The Ready to Work Partnership Grant Evaluation: Technical Appendix for the Final Report of the Impact Study of Four Employment Services Programs for the Long-Term Unemployed

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About this Report

The Ready to Work (RTW) Partnership Grants, operated between 2015 and 2019, were funded by the U.S. Department of Labor (DOL) to establish programs that might prove effective in preparing long-term unemployed and underemployed U.S. workers for employment in middle- and higher-level occupations. The RTW grantee programs were to provide customized services that could include staff guidance on career planning, occupational training, work-based training, employment readiness courses, and job search assistance—but with considerable discretion in program design given to grantees.

To understand the impact of the RTW grant program on participants' earnings and employment, the RTW Evaluation, conducted by Abt Associates and MEF Associates for DOL's Employment and Training Administration, includes an experimental impact study as well as an implementation study. The evaluation assesses the programs implemented by four purposively selected RTW grantees.

This document includes the technical appendices for the RTW Evaluation's Final Impact Report: *The Ready to Work Partnership Grant Evaluation: Findings from the Final Impact Study of Four Employment Services Programs for the Long-Term Unemployed* (Klerman, Herr, and Martinson 2022). This volume provides information on methodology and data sources (Appendix A); compares the RTW Evaluation's study samples with individuals enrolled in Workforce Innovation and Opportunity Act (WIOA) services and the long-term unemployed more generally (Appendix B); supplements impact results reported in Chapter 3 of the final report (Appendix C); and compares the impact of the RTW grantee programs before the COVID-19 pandemic and during it (Appendix D).

Suggested Citation

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Appendix Volume Overview

This appendix volume provides additional technical material about the evaluation of the long-term impacts of the Ready to Work (RTW) Partnership Grant Program reported in the *Final Impact Report* (Klerman, Herr, and Martinson 2022) of the RTW Evaluation.

The evaluation assesses the impacts of four purposively selected RTW grantee programs:

- Maryland Tech Connection (MTC), offered by the Anne Arundel Workforce Development Corporation (AAWDC);

- Skills to Work in Technology (STW-T) and Job Search Accelerator (JSA), offered by Jewish Vocational Service (JVS);

- Finger Lakes Hired (FLH), offered by RochesterWorks!; and

- Reboot Northwest (Reboot NW), offered by Worksystems Inc. (WSI).

Appendix A provides additional technical information about the evaluation, including detail on the study methods and data used. **Appendix B** compares the study samples for the four RTW programs included in the evaluation with workers enrolled in Workforce Innovation and Opportunity Act services and long-term unemployed workers more generally. **Appendix C** provides additional detailed results to supplement those reported in Chapter 3 of the *Final Impact Report*, including subgroup impacts. **Appendix D** reports analyses comparing the impact of the RTW programs before the COVID-19 pandemic and during it.

See also the *Technical Appendix for the Interim Impact Study* ("Interim Appendix"; Herr et al. 2022) for more detail on the impact study's methodology and data sources, 18-month follow-up survey, definitions of outcomes and baseline measures, and additional detailed results at 18 months after random assignment to supplement those reported in Chapters 3-6 of the *Interim Impact Report* (Klerman, Herr, Martinson, and Copson 2022).

Appendix A: Additional RTW Impact Study Technical Information

This appendix provides additional technical material for the analyses discussed in the *Final Impact Report* for the evaluation of the Ready to Work (RTW) Partnership Grant Program. Specifically, Section A.1 discusses the evaluation's logic model. Section A.2 describes the methods used in the *Final Impact Report*. Section A.3 discusses the data sources used in the report. Section A.4 describes the pre-specified prioritization of outcomes. Section A.5 describes the set of outcomes reported on in the *Final Impact Report*. Last, Section A.6 provides information on the regressors selected for the impacts presented in the *Final Impact Report*.

A.1   A Logic Model for the RTW Program

As discussed in Section 1.2 of the *Final Impact Report*, the RTW Evaluation design is based on a logic model that hypothesizes how the grantees' programs produce the expected changes in participant outcomes. Exhibit A.1-1 depicts how the RTW *program inputs* and *program services* lead to outcomes in the *short term* and *long term*.

Exhibit A.1-1: Ready to Work Logic Model
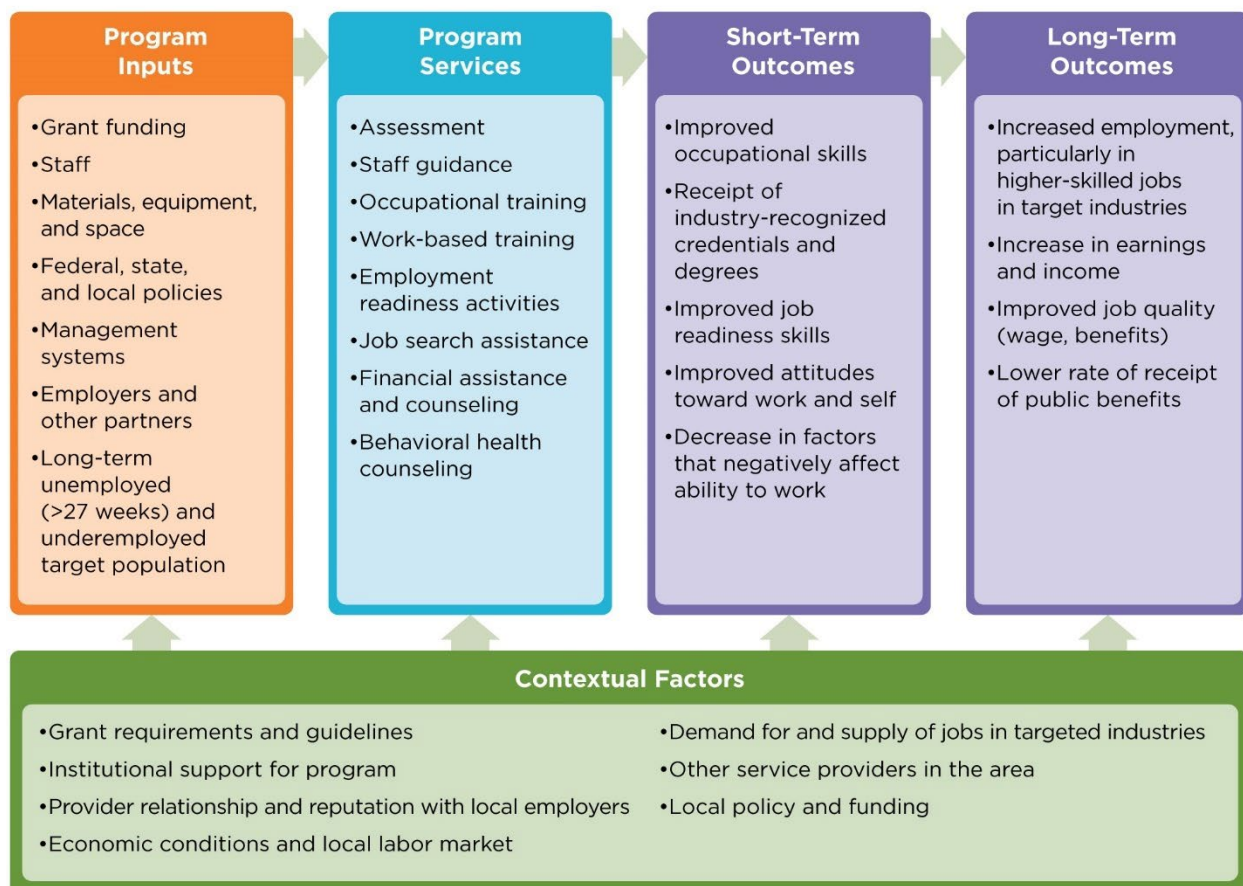
SOURCE: Developed by Abt Associates based on the RTW *Solicitation for Grant Applications* (DOL/ETA 2014).

Specifically, the grantee programs use

- *inputs*, including the grantees' funding, staff and physical resources, and management structure;

to provide:

- *program services*, including assessment, staff guidance, occupational training, work-based training, employment readiness courses, and job search assistance, as well as other supports such as financial assistance, mental health counseling, and financial counseling.

These inputs and services, in turn, produce outcomes:

- in the ***short term***, increased participation in services leading to an increase in program participants' educational attainment, notably credential and degree receipt, as well as greater career confidence and fewer barriers to their ability to work; and

- in the ***long term***, increased earnings, particularly in better jobs as indicated by both wages earned and job benefits, as well as decreased reliance on public benefits receipt.

Grantee programs and program participants' outcomes are also influenced by the ***context*** in which grantees operate—including the community characteristics, and the local economic conditions and how they changed over the period of the evaluation.

A.2   Overview of Methods

This section discusses the statistical methods used for the analyses reported in Chapter 3 of the *Final Impact Report*. For additional detail, see Appendix A of the *Interim Appendix* (Herr et al. 2022).

As discussed in Section 2.1.1 of the *Final Impact Report*, with a randomized controlled trial design, any post–random assignment differences between average outcomes for the program group and average outcomes for the control group—"impacts"—can be confidently attributed either to the RTW program or to chance.[1] The evaluation can then use statistical methods to bound the plausible impact of chance.

The analysis uses linear regression to estimate program impacts, conducted separately for each of the four RTW grantee programs in the evaluation. (See Appendix Section A.6 below for how regression covariates are chosen, and the set of covariates selected for each grantee for the *Final Impact Report*.) Consistent with standard practice for analysis of data associated with a design incorporating random assignment, the analysis uses linear regression as its main estimation approach both for continuous outcomes (e.g., earnings) and for binary outcomes (e.g., any employment in a quarter).[2]

For the subgroup analyses, the evaluation also estimates differential impacts using linear regression. To estimate those differential impacts, the regression specification includes interactions of the program group indicator with an indicator for the given subgroup category. The subgroup analysis compares impacts based on characteristics at the time of random assignment by (1) *education*: less than a bachelor's degree

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[1]   For the four grantee programs, Appendices F through I of the *Interim Appendix* provide evidence of baseline balance between the members of the program group and the control group at the time of random assignment. These results show that random assignment was implemented with fidelity.

[2]   Use of linear regression for binary outcomes is often called the *linear probability model* (Judkins and Porter 2015). As is standard practice, the analysis also uses ordinary least squares even for dependent variables that are bounded, such as earnings (bounded below at $0).

versus a bachelor's degree or more; (2) *age*: 49 or older versus younger than 49; (3) *employment status*: no earnings in the four quarters before the quarter of random assignment versus positive earnings in any of those four quarters; and (4) *gender*: women versus men.[3] Chapter 3 of the *Final Impact Report* discusses the results of the subgroup analyses for the confirmatory and secondary outcomes only; Appendix C reports additional subgroup results.

The subgroup analysis begins by considering the test for differential impacts between the two groups (e.g., those study members with at least a bachelor's degree versus those without). Unless that test suggests a differential impact, the discussion in Chapter 3 of the *Final Impact Report* does not present the subgroup results beyond noting the lack of a statistically significant difference—even if there is evidence of an impact different from zero in one group. The evaluation adopts this strategy because, in the absence of clear evidence of a differential impact, the overall impact estimate is a plausible estimate of the impact for both groups.[4] The discussion in Chapter 3 also focuses on results where at least one of the groups shows evidence of a positive impact. All subgroup results are reported in Appendix C.

As discussed in Appendix Section A.3 below, all results presented in the *Final Impact Report* analyze data provided by the National Directory of New Hires (NDNH). Because of the minimal level of missing data for the NDNH, for three of the four grantee programs all outcomes are analyzed via ordinary least squares without weights. For MTC, because the probability of assignment to the program group varied across program sites, the evaluation uses analysis weights equal to the inverse of the probability of assignment to the program group.

In the impact tables in Chapter 3 of the *Final Impact Report*, the "Control Group Mean" column reports the (unadjusted) mean outcome for the control group, and the "Program Group Mean" column reports the unadjusted control group mean plus the impact estimate.[5] The standard error reported in the impact tables quantifies the precision of the impact estimate. The standard error is a function of the size of the sample, the variation in the probability of being assigned to the program group, and the variability of the outcome across study sample members after controlling for the selected covariates. A smaller standard error indicates a more precise estimate.

