completed any vocational trainings	279	269	76.6	24.2	52.5***	217.3	3.88	0.000	(46.1, 58.9)
Participated in **college level courses for credit** (%)	291	275	12.9	15.9	-3.0	-18.7	3.07	0.333	(-8.0, 2.1)
Average number of months attended	289	270	0.7	0.8	-0.1	-12.3	0.21	0.645	(-0.4, 0.2)
Completed any college level courses (%)	290	273	8.9	13.9	-5.0*	-35.7	2.76	0.073	(-9.5, -0.4)
Participated in classes on **study skills, workplace skills, or general life skills (**%)	290	276	15.1	8.4	6.7**	79.8	3.14	0.033	(1.6, 11.9)
Average number of months attended	284	272	0.2	0.1	0.1**	125.1	0.06	0.027	(0.0, 0.2)
Completed any life skills classes	285	273	11.9	7.2	4.7	66.0	2.92	0.105	(-0.1, 9.5)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.4: Descriptive Statistics on Participation in Education and Training Programs, Among Those Who Participated In Education or Training, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group
Participated in **any education or training** (%)	277	123	100.0	100.0
Number of months attended	248	105	4.0	4.1
Total number of courses attended	257	110	2.9	3.5
Enrolled in education and training at time of follow-up survey (%)	255	113	12.4	25.6
Participated in **ABE/GED** (%)	277	123	5.7	5.3
Number of months attended	274	120	0.1	0.2
Completed any ABE/GED classes (%)	275	120	4.4	2.7
Participated in **vocational training** (%)	277	123	87.5	65.9
Average number of months attended	257	112	3.2	1.7
Completed any vocational trainings (%)	264	116	80.3	56.7
Participated in **college level courses for credit** (%)	276	122	14.2	36.3
Number of months attended	274	117	0.7	1.8
Completed any college level courses (%)	275	120	10.2	33.3
Participated in classes on **study skills, workplace skills, or general life skills** (%)	275	123	16.5	20.8
Number of months attended	269	119	0.2	0.2
Completed any life skills classes (%)	270	120	13.1	18.6

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Significance testing was not conducted on descriptive statistics. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

Exhibit E.5: Impacts on Receipt of Advising, Support Services, and Financial Assistance, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Advising									
Received any type of advising as part of education and training program (%)	280	268	76.2	27.4	48.8***	178.4	4.11	0.000	(42.1, 55.6)
Academic (%)	280	268	25.5	18.9	6.6*	35.2	3.73	0.075	(0.5, 12.8)
Tutoring (%)	280	268	9.9	4.6	5.3**	116.3	2.47	0.032	(1.3, 9.4)
Career counseling (%)	281	268	51.2	14.7	36.5***	248.9	4.07	0.000	(29.8, 43.2)
Financial aid advising (%)	280	268	11.4	9.9	1.5	15.2	2.75	0.585	(-3.0, 6.0)
Job placement assistance (%)	280	268	63.3	14.9	48.3***	323.6	3.89	0.000	(41.9, 54.8)
Life Skills									
Received any assistance on life skills issues (%)	294	275	56.4	21.2	35.2***	166.2	4.09	0.000	(28.5, 42.0)
Having a good work ethic (%)	294	275	36.1	13.9	22.2***	159.7	3.80	0.000	(16.0, 28.5)
How to communicate well with your boss and co-workers (%)	294	275	52.3	15.8	36.4***	229.8	4.04	0.000	(29.8, 43.0)
How to manage any anger and frustrations (%)	294	275	41.1	12.4	28.7***	232.5	3.88	0.000	(22.3, 35.1)
How to manage your money and plan your finances (%)	294	275	16.5	9.9	6.6**	66.2	3.03	0.031	(1.6, 11.5)
Support Services									
Received support services to attend training or work (%)	294	276	48.0	33.8	14.3***	42.3	4.52	0.002	(6.8, 21.7)
Clothes or uniforms (%)	294	276	20.9	17.1	3.8	22.4	3.78	0.314	(-2.4, 10.0)
Childcare assistance (%)	294	276	1.1	3.9	-2.8**	-71.6	1.38	0.045	(-5.1, -0.5)
Assistance with transportation (%)	294	276	5.4	5.8	-0.4	-6.4	2.06	0.858	(-3.8, 3.0)
Job-related tools (%)	294	276	8.6	2.9	5.7***	200.7	2.04	0.005	(2.4, 9.1)
Books or supplies (%)	294	276	24.6	8.2	16.4***	200.3	3.23	0.000	(11.1, 21.7)
Financial Assistance									
Received financial assistance to attend education and training	274	267	86.1	28.8	57.3***	198.9	3.81	0.000	(51.1, 63.6)
Paid out of pocket for some portion of classes	267	262	13.9	21.0	-7.1*	-33.7	3.70	0.056	(-13.2, -1.0)
Received student loans to finance courses	265	262	1.6	3.5	-1.9	-54.2	1.60	0.236	(-4.5, 0.7)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.6: Impacts on Educational Attainment, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Received any education or training degree or credential (%)	294	276	76.9	23.4	53.5***	228.5	3.74	0.000	(47.3, 59.6)
Vocational Credentials									
Received vocational credential (%)	294	276	71.9	20.5	51.4***	251.3	3.80	0.000	(45.2, 57.6)
Number of vocational credentials received	294	276	1.1	0.4	0.7***	165.9	0.10	0.000	(0.5, 0.8)
Educational Degrees									
GED/high school diploma (%)	294	276	3.2	0.6	2.6**	407.6	1.17	0.026	(0.7, 4.5)
Associate's degree (%)	294	276	0.0	0.4	-0.4	-113.1	0.42	0.309	(-1.1, 0.3)
Bachelor's degree (%)	294	276	0.0	0.4	-0.4	-105.4	0.40	0.321	(-1.1, 0.3)
Other									
Received other type of credential (%)[a]	294	276	9.1	3.3	5.7***	172.3	2.15	0.008	(2.2, 9.3)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: [a] Other types of credentials and degrees include study skills, workplace skills, and general life skills credentials. No sample members received Master's, PhD, or Professional degrees.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.7: Impacts on Factors That Affected Ability to Work, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Factors that affected respondent's ability to work in the past month:									
Finding affordable quality childcare (%)	294	276	12.3	10.8	1.5	14.2	2.61	0.558	(-2.8, 5.8)
Problems with transportation (%)	294	274	22.4	25.5	-3.1	-12.2	3.78	0.410	(-9.3, 3.1)
Any physical, emotional, or other health conditions (%)	294	275	10.7	8.6	2.1	25.1	2.78	0.441	(-2.4, 6.7)
Factors that affected respondent's ability to work between random assignment and last month:									
Finding quality childcare that respondent could afford (%)	292	276	11.9	12.6	-0.7	-5.9	2.73	0.785	(-5.2, 3.7)
Problems with transportation (%)	294	275	31.0	28.2	2.8	9.9	4.05	0.491	(-3.9, 9.5)
Any physical, emotional, or other health conditions (%)	294	275	11.8	10.5	1.3	12.3	3.07	0.672	(-3.8, 6.4)
Amount a job must pay per hour for respondent to take it ($)[a]	290	273	14.19	12.83	1.36***	10.6	0.51	0.008	(0.52, 2.20)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: [a] For respondents who reported a rate per week/month/year, the conversion to hourly rate assumes an average work week of 34.5 hours based on the Bureau of Labor Statistics estimates for the private sector.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.8: Impacts on Earnings and Employment, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Confirmatory Outcome									
Cumulative earnings in Q5 and Q6 ($)	407	409	9,230	7,709	1,520##	19.7	601	0.012	(531, 2,509)
Treatment-on-the-Treated (TOT) Estimate									
Cumulative earnings in Q5 and Q6 ($)	407	409	9,334	7,524	1,810##	24.1	690.75	0.036	(674.04, 2946.41)
Earnings									
Cumulative earnings in Q1 through Q6 ($)	407	409	21,459	18,602	2,857**	15.4	1,280	0.026	(752, 4,963)
Earnings in Q1 ($)	407	409	1,277	1,828	-551***	-30.2	180	0.002	(-847, -256)
Earnings in Q2 ($)	407	409	2,801	2,746	55	2.0	256	0.831	(-366, 476)
Earnings in Q3 ($)	407	409	3,805	3,022	783***	25.9	291	0.007	(304, 1,262)
Earnings in Q4 ($)	407	409	4,347	3,296	1,051***	31.9	305	0.001	(549, 1,553)
Earnings in Q5 ($)	407	409	4,639	3,701	938***	25.3	307	0.002	(432, 1,443)
Earnings in Q6 ($)	407	409	4,591	4,008	583*	14.5	322	0.070	(53, 1,112)
Employment									
Ever employed during Q5 or Q6 (%)	407	409	74.0	69.4	4.7	6.8	3.08	0.129	(-0.4, 9.8)
Ever employed during Q1 through Q6 (%)	407	409	88.9	83.9	4.9**	5.9	2.29	0.032	(1.1, 8.7)
Ever employed during Q1 (%)	407	409	39.2	53.7	-14.5***	-27.1	3.30	0.000	(-20.0, -9.1)
Ever employed during Q2 (%)	407	409	58.5	58.2	0.3	0.5	3.41	0.928	(-5.3, 5.9)
Ever employed during Q3 (%)	407	409	67.3	59.6	7.7**	12.9	3.25	0.018	(2.4, 13.1)
Ever employed during Q4 (%)	407	409	71.4	61.2	10.3***	16.8	3.25	0.002	(4.9, 15.6)
Ever employed during Q5 (%)	407	409	67.6	63.3	4.3	6.7	3.27	0.194	(-1.1, 9.6)
Ever employed during Q6 (%)	407	409	68.2	64.9	3.3	5.1	3.22	0.301	(-2.0, 8.6)

Source: National Directory of New Hires.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups. For the treatment-on-the-treated estimate, the no-show rate of 14.0 percent and the cross-over rate of 1.22 percent were used. Treatment-on-the-treated estimate p-values are corrected for multiple comparisons in line with the adjustment on the confirmatory outcome.

Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. *** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.9: Impacts on Earnings and Employment, by Employment Status in the Year Preceding Random Assignment, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Standard Error	p-Value	Subgroup Difference (Impact)[1]	Subgroup Difference (p-Value)[1]
Earnings in Q5 and Q6 post-random assignment ($)									
Not employed in any of the 4 quarters preceding random assignment	143	144	6,819	4,842	1,978**	950	0.038	-347	0.778
Employed in at least one of the 4 quarters preceding random assignment	264	265	10,718	9,086	1,631**	791	0.040		
Employed in Q5 and Q6 post-random assignment (%)									
Not employed in any of the 4 quarters preceding random assignment	143	144	59.1	55.2	3.9**	1.82	0.030	-3.7*	0.082
Employed in at least one of the 4 quarters preceding random assignment	264	265	79.7	79.5	0.3	1.09	0.810		

Source: National Directory of New Hires.

Note: [1] The "subgroup difference (impact)" and "subgroup difference p-value" measure whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $1,978 earnings impact among those not employed in any of the four quarters preceding random assignment is different than the $1,631 earnings impact among those employed in any of the four quarters preceding random assignment.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.10: Impacts on Earnings and Employment, by Educational Attainment at Random Assignment, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Standard Error	p-Value	Subgroup Difference (Impact)[1]	Subgroup Difference (p-Value)[1]
Earnings in Q5 and Q6 post-random assignment ($)									
High school diploma/GED or less	197	193	8,477	7,416	1,061	860	0.218	971	0.417
More than high school diploma/GED	208	213	9,937	7,906	2,031**	841	0.016		
Employed in Q5 and Q6 post-random assignment (%)									
High school diploma/GED or less	197	193	73.0	71.1	1.8	1.38	0.189	-0.7	0.730
More than high school diploma/GED	208	213	71.6	70.4	1.2	1.32	0.382		

Source: National Directory of New Hires.
Note: [1] The "subgroup difference (impact)" and "subgroup difference p-value" measure whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $1,061 earnings impact among those with a high school diploma/GED or less is different than the $2,031 earnings impact among those with more than a high school diploma/GED.
Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.11: Impacts on Earnings and Employment, 27-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Earnings									
Cumulative earnings in Q5 and Q6 ($)	233	234	8,788	7,661	1,127	14.7	818	0.169	(-218, 2,472)
Earnings in Q1 ($)	233	234	1,165	1,695	-530**	-31.3	257	0.040	(-954, -107)
Earnings in Q2 ($)	233	234	2,793	2,502	291	11.6	374	0.437	(-325, 907)
Earnings in Q3 ($)	233	234	4,276	2,832	1,444***	51.0	433	0.001	(732, 2,156)
Earnings in Q4 ($)	233	234	4,503	3,257	1,246***	38.3	430	0.004	(539, 1,953)
Earnings in Q5 ($)	233	234	4,418	3,738	680	18.2	418	0.104	(-7, 1,367)
Earnings in Q6 ($)	233	234	4,370	3,923	447	11.4	450	0.321	(-294, 1,187)
Earnings in Q7 ($)	233	234	3,995	4,052	-58	-1.4	425	0.892	(-757, 642)
Earnings in Q8 ($)	233	234	4,359	4,338	21	0.5	495	0.966	(-793, 835)
Earnings in Q9 ($)	233	234	4,921	4,726	195	4.1	486	0.689	(-605, 995)
Cumulative earnings in Q1 through Q6 ($)	233	234	21,525	17,948	3,577**	19.9	1,756	0.042	(688, 6,467)
Cumulative earnings in Q1 through Q9 ($)	233	234	34,799	31,063	3,736	12.0	2,696	0.166	(-699, 8,171)
Employment									
Ever employed during Q5 or Q6 (%)	233	234	71.6	69.3	2.3	3.3	4.48	0.609	(-5.1, 9.7)
Ever employed during Q1 (%)	233	234	39.3	49.3	-10.0**	-20.3	4.68	0.033	(-17.7, -2.3)
Ever employed during Q2 (%)	233	234	59.1	52.3	6.8	13.1	4.91	0.164	(-1.2, 14.9)
Ever employed during Q3 (%)	233	234	69.5	57.7	11.8**	20.5	4.59	0.010	(4.3, 19.4)
Ever employed during Q4 (%)	233	234	73.6	60.1	13.5***	22.6	4.64	0.004	(5.9, 21.2)
Ever employed during Q5 (%)	233	234	66.8	63.4	3.3	5.2	4.71	0.484	(-4.5, 11.1)
Ever employed during Q6 (%)	233	234	64.4	64.5	-0.2	-0.3	4.69	0.972	(-7.9, 7.5)
Ever employed during Q7 (%)	233	234	64.9	65.7	-0.8	-1.2	4.64	0.862	(-8.4, 6.8)
Ever employed during Q8 (%)	233	234	63.1	67.5	-4.3	-6.4	4.65	0.352	(-12.0, 3.3)
Ever employed during Q9 (%)	233	234	69.4	66.8	2.6	3.8	4.61	0.578	(-5.0, 10.1)
Ever employed during Q1 through Q6 (%)	233	234	89.0	82.3	6.7**	8.1	3.26	0.040	(1.3, 12.1)
Ever employed during Q1 through Q9 (%)	233	234	90.5	88.9	1.6**	1.8	0.75	0.037	(0.3, 2.8)