A.3　Data Sources

All analyses reported in the *Final Impact Report* use data provided by the NDNH, a national database of new hire date, quarterly wages, and Unemployment Insurance data submitted to the U.S. Department of Health and Human Services' Office of Child Support Enforcement (OCSE) by State Directories of New Hires and state workforce agencies, augmented with federal government payroll information.[6]

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[3]　This classification is based on a question included in the BIF asking whether an individual was "male" or "female." The evaluation's Baseline Information Form was developed in 2014, before the concept of non-binary sexual identify was widely used.

[4]　This approach also serves as a rough correction for the multiple comparisons problem discussed in Appendix Section A.4 below.

[5]　See the text box **How to Read this Report's Impact Tables** at the end of Chapter 2 of the *Final Impact Report* for an explanation of how to read and interpret the impact tables in Chapter 3 and Appendices C and D.

[6]　In October 2021, after the data collection for the *Interim Impact Report* was complete, the State of Maryland submitted to OCSE duplicate earnings records for the first quarter of 2020. Those duplicate records are excluded in the analysis for the *Final Impact Report*. Such duplication did not occur in any other quarter or for any other state for the period used in this evaluation.

Obtaining NDNH data for the RTW Evaluation requires submitting the personal identifiers (name, Social Security number) of each sample member to OCSE. OCSE matches those identifiers to the Social Security Administration database, and then returns employment records for those sample members matched. The evaluation considers sample members who are not matched to the database as "missing." Fewer than 2 percent of sample members cannot be matched; those sample members are simply excluded from the analysis.[7] Sample members who can be matched but for whom no earnings records are found in the NDNH for a given quarter are treated as not employed in that quarter and are assigned zero earnings.

For those sample members who are matched, the evaluation has NDNH quarterly earnings data from the fourth quarter of 2013 (seven quarters before random assignment for the earliest sample members) through the third quarter of 2021 for the AAWDC study sample, and through the fourth quarter of 2021 for all other grantees (the latest data available at the time of this report). The evaluation has one fewer quarter of data for AAWDC because Maryland and Virginia submitted their quarterly data to the NDNH one quarter later than the other states included in the analysis.[8] The evaluation therefore has complete data from 1.75 years (7 quarters) before random assignment through at least 3.25 years (13 quarters) after random assignment for the **full sample** in the *Final Impact Report*. The evaluation also reports some results for the eighth quarter before random assignment, for which the evaluation has information for 92 percent or more of each of the four grantee study samples.[9]

That the random assignment period for the RTW Evaluation was approximately three years (roughly mid-2015 to mid-2018) means the study has a longer follow-up period for those study members who were randomly assigned early in the period. The study takes advantage of this longer follow-up for earlier sample members by reporting impacts for an "**early cohort**" of study members who were randomly assigned by March 31, 2017. For this early cohort, the evaluation has NDNH data through 4.5 years (18 quarters) after random assignment for AAWDC's early cohort, and through 4.75 years (19 quarters) for the other three early cohorts. For the four grantees, this early cohort makes up varying percentages of their full samples: 48 percent for JVS, 54 percent for AAWDC, 59 percent for RochesterWorks!, and 70 percent for WSI.[10]

A.4   Prioritizing Outcomes

The RTW Evaluation reports estimates of impact for a large number of training, employment, and earnings outcomes. As the number of impacts estimated increases, the larger the potential for at least one false positive result to occur—that is, detecting an impact even when the program did not have an effect. Such false positives resulting from an increased number of estimated impacts is known as the "multiple

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[7]   See Appendix B of the *Interim Appendix* for more detail on how the NDNH data are collected.

[8]   To the extent that members of the JVS, RochesterWorks!, or WSI study samples moved to Virginia or Maryland between the time of random assignment (2015 to 2018) and the end of 2021, the lack of data for the fourth quarter of 2021 may affect those study samples as well. Yet in the data for the third quarter of 2021 there was between 1 and 3 members of the JVS and RochesterWorks! study samples with Maryland or Virginia wage records, and no such data for members of the WSI study sample. For those individuals the lack of data for the fourth quarter of 2021 from Maryland or Virginia will be interpreted as zero earnings from those employers.

[9]   The analyses discussed in Chapter 3 of the *Final Impact Report* and in Appendix C below report impacts on all eight quarters before random assignment, but the analyses are based on incomplete information for the eighth quarter (exhibit notes identify the percentage of the full sample for whom the evaluation has data). The evaluation does not include the eighth quarter before random assignment as a potential regression control because of this incompleteness (see Appendix Section A.6 below).

[10]   The opening section of each grantee-specific Appendices F through I of the *Interim Appendix* compares the pre–random assignment (baseline) characteristics of the early cohort versus characteristics of those randomized later in the evaluation.

comparisons problem" (Schochet 2009). This multiple comparisons problem implies that testing for program impacts on *many* outcomes weakens the rigor of the evaluation.

To address the problem of multiple comparisons while still preserving flexibility to explore a wide variety of outcomes, the RTW Evaluation proceeds as follows. Prior to the start of analysis, the evaluation specified which outcomes would be treated as confirmatory, secondary, and exploratory:

- The *confirmatory outcome* is the evaluation's main indicator of the impact of the given RTW program. It is the focal outcome in the discussion of results for each grantee program (Chapter 3 of the *Final Impact Report*) and in summative statements about the evaluation (e.g., in the Executive Summary and Discussion). The evaluation pre-specified *earnings* as the confirmatory outcome for this evaluation: for the *Final Impact Report*, **average quarterly earnings from 1 year to 2.5 years after random assignment** (the 5th through 10th quarters, Q5-Q10).

  Because it might be expected that participants in a training program would work less and therefore earn less while they attend program activities, the confirmatory outcome excludes the first four quarters after random assignment, when program group members are hypothesized to be enrolled in the given RTW program. Because there is only the one confirmatory outcome for each of the four grantees, no other formal correction is made when discussing program-specific impacts.

- *Secondary outcomes* address an additional set of important indicators of program success and provide information to better understand impacts on the confirmatory outcome. The evaluation pre-specified one secondary outcome for the *Final Impact Report*: **any employment from 1 year to 2.5 years after random assignment** (Q5-Q10). Having pre-specified this secondary outcome, the report gives it more attention in the discussion of results. Consistent with this strategy for addressing the problem of multiple comparisons, the first four sections of Chapter 3 of the *Final Impact Report* present the results grantee by grantee, and no formal correction is made when discussing grantee-specific impacts.

- All other outcomes are *exploratory*. Exploratory outcomes can be useful for further illuminating confirmatory- or secondary-level results, and for the design of future studies.

Sections 3.1 through 3.4 of the *Final Impact Report* present results for each grantee separately; Section 3.5 and Appendix Section C.6 below present results for all four grantees combined. Considering impact estimates jointly, across all four grantees, raises different multiple comparisons issues. See Section A.2.3 of the *Interim Appendix* for detail on how the evaluation uses the Bonferroni-Holm Family Wise error test to adjust for the four grantee-specific tests of the confirmatory and secondary outcome reported in Appendix Section C.6 below.

A.5   Definitions of Outcomes for the Final Impact Report

This section describes how outcome variables for the *Final Impact Report* are constructed for the RTW Evaluation. Earnings and employment outcomes are constructed using administrative data provided by the NDNH. These outcomes measure quarterly earnings and employment through at least 3.25 years (13 quarters) after random assignment for each grantee's full sample, and through at least 4.5 years (18 quarters) after random assignment for each grantee's early cohort (those randomly assigned by March 31, 2017).

The tables below provide outcome-by-outcome definitions and detail. Outcomes that are confirmatory or secondary for the RTW Evaluation are indicated using **bold red text**. All other outcomes are exploratory

(see Appendix Section A.4 above for more on the classification of outcomes). Conditional outcomes—those outcomes that are defined for only part of the study sample—are indicated using *italics*.[11]

Exhibit A.5-1: Outcomes on Earnings

Outcome	Description
Quarterly Earnings	
Earnings in each of Q1 through Q19	Continuous. Quarterly earnings in each of Q1 through Q19 after RA. Earnings in Q1 through at least Q13 defined for the full sample (through Q14 for MTC, through Q15 for the JVS programs, and through Q16 for Reboot NW). Earnings through Q18 defined for all members of the AAWDC early cohort (for MTC), and through Q19 defined for all members of the other three early cohorts (those randomly assigned by March 31, 2017).
Earnings in each of the eight quarters before RA and Q0	Continuous. Quarterly earnings in each of the eight quarters before RA and in the quarter of RA (Q0). The evaluation has complete data for all study sample members through seven quarters before RA. It has incomplete data for the eighth quarter before RA (data for 94 percent of the AAWDC full sample, 99 percent of the JVS full sample, 98 percent of the RochesterWorks! full sample, and 92 percent of the WSI full sample).
Pre-COVID earnings in each of Q10 through Q17	Continuous. Quarterly earnings in each of Q10 through Q17 after RA (exact quarters vary by RTW program as noted below) that reflect quarters before the emergence of COVID-19 (quarters through 2020 Q1). Outcomes are missing for those sample members for whom the given quarter falls in 2020 Q2 or later. Per grantee program, the evaluation compares impacts from before COVID to during COVID for any quarter for which the evaluation has data for at least 150 study members in both periods. Based on that restriction, the evaluation compares impacts for the following quarters: For Q10-Q16 for MTC For Q10-Q15 for the JVS programs For Q11-Q15 for FLH For Q11-Q17 for Reboot NW
During-COVID earnings in each of Q10 through Q17	Continuous. Quarterly earnings in each of Q10 through Q17 after RA (exact quarters vary by RTW program as noted below) that reflect quarters after the emergence of COVID-19 (quarters 2020 Q2 and later). Outcomes are missing for those sample members for whom the given quarter falls in 2020 Q1 or earlier. Per grantee program, the evaluation compares impacts from before COVID versus during COVID for any quarter for which the evaluation has data for at least 150 study members in both periods. See row above for the set of quarters included for each grantee program.
Aggregate Earnings	
Average quarterly earnings in Q5 through Q10 **[Confirmatory outcome]**	Continuous. Average quarterly earnings in the period from 1 year to 2.5 years after RA (Q5-Q10). The quarter of RA is deemed Q0.
Average quarterly earnings in Q5 through Q10, if any employment in Q5 through Q10	Continuous. For those ever employed in the period from 1 year to 2.5 years after RA (any of Q5-Q10), average quarterly earnings in that period (Q5-Q10). Outcome not defined (set to missing) for those sample members who were never employed in Q5-Q10.

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[11]   For more on conditional outcomes, see the text box **How to Read This Report's Impact Tables** at the end of Chapter 2 in the *Final Impact Report* (Klerman, Herr, and Martinson 2022).

Outcome	Description
Average quarterly earnings from Q9 through the end of follow-up	Continuous. Average quarterly earnings from the third year after RA (Q9) through the end of the follow-up period for the full sample: 　　For MTC through Q14 　　For the JVS programs through Q15 　　For FLH through Q13 　　For Reboot NW through Q16
Average quarterly earnings from Q7 to Q4 before RA	Continuous. Average quarterly earnings in the period two years before RA (Q7 through Q4 pre-RA).
Average quarterly earnings from Q7 to Q4 before RA, if any employment Q7 to Q4 before RA	Continuous. For those ever employed in the period two years before RA (Q7 through Q4 pre-RA), average quarterly earnings in that period (Q7 through Q4 pre-RA). Outcome not defined (set to missing) for those sample members who were never employed in Q7 through Q4 pre-RA.
Average quarterly earnings from Q9 to Q12	Continuous. Average quarterly earnings in the period three years after RA (Q9-Q12).
Average quarterly earnings in Q9 through Q12, if any employment in Q9 through Q12	Continuous. For those ever employed in the period three years after RA (Q9-Q12), average quarterly earnings in that period (Q9-Q12). Outcome not defined (set to missing) for those sample members who were never employed in Q9-Q12.
Cumulative earnings in Q5 through Q10	Continuous. Total earnings in the period from 1 year to 2.5 years after RA (Q5-Q10). Equal to average quarterly earnings in Q5 through Q10 multiplied by six (the number of quarters between Q5 and Q10).
Cumulative earnings in Q1 through Q10	Continuous. Total earnings through 2.5 years after RA (Q1-Q10). Equal to average quarterly earnings in Q1 through Q10 multiplied by ten (the number of quarters between Q1 and Q10).
Cumulative earnings in Q9 through the end of follow-up	Continuous. Total earnings from the third year after RA (Q9) through the end of the follow-up period for the full sample: 　　For MTC through Q14 　　For the JVS programs through Q15 　　For FLH through Q13 　　For Reboot NW through Q16 Equal to average quarterly earnings from Q9 through the end of the follow-up period, multiplied by the number of quarters covered (e.g., six quarters for MTC for Q9 through Q14).