Source: National Directory of New Hires.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.12: Impacts on Earnings and Employment from Survey Data, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Earnings									
Total earnings, since random assignment ($)	292	272	28,976.8	22,815.6	6,161.2**	27.0	2,391.49	0.010	(2,227.2, 10,09
Total earnings, Q1 ($)	292	272	1,793.9	1,939.2	-145.3	-7.5	379.36	0.702	(-769.4, 478.7)
Total earnings, Q2 ($)	292	272	3,313.0	3,181.6	131.5	4.1	437.66	0.764	(-588.5, 851.4)
Total earnings, Q3 ($)	292	272	4,758.0	3,817.1	940.9**	24.6	466.03	0.044	(174.3, 1,707.5
Total earnings, Q4 ($)	292	272	5,575.0	3,815.6	1,759.4***	46.1	467.39	0.000	(990.6, 2,528.3
Total earnings, Q5 ($)	292	272	5,706.7	3,976.2	1,730.6***	43.5	461.76	0.000	(971.0, 2,490.2
Total earnings, Q6 ($)	292	272	5,333.8	3,914.3	1,419.5***	36.3	436.70	0.001	(701.1, 2,137.8
Employment									
Ever employed, since random assignment (%)	294	276	91.7	82.6	9.1***	11.0	2.89	0.002	(4.3, 13.9)
Employed, Q1 (%)	294	276	38.0	48.8	-10.8**	-22.1	4.20	0.010	(-17.7, -3.9)
Employed, Q2 (%)	294	276	58.5	62.4	-3.9	-6.3	4.26	0.356	(-10.9, 3.1)
Employed, Q3 (%)	294	276	71.5	64.2	7.3*	11.3	3.94	0.066	(0.8, 13.7)
Employed, Q4 (%)	294	276	76.7	66.9	9.8**	14.6	3.85	0.011	(3.4, 16.1)
Employed, Q5 (%)	294	276	77.8	69.4	8.4**	12.1	3.75	0.025	(2.2, 14.6)
Employed, Q6 (%)	294	276	77.4	68.8	8.5**	12.4	3.86	0.028	(2.2, 14.9)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.13: Impacts on Employment Status, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Employment Status at Time of Follow-Up Survey									
Employed (%)	286	269	66.4	61.7	4.7	7.6	4.24	0.266	(-2.3, 11.7)
Unemployed (%)	286	269	25.7	26.4	-0.7	-2.6	3.93	0.864	(-7.1, 5.8)
On temporary layoff (%)	286	269	6.8	2.6	4.2**	164.0	1.93	0.030	(1.0, 7.4)
Looking for work (%)	286	269	19.0	23.8	-4.9	-20.4	3.60	0.176	(-10.8, 1.0)
Out of the labor force (%)	286	269	7.9	11.9	-4.0	-34.0	2.69	0.133	(-8.5, 0.4)
Retired (%)	286	269	0.1	1.3	-1.2	-92.6	0.75	0.106	(-2.4, 0.0)
Unable to work because of disability (%)	286	269	1.8	1.9	-0.1	-7.5	1.00	0.885	(-1.8, 1.5)
Attending school or long-term training program (%)	286	269	4.8	5.5	-0.7	-12.4	1.99	0.732	(-4.0, 2.6)
Not looking for work (%)	286	269	1.2	3.2	-2.0	-62.7	1.43	0.161	(-4.4, 0.3)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.14: Impacts on Characteristics of Current or Most Recent Job, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Pay and Hours of Job									
Weekly earnings ($)	293	271	531	398	133***	33.4	33.46	0.000	(78.0, 188.1)
Hours worked per week	291	273	35.3	30.9	4.4***	14.3	1.60	0.006	(1.8, 7.1)
Number of weeks at job[a]	294	275	60.4	54.7	5.8	10.6	10.08	0.567	(-10.8, 22.3)
Job represented by a union (%)	293	274	16.1	8.7	7.5**	86.3	3.09	0.016	(2.4, 12.6)
Job Benefits									
Job offers health insurance (%)	288	274	53.3	48.9	4.4	9.0	4.45	0.326	(-2.9, 11.7)
Paid vacation (%)	288	274	37.6	39.0	-1.4	-3.6	4.38	0.750	(-8.6, 5.8)
Paid holiday (%)	291	276	36.7	40.2	-3.5	-8.6	4.45	0.435	(-10.8, 3.8)
Paid sick time (%)	290	274	28.4	30.1	-1.7	-5.8	4.11	0.672	(-8.5, 5.0)
Retirement/pension plan (%)	284	273	36.7	32.8	3.9	11.9	4.37	0.374	(-3.3, 11.1)
Job Schedule									
Regular daytime schedule (%)	294	276	66.8	57.1	9.8**	17.1	4.37	0.026	(2.6, 16.9)
Regular evening shift (%)	294	276	7.2	3.6	3.6*	99.1	1.96	0.066	(0.4, 6.8)
Regular night shift (%)	294	276	3.5	4.2	-0.8	-18.1	2.09	0.714	(-4.2, 2.7)
Rotating schedule (%)	294	276	4.8	6.7	-1.9	-28.8	2.08	0.357	(-5.3, 1.5)
Irregular schedule (%)	294	276	7.1	7.3	-0.3	-3.5	2.32	0.913	(-4.1, 3.6)
Other schedule (%)	294	276	2.4	3.7	-1.3	-36.0	1.49	0.374	(-3.8, 1.1)
Connection of Job to Training									
Respondent attributes getting a new job due to completing vocational training (%)	262	263	34.8	7.5	27.3***	363.3	3.82	0.000	(21.0, 33.6)
Respondent employed in industry targeted by grant-funded training program (%)	294	276	24.8	8.5	16.3***	193.1	3.16	0.000	(11.1, 21.5)
Job is part of a career path (%)	293	272	55.6	47.4	8.1*	17.1	4.42	0.066	(0.9, 15.4)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: [a] Jobs that started before random assignment are included in these estimates.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.15: Descriptive Statistics on Current or Most Recent Job Characteristics from Survey Data, *Among Individuals Who Held At Least One Job*, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group
Pay and Hours of Job				
Weekly earnings ($)	269	230	582	483
Hours worked per week	267	232	38.6	37.2
Number of weeks at job[a]	270	234	66.9	65.6
Job represented by a union (%)	269	233	17.6	11.0
Job Benefits				
Job offers health insurance (%)	264	233	58.0	58.0
Paid vacation (%)	264	233	40.8	46.2
Paid holiday (%)	267	235	40.0	47.7
Paid sick time (%)	266	233	30.6	34.8
Retirement/pension plan (%)	260	232	39.9	38.7
Job Schedule				
Regular daytime schedule (%)	270	235	72.9	69.8
Regular evening shift (%)	270	235	7.9	4.2
Regular night shift (%)	270	235	3.5	4.4
Rotating schedule (%)	270	235	5.3	7.8
Irregular schedule (%)	270	235	7.7	9.0
Other schedule (%)	270	235	2.7	4.8
Connection of Job to Training				
Respondent attributes getting a new job due to completing vocational training (%)	241	224	37.7	8.4
Respondent employed in industry targeted by grant-funded training program (%)	266	228	28.0	11.1
Job is part of a career path (%)	269	231	60.2	56.3

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Jobs that started before random assignment are included in these estimates.
Significance testing was not conducted on descriptive statistics. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

Exhibit E.16: Impacts on Hours Worked Per Week and Estimated Hourly Wage, 18-Month Follow-up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Impact	Standard Error	p-Value
Hours worked per week	291	273	35.3	30.9	4.4***	14.3	1.60	0.006
Pseudo wage	289	268	15.16	12.84	2.31***	18.0	0.70	0.002

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.17: Impacts on Household Income and Household Receipt of Public Benefits, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Total household income before taxes last year ($) [a]	286	267	30,756	30,791	-35	-0.1	1,986	0.986	(-3,301, 3,232)
Temporary Assistance for Needy Families (TANF)									
Received TANF last month (%)	290	275	5.9	7.0	-1.1	-15.6	2.26	0.630	(-4.8, 2.6)
Amount received ($)	285	272	27.79	27.71	0.07	0.3	12.87	0.996	(-21.10, 21.24)
Supplemental Nutrition Assistance Program (SNAP)									
Received SNAP last month (%)	292	275	24.0	25.0	-1.0	-4.1	3.69	0.783	(-7.1, 5.0)
Amount received ($)	285	266	74.19	65.56	8.64	13.2	13.10	0.510	(-12.90, 30.18)
Unemployment Insurance (UI)									
Received UI last month (%)	294	276	10.3	7.4	3.0	40.6	2.58	0.248	(-1.3, 7.2)
Amount received last month ($)	294	270	84.64	58.36	26.28	45.0	25.08	0.295	(-14.99, 67.54)
Other Federal Benefits									
Received other federal benefits last month (%)[b]	289	274	26.3	25.7	0.6	2.5	4.18	0.879	(-6.2, 7.5)
Amount received last month ($) [b]	289	274	184.48	167.44	17 .04	10.2	58.99	0.773	(-80.01, 114.08)
Other Payments									
Received alimony, child support, rent payments, or financial support from friends/relatives last month (%)	293	276	8.7	9.7	-1.0	-10.7	2.49	0.677	(-5.1, 3.1)
Amount received last month ($)	292	273	67.73	66.49	1.24	1.9	36.91	0.973	(-59.48, 61.97)

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Other Assistance Received									
Received any assistance from churches, food banks, or other private community organizations since random assignment (%)	292	276	15.6	15.8	-0.1	-0.9	3.38	0.968	(-5.7, 5.4)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: For outcomes measured in dollars, the analytic sample includes all study members with non-missing outcome data (including those with a value of zero for the outcome).