KEY: RA=random assignment.

Exhibit A.5-2: Outcomes on Employment

Outcome	Description
Employment by Quarter	
Employment in each of Q1 through Q19	Binary. Employment in each of Q1 through Q19 after RA. Employment in Q1 through at least Q13 defined for the full sample (through Q14 for MTC, through Q15 for the JVS programs, and through Q16 for Reboot NW). Employment through Q18 defined for all members of the AAWDC early cohort (for MTC), and through Q19 defined for the other three early cohorts (those randomly assigned by March 31, 2017).
Employment in each of the eight quarters before RA and Q0	Binary. Employment in each of the eight quarters before RA and in the quarter of RA (Q0). The evaluation has complete data for all study sample members through seven quarters before RA. It has incomplete data for the eighth quarter before RA (data for 94 percent of the AAWDC full sample, 99 percent of the JVS full sample, 98 percent of the RochesterWorks! full sample, and 92 percent of the WSI full sample).

Outcome	Description
Pre-COVID employment in each of Q10 through Q17	Binary. Employment in each of Q10 through Q17 after RA (exact quarters vary by RTW program as noted below) that reflect quarters before the emergence of COVID-19 (quarters through 2020 Q1). Outcomes are missing for those sample members for whom the given quarter falls in 2020 Q2 or later. Per grantee program, the evaluation compares impacts from before COVID versus during COVID for any quarter for which the evaluation has data for at least 150 study members in both periods. Based on that restriction, the evaluation compares impacts for the following quarters: For Q10-Q16 for MTC For Q10-Q15 for the JVS programs For Q11-Q15 for FLH For Q11-Q17 for Reboot NW
During-COVID employment in each of Q10 through Q17	Binary. Employment in each of Q10 through Q17 after RA (exact quarters vary by RTW program as noted above) that reflect quarters after the emergence of COVID-19 (quarters 2020 Q2 and later). Outcomes are missing for those sample members for whom the given quarter falls in 2020 Q1 or earlier. Per grantee program, the evaluation compares impacts from before COVID versus during COVID for any quarter for which the evaluation has data for at least 150 study members in both periods. See row above for the set of quarters included for each grantee program.
Aggregate Employment	
Any Employment in Q5 through Q10 **[Secondary outcome]**	Binary. Ever employed from the period 1 year to 2.5 years after RA (any quarter from Q5 through Q10; binary).
Any employment in Q1 through Q10	Binary. Ever employed through 2.5 years after RA (any quarter Q1-Q10).
Any employment in Q9 through the end of follow-up	Binary. Ever employed from the third year after RA (Q9) through the end of the follow-up period for the full sample: For MTC through Q14 For the JVS programs through Q15 For FLH through Q13 For Reboot NW through Q16
Any employment in Q7 through Q4 before RA	Binary. Ever employed in the period two years before RA (any quarter Q7 through Q4 pre-RA).
Any employment in Q9 through Q12	Binary. Ever employed in the period three years after RA (any quarter Q9-Q12).
Number of quarters employed during Q5 through Q10	Continuous. Number of quarters employed in the period from 1 year to 2.5 years after RA (Q5-Q10).
Number of quarters employed during Q1 through Q10	Continuous. Number of quarters employed through 2.5 years after RA (Q1-Q10).
Number of quarters employed from Q9 through the end of follow-up	Continuous. Number of quarters employed from the third year after RA (Q9) through the end of the follow-up period for the full sample: For MTC through Q14 For the JVS programs through Q15 For FLH through Q13 For Reboot NW through Q16
Percentage of quarters employed during Q5 through Q10	Continuous. Percentage of quarters employed in the period from 1 year to 2.5 years after RA (Q5-Q10).
Percentage of quarters employed during Q1 through Q10	Continuous. Percentage of quarters employed through 2.5 years after RA (Q1-Q10).

Outcome	Description
Percentage of quarters employed from Q9 through the end of follow-up	Continuous. Percentage of quarters employed from the third year after RA (Q9) through the end of the follow-up period for the full sample: For MTC through Q14 For the JVS programs through Q15 For FLH through Q13 For Reboot NW through Q16
Longest job tenure during Q5 through Q10	Continuous. Greatest number of quarters employed with a single employer in the period from 1 year to 2.5 years after RA (Q5-Q10).
Longest job tenure during Q0 through Q10	Continuous. Greatest number of quarters employed with a single employer through 2.5 years after RA (Q0-Q10).
Longest job tenure from Q9 through the end of follow-up	Continuous. Greatest number of quarters employed with a single employer from the third year after RA (Q9) through the end of the follow-up period for the full sample: For MTC through Q14 For the JVS programs through Q15 For FLH through Q13 For Reboot NW through Q16

KEY: RA=random assignment.

Exhibit A.5-3: Outcomes on Receipt of Unemployment Insurance (UI)

Outcome	Description
Receipt of UI in each of Q1 through at least Q13	Binary. Receipt of UI in each of Q1 through at least Q13 after RA. (The evaluation does not report impacts on UI receipt through Q19 for the early cohort.) Defined through at least Q13 for the full sample (through Q14 for MTC, through Q15 for the JVS programs, and through Q16 for Reboot NW).
Receipt of UI in each of the eight quarters before RA and Q0	Binary. Receipt of UI in each of the eight quarters before RA and the quarter of RA (Q0). The evaluation has complete data for all study sample members through seven quarters before RA. It has incomplete data for the eighth quarter before RA (94 percent of the AAWDC full sample, 99 percent of the JVS full sample, 98 percent of the RochesterWorks! full sample, and 92 percent of the WSI full sample).
Any employment or receipt of UI in each of Q1 through at least Q13	Binary. Employed or received UI in each of Q1 through at least Q13 after RA. (The evaluation does not report impacts on employment/UI receipt through Q19 for the early cohort.) Defined through at least Q13 for the full sample (through Q14 for MTC, through Q15 for the JVS programs, and through Q16 for Reboot NW).
Any employment or receipt of UI in each of the eight quarters before RA and Q0	Binary. Employed or received UI in each of the eight quarters before RA and the quarter of RA (Q0). The evaluation has complete data for all study sample members through seven quarters before RA. It has incomplete data for the eighth quarter before RA (data for 94 percent of the AAWDC full sample, 99 percent of the JVS full sample, 98 percent of the RochesterWorks! full sample, and 92 percent of the WSI full sample).

KEY: RA=random assignment. UI=Unemployment Insurance.

A.6　Selecting Covariates for the Final Impact Report

To increase the precision of the estimated impacts of the RTW programs, this evaluation uses baseline measures as regressors. Some of these baseline measures are constructed from data collected in the study's Baseline Information Form (BIF); others are constructed from pre-randomization employment and earnings data from the NDNH. This section first describes the method by which regressors are selected (Section A.6.1). It then lists the set of covariates selected for the *Final Impact Report* for each of the four RTW programs included in the evaluation (Section A.6.2).

A.6.1　Using LASSO to Select Covariates

To maximize precision of the estimated impacts, the evaluation selects regression covariates separately for each grantee using the SAS implementation of LASSO, the *least absolute shrinkage and selection operator* (see Tibshirani 1996). LASSO identifies the set of covariates that provides the strongest effect on increasing the precision of the impact estimate while avoiding overfit that could offset the benefits of regression adjustment. This method was pre-specified before analysis began.

For the *Final Impact Report*, the analysis applies LASSO to the confirmatory outcome (*average quarterly earnings from 1 year to 2.5 years after random assignment*), separately for each grantee. For the given grantee, the covariates chosen by this process are used for all outcomes for this report. Specifically, the covariate selection process proceeds as follows:

1. Begin with all of the variables collected in the BIF, plus quarterly earnings and employment (i.e., any earnings) in each of the seven quarters preceding random assignment.

2. Starting from this full set of baseline variables, build a set of candidate covariates by removing some variables and combining and recoding others. For each candidate covariate, group observations with missing data with the omitted category. This omitted category is the more common category, for covariates with two groups; or it is the middle category, for covariates with three groups.[12] The text box **Baseline Characteristic Covariate Candidates** lists

> ### Baseline Characteristic Covariate Candidates
>
> - Race/ethnicity (BIF, binary; AAWDC: Black non-Hispanic vs. Other; Other grantees: White non-Hispanic vs. Other)
> - Speaks language other than English at home (BIF, binary)
> - Age (BIF, categorical: ≤38, 39-48, ≥49)
> - Other employed adult in the household (BIF, binary)
> - Completed education (BIF, categorical: <BA, BA, >BA)
> - Employment status at randomization (BIF, binary; unemployed more than 12 months vs. unemployed 12 or fewer months or employed)
> - Minimum hourly wage willing to accept (BIF, categorical: by terciles)
> - Receipt of any public assistance (BIF, binary; receives SNAP, TANF, or public housing/Section 8)
> - Measure of willingness to work (BIF, binary; based on agreement with statements about willingness to take any job available, to work part-time, or work an unpredictable schedule)
> - Timing of random assignment (BIF, by roughly 6-month groups)
> - Earnings in each of the seven quarters preceding random assignment (NDNH, continuous)
> - Employment in each of the seven quarters preceding random assignment (NDNH, binary)
>
> KEY: BA=bachelor's degree. BIF=Baseline Information Form. NDNH=National Directory of New Hires. SNAP=Supplemental Nutrition Assistance Program. TANF=Temporary Assistance for Needy Families.

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[12] For a description of how the candidate covariates are constructed, see Appendix Section E.3 of the *Interim Appendix*.

the covariates run through LASSO and their data sources; the analysis uses these candidate covariates for all four grantees.

3. For each grantee, the evaluation also includes in the analysis three sets of variables as required covariates (i.e., "forces them in"):

   a. Variables identifying the key subgroups defined at baseline: *education* (less than a bachelor's degree versus a bachelor's degree or more); *age* (49 or older versus younger than 49); *employment status* (no earnings in the four quarters before the quarter of random assignment versus positive earnings in any of those four quarters); and *gender* (women versus men).[13]

   b. Dummy variables for each value of the level at which random assignment occurred for each grantee: by program site location for AAWDC and WSI, and by training program for JVS.[14] For RochesterWorks!, random assignment was not stratified.

   c. Candidate covariates for which a simple equivalence test suggested evidence of imbalance in the given grantee's study sample (i.e., $p < .05$).

4. The analysis residualizes the dependent variable and the remaining candidate covariates by regressing them against the set of required covariates identified in the step immediately above.[15]

5. The analysis runs LASSO using these residualized variables and the required covariates.[16]

6. The analysis uses as covariates the required covariates plus additional candidates selected by LASSO using 10-fold cross-validation.

A.6.2 LASSO-Selected Covariates

This section reports the set of covariates that the evaluation uses when estimating the impacts discussed in this report.[17] As explained above, the evaluation uses LASSO to select the set of candidate covariates included as controls for the impact estimate regressions. Separately for each grantee, Exhibit A.6-1 lists

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[13] Because the evaluation also runs impacts separately for the "early cohort" (those randomly assigned by March 31, 2017), the evaluation also includes as a required covariate a variable identifying this cohort.

[14] Midway through the sample accumulation period, JVS began randomizing applicants by training program.

   For AAWDC only, the probability of assignment to the program group varied by program site (either 0.5 or 0.67). Program site is therefore also included as a required covariate for this grantee.

[15] This step proceeds by analogy with the Frisch-Waugh-Lovell theorem from econometrics. Specifically, residualizing isolates the variation in the remaining covariate candidates that is uncorrelated with variation in the covariates already being included in the model.

[16] The analysis runs SAS LASSO with the following parameters: selection=lasso stop=cv VMETHOD=RANDOM(10). In addition, LASSO is run unweighted (neither non-response weights for survey variables, nor assignment weights for AAWDC).

[17] When estimating "impacts" on the pre–random assignment quarterly earnings and employment (e.g., see Appendix Exhibit C.1-3 for AAWDC's MTC program), the analysis excludes as regressors the pre–random assignment quarterly earnings listed in Exhibit A.6-1.

the set of required covariates and the set of candidate covariates selected by LASSO for impacts reported in the *Final Impact Report*.[18]

Exhibit A.6-1: Regression Covariates for Impacts Reported in the Final Impact Report

Grantee	Required Covariates	LASSO-Selected Covariates
AAWDC	• Education subgroup • Age subgroup • Employment status subgroup • Gender subgroup • Early cohort identifier • Site location dummies (level of randomization) • Probability of RA to the program group (0.50 or 0.667) • Minimum wage willing to accept: bottom tercile[a]	• Quarterly earnings prior to quarter of RA (Q0): Q1 pre-RA Q2 pre-RA Q5 pre-RA Q6 pre-RA
JVS	• Education subgroup • Age subgroup • Employment status subgroup • Gender subgroup • Early cohort identifier • Program course dummies (level of randomization)	• Minimum wage willing to accept: top tercile • Quarterly earnings prior to quarter of RA (Q0): Q1 pre-RA Q4 pre-RA Q7 pre-RA
RochesterWorks!	• Education subgroup • Age subgroup • Employment status subgroup • Gender subgroup • Early cohort identifier • Speaks language other than English at home[b]	• Quarterly earnings prior to quarter of RA (Q0): Q4 pre-RA Q7 pre-RA
Worksystems Inc.	• Education subgroup • Age subgroup • Employment status subgroup • Gender subgroup • Early cohort identifier • Site location dummies (level of randomization)	• Quarterly earnings prior to quarter of RA (Q0): Q1 pre-RA Q5 pre-RA Q7 pre-RA

KEY: Q=quarter. RA=random assignment.

[a] Significantly different between the AAWDC program group and control group (p = .021).

[b] Significantly different between the RochesterWorks! program group and control group (p = .045).

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[18] For the results reported in the *Interim Impact Report*, the evaluation ran LASSO on average quarterly earnings from Q5 through Q6, rather than Q5 through Q10. For that reason, the set of LASSO-selected covariates varies slightly between reports, and the impact estimates may vary slightly for outcomes reported in both reports.

Appendix B: Demographic Comparison of RTW Samples to U.S. Long-Term Unemployed and Those Receiving WIOA Services

The *Final Impact Report* (Klerman, Herr, and Martinson 2022) claims that the Ready to Work (RTW) population was older and more educated than both (1) the general long-term unemployed population; and (2) the general workforce system population. This appendix reports analyses of the Current Population Survey (CPS) and Workforce Innovation and Opportunity Act (WIOA) administrative data in support of that claim.

To identify an appropriate comparison group, the analysis picks a specific:

- **Time Period.** The RTW grantee programs enrolled study members during a specific time. In all four programs, random assignment into the study sample began in Summer 2015. The end of enrollment varied across programs: December 2017 (for Reboot NW), March 2018 (for MTC and the JVS programs), and August 2018 (for FLH).

- **Geography.** The RTW programs enrolled study members in four local labor markets.

- **Demographics**. Per the Ready to Work *Solicitation for Grant Applications* (SGA; DOL/ETA 2014), RTW programs were to serve workers who were long-term unemployed (at least 27 weeks) or underemployed (had lost their job and had obtained short-term or part-time employment but had not yet found a full-time job in line with their previous level of skill or earnings). In addition, the target population for the RTW programs was those workers with sufficient experience or education for employment in middle- or high-skill jobs. For this reason, most RTW programs limited eligibility to workers with at least a high school diploma and focused on workers with substantial work experience.

The available data do not allow a perfect match on these criteria. This appendix considers two comparison samples:

1. The long-term unemployed (those unemployed at least 27 weeks) as measured in the **Current Population Survey** (CPS) in approximately 2014 through 2018. As discussed below, the analysis can compare each RTW study sample to a sample of long-term unemployed in approximately the same geographic area. For example, for JVS, located in the San Francisco area, the analysis compares its study sample to those long-term unemployed living in California.

2. All U.S. adults served by WIOA, as reported in the **2017 WIOA "Data Book."** These data cover workers who exited WIOA services in the 2017 program year (July 1, 2017 through June 30, 2018). These data are national; no geographic disaggregation appears to be available. The analysis below therefore compares the characteristics of all U.S. adults served by WIOA who exited in approximately 2017.

Neither comparison is perfect. Together they provide some support for the claim that the RTW population is older and better educated than the long-term unemployed population in similar geographic regions, from approximately 2015 to 2018, and than the broader WIOA population during this period.[19] Section

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[19] See Appendix Exhibit B.1-1 for detail on the geographic regions chosen for the comparison to the long-term unemployed in the CPS.

B.1 provides detail on the comparison groups. Then, for each grantee program separately, Sections B.2 through B.5 provide the results.

B.1 CPS and WIOA Comparison Samples

This section describes the two comparison datasets and the selection criteria used for building the comparison samples of unemployed and underemployed U.S. workers.

B.1.1 CPS Sample of Long-Term Unemployed Workers

The CPS conducts monthly surveys of approximately 60,000 U.S. households.[20] For all adults in each household, the survey collects information on labor force status; for those unemployed, the number of weeks unemployed.

This analysis is limited to individuals who were unemployed at least 27 weeks at the time of the survey interview. In the RTW study samples, approximately 80 percent of sample members were unemployed when they applied to the program, and 20 percent were underemployed. Thus, analysis ideally would also include the underemployed. However, it is not possible to identify workers who are underemployed with the employment information available in the CPS.

The evaluation's ability to align the CPS sample to each program's local labor market is limited by available sample sizes in the CPS. Exhibit B.1-1 describes the comparison geography and time period used.

Exhibit B.1-1 CPS Comparison Geography and Time Period

Program/Grantee	Program Location	Selected CPS Geography	Time Period
MTC/AAWDC	7 Career Centers across Maryland	Maryland and District of Columbia	1/2014-12/2018
STW-T, JSA / JVS	San Francisco Bay area	California	1/2015-12/2018
FLH/RochesterWorks!	Rochester, New York area	New York State exclusive of the New York City metro area, and Pennsylvania exclusive of the Philadelphia metro area[a]	1/2014-12/2018
Reboot NW/WSI	Portland, Oregon; Vancouver, Washington area	Oregon, Washington State, plus Idaho and Montana[b]	1/2014-12/2018

SOURCE: Current Population Survey (CPS).
[a]The comparison sample excludes those living in the New York City area because of the very different economic environment relative to upstate New York. The comparison sample was expanded to include those living in non-metro Pennsylvania to provide larger sample sizes.
[b]The sample was expanded to include those living in Idaho and Montana to provide larger sample sizes.

The RTW programs enrolled study members from Summer 2015 to roughly late 2017/early 2018. CPS samples for California are large, so for the JVS comparison, the time period for the CPS data is closely tailored to that period: January 2015 to December 2018. For the other programs, CPS samples in the

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[20] Households selected for the CPS are surveyed for 8 months in a 16-month period. They are surveyed for 4 consecutive months (months 1 through 4), followed by an 8-month gap, then surveyed again for a second 4-month stretch (months 5 through 8). For each survey cohort, months 4 and 8 are termed the "outgoing rotation" month. This analysis is limited to interviews in month 4 or 8 (the outgoing rotation groups). The analysis is limited to those who report being unemployed for at least 27 weeks at the time of the survey. If an individual is unemployed for more than 18 months, it is possible that the individual is double counted in this analysis (their information collected in both month 4 and month 8).

given geographic areas are smaller, so the analysis uses a slightly broader time period: January 2014 to December 2018.

The CPS data provide imperfect comparison groups for the long-term unemployed in the regions from which the four RTW programs draw. The CPS allows limiting the sample to the long-term unemployed (those unemployed for 27 or more weeks), but does not identify those who are underemployed, and the geographical alignment is far from perfect. It is the best that appears to be available, and the differences are striking—in the expected direction.

B.1.2   Adults Served by WIOA

This analysis uses information reported in the *PY 2017 Data Book* on all adults served by WIOA or Wagner-Peyser services in approximately 2017 (DOL/ETA/PD&R 2019).[21] Demographic and employment information is collected when workers first apply for services; date of entry is not reported. As with the RTW study samples, approximately 80 percent of those served by WIOA were unemployed when they applied for WIOA services.

The *PY 2017 Data Book* reports summary information on demographic and employment characteristics for all U.S. adults combined. It does not provide separate information by U.S. region or state. The analysis below therefore compares the same (full U.S.) WIOA sample to each RTW study sample.

This is also an imperfect comparison for the WIOA population. Although the WIOA data capture information for both the long-term unemployed and the underemployed (as with the RTW samples), that data cannot be disaggregated by geography. Again, it is the best that appears to be available, and the differences are striking—in the expected direction.

B.2   Results for Maryland Tech Connection

This section presents comparisons of the MTC study sample.

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[21] The *PY 2017 Data Book* reports information collected through the Participant Individual Record Layout (PIRL) data submitted by states to the U.S. Department of Labor's (DOL) Employment and Training Administration (ETA) as part of states' 2017 program year requirements. The *PY 2017 Data Book* provides summary demographic information for all adults who finished receiving WIOA or Wagner-Peyser services ("exiters") between July 1, 2017, and June 30, 2018.

Because these Data Books aggregate samples by exit date rather than entry date, the analysis cannot identify all adults who first applied for WIOA services during the same timeframe in which individuals were applying for the RTW programs. Furthermore, the *PY 2017 Data Book* covers those who finished receiving WIOA or Wagner-Peyser services between July 2017 and June 2018. For that reason, the WIOA sample used in this analysis is likely to more closely overlap with RTW sample members who applied in the latter part of the evaluation, rather than with the full samples.

The analysis reported below relies exclusively on the data published in the *PY 2017 Data Book* because of data issues surrounding a shift in the data collection system, and the types of information collected, between 2015 and 2016. (Under the Workforce Investment Act, state-level data were collected via the Workforce Investment Act Standardized Record Data system.) Prior to 2016 a somewhat smaller set of demographics were reported by states to DOL/ETA. Furthermore, when the PIRL data collection system went into effect in 2016, for many states new data fields were missing because the corresponding data collection occurred before the new requirements went into effect (as demographics are collected at entry, but reported at exit). However, comparisons of the RTW study sample characteristics to the 2015 and 2016 data show the same patterns discussed below for the 2017 data.

B.2.1 Comparing the MTC Study Sample to the CPS Long-Term Unemployed

Exhibit B.2-1 compares the characteristics of the MTC full sample to the CPS sample. The two samples have a similar percentage of women and men and a similar percentage of Hispanic members. However, a larger percentage of the MTC study sample are White (30 percent versus 24 percent of the CPS sample), and a smaller percentage are Black/African American (58 percent versus 70 percent).