[a] Rather than providing a specific value for household income including transfers, some survey respondents indicated that their household income including transfers was in a specified range (e.g., between $45,000 and $60,000). For these individuals, income is defined as the midpoint of the specified range. [b] The other federal benefits include the following types: Supplemental Security Income; Social Security Disability Insurance; Women, Infants, and Children benefits; General Assistance; Trade Adjustment Assistance; Alternative Trade Adjustment Assistance; Workers' Compensation or Disability Insurance benefits; and Social Security.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit E.18: Impacts on Financial Circumstances, 18-Month Follow-Up Period, KCCD

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Housing Status									
Owned a home (%)	293	274	17.9	16.8	1.1	6.4	3.00	0.719	(-3.9, 6.0)
Rented a residence (%)	293	275	50.6	47.8	2.8	5.9	4.35	0.516	(-4.3, 10.0)
Difficulty Covering Household Expenses									
Had difficulty covering all household expenses (%)	292	273	59.4	55.5	3.9	7.0	4.24	0.359	(-3.1, 10.9)
Had difficulty covering all household expenses in the past month (%)	290	272	51.0	61.3	-10.3**	-16.8	4.20	0.014	(-17.2, -3.4)
Types of Financial Difficulty Experienced									
Mortgage payment missed or been late (%)	292	274	6.8	7.8	-0.9	-12.1	2.19	0.668	(-4.5, 2.7)
Rent payment missed or been charged a late fee (%)	293	275	14.3	15.0	-0.7	-5.0	3.14	0.812	(-5.9, 4.4)
Been charged a late fee on any monthly credit payments (%)	291	274	31.0	28.5	2.6	9.0	4.04	0.528	(-4.1, 9.2)
Postponed a major purchase that was planned or needed such as a car or major appliance (%)	293	274	32.2	31.7	0.5	1.6	4.14	0.904	(-6.3, 7.3)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Appendix F: Supplementary Exhibits for Chapter 6

This appendix provides supplementary exhibits for the analysis of program impacts for NCTC's Health Matrix Grant program presented in Chapter 6.

Exhibit F.1: Selected Characteristics at Baseline, 18-Month Survey Sample, NCTC

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	85.6	85.6	85.7	-0.1
Male	14.4	14.4	14.3	0.1
Race (%)				
American Indian or Alaskan Native	3.1	2.9	3.3	-0.5
Asian	5.3	5.0	5.7	-0.7
Black or African American	18.4	18.6	18.0	0.6
Native Hawaiian or other Pacific Islander	0.3	0.2	0.3	-0.1
White	69.1	69.7	68.3	1.4
Multi-race	3.9	3.6	4.3	-0.8
Hispanic ethnicity (%)	20.9	21.1	20.7	0.4
Age (%)				
21 years or younger	27.9	28.7	26.8	1.9
22 to 29 years	26.0	25.0	27.4	-2.4
30 to 39 years	19.7	20.6	18.5	2.2
40 years or older	26.4	25.7	27.4	-1.7
Average age (years)	31.5	31.6	31.4	0.2
Citizenship (%)				
U.S. citizen	91.4	90.6	92.6	-2.1
Legal resident	8.6	9.4	7.4	2.1
Speaks a language other than English at home (%)	23.4	24.5	21.8	2.7
Family Status				
Marital status (%)				
Married	33.3	31.0	36.4	-5.4
Widowed/divorced/separated	17.5	18.9	15.7	3.2

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Never married	49.2	50.1	47.9	2.2
Number of children under age of 18(%)				
None	47.7	50.5	43.9	6.6
One child	24.1	23.3	25.2	-1.9
Two children	16.9	15.0	19.7	-4.7
Three or more children	11.3	11.3	11.3	0.0
Education				
Education level (%)				
Less than high school	3.8	3.7	3.9	-0.2
High School diploma or GED	26.3	25.2	28.0	-2.8
Technical or associate's degree	10.6	10.6	10.6	0.0
Some college credit but no degree	47.3	49.2	44.7	4.5
Bachelor's or master's degree	12.0	11.3	12.9	-1.5
Currently enrolled in school or training program (%)	26.6	28.7	23.7	5.0
Employment				
Employed (%)	54.5	55.9	52.5	3.4
Currently employed full time (30+ hours)	30.6	30.6	30.6	0.0
Currently employed part time (<30 hours)	23.9	25.3	21.9	3.4
Not employed (%)	45.5	44.1	47.5	-3.4
Employed in last 12 months but not employed currently	27.7	26.5	29.3	-2.8
Longer than 12 months since last worked	17.8	17.6	18.2	-0.6
Weekly earnings ($)	165	165	164	2
Factors That Affect Employment				
Amount a job must pay for respondent to take ($)	10.81	10.94	10.63	0.31
Felony conviction (%)	0.3	0.5	0.0	-0.5
Job preferences (%)				
Prefers the kind of job that relates to training	53.6	49.0	60.0	-11.0**
Will take any job, even if the pay is low	52.9	54.2	51.0	3.3
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	17.6	15.6	20.5	-4.8
Transportation problems limit ability to work	5.2	4.6	5.9	-1.4
Any kind of physical or mental disability	2.8	3.2	2.2	1.0

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Public Benefits				
Receiving any public benefits (%)	22.4	20.9	24.5	-3.7
Types of benefits received (%)				
Temporary Assistance for Needy Families	0.5	0.7	0.3	0.4
Supplemental Nutrition Assistance Program	15.1	14.0	16.7	-2.7
Unemployment Insurance	8.1	7.7	8.7	-1.0
Section 8 or public housing assistance	2.6	2.1	3.2	-1.1

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).
Note: The p-value for a global F-test is 0.851, which is not statistically significant, implying that collectively the treatment and control groups do not differ across all items considered. Estimates in this table are computed based on the 436 NCTC treatment group members and 314 NCTC control group members who completed the baseline and 18-month follow-up surveys. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.
** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

Exhibit F.2: Selected Characteristics at Baseline, NDNH Sample, NCTC

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Demographic Characteristics				
Gender (%)				
Female	85.0	83.6	86.6	-3.0
Male	15.0	16.4	13.4	3.0
Race (%)				
White	68.8	69.0	68.7	0.2
Black	20.3	20.1	20.5	-0.4
All other races	10.9	10.9	10.8	0.2
Age (%)				
21 years or younger	28.9	29.8	27.7	2.2
22 to 29 years	27.6	26.9	28.6	-1.7
30 to 39 years	18.0	18.2	17.7	0.4
40 years or older	25.5	25.1	26.0	-1.0
Citizenship (%)				
U.S. citizen	92.5	91.4	93.9	-2.6
Legal resident	7.5	8.6	6.1	2.6
Speaks a language other than English at home (%)	22.3	24.2	19.9	4.3
Family Status				
Marital status (%)				
Married	31.4	29.0	34.4	-5.5
Widowed/divorced/separated	17.1	18.2	15.7	2.5
Never married	51.5	52.8	49.9	2.9
Number of children under age of 18 (%)				
None	47.7	50.2	44.5	5.7
One child	24.4	24.1	24.8	-0.7
Two children	16.5	15.2	18.3	-3.1
Three children	11.4	10.6	12.4	-1.8
Education				
Education level (%)				
Less than high school	3.8	3.5	4.2	-0.7
High school diploma or GED	26.4	26.3	26.5	-0.2
Technical or associate's degree	10.2	10.1	10.5	-0.4

Characteristic	Entire Sample	Treatment Group	Control Group	Difference
Some college credit but no degree	48.2	49.9	46.1	3.9
Bachelor's or master's degree	11.4	10.2	12.8	-2.6
Currently enrolled in school or training program (%)	73.6	71.5	76.2	-4.8
Employment				
Employment status (%)				
Currently not employed	63.5	64.0	62.9	1.1
Employed in last 12 months but not employed currently	18.8	18.2	19.6	-1.4
Average quarterly earnings for the past year ($)	10,902	11,357	10,327	1,030
Factors That Affect Employment				
Amount a job must pay for respondent to take (%)				
$2.00 to $8.99 per hour	22.5	22.8	22.0	0.8
$9.00 to $9.99 per hour	11.0	10.5	11.6	-1.1
$10.00 to $11.99 per hour	34.1	33.0	35.4	-2.3
$12.00 per hour or more	32.5	33.7	31.0	2.7
Job preferences (%)				
Prefers the kind of job that relates to training	53.5	49.8	58.1	-8.3**
Will take any job, even if the pay is low	53.2	53.4	53.0	0.4
Employment limitations (%)				
Finding quality, affordable childcare limits ability to work	17.1	16.1	18.5	-2.5
Transportation problems limit ability to work	5.8	5.5	6.2	-0.7
Any kind of physical or mental disability	3.0	3.1	2.8	0.3
Public Benefits				
Receiving any public benefits (%)	23.9	22.5	25.8	-3.3
Types of benefits received (%)				
Temporary Assistance for Needy Families	0.7	0.7	0.7	0.0
Supplemental Nutrition Assistance Program	16.1	15.1	17.4	-2.4
Unemployment Insurance	8.0	7.6	8.4	-0.9
Section 8 or public housing assistance	3.7	2.7	4.9	-2.2

Source: Green Jobs and Health Care Impact Evaluation Baseline Information Form (BIF).