Exhibit B.2-1: Comparison of MTC Study Sample to CPS Long-Term Unemployed in Maryland and the District of Columbia

Baseline Characteristic	Study Sample Mean	CPS Mean	Difference
Gender (%)			
Women	52.6	54.7	−2.1
Men	47.4	45.3	2.1
Race (%)			
Asian	7.8	2.9	4.9***
Black or African American	57.5	70.1	−12.5***
White	29.5	24.3	5.2**
American Indian or Alaska Native	1.0	0.3	0.7
Native Hawaiian or Other Pacific Islander	0.1	0.3	−0.2
Other or multiple races	4.1	2.1	2.0**
Hispanic ethnicity (%)	3.4	3.4	0.0
Age (%)			
24 years or younger	4.4	16.3	−12.0***
25 to 34 years	15.5	24.9	−9.5***
35 to 44 years	24.9	18.1	6.8***
45 to 54 years	31.0	17.3	13.7***
55 years or older	24.3	23.3	1.0
Average age (years)	45.2	41.1	4.0***
Marital status (%)			
Married	44.9	24.6	20.3***
Widowed/divorced/separated	22.3	13.9	8.3***
Never married	32.8	61.5	−28.7***
Education level (%)			
High school diploma or less	7.9	49.5	−41.6***
Some college credit but no degree	14.4	19.9	−5.5***
Technical or associate's degree	11.8	5.2	6.7***
Bachelor's degree	38.4	15.2	23.2***
Master's degree or more	27.4	10.2	17.2***

SOURCE: Baseline Information Form for MTC study sample; Current Population Survey (CPS) for comparison sample of long-term unemployed workers.

NOTES: For the MTC sample, percentage never married includes those who reported living with a partner (with no additional information on marital status). Reported difference may not equal the difference between the MTC study sample and CPS sample because of rounding. MTC study sample includes 1,029 sample members who were randomly assigned between August 2015 and March 2018. CPS sample includes 618 individuals who were long-term unemployed (27 weeks or longer) and living in Maryland or the District of Columbia when interviewed between January 2014 and December 2018.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Consistent with the SGA (DOL/ETA 2014), the MTC study sample is clearly older and more educated than the CPS population of long-term unemployed workers. In particular, a substantially larger percentage of the MTC study sample have a bachelor's degree (38 percent versus 15 percent of the CPS sample) or a master's degree (27 percent versus 10 percent of the CPS sample).

A larger percentage of the MTC study sample is also married or widowed/divorced/separated (67 percent versus 38 percent of the CPS sample), and a smaller percentage are never married (33 percent versus 62 percent). Analyses limiting the CPS sample to those age 25 and older and those with at least a high school diploma or equivalency (not shown) suggest that some of this difference is driven by the difference in ages, with members of the MTC study sample on average approximately 4 years older than members of the CPS comparison sample (45 years old versus 41 years old).

B.2.2   Comparing the MTC Study Sample to All U.S. Adults Served by WIOA

Exhibit B.2-2 compares the characteristics of the MTC study sample to the full (national) population of U.S. adults served by WIOA. As with the CPS comparison, the two samples have a similar percentage of women and men. However, a larger percentage of the MTC sample are Black (60 percent versus 30 percent in the WIOA sample), and a smaller percentage are White (31 percent versus 66 percent) or Hispanic (3 percent versus 15 percent).

Exhibit B.2-2: Comparison of MTC Study Sample to U.S. Adults Served by WIOA

Baseline Characteristic	Study Sample Mean	WIOA Mean	Difference
Gender (%)			
Women	52.6	51.7	0.9
Men	47.4	48.3	−0.9
Race (%)			
Asian	8.5	3.9	4.6***
Black or African American	60.1	30.0	30.1***
White	31.2	65.5	−34.3***
American Indian or Alaska Native	2.5	3.4	−0.9*
Native Hawaiian or Other Pacific Islander	0.5	1.1	−0.6***
Other or multiple races	2.3	3.2	−0.9**
Hispanic ethnicity (%)	3.4	14.7	−11.3***
Age (%)			
18 to 21 years	1.3	7.3	−6.0***
22 to 29 years	9.9	22.8	−12.9***
30 to 44 years	33.5	34.1	−0.6
45 to 54 years	31.0	18.7	12.3***
55 years or older	24.3	17.1	7.2***
Education level (%)			
Less than a high school diploma or equivalent	0.0	11.1	−11.1***
High school equivalency	1.0	9.0	−8.0***
High school diploma	6.9	36.5	−29.6***
Some college credit but no degree	14.4	16.5	−2.1*
Technical or vocational degree or certificate	2.7	3.7	−1.0**
Associate's degree	9.2	8.0	1.2
Bachelor's degree or more	65.8	15.1	50.7***
Public benefits receipt (%)			
Supplemental Nutrition Assistance Program (SNAP)	22.1	17.4	4.7***
Temporary Assistance for Needy Families (TANF)	1.6	3.6	−2.0***

SOURCE: Baseline Information Form for MTC study sample; *PY 2017 Data Book* for comparison sample of U.S. adults receiving services through Workforce Innovation and Opportunity Act (WIOA).

NOTES: Race categories are not mutually exclusive, and therefore can sum to greater than 100 percent. Reported difference may not equal the difference between the MTC study sample and WIOA sample because of rounding. MTC study sample includes 1,029 sample members who were randomly assigned between August 2015 and March 2018. WIOA population includes the 630,013 adults who exited the WIOA or Wagner-Peyser system between July 2017 and June 2018. Demographics of the WIOA population are measured when individuals first apply for services.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

As with the CPS comparison above, the MTC study sample is substantially older and more educated than the full (national) population of U.S. workers served by WIOA. In particular, 55 percent of the MTC sample is age 45 or older, versus only 36 percent of the WIOA sample. In addition, a substantially larger percentage of the MTC study sample has at least a bachelor's degree (66 percent) versus the WIOA population (only 15 percent).

B.3   Results for the JVS Programs

This section presents comparisons of the JVS study sample.

B.3.1   Comparing the JVS Study Sample to the CPS Long-Term Unemployed

Exhibit B.3-1 compares the characteristics of the JVS full sample to the CPS sample. Compared to the CPS sample, a higher percentage of the JVS sample are women (63 percent versus 44 percent among the CPS sample). The JVS sample also has a larger percentage of individuals who are Asian (24 percent versus 10 percent) and a smaller percentage who are White (53 percent versus 74 percent) or Hispanic (11 percent versus 33 percent).

Exhibit B.3-1: Comparison of JVS Study Sample to CPS Long-Term Unemployed in California

Baseline Characteristic	Study Sample Mean	CPS Mean	Difference
Gender (%)			
Women	63.0	44.0	19.1***
Men	37.0	56.0	−19.1***
Race (%)			
Asian	24.0	10.4	13.6***
Black or African American	11.5	11.2	0.3
White	52.8	73.7	−21.0***
American Indian or Alaska Native	0.5	1.8	−1.3**
Native Hawaiian or Other Pacific Islander	0.7	0.7	0.1
Other or multiple races	10.5	2.2	8.3***
Hispanic ethnicity (%)	10.6	33.3	−22.7***
Age (%)			
24 years or younger	2.6	16.9	−14.3***
25 to 34 years	22.7	21.4	1.2
35 to 44 years	23.1	16.7	6.3***
45 to 54 years	29.3	19.1	10.2***
55 years or older	22.4	25.9	−3.5*
Average age (years)	44.2	41.8	2.3***
Marital status (%)			
Married	39.6	34.3	5.3**
Widowed/divorced/separated	15.3	16.7	−1.4
Never married	45.1	49.0	−3.9
Education level (%)			
High school diploma or less	3.7	42.3	−38.7***
Some college credit but no degree	10.0	23.8	−13.8***
Technical or associate's degree	6.8	10.1	−3.3**
Bachelor's degree	49.4	16.6	32.8***
Master's degree or more	30.1	7.2	23.0***

SOURCE: Baseline Information Form for JVS study sample; Current Population Survey (CPS) for comparison sample of long-term unemployed workers.

NOTES: For the JVS sample, percentage never married includes those who reported living with a partner (with no additional information on marital status). Reported difference may not equal the difference between the JVS study sample and CPS sample because of rounding. JVS study sample includes 993 sample members who were randomly assigned between August 2015 and March 2018. CPS sample includes 723 individuals who were long-term unemployed (27 weeks or longer) and living in California when interviewed between January 2015 and December 2018.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Consistent with the SGA, the JVS study sample is clearly older and more educated than the CPS population of long-term unemployed workers. In particular, a substantially larger percentage of the JVS study sample have a bachelor's degree (49 percent versus 17 percent of the CPS sample) or a master's degree (30 percent versus 7 percent of the CPS sample). And the members of the JVS study sample on average are approximately 2 years older than members of the CPS comparison sample (44 years old versus 42 years old).

B.3.2 Comparing the JVS Study Sample to All U.S. Adults Served by WIOA

Exhibit B.3-2 compares the characteristics of the JVS study sample to the full (national) population of U.S. adults served by WIOA. In comparison to the national WIOA sample, a larger percentage of the JVS sample are women (63 percent versus 52 percent). In addition, a larger percentage of the JVS sample are

Asian (27 percent versus 4 percent in the WIOA sample), and a smaller percentage are Black (13 percent versus 30 percent) or White (59 percent versus 66 percent).

Exhibit B.3-2: Comparison of JVS Study Sample to U.S. Adults Served by WIOA

Baseline Characteristic	Study Sample Mean	WIOA Mean	Difference
Gender (%)			
Women	63.0	51.7	11.3***
Men	37.0	48.3	−11.3***
Race (%)			
Asian	27.3	3.9	23.4***
Black or African American	13.2	30.0	−16.8***
White	59.4	65.5	−6.1***
American Indian or Alaska Native	1.5	3.4	−1.9***
Native Hawaiian or Other Pacific Islander	0.9	1.1	−0.2
Other or multiple races	2.3	3.2	−0.9*
Hispanic ethnicity (%)	10.6	14.7	−4.1***
Age (%)			
18 to 21 years	0.1	7.3	−7.2***
22 to 29 years	12.6	22.8	−10.2***
30 to 44 years	35.6	34.1	1.5
45 to 54 years	29.3	18.7	10.6***
55 years or older	22.4	17.1	5.3***
Education level (%)			
Less than a high school diploma or equivalent	0.1	11.1	−11.0***
High school equivalency	1.2	9.0	−7.8***
High school diploma	2.3	36.5	−34.2***
Some college credit but no degree	10.0	16.5	−6.5***
Technical or vocational degree or certificate	2.0	3.7	−1.7***
Associate's degree	4.8	8.0	−3.2***
Bachelor's degree or more	79.5	15.1	64.4***
Public benefits receipt (%)			
Supplemental Nutrition Assistance Program (SNAP)	9.2	17.4	−8.2***
Temporary Assistance for Needy Families (TANF)	1.2	3.6	−2.4***

SOURCE: Baseline Information Form for JVS study sample; *PY 2017 Data Book* for comparison sample of U.S. adults receiving services through the Workforce Innovation and Opportunity Act (WIOA).

NOTES: Race categories are not mutually exclusive, and therefore can sum to greater than 100 percent. Reported difference may not equal the difference between the JVS study sample and WIOA sample because of rounding. JVS study sample includes 993 sample members who were randomly assigned between August 2015 and March 2018. WIOA population includes the 630,013 adults who exited the WIOA or Wagner-Peyser system between July 2017 and June 2018. Demographics of the WIOA population are measured when individuals first apply for services.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

As with the CPS comparison above, the JVS study sample is substantially older and more educated than the full (national) population of U.S. workers served by WIOA. In particular, a substantially larger percentage of the JVS study sample has at least a bachelor's degree (80 percent) versus the WIOA population (only 15 percent). And a larger percentage of the JVS study sample are age 45 or older (52 percent versus 36 percent in the WIOA sample).

B.4   Results for Finger Lakes Hired

This section presents comparisons of the FLH study sample.

B.4.1 Comparing the FLH Study Sample to the CPS Long-Term Unemployed

Exhibit B.4-1 compares the characteristics of the FLH full sample to the CPS sample. Compared to the local CPS sample, a larger percentage of the FLH sample are women (55 percent versus 42 percent). Likewise, a larger percentage of the FLH sample are Black (29 percent versus 10 percent in the CPS sample) or Hispanic (8 percent versus 3 percent), and a smaller percentage are White (61 percent versus 85 percent).

Exhibit B.4-1: Comparison of FLH Study Sample to CPS Long-Term Unemployed in Non-Metro New York and Pennsylvania

Baseline Characteristic	Study Sample Mean	CPS Mean	Difference
Gender (%)			
Women	55.0	41.7	13.3***
Men	45.0	58.3	−13.3***
Race (%)			
Asian	2.0	1.6	0.4
Black or African American	29.2	10.4	18.9***
White	60.5	85.0	−24.5***
American Indian or Alaska Native	0.2	0.8	−0.6
Native Hawaiian or Other Pacific Islander	0.0	0.0	0.0
Other or multiple races	8.1	2.2	5.9***
Hispanic ethnicity (%)	7.5	2.7	4.7***
Age (%)			
24 years or younger	4.8	13.9	−9.1***
25 to 34 years	17.7	20.4	−2.7
35 to 44 years	17.2	16.6	0.6
45 to 54 ears	29.5	20.7	8.8***
55 years or older	30.8	28.3	2.5
Average age (years)	46.2	43.3	2.9***
Marital status (%)			
Married	33.3	30.5	2.8
Widowed/divorced/separated	20.6	22.1	−1.5
Never married	46.1	47.4	−1.3
Education level (%)			
High school diploma or less	16.4	56.1	−39.7***
Some college credit but no degree	20.2	13.1	7.1***
Technical or associate's degree	19.8	10.6	9.2***
Bachelor's degree	30.8	13.9	16.9***
Master's degree or more	12.8	6.3	6.5***

SOURCE: Baseline Information Form for FLH study sample; Current Population Survey (CPS) for comparison sample of long-term unemployed workers.
NOTES: For the FLH sample, percentage never married includes those who reported living with a partner (with no additional information on marital status). Reported difference may not equal the difference between the FLH study sample and CPS sample because of rounding. FLH study sample includes 610 sample members who were randomly assigned between August 2015 and August 2018. CPS sample includes 367 individuals who were long-term unemployed (27 weeks or longer) and living in New York State or Pennsylvania exclusive of those in metro New York City or metro Philadelphia when interviewed between January 2014 and December 2018.
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Consistent with the SGA, the FLH study sample is clearly older and more educated than the CPS population of long-term unemployed workers. In particular, a substantially larger percentage of the FLH study sample have a bachelor's degree (31 percent versus 14 percent of the CPS sample) or a master's degree (13 percent versus 6 percent of the CPS sample). And the members of the FLH study sample on

average are approximately 3 years older than members of the CPS comparison sample (46 years old versus 43 years old).

B.4.2   Comparing the FLH Study Sample to All U.S. Adults Served by WIOA

Exhibit B.4-2 compares the characteristics of the FLH study sample to the full (national) population of U.S. adults served by WIOA. In comparison to the national WIOA sample, a smaller percentage of the FLH sample are Hispanic (8 percent versus 15 percent in the CPS sample), but there is no differences in gender and smaller differences by race than for the other three programs.

Exhibit B.4-2: Comparison of FLH Study Sample to U.S. Adults Served by WIOA

Baseline Characteristic	Study Sample Mean	WIOA Mean	Difference
Gender (%)			
Women	55.0	51.7	3.3
Men	45.0	48.3	−3.3
Race (%)			
Asian	2.5	3.9	−1.4**
Black or African American	33.5	30.0	3.5*
White	65.3	65.5	−0.2
American Indian or Alaska Native	1.4	3.4	−2.0***
Native Hawaiian or Other Pacific Islander	0.2	1.1	−0.9***
Other or multiple races	2.7	3.2	−0.5
Hispanic ethnicity (%)	7.5	14.7	−7.2***
Age (%)			
18 to 21 years	1.3	7.3	−6.0***
22 to 29 years	13.0	22.8	−9.8***
30 to 44 years	25.4	34.1	−8.7***
45 to 54 years	29.5	18.7	10.8***
55 years or older	30.8	17.1	13.7***
Education level (%)	.	.	
Less than a high school diploma or equivalent	0.3	11.1	−10.8***
High school equivalency	6.9	9.0	−2.1**
High school diploma	9.2	36.5	−27.3***
Some college credit but no degree	20.2	16.5	3.7**
Technical or vocational degree or certificate	3.8	3.7	0.1
Associate's degree	16.1	8.0	8.1***
Bachelor's degree or more	43.6	15.1	28.5***
Public benefits receipt (%)			
Supplemental Nutrition Assistance Program (SNAP)	27.1	17.4	9.7***
Temporary Assistance for Needy Families (TANF)	5.8	3.6	2.2**

SOURCE: Baseline Information Form for FLH study sample; *PY 2017 Data Book* for comparison sample of U.S. adults receiving services through the Workforce Innovation and Opportunity Act (WIOA).

NOTES: Race categories are not mutually exclusive, and therefore can sum to greater than 100 percent. Reported difference may not equal the difference between the MTC study sample and WIOA sample because of rounding. FLH study sample includes 610 sample members who were randomly assigned between August 2015 and August 2018. WIOA population includes the 630,013 adults who exited the WIOA or Wagner-Peyser system between July 1, 2017 and June 30, 2018. Demographics of the WIOA population are measured when individuals first apply for services.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

As with the CPS comparison above, the FLH study sample is substantially older and more educated than the full (national) population of U.S. workers served by WIOA. In particular, a substantially larger percentage of the FLH study sample has at least a bachelor's degree (44 percent) versus the WIOA

population (only 15 percent). In addition, a larger percentage of the FLH sample are age 45 or older (60 percent versus 36 percent in the WIOA sample).

B.5   Results for Reboot Northwest

This section presents comparisons of the Reboot NW study sample.

B.5.1   Comparing the Reboot NW Study Sample to the CPS Long-Term Unemployed

Exhibit B.5-1 compares the characteristics of the Reboot NW full sample to the CPS sample. Compared to the local CPS sample, a larger percentage of the Reboot NW sample are men (76 percent versus 60 percent). Likewise, a larger percentage of the Reboot NW sample are Asian (8 percent versus 3 percent in the CPS sample), Black (6 percent versus 3 percent), or Other/multiple races (8 percent versus 3 percent), and a smaller percentage are White (77 percent versus 86 percent).

Exhibit B.5-1: Comparison of Reboot NW Study Sample to CPS Long-Term Unemployed in Pacific Northwest

Baseline Characteristic	Study Sample Mean	CPS Mean	Difference
Gender (%)			
Women	23.6	40.2	−16.6***
Men	76.4	59.8	16.6***
Race (%)			
Asian	8.0	2.6	5.4***
Black or African American	5.6	2.6	3.0***
White	76.9	86.3	−9.4***
American Indian or Alaska Native	0.9	5.5	−4.6***
Native Hawaiian or Other Pacific Islander	0.2	0.4	−0.2
Other or multiple races	8.4	2.6	5.7***
Hispanic ethnicity (%)	7.7	4.8	2.8**
Age (%)			
24 years or younger	3.8	16.0	−12.2***
25 to 34 years	22.9	17.4	5.5**
35 to 44 years	24.0	17.8	6.2***
45 to 54 years	26.3	19.6	6.7***
55 years or older	23.1	29.3	−6.2***
Average age (years)	43.9	43.5	0.4
Marital status (%)			
Married	40.4	36.4	4.0
Widowed/divorced/separated	20.8	21.2	−0.5
Never married	38.9	42.4	−3.5
Education level (%)			
High school diploma or less	13.2	45.3	−32.1***
Some college credit but no degree	19.7	21.4	−1.7
Technical or associate's degree	15.2	9.1	6.1***
Bachelor's degree	37.4	16.8	20.6***
Master's degree or more	14.5	7.5	7.0***

SOURCE: Baseline Information Form for Reboot NW study sample; Current Population Survey (CPS) for comparison sample of long-term unemployed workers.

NOTES: For the Reboot NW sample, percentage never married includes those who reported living with a partner (with no additional information on marital status). Reported difference may not equal the difference between the Reboot NW study sample and CPS sample because of rounding. Reboot NW study sample includes 980 sample members who were randomly assigned between July 2015 and December 2017. CPS sample includes 495 individuals who were long-term unemployed (27 weeks or longer) and living in Oregon, Washington State, Idaho, or Montana when interviewed between January 2014 and December 2018.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Consistent with the SGA, the Reboot NW study sample is clearly more educated than the CPS population of long-term unemployed workers. In particular, a substantially larger percentage of the Reboot NW study sample have a bachelor's degree (37 percent versus 17 percent of the CPS sample) or a master's degree (15 percent versus 8 percent of the CPS sample). But unlike with other programs, there is no statistical difference in the average age of the two samples.

B.5.2   Comparing the Reboot NW Study Sample to All U.S. Adults Served by WIOA

Exhibit B.5-2 compares the characteristics of the Reboot NW study sample to the full (national) population of U.S. adults served by WIOA. In comparison to the national WIOA sample, a higher percentage of the Reboot NW sample are men (76 percent versus 48 percent). Likewise, a higher percentage of the Reboot NW sample are Asian (10 percent versus 4 percent in the WIOA sample) or White (84 percent versus 66 percent), and a smaller percentage are Black (7 percent versus 30 percent) or Hispanic (8 percent versus 15 percent).

Exhibit B.5-2: Comparison of Reboot NW Study Sample to U.S. Adults Served by WIOA

Baseline Characteristic	Study Sample Mean	WIOA Mean	Difference
Gender (%)			
Women	23.6	51.7	−28.1***
Men	76.4	48.3	28.1***
Race (%)			
Asian	9.6	3.9	5.7***
Black or African American	7.0	30.0	−23.0***
White	84.2	65.5	18.7***
American Indian or Alaska Native	3.6	3.4	0.2
Native Hawaiian or Other Pacific Islander	0.3	1.1	−0.8***
Other or multiple races	4.3	3.2	1.1*
Hispanic ethnicity (%)	7.7	14.7	−7.0***
Age (%)	.	.	
18 to 21 years	1.3	7.3	−6.0***
22 to 29 years	12.3	22.8	−10.5***
30 to 44 years	36.9	34.1	2.8*
45 to 54 years	26.3	18.7	7.6***
55 years or older	23.1	17.1	6.0***
Education level (%)	.	.	
Less than a high school diploma or equivalent	0.0	11.1	−11.1***
High school equivalency	3.6	9.0	−5.4***
High school diploma	9.6	36.5	−26.9***
Some college credit but no degree	19.7	16.5	3.2**
Technical or vocational degree or certificate	3.2	3.7	−0.5
Associate's degree	12.0	8.0	4.0***
Bachelor's degree or more	51.9	15.1	36.8***
Public benefits receipt (%)	.	.	
Supplemental Nutrition Assistance Program (SNAP)	28.0	17.4	10.6***
Temporary Assistance for Needy Families (TANF)	2.6	3.6	−1.0*

SOURCE: Baseline Information Form for Reboot NW study sample; *PY 2017 Data Book* for comparison sample of U.S. adults receiving services through the Workforce Innovation and Opportunity Act (WIOA).

NOTES: Race categories are not mutually exclusive, and therefore can sum to greater than 100 percent. Reported difference may not equal the difference between the Reboot NW study sample and WIOA sample because of rounding. Reboot NW study sample includes 980 sample members who were randomly assigned between July 2015 and December 2017. WIOA population includes the 630,013 adults who exited the WIOA or Wagner-Peyser system between July 2017 and June 2018. Demographics of the WIOA population are measured when individuals first apply for services.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

As with the CPS comparison above, the Reboot NW study sample is substantially more educated than the full (national) population of U.S. workers served by WIOA. In particular, a substantially larger percentage of the Reboot NW study sample has at least a bachelor's degree (52 percent) versus the WIOA population (only 15 percent).

Appendix C: Detailed Impact Results

This appendix provides additional results to supplement those reported in the *Final Impact Report* (Klerman, Herr, and Martinson 2022), including the results of the subgroup analysis. In addition, unlike the tables in Chapter 3 of the *Final Impact Report*, the impact tables in this appendix include *p*-values and outcome-specific sample sizes.

The first four sections (**Sections C.1-C.4**) consider each RTW program in turn, but they share a common structure. Their first subsection reports additional detail on impacts on earnings and employment for the program's full sample, as well as the levels of employment, earnings, and receipt of Unemployment Insurance (UI) from two years before random assignment to approximately four years after random assignment. Their second subsection reports more detail on impacts on earnings and employment for the program's early cohort (those randomly assigned by March 31, 2017).