Note: The p-value for a global F-test is 0.375, which is not statistically significant, implying that collectively the treatment and control groups do not differ across all items considered. Estimates in this table are computed based on the 550 NCTC treatment group members and 434 NCTC control group members for whom six follow-up quarters of NDNH data are available. The set of baseline measures used for balance testing within the NDNH sample differs from the set of baseline measures tested among the full study sample and 18-month survey sample, due to NDNH requirements to de-identify baseline data before attaching baseline data to NDNH data. The set of baseline measures used for balance testing differs from the set of baseline measures used as controls in the impact models. For a full description of the baseline measures included in the site-specific impact models, see Appendix A, Exhibit A.1. Due to rounding, the difference between the reported treatment and control group means may not equal the reported difference.

** Difference is statistically significant at the $p<0.05$ level. Asterisks are present only if the difference is statistically significant at the indicated level.

Exhibit F.3: Impacts on Receipt of Financial Assistance and Participation in Education and Training Programs, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Received **financial assistance** to attend education and training (%)	405	297	80.7	29.9	50.8***	169.8	3.42	0.000	(45.2, 56.4)
Paid out of pocket for some portion of classes (%)	402	299	54.6	47.3	7.3*	15.5	3.85	0.057	(1.0, 13.7)
Received student loans to finance courses (%)	389	292	9.6	8.3	1.3	15.8	2.24	0.557	(-2.4, 5.0)
Participated in **any education or training** (%)	433	314	94.2	64.4	29.8***	46.3	2.90	0.000	(25.0, 34.6)
Number of months attended education or training	377	288	4.8	3.8	1.0***	26.5	0.31	0.001	(0.5, 1.5)
Total number of courses attended	396	300	2.8	2.2	0.5***	23.8	0.19	0.004	(0.2, 0.8)
Enrolled in education and training at time of follow-up survey	390	293	18.1	12.0	6.1**	50.8	2.75	0.027	(1.6, 10.6)
Participated in **ABE/GED** (%)	433	314	3.7	4.0	-0.3	-7.9	1.44	0.825	(-2.7, 2.1)
Average number of months attended	427	309	0.1	0.1	0.0	-30.7	0.05	0.514	(-0.1, 0.0)
Completed any ABE/GED classes	429	311	1.8	2.8	-1.0	-34.6	1.13	0.394	(-2.8, 0.9)
Participated in **vocational training** (%)	432	314	73.4	44.0	29.3***	66.6	3.61	0.000	(23.4, 35.3)
Average number of months attended	400	300	2.8	1.5	1.2***	79.1	0.22	0.000	(0.9, 1.6)
Completed any vocational trainings	409	301	68.1	39.7	28.4***	71.3	3.74	0.000	(22.2, 34.5)
Participated in **college level courses for credit** (%)	433	314	34.0	33.5	0.5	1.5	3.21	0.879	(-4.8, 5.8)
Average number of months attended	417	305	2.0	2.2	-0.3	-11.6	0.27	0.327	(-0.7, 0.2)
Completed any college level courses (%)	423	308	28.8	27.6	1.2	4.4	2.98	0.684	(-3.7, 6.1)
Participated in classes on **study skills, workplace skills, or general life skills (**%)	433	314	13.7	8.0	5.6**	70.4	2.25	0.013	(1.9, 9.4)
Average number of months attended	423	312	0.3	0.2	0.1	54.8	0.07	0.198	(0.0, 0.2)
Completed any life skills classes	424	313	11.8	6.7	5.1**	76.3	2.11	0.016	(1.6, 8.6)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.4: Descriptive Statistics on Receipt of Financial Assistance and Participation in Education and Training Programs, Among Those Who Participated In Education or Training, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group
Received **financial assistance** to attend education and training (%)	382	184	85.9	48.4
Paid out of pocket for some portion of classes (%)	379	186	58.3	75.9
Received student loans to finance courses (%)	366	179	10.5	12.1
Participated in **any education or training** (%)	410	201	100.0	100.0
Number of months attended	354	175	5.2	5.9
Total number of courses attended	373	187	3.0	3.3
Enrolled in education and training at time of follow-up survey (%)	400	199	0.3	1.5
Participated in **ABE/GED** (%)	409	201	3.9	6.1
Number of months attended	403	196	0.1	0.2
Completed any ABE/GED classes (%)	405	198	1.9	4.1
Participated in **vocational training** (%)	409	201	78.2	72.3
Average number of months attended	377	187	3.0	2.7
Completed any vocational trainings (%)	386	188	73.1	66.7
Participated in **college level courses for credit** (%)	409	201	35.8	46.5
Number of months attended	393	192	2.1	3.1
Completed any college level courses (%)	399	195	30.0	37.4
Participated in classes on **study skills, workplace skills, or general life skills** (%)	409	201	14.3	12.6
Number of months attended	399	199	0.3	0.3
Completed any of these classes (%)	400	200	12.3	10.5

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Significance testing was not conducted on descriptive statistics. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

Exhibit F.5: Impacts on Participation in Education and Training Programs Provided by NCTC, 18-Month Follow-Up Period