Their last subsection reports the results of their subgroup analysis, testing whether there are "differential impacts," meaning whether the impact on a given outcome is different for the two groups in a given subgroup category. Differential impacts are reported by (1) *education:* less than a bachelor's degree versus a bachelor's degree or more; (2) *age:* 49 or older versus younger than 49; (3) *employment status:* no earnings in the four quarters before the quarter of random assignment versus positive earnings in any of those four quarters; and *gender:* women versus men. All subgroup categories are defined at baseline; that is, as of random assignment.

Section C.5 then reports "treatment on the treated" (TOT) impact estimates for the study's confirmatory and secondary outcomes for each of the four RTW programs.

Finally, **Section C.6** reports the results of three approaches to estimating impacts on the total study sample, across the four programs.

C.1   Detailed Results for Maryland Tech Connection

This section presents additional detail for the MTC program.

C.1.1   Additional Results on Earnings and Employment for the Full Sample, MTC

This section provides additional detail on MTC's impacts on earnings and employment for its full sample. This section also provides additional detail on the levels of earnings, employment, and receipt of UI among that full sample before and after random assignment, and impacts on these outcomes.

Exhibit C.1-1 reports detailed impacts on measures of aggregate earnings, including on the confirmatory outcome: *average quarterly earnings from 1 year to 2.5 years after random assignment*. A subset of these results are shown in the top panel of Exhibit 3-1 in Section 3.1.1 of the *Final Impact Report*.

Exhibit C.1-1: Impacts on Aggregate Earnings for the Full Sample, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Aggregate Earnings, Full Sample								
Average quarterly earnings in Q5-Q10 ($)	*8,210*	*9,275*	*−1,065***	*540*	*.049*	*−11*	*536*	*486*
Average quarterly earnings in Q5-Q10, if any employment in Q5-Q10 ($)	10,015	11,326	−1,311**	586	.026	−12	447	398
Cumulative earnings in Q5-Q10 ($)	49,259	55,652	−6,393**	3,239	.049	−11	536	486
Cumulative earnings in Q1-Q10 ($)	69,030	78,770	−9,740**	4,506	.031	−12	536	486
Average quarterly earnings in Q9-Q14 ($)	9,854	10,066	−212	633	.738	−2	536	486
Cumulative earnings in Q9-Q14 ($)	59,124	60,396	−1,272	3,795	.738	−2	536	486

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 14 quarters after random assignment.

NOTES: **Confirmatory outcome is indicated in bold italics**; exploratory outcomes are neither bolded nor italicized. *Unbolded outcome in italics* applies to the subset of sample members who were ever employed during Q5 through Q10, and is thus non-experimental. All other outcomes apply to the full sample and impact estimates are experimental. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the MTC full sample, Exhibit C.1-2 reports detailed impacts on measures of aggregate employment, including on the secondary outcome: *any employment from 1 year to 2.5 years after random assignment* (Q5-Q10). A subset of these results are shown in the bottom panel of Exhibit 3-1 in Section 3.1.1 of the *Final Impact Report*.

Exhibit C.1-2: Impacts on Aggregate Employment for the Full Sample, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Aggregate Employment, Full Sample								
Any Employment (%)								
Q5-Q10	**83.1**	**81.9**	**1.2**	**2.3**	**.599**	**1**	**536**	**486**
Q1-Q10	87.1	86.2	0.9	2.1	.654	1	536	486
Q9-Q14	82.9	80.9	2.1	2.4	.381	3	536	486
Number of Quarters Employed								
Q5-Q10	4.1	4.1	0.0	0.1	.968	0	536	486
Q1-Q10	6.4	6.6	−0.2	0.2	.339	−3	536	486
Q9-Q14	4.2	4.0	0.1	0.1	.404	3	536	486
Percentage of Quarters Employed (%)								
Q5-Q10	69.1	69.0	0.1	2.4	.968	0	536	486
Q1-Q10	63.6	65.7	−2.0	2.1	.339	−3	536	486
Q9-Q14	69.2	67.2	2.0	2.4	.404	3	536	486
Longest Job Tenure (quarters)								
Q5-Q10	3.6	3.7	−0.1	0.1	.460	−3	536	486
Q0-Q10	5.0	5.2	−0.2	0.2	.378	−3	536	486
Q9-Q14	3.7	3.7	0.0	0.1	.991	0	536	486

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 14 quarters after random assignment.

NOTES: **Secondary outcome is indicated in bold**; exploratory outcomes are not bolded. Reported impact may not equal the difference

between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the MTC full sample, Exhibit C.1-3 reports quarterly levels of earnings and impacts on earnings from 2 years before random assignment (8 quarters) through 3.5 years after random assignment (14 quarters). These results are plotted in Exhibit 3-2 in Section 3.1.1 of the *Final Impact Report*. The report also discusses, but does not show, the levels of earnings over time for the control group in Section 1.3.

Exhibit C.1-3: Quarterly Earnings Levels and Impacts for the Full Sample, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter, Full Sample								
Earnings before RA								
Q8 pre-RA ($)	8,234	7,856	378	711	.595	5	502	455
Q7 pre-RA ($)	7,951	7,790	160	584	.784	2	536	486
Q6 pre-RA ($)	7,982	8,003	−21	616	.973	−0	536	486
Q5 pre-RA ($)	7,794	7,524	271	622	.663	4	536	486
Q4 pre-RA ($)	8,275	7,682	593	790	.453	8	536	486
Q3 pre-RA ($)	7,023	7,217	−194	632	.758	−3	536	486
Q2 pre-RA ($)	5,375	5,781	−406	639	.525	−7	536	486
Q1 pre-RA ($)	2,572	2,888	−316	397	.426	−11	536	486
Q0 ($)	1,621	1,627	−7	229	.977	−0	536	486
Earnings after RA								
Q1 ($)	2,938	3,479	−541	352	.125	−16	536	486
Q2 ($)	4,555	5,526	−972**	449	.031	−18	536	486
Q3 ($)	5,932	6,654	−722	508	.155	−11	536	486
Q4 ($)	6,346	7,459	−1,113**	529	.036	−15	536	486
Q5 ($)	6,773	8,117	−1,344**	575	.020	−17	536	486
Q6 ($)	7,549	8,692	−1,143**	544	.036	−13	536	486
Q7 ($)	8,105	9,113	−1,008*	587	.086	−11	536	486
Q8 ($)	8,496	9,816	−1,320**	637	.038	−13	536	486
Q9 ($)	8,865	10,318	−1,453**	655	.027	−14	536	486
Q10 ($)	9,471	9,597	−126	670	.851	−1	536	486
Q11 ($)	10,091	9,765	326	728	.655	3	536	486
Q12 ($)	9,816	10,334	−518	732	.479	−5	536	486
Q13 ($)	10,079	10,179	−100	751	.894	−1	536	486
Q14 ($)	10,801	10,203	598	782	.444	6	536	486

KEY: Q=quarter. RA=random assignment.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 14 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the MTC full sample, Exhibit C.1-4 reports quarterly levels of employment and impacts on employment from 2 years before random assignment (8 quarters) through 3.5 years after random assignment (14 quarters). These results are plotted in Exhibit 3-3 in Section 3.1.1 of the *Final Impact Report*. The report also plots the levels of employment over time for the control group in Exhibit 1-3 in Section 1.3 of the *Final Impact Report*.

Exhibit C.1-4: Quarterly Employment Levels and Impacts for the Full Sample, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter, Full Sample								
Employment before RA								
Q8 pre-RA (%)	61.8	57.4	4.4	2.8	.116	8	502	455
Q7 pre-RA (%)	61.8	58.8	3.0	2.6	.258	5	536	486
Q6 pre-RA (%)	62.3	60.9	1.4	2.5	.570	2	536	486
Q5 pre-RA (%)	63.1	58.0	5.0**	2.4	.034	9	536	486
Q4 pre-RA (%)	59.8	60.3	−0.5	1.9	.781	−1	536	486
Q3 pre-RA (%)	57.1	58.4	−1.3	2.0	.513	−2	536	486
Q2 pre-RA (%)	49.0	52.1	−3.0	2.4	.209	−6	536	486
Q1 pre-RA (%)	36.8	38.9	−2.0	2.7	.442	−5	536	486
Q0 (%)	35.6	38.1	−2.5	2.9	.397	−6	536	486
Employment after RA								
Q1 (%)	43.5	51.2	−7.7**	3.0	.010	−15	536	486
Q2 (%)	53.2	59.7	−6.4**	3.0	.030	−11	536	486
Q3 (%)	61.6	65.0	−3.4	2.9	.238	−5	536	486
Q4 (%)	63.4	66.7	−3.2	2.9	.266	−5	536	486
Q5 (%)	64.8	67.5	−2.7	2.9	.345	−4	536	486
Q6 (%)	68.8	68.1	0.7	2.8	.795	1	536	486
Q7 (%)	70.8	69.8	1.0	2.8	.713	1	536	486
Q8 (%)	69.4	71.2	−1.8	2.8	.527	−3	536	486
Q9 (%)	70.5	70.4	0.1	2.8	.958	0	536	486
Q10 (%)	70.2	67.1	3.2	2.9	.266	5	536	486
Q11 (%)	70.8	66.3	4.6	2.9	.111	7	536	486
Q12 (%)	69.3	68.3	1.0	2.8	.724	1	536	486
Q13 (%)	66.3	66.7	−0.3	2.9	.912	−0	536	486
Q14 (%)	68.0	64.4	3.6	2.9	.213	6	536	486

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 14 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the MTC full sample, Exhibit C.1-5 reports quarterly levels of receipt of unemployment insurance (UI) and impacts on receipt of UI from 2 years before random assignment (8 quarters) through 3.5 years after random assignment (14 quarters). The levels of UI receipt are referenced in footnote 20 in Section 1.3 of the *Final Impact Report*.

Exhibit C.1-5: Quarterly Unemployment Insurance Receipt Levels and Impacts for the Full Sample, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Receipt of Unemployment Insurance by Quarter, Full Sample								
Unemployment Insurance receipt before RA								
Q8 pre-RA (%)	4.5	3.1	1.4	1.2	.230	47	502	455
Q7 pre-RA (%)	8.2	9.3	−1.1	1.7	.533	−12	536	486
Q6 pre-RA (%)	7.1	7.4	−0.3	1.6	.861	−4	536	486
Q5 pre-RA (%)	11.2	9.5	1.7	1.9	.361	18	536	486
Q4 pre-RA (%)	5.7	7.8	−2.1	1.6	.194	−27	536	486

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Q3 pre-RA (%)	10.7	10.1	0.6	1.9	.748	6	536	486
Q2 pre-RA (%)	14.5	13.2	1.3	2.1	.529	10	536	486
Q1 pre-RA (%)	11.8	13.2	−1.4	2.0	.494	−11	536	486
Q0 (%)	5.9	5.6	0.3	1.5	.836	5	536	486
Unemployment Insurance receipt after RA								
Q1 (%)	3.7	2.3	1.4	1.1	.186	63	536	486
Q2 (%)	2.6	1.4	1.2	0.9	.191	82	536	486
Q3 (%)	1.6	1.4	0.2	0.8	.806	13	536	486
Q4 (%)	0.9	1.2	−0.3	0.6	.640	−24	536	486
Q5 (%)	2.8	1.6	1.2	0.9	.211	72	536	486
Q6 (%)	2.3	2.3	0.0	0.9	.974	1	536	486
Q7 (%)	3.1	1.0	2.1**	0.9	.019	205	536	486
Q8 (%)	2.9	1.2	1.7*	0.9	.053	138	536	486
Q9 (%)	3.1	2.3	0.8	1.0	.426	35	536	486
Q10 (%)	2.9	3.7	−0.8	1.1	.453	−23	536	486
Q11 (%)	6.7	3.9	2.8**	1.4	.042	71	536	486
Q12 (%)	8.3	7.6	0.7	1.6	.656	10	536	486
Q13 (%)	10.3	7.0	3.3*	1.7	.051	47	536	486
Q14 (%)	8.0	6.2	1.8	1.6	.251	29	536	486

KEY: Q=quarter; RA=random assignment.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 14 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the MTC full sample, Exhibit C.1-6 reports quarterly levels of an outcome that combines information on whether an individual was either employed or receiving UI in the given quarter. Exhibit C.1-6 also reports impacts on this combined quarterly outcome, from 2 years before random assignment (8 quarters) through 3.5 years after random assignment (14 quarters). The levels of this outcome are referenced in footnote 20 in Section 1.3 of the *Final Impact Report*. The analysis discusses this measure to assess what percentage of the control group were tied to the labor market two years (8 quarters) before random assignment, as measured by either being employed or receiving UI benefits, presumably associated with a recently held job.[22]

Exhibit C.1-6: Quarterly Employment and/or Unemployment Insurance Receipt Levels and Impacts for the Full Sample, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Any Employment and/or Receipt of Unemployment Insurance, Full Sample								
Employment or Unemployment Insurance receipt before RA								
Q8 pre-RA (%)	61.8	57.4	4.4	2.8	.116	8	502	455
Q7 pre-RA (%)	62.5	59.9	2.6	2.7	.324	4	536	486
Q6 pre-RA (%)	62.9	62.6	0.3	2.5	.895	1	536	486
Q5 pre-RA (%)	64.2	59.5	4.8**	2.4	.046	8	536	486

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[22] The conventional definition of being in the labor force is employed or unemployed and actively searching for work. This measure is a proxy for that, using receipt of UI in place of the survey concept of actively searching for work.