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Participated in any education or training at NCTC (%)	415	304	83.7	42.2	41.6***	98.6	3.47	0.000	(35.9, 47.3)
Participated in ABE/GED class at NCTC (%)	431	312	2.3	1.9	0.4	20.1	1.09	0.719	(-1.4, 2.2)
Participated in college course at NCTC (%)	427	310	20.4	17.3	3.1	18.1	2.85	0.274	(-1.6, 7.8)
Participated in vocational training at NCTC (%)	417	304	68.0	30.7	37.3***	121.2	3.61	0.000	(31.3, 43.2)
Participated in study skills, workplace skills, or general life skills class at NCTC (%)	430	314	7.6	3.8	3.8**	99.3	1.71	0.028	(1.0, 6.6)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.6: Impacts on Receipt of Advising, Life Skills, and Support Services, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Advising									
Received any type of advising as part of education and training program (%)	418	305	72.3	39.8	32.5***	81.6	3.58	0.000	(26.6, 38.4)
Academic (%)	417	305	44.6	28.2	16.4***	57.9	3.49	0.000	(10.6, 22.1)
Tutoring (%)	416	305	11.5	11.8	-0.3	-2.5	2.43	0.903	(-4.3, 3.7)
Career counseling (%)	415	305	33.9	18.5	15.4***	83.4	3.25	0.000	(10.1, 20.7)
Financial aid advising (%)	416	305	32.2	16.1	16.1***	100.3	3.17	0.000	(10.9, 21.3)
Job placement assistance (%)	417	305	41.5	12.7	28.8***	226.4	3.22	0.000	(23.5, 34.1)
Life Skills									
Received any assistance on life skills issues (%)	435	314	35.5	27.0	8.5**	31.3	3.45	0.014	(2.8, 14.1)
Having a good work ethic (%)	435	314	26.0	12.0	13.9***	115.8	2.90	0.000	(9.2, 18.7)
How to communicate well with your boss and co-workers (%)	435	314	31.5	17.8	13.7***	76.8	3.21	0.000	(8.4, 19.0)
How to manage any anger and frustrations (%)	435	314	24.8	14.0	10.8***	77.1	2.94	0.000	(5.9, 15.6)
How to manage your money and plan your finances (%)	435	314	15.2	12.4	2.8	22.5	2.60	0.282	(-1.5, 7.1)
Support Services									
Received support services to attend training or work (%)	436	314	30.5	22.6	7.9**	35.0	3.45	0.022	(2.2, 13.6)
Clothes or uniforms (%)	436	314	7.0	6.8	0.2	3.2	1.91	0.909	(-2.9, 3.4)
Childcare assistance (%)	436	314	4.9	4.2	0.6	15.0	1.60	0.691	(-2.0, 3.3)
Assistance with transportation (%)	436	314	1.7	1.4	0.3	17.7	0.98	0.798	(-1.4, 1.9)
Job-related tools (%)	436	314	4.2	2.7	1.5	56.8	1.33	0.252	(-0.7, 3.7)
Books or supplies (%)	436	314	14.8	10.0	4.8*	47.7	2.64	0.070	(0.4, 9.1)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.7: Impacts on Educational Attainment, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Received any education or training degree or credential (%)	436	314	59.7	38.3	21.4***	55.9	3.72	0.000	(15.3, 27.5)
Vocational Credentials									
Received vocational credential (%)	436	314	55.0	34.9	20.1***	57.7	3.69	0.000	(14.1, 26.2)
Number of vocational credentials received	436	314	0.7	0.4	0.2***	57.2	0.05	0.000	(0.2, 0.3)
Educational Degrees									
GED/high school diploma (%)	436	314	0.4	1.9	-1.5*	-79.2	0.80	0.055	(-2.8, -0.2)
Associate's degree (%)	436	314	1.6	2.1	-0.5	-24.1	1.00	0.616	(-2.1, 1.1)
Bachelor's degree (%)	436	314	0.4	0.4	0.0	-1.4	0.37	0.987	(-0.6, 0.6)
Other									
Received other type of credential (%)[a]	436	314	5.7	2.2	3.5**	160.7	1.42	0.014	(1.2, 5.8)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.8: Impacts on Factors That Affected Ability to Work, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Factors that affected respondent's ability to work in the past month:									
Finding affordable quality childcare (%)	436	314	16.5	18.2	-1.7	-9.5	2.45	0.479	(-5.8, 2.3)
Problems with transportation (%)	436	314	13.9	11.2	2.7	24.4	2.43	0.260	(-1.3, 6.7)
Any physical, emotional, or other health conditions (%)	436	314	8.7	9.1	-0.4	-4.3	2.17	0.859	(-4.0, 3.2)
Factors that affected respondent's ability to work between random assignment and last month:									
Finding quality childcare that respondent could afford (%)	436	314	20.7	23.2	-2.5	-11.0	2.46	0.301	(-6.6, 1.5)
Problems with transportation (%)	436	314	19.0	18.2	0.8	4.4	2.90	0.781	(-4.0, 5.6)
Any physical, emotional, or other health conditions (%)	436	314	9.8	12.2	-2.4	-19.6	2.42	0.325	(-6.4, 1.6)
Amount a job must pay per hour for respondent to take it ($)[a]	434	311	12.37	11.93	0.44*	3.7	0.27	0.094	(0.01, 0.88)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: [a] For respondents who reported a rate per week/month/year, the conversion to hourly rate assumes an average work week of 34.5 hours based on the Bureau of Labor Statistics estimates for the private sector.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.9: Impacts on Earnings and Employment, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Confirmatory Outcome									
Cumulative earnings in Q5 and Q6 ($)	550	434	7,600	7,945	-345	-4.3	391	0.377	(-988, 297)
Treatment-on-the-Treated (TOT) Estimate									
Cumulative earnings in Q5 and Q6 ($)	550	434	7,344	7,750	-406	-5.2	448.82	1.000	(-1144.56, 331.91)
Earnings									
Cumulative earnings in Q1 through Q6 ($)	550	434	19,335	19,883	-548	-2.8	837	0.513	(-1,925, 828)
Earnings in Q1 ($)	550	434	2,379	2,369	10	0.4	133	0.939	(-208, 229)
Earnings in Q2 ($)	550	434	2,814	2,786	29	1.0	165	0.862	(-242, 299)
Earnings in Q3 ($)	550	434	3,194	3,275	-81	-2.5	181	0.654	(-380, 217)
Earnings in Q4 ($)	550	434	3,347	3,507	-160	-4.6	197	0.416	(-485, 164)
Earnings in Q5 ($)	550	434	3,725	3,819	-94	-2.5	216	0.663	(-449, 261)
Earnings in Q6 ($)	550	434	3,876	4,127	-251	-6.1	213	0.239	(-602, 99)
Employment									
Ever employed during Q5 or Q6 (%)	550	434	80.0	82.3	-2.3	-2.8	2.39	0.337	(-6.2, 1.6)
Ever employed during Q1 through Q6 (%)	550	434	88.2	91.6	-3.4*	-3.7	1.77	0.054	(-6.3, -0.5)
Ever employed during Q1 (%)	550	434	61.9	64.5	-2.6	-4.0	2.49	0.299	(-6.7, 1.5)
Ever employed during Q2 (%)	550	434	67.3	68.7	-1.4	-2.0	2.69	0.605	(-5.8, 3.0)
Ever employed during Q3 (%)	550	434	67.9	71.3	-3.3	-4.7	2.73	0.220	(-7.8, 1.1)
Ever employed during Q4 (%)	550	434	69.3	73.4	-4.1	-5.5	2.80	0.148	(-8.7, 0.5)
Ever employed during Q5 (%)	550	434	71.3	74.8	-3.5	-4.6	2.76	0.208	(-8.0, 1.1)
Ever employed during Q6 (%)	550	434	72.8	75.3	-2.5	-3.4	2.71	0.346	(-7.0, 1.9)

Source: National Directory of New Hires.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups. For the treatment-on-the-treated estimate, show rate of 15.09 percent and the cross-over rate of 0.0 percent were utilized. Treatment-on-the-treated estimate p-values are corrected for multiple comparisons in line with the adjustment on the confirmatory outcome.

Difference is statistically significant at the $p<0.01$ level after multiple comparison adjustment. ## Difference is statistically significant at the $p<0.05$ level after multiple comparison adjustment. # Difference is statistically significant at the $p<0.10$ level after multiple comparison adjustment. *** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.10: Impacts on Earnings and Employment, by Employment Status in the Year Preceding Random Assignment, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Standard Error	p-Value	Subgroup Difference (Impact)[1]	Subgroup Difference (p-Value)[1]
Earnings in Q5 and Q6 post-random assignment ($)									
Not employed in any of the 4 quarters preceding random assignment	112	88	4,299	4,245	54	866	0.951	-164	0.869
Employed in at least one of the 4 quarters preceding random assignment	438	346	8,591	8,701	-110	481	0.819		
Employed in Q5 and Q6 post-random assignment (%)									
Not employed in any of the 4 quarters preceding random assignment	112	88	58.0	58.0	0.0	2.13	0.997	-0.8	0.738
Employed in at least one of the 4 quarters preceding random assignment	438	346	86.5	87.3	-0.8	0.78	0.332		

Source: National Directory of New Hires.

Note: [1] The "subgroup difference (impact)" and "subgroup difference p-value" measure whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $54 impact among those not employed in any of the four quarters preceding random assignment is different than the $110 impact among those employed in any of the four quarters preceding random assignment.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.11: Impacts on Earnings and Employment, by Educational Attainment at Random Assignment, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Standard Error	p-Value	Subgroup Difference (Impact)[1]	Subgroup Difference (p-Value)[1]
Earnings in Q5 and Q6 post-random assignment ($)									
High school diploma/GED or less	163	132	7,444	6,612	832	627	0.185	-1,679**	0.038
More than high school diploma/GED	384	298	7,650	8,498	-848*	499	0.090		
Employed in Q5 and Q6 post-random assignment (%)									
High school diploma/GED or less	163	132	81.8	79.5	2.3	1.38	0.104	-4.2***	0.009
More than high school diploma/GED	384	298	80.2	82.1	-2.0**	0.87	0.024		

Source: National Directory of New Hires.

Note: [1] The "subgroup difference (impact)" and "subgroup difference p -value" measure whether the impacts for each group are statistically significantly different from one another. For example, the subgroup difference p-value tests whether the $832 impact among those with a high school diploma/GED or less is different than the $-848 impact among those with more than a high school diploma/GED.

Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.12: Impacts on Earnings and Employment, 27-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Earnings									
Cumulative earnings in Q5 and Q6 ($)	400	315	7,322	7,647	-325	-4.3	462	0.482	(-1,086, 436)
Earnings in Q1 ($)	400	315	2,241	2,217	23	1.0	160	0.885	(-240, 287)
Earnings in Q2 ($)	400	315	2,700	2,623	77	2.9	195	0.694	(-245, 398)
Earnings in Q3 ($)	400	315	3,017	3,014	3	0.1	214	0.988	(-350, 356)
Earnings in Q4 ($)	400	315	3,416	3,560	-144	-4.0	232	0.535	(-526, 238)
Earnings in Q5 ($)	400	315	3,585	3,662	-77	-2.1	259	0.766	(-503, 349)
Earnings in Q6 ($)	400	315	3,737	3,985	-248	-6.2	256	0.334	(-670, 174)
Earnings in Q7 ($)	400	315	3,922	4,274	-352	-8.2	268	0.190	(-793, 89)
Earnings in Q8 ($)	400	315	4,108	4,148	-40	-1.0	268	0.882	(-481, 401)
Earnings in Q9 ($)	400	315	4,580	4,634	-54	-1.2	286	0.850	(-525, 417)
Cumulative earnings in Q1 through Q6 ($)	400	315	18,695	19,061	-366	-1.9	993	0.713	(-2,000, 1,268)
Cumulative earnings in Q1 through Q9 ($)	400	315	31,305	32,116	-812	-2.5	1,580	0.608	(-3,411, 1,788)
Employment									
Ever employed during Q5 or Q6 (%)	400	315	80.2	81.0	-0.7	-0.9	2.90	0.803	(-5.5, 4.0)
Ever employed during Q1 (%)	400	315	59.9	61.4	-1.5	-2.4	3.13	0.635	(-6.6, 3.7)
Ever employed during Q2 (%)	400	315	66.5	66.6	-0.1	-0.1	3.32	0.978	(-5.5, 5.4)
Ever employed during Q3 (%)	400	315	65.9	68.0	-2.1	-3.1	3.39	0.528	(-7.7, 3.4)
Ever employed during Q4 (%)	400	315	71.5	75.2	-3.6	-4.8	3.28	0.269	(-9.0, 1.8)
Ever employed during Q5 (%)	400	315	71.3	72.3	-1.0	-1.4	3.33	0.765	(-6.5, 4.5)
Ever employed during Q6 (%)	400	315	72.7	72.5	0.2	0.2	3.29	0.961	(-5.2, 5.6)
Ever employed during Q7 (%)	400	315	73.1	76.7	-3.7	-4.8	3.17	0.247	(-8.9, 1.5)
Ever employed during Q8 (%)	400	315	75.0	77.5	-2.6	-3.3	3.25	0.429	(-7.9, 2.8)
Ever employed during Q9 (%)	400	315	78.0	78.1	0.0	0.0	3.17	0.995	(-5.2, 5.2)
Ever employed during Q1 through Q6 (%)	400	315	88.5	90.5	-2.1	-2.3	2.12	0.333	(-5.5, 1.4)
Ever employed during Q1 through Q9 (%)	400	315	92.5	92.9	-0.4	-0.4	0.55	0.474	(-1.3, 0.5)

Source: National Directory of New Hires.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Pound signs or asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.13: Impacts on Earnings and Employment from Survey Data, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Earnings									
Total earnings, since random assignment ($)	435	311	24,510.7	24,017.6	493.1	2.1	1,305.51	0.706	(-1,654.5, 2,64
Total earnings, Q1 ($)	435	311	2,537.4	2,412.9	124.5	5.2	206.19	0.546	(-214.7, 463.7)
Total earnings, Q2 ($)	435	311	2,965.3	2,940.6	24.7	0.8	215.82	0.909	(-330.3, 379.7)
Total earnings, Q3 ($)	435	311	3,469.8	3,493.3	-23.5	-0.7	230.60	0.919	(-402.9, 355.8)
Total earnings, Q4 ($)	435	311	3,895.5	3,909.5	-13.9	-0.4	242.71	0.954	(-413.2, 385.3)
Total earnings, Q5 ($)	435	311	4,415.7	4,279.2	136.5	3.2	251.21	0.587	(-276.7, 549.7)
Total earnings, Q6 ($)	435	311	4,373.9	4,162.7	211.3	5.1	238.40	0.376	(-180.9, 603.4)
Employment									
Ever employed, since random assignment (%)	436	314	90.6	91.2	-0.6	-0.7	2.07	0.767	(-4.0, 2.8)
Employed, Q1 (%)	436	314	54.7	57.2	-2.5	-4.4	3.35	0.449	(-8.1, 3.0)
Employed, Q2 (%)	436	314	65.2	67.8	-2.6	-3.8	3.31	0.439	(-8.0, 2.9)
Employed, Q3 (%)	436	314	72.9	74.4	-1.6	-2.1	3.16	0.617	(-6.8, 3.6)
Employed, Q4 (%)	436	314	77.3	79.9	-2.6	-3.3	3.01	0.382	(-7.6, 2.3)
Employed, Q5 (%)	436	314	82.7	81.7	1.0	1.3	2.85	0.719	(-3.7, 5.7)
Employed, Q6 (%)	436	314	84.1	81.3	2.8	3.5	2.87	0.322	(-1.9, 7.6)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.14: Impacts on Employment Status, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Employment Status at Time of Follow-Up Survey									
Employed (%)	423	304	79.8	81.0	-1.3	-1.5	3.07	0.683	(-6.3, 3.8)
Unemployed (%)	423	304	10.3	7.1	3.2	45.9	2.18	0.138	(-0.4, 6.8)
On temporary layoff (%)	423	304	0.0	0.3	-0.3	-92.7	0.28	0.327	(-0.7, 0.2)
Looking for work (%)	423	304	10.3	6.8	3.5	52.0	2.16	0.105	(0.0, 7.1)
Out of the labor force (%)	423	304	10.0	11.9	-2.0	-16.6	2.47	0.422	(-6.0, 2.1)
Retired (%)	423	304	1.3	0.6	0.7	109.3	0.76	0.374	(-0.6, 1.9)
Unable to work because of disability (%)	423	304	2.0	1.3	0.6	47.3	0.89	0.479	(-0.8, 2.1)
Attending school or long-term training program (%)	423	304	5.0	5.9	-1.0	-16.4	1.84	0.598	(-4.0, 2.1)
Not looking for work (%)	423	304	1.7	4.0	-2.3*	-57.3	1.32	0.078	(-4.5, -0.2)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.15: Impacts on Characteristics of Current or Most Recent Job, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Pay and Hours of Job									
Weekly earnings ($)	433	310	376	361	15	4.1	19.90	0.452	(-17.8, 47.7)
Hours worked per week	432	311	31.0	31.8	-0.8	-2.5	1.08	0.468	(-2.6, 1.0)
Number of weeks at job[a]	436	314	78.7	79.0	-0.3	-0.4	9.88	0.976	(-16.5, 15.9)
Job represented by a union (%)	423	308	7.5	4.4	3.1*	72.1	1.73	0.071	(0.3, 6.0)
Job Benefits									
Job offers health insurance (%)	436	310	59.0	64.1	-5.1	-7.9	3.58	0.156	(-11.0, 0.8)
Paid vacation (%)	435	311	53.5	55.4	-2.0	-3.5	3.76	0.603	(-8.1, 4.2)
Paid holiday (%)	436	311	53.4	57.8	-4.4	-7.7	3.75	0.238	(-10.6, 1.7)
Paid sick time (%)	434	311	43.3	50.8	-7.5**	-14.7	3.79	0.049	(-13.7, -1.2)
Retirement/pension plan (%)	424	307	47.1	50.3	-3.2	-6.4	3.78	0.395	(-9.4, 3.0)
Job Schedule									
Regular daytime schedule (%)	436	314	58.7	59.2	-0.4	-0.7	3.69	0.908	(-6.5, 5.6)
Regular evening shift (%)	436	314	8.0	9.1	-1.2	-12.6	2.13	0.589	(-4.7, 2.4)
Regular night shift (%)	436	314	6.2	7.3	-1.1	-14.8	1.91	0.572	(-4.2, 2.1)
Rotating schedule (%)	436	314	6.9	6.8	0.0	0.5	1.87	0.985	(-3.0, 3.1)
Irregular schedule (%)	436	314	5.4	4.2	1.2	29.8	1.50	0.406	(-1.2, 3.7)
Other schedule (%)	436	314	5.4	4.6	0.8	16.	1.71	0.653	(-2.0, 3.6)
Connection of Job to Training									
Respondent attributes getting a new job due to completing vocational training (%)	398	296	22.4	14.7	7.7**	52.6	3.03	0.011	(2.7, 12.7)
Respondent employed in industry targeted by grant-funded training program (%)	436	314	40.9	39.6	1.3	3.3	3.66	0.723	(-4.7, 7.3)
Job is part of a career path (%)	429	313	54.1	54.7	-0.6	-1.1	3.77	0.874	(-6.8, 5.6)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Jobs that started before random assignment are included in these estimates.
Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.
*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.16: Descriptive Statistics on Current or Most Recent Job Characteristics from Survey Data, Among Individuals Who Held At Least One Job, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group
Pay and Hours of Job				
Weekly earnings ($)	394	282	415	398
Hours worked per week	393	283	34.1	34.9
Number of weeks at job[a]	397	286	85.3	86.1
Job represented by a union (%)	384	280	8.0	4.9
Job Benefits				
Job offers health insurance (%)	397	282	64.9	70.3
Paid vacation (%)	396	283	58.8	60.8
Paid holiday (%)	397	283	58.6	63.6
Paid sick time (%)	395	283	47.9	56.2
Retirement/pension plan (%)	385	279	51.5	55.0
Job Schedule				
Regular daytime schedule (%)	397	286	65.3	64.6
Regular evening shift (%)	397	286	8.7	10.3
Regular night shift (%)	397	286	6.7	7.9
Rotating schedule (%)	397	286	7.6	7.3
Irregular schedule (%)	397	286	5.8	4.6
Other schedule (%)	397	286	5.9	5.3
Connection of Job to Training				
Respondent attributes getting a new job due to completing vocational training (%)	363	273	25.3	17.0
Respondent employed in industry targeted by grant-funded training program (%)	396	286	44.9	43.8
Job is part of a career path (%)	390	285	59.7	60.1

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.
Note: [a] Jobs that started before random assignment are included in these estimates.
Significance testing was not conducted on descriptive statistics. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

Exhibit F.17: Impacts on Household Income and Household Receipt of Public Benefits, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Total household income before taxes last year ($) [a]	420	300	39,205	40,379	-1,175	-2.9	1,952	0.547	(-4,385, 2,035)
Temporary Assistance for Needy Families (TANF)									
Received TANF last month (%)	436	314	0.7	1.1	-0.4	-35.1	0.75	0.601	(-1.6, 0.8)
Amount received ($)	436	314	1.78	3.81	-2.03	-53.2	2.89	0.484	(-6.79, 2.73)
Supplemental Nutrition Assistance Program (SNAP)									
Received SNAP last month (%)	436	313	14.2	14.8	-0.6	-4.0	2.45	0.812	(-4.6, 3.5)
Amount received ($)	432	310	43.47	39.63	3.85	9.7	8.36	0.646	(-9.91, 17.60)
Unemployment Insurance (UI)									
Received UI last month (%)	436	313	1.9	1.8	0.1	4.6	0.95	0.930	(-1.5, 1.7)
Amount received last month ($)	436	313	21.53	12.43	9.10	73.2	10.68	0.394	(-8.46, 26.66)
Other Federal Benefits									
Received other federal benefits last month (%)[b]	436	312	18.3	18.3	0.0	-0.2	2.88	0.992	(-4.8, 4.7)
Amount received last month ($) [b]	436	312	137.00	159.95	-22.94	-14.3	41.90	0.584	(-91.87, 45.98)
Other Payments									
Received alimony, child support, rent payments, or financial support from friends/relatives last month (%)	436	313	14.0	12.9	1.1	8.5	2.51	0.663	(-3.0, 5.2)
Amount received last month ($)	432	312	87.00	60.37	26.63	44.1	21.00	0.205	(-7.91, 61.18)
Other Assistance Received									
Received any assistance from churches, food banks, or other private community organizations since random assignment (%)	436	314	7.9	10.6	-2.8	-25.9	2.09	0.186	(-6.2, 0.7)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: For outcomes measured in dollars, the analytic sample includes all study members with non-missing outcome data (including those with a value of zero for the outcome).

[a] Rather than providing a specific value for household income including transfers, some survey respondents indicated that their household income including transfers was in a specified range (e.g., between $45,000 and $60,000). For these individuals, income is defined as the midpoint of the specified range. [b] The other federal benefits include the following types: Supplemental Security Income; Social Security Disability Insurance; Women, Infants, and Children benefits; General Assistance; Trade Adjustment Assistance; Alternative Trade Adjustment Assistance; Workers' Compensation or Disability Insurance benefits; and Social Security. Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Exhibit F.18: Impacts on Financial Circumstances, 18-Month Follow-Up Period, NCTC

Outcome	Treatment Sample Size	Control Sample Size	Treatment Group	Control Group	Difference (Impact)	Percent Difference	Standard Error	p-Value	90 Percent Confidence Interval
Housing Status									
Owned a home (%)	436	314	28.2	28.4	-0.2	-0.7	2.60	0.942	(-4.5, 4.1)
Rented a residence (%)	436	314	51.1	52.2	-1.1	-2.1	3.51	0.754	(-6.9, 4.7)
Difficulty Covering Household Expenses									
Had difficulty covering all household expenses (%)	433	314	49.5	51.3	-1.8	-3.5	3.66	0.628	(-7.8, 4.2)
Had difficulty covering all household expenses in the past month (%)	436	314	48.8	44.7	4.1	9.1	3.67	0.268	(-2.0, 10.1)
Types of Financial Difficulty Experienced									
Mortgage payment missed or been late (%)	436	314	5.7	5.6	0.1	2.2	1.60	0.940	(-2.5, 2.8)
Rent payment missed or been charged a late fee (%)	436	314	12.6	12.1	0.5	3.8	2.47	0.850	(-3.6, 4.5)
Been charged a late fee on any monthly credit payments (%)	435	313	31.8	29.2	2.6	8.9	3.40	0.443	(-3.0, 8.2)
Postponed a major purchase that was planned or needed such as a car or major appliance (%)	436	314	30.5	30.0	0.5	1.7	3.37	0.879	(-5.0, 6.0)

Source: Green Jobs and Health Care Impact Evaluation 18-Month Follow-Up Survey.

Note: Due to rounding, reported impacts may differ from differences between reported regression-adjusted means for the treatment and control groups.

*** Difference is statistically significant at the $p<0.01$ level. ** Difference is statistically significant at the $p<0.05$ level. * Difference is statistically significant at the $p<0.10$ level. Asterisks are present only if the impact is statistically significant at the indicated level.

Appendix G: Program Environment for Grantees in GJ-HC Evaluation

Exhibit G.1: Characteristics of the Program Environment for Grantees in GJ-HC Evaluation, 2013

Characteristic	AIOIC Hennepin County, MN	GRCC Kent County, MI	KCCD Kern County, CA	NCTC[a] Cooke County, TX	NCTC[a] Denton County, TX
Total population	1,170,623	609,544	848,204	38,484	687,857
Race and ethnicity (%)					
White	75.2	82.4	72.3	90.5	78.1
Black or African American	11.7	9.6	5.6	2.9	8.4
Other race	13.1	8.0	22.1	6.6	13.5
Hispanic or Latino	6.7	9.8	49.8	16.0	18.4
Educational attainment[b] (%)					
No high school diploma	7.6	10.6	27.5	16.2	8.2
High school graduate (includes equivalency)	18.4	26.4	26.5	31.0	19.0
Some college, no degree	20.0	22.6	23.9	25.0	24.3
Associate's degree	8.1	8.6	7.0	8.3	8.0
Bachelor's degree	30.0	21.0	9.9	14.0	28.0
Graduate or professional degree	15.8	10.7	5.1	5.5	12.5
Median household income ($)	64,40	51,667	48,552	50,067	74,155
All people below poverty level[c] (%)	12.8	15.5	22.9	14.8	8.7
Unemployment rate (%)					
2010	7.0	10.1	15.6	7.3	7.1
2013	4.6	6.3	11.7	4.9	5.3
Change in number of jobs per capita, 2010 - 2013 (%)[d]	5	10	11	9	9

Sources: 2013 data as reported by the 2009-2013 American Community Survey 5-Year Estimates. 2010 and 2013 unemployment rate data from U.S. Bureau of Labor Statistics. Change in jobs per capita data from Economic Modeling Specialists International (EMSI) (accessed March 2, 2016, http://www.economicmodeling.com/industry-map/).
Data reported in the table is for 2013, unless otherwise noted.
[a] NCTC's five campuses serve a four-county region to the north and northwest of Dallas. Demographics vary across the counties, so this table reports on Cooke County, where the main Gainesville campus is located, and on Denton County, where the Flower Mound campus is located.
[b] Among those 25 and over.
[c] Among the entire population. Poverty Status is defined by the U.S. Census Bureau (accessed July 14, 2015, http://www.census.gov/acs/www/data_documentation/documentation_main/#doc2012).
[d] Data provided by EMSI are reported by metropolitan region rather than by county. Metropolitan regions used are as follows: AIOIC: Minneapolis-St. Paul; GRCC: Grand Rapids-Wyoming; KCCD: Bakersfield-Delano; NCTC: Dallas-Fort Worth-Arlington.