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Q4 pre-RA (%)	60.9	61.9	−1.0	1.9	.580	−2	536	486
Q3 pre-RA (%)	58.7	60.1	−1.4	2.0	.477	−2	536	486
Q2 pre-RA (%)	52.0	54.1	−2.1	2.4	.368	−4	536	486
Q1 pre-RA (%)	40.4	44.0	−3.7	2.6	.164	−8	536	486
Q0 (%)	39.2	41.2	−2.0	2.9	.504	−5	536	486
Employment or Unemployment Insurance receipt after RA								
Q1 (%)	45.3	52.3	−6.9**	3.0	.021	−13	536	486
Q2 (%)	53.8	59.9	−6.1**	3.0	.041	−10	536	486
Q3 (%)	61.6	65.2	−3.7	2.9	.209	−6	536	486
Q4 (%)	63.5	66.9	−3.4	2.9	.238	−5	536	486
Q5 (%)	65.3	67.9	−2.6	2.9	.361	−4	536	486
Q6 (%)	68.8	68.9	−0.1	2.8	.958	−0	536	486
Q7 (%)	71.1	70.2	0.9	2.8	.734	1	536	486
Q8 (%)	70.0	71.4	−1.4	2.8	.611	−2	536	486
Q9 (%)	71.3	70.8	0.5	2.8	.854	1	536	486
Q10 (%)	71.6	69.1	2.5	2.8	.370	4	536	486
Q11 (%)	74.8	69.1	5.7**	2.8	.039	8	536	486
Q12 (%)	74.6	72.6	1.9	2.7	.467	3	536	486
Q13 (%)	73.7	71.4	2.3	2.7	.391	3	536	486
Q14 (%)	73.5	68.1	5.4*	2.8	.051	8	536	486

KEY: Q=quarter; RA=random assignment.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 14 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the MTC full sample, Exhibit C.1-7 reports levels of aggregate measures of employment and earnings and impacts on these outcomes at two years before random assignment (Q7 to Q4 pre-random assignment) and at three years after random assignment (Q9 to Q12). These results are discussed, but not shown, in Section 1.3 of the *Final Impact Report*.

Exhibit C.1-7: Levels of and Impacts on Earnings and Employment at Two Years before Random Assignment versus at Three Years after for the Full Sample, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
At Two Years before RA (Q7 pre-RA to Q4 pre-RA)								
Any employment (%)	75.4	72.6	2.8	2.0	.163	4	536	486
Average quarterly earnings ($)	8,000	7,750	251	551	.649	3	536	486
Average quarterly earnings, if any employment in this period ($)	*10,484*	*10,670*	*−186*	*691*	*.788*	*−2*	*409*	*353*
At Three Years after RA (Q9 to Q12)								
Any employment (%)	81.2	77.2	4.0	2.5	.111	5	536	486
Average quarterly earnings ($)	9,560	10,003	−443	629	.482	−4	536	486
Average quarterly earnings, if any employment in this period ($)	*12,010*	*12,964*	*−954*	*696*	*.170*	*−7*	*436*	*375*

KEY: Q=quarter; RA=random assignment.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 12 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. *Outcomes in italics* apply to the subset of sample members who were ever employed during

the given period (Q7 through Q4 pre-random assignment in the top panel, Q9 through Q12 in the bottom panel), and are thus non-experimental. All other outcomes apply to the full sample and impact estimates are experimental. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.1.2   Additional Results on Earnings and Employment for the Early Cohort, MTC

This section provides additional detail on MTC's impacts on earnings and employment for its early cohort. Exhibit C.1-8 reports detailed impacts on quarterly earnings through 4.5 years after random assignment (18 quarters). These results are plotted in Exhibit 3-4 in Section 3.1.2 of the *Final Impact Report*.

Exhibit C.1-8: Impacts on Quarterly Earnings for the Early Cohort, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter, Early Cohort								
Earnings in Q1 ($)	2,172	2,928	−756**	381	.048	−26	290	259
Earnings in Q2 ($)	3,776	4,685	−909*	523	.082	−19	290	259
Earnings in Q3 ($)	5,208	6,144	−936	652	.152	−15	290	259
Earnings in Q4 ($)	5,704	6,772	−1,068*	641	.097	−16	290	259
Earnings in Q5 ($)	5,969	6,956	−987	664	.138	−14	290	259
Earnings in Q6 ($)	6,837	7,332	−495	671	.461	−7	290	259
Earnings in Q7 ($)	7,216	8,098	−882	754	.243	−11	290	259
Earnings in Q8 ($)	7,306	8,635	−1,329*	755	.079	−15	290	259
Earnings in Q9 ($)	7,387	8,824	−1,437*	749	.056	−16	290	259
Earnings in Q10 ($)	8,408	8,189	219	754	.771	3	290	259
Earnings in Q11 ($)	9,082	8,711	371	923	.688	4	290	259
Earnings in Q12 ($)	8,803	8,601	202	794	.799	2	290	259
Earnings in Q13 ($)	9,109	8,653	456	881	.605	5	290	259
Earnings in Q14 ($)	9,624	8,973	651	937	.488	7	290	259
Earnings in Q15 ($)	9,783	9,200	582	891	.513	6	290	259
Earnings in Q16 ($)	9,526	9,509	17	930	.985	0	290	259
Earnings in Q17 ($)	9,724	9,834	−110	1,030	.915	−1	290	259
Earnings in Q18 ($)	9,888	9,643	245	1,040	.814	3	290	259

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 18 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the MTC early cohort, Exhibit C.1-9 reports detailed impacts on quarterly employment through 4.5 years after random assignment (18 quarters). These results are neither discussed nor shown in Section 3.1.2 of the *Final Impact Report*.

Exhibit C.1-9: Impacts on Quarterly Employment for the Early Cohort, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter, Early Cohort								
Employment in Q1 (%)	42.6	49.0	−6.4	4.1	.116	−13	290	259
Employment in Q2 (%)	52.2	57.1	−4.9	4.1	.229	−9	290	259
Employment in Q3 (%)	59.5	63.7	−4.2	4.0	.292	−7	290	259
Employment in Q4 (%)	62.5	65.3	−2.7	4.0	.496	−4	290	259
Employment in Q5 (%)	63.3	64.1	−0.8	4.0	.839	−1	290	259
Employment in Q6 (%)	69.2	63.3	5.9	3.9	.134	9	290	259
Employment in Q7 (%)	72.3	66.8	5.5	3.8	.144	8	290	259
Employment in Q8 (%)	70.4	68.0	2.4	3.9	.531	4	290	259
Employment in Q9 (%)	69.5	69.5	0.0	3.9	.995	0	290	259
Employment in Q10 (%)	71.6	67.6	4.1	3.8	.289	6	290	259
Employment in Q11 (%)	72.0	67.2	4.8	3.9	.213	7	290	259
Employment in Q12 (%)	72.0	70.3	1.7	3.7	.644	2	290	259
Employment in Q13 (%)	69.3	68.3	0.9	3.9	.809	1	290	259
Employment in Q14 (%)	71.0	64.5	6.6*	3.9	.091	10	290	259
Employment in Q15 (%)	68.0	65.3	2.8	3.9	.480	4	290	259
Employment in Q16 (%)	65.3	64.1	1.2	4.0	.756	2	290	259
Employment in Q17 (%)	64.6	64.1	0.5	4.0	.897	1	290	259
Employment in Q18 (%)	64.9	65.3	−0.3	3.9	.938	−0	290	259

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 18 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.1.3 Results for the Subgroup Analysis, MTC

This section reports the results of the subgroup analysis for the MTC full sample. Exhibit C.1-10 below reports differential impacts by baseline education, age, employment status, and gender, for: (1) the confirmatory outcome, average quarterly earnings from 1 year to 2.5 years after random assignment (Q5-Q10), (2) the secondary outcome, any employment from 1 year to 2.5 years after random assignment (Q5-Q10), and (3) the exploratory outcome average quarterly earnings approximately three to four years after random assignment (Q9-Q14). Results for the confirmatory and secondary outcomes are discussed, but not shown, in Section 3.1.3 of the *Final Impact Report*. Results for the exploratory outcome are neither shown nor discussed in the report.

For each outcome, Exhibit C.1-10 provides three rows. The first row reports the impact on that outcome for the first group within a given subgroup category (e.g., less than a bachelor's degree in the education subgroup analysis); the second row reports the impact on that outcome for the other group (e.g., bachelor's degree or more). The third row reports the differential impact. The evaluation focuses on the differential impact and on whether there is clear evidence of a positive impact of the MTC program for at least one of the two groups for each category.

Exhibit C.1-10: Subgroup Analysis Differential Impacts, MTC

	Sample Size	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value
Education						
Average Quarterly Earnings in Q5-Q10 ($)						
Less than bachelor's degree	344	6,349	5,941	408	729	.575
Bachelor's degree or more	678	9,204	11,021	−1,817**	725	.012
Difference				−2,225**	1,028	.031
Any Employment in Q5-Q10 (%)						
Less than bachelor's degree	344	83	74	9**	4	.036
Bachelor's degree or more	678	83	86	−3	3	.281
Difference				−12**	5	.018
Average Quarterly Earnings in Q9-Q14 ($)						
Less than bachelor's degree	344	7,477	6,622	855	893	.339
Bachelor's degree or more	678	11,113	11,869	−756	834	.365
Difference				−1,611	1,215	.185
Age						
Average Quarterly Earnings in Q5-Q10 ($)						
Younger than 49	575	8,659	9,204	−546	649	.401
49 or older	447	7,627	9,372	−1,744*	908	.055
Difference				−1,199	1,113	.282
Any Employment in Q5-Q10 (%)						
Younger than 49	575	87	86	1	3	.772
49 or older	447	78	77	2	4	.645
Difference				1	5	.851
Average Quarterly Earnings in Q9-Q14 ($)						
Younger than 49	575	10,640	10,269	371	796	.641
49 or older	447	8,816	9,790	−973	1,016	.338
Difference				−1,344	1,286	.296
Employment Status						
Average Quarterly Earnings in Q5-Q10 ($)						
Not long-term unemployed	294	6,147	7,232	−1,086	903	.230
Long-term unemployed	728	9,070	10,127	−1,057	663	.111
Difference				29	1,117	.980
Any Employment in Q5-Q10 (%)						
Not long-term unemployed	294	67	71	−4	5	.445
Long-term unemployed	728	90	86	3	2	.172
Difference				7	6	.204
Average Quarterly Earnings in Q9-Q14 ($)						
Not long-term unemployed	294	7,730	7,809	−79	1,036	.939
Long-term unemployed	728	10,741	11,007	−266	780	.733
Difference				−187	1,291	.885
Gender						
Average Quarterly Earnings in Q5-Q10 ($)						
Women	549	7,330	8,580	−1,250*	695	.072
Men	473	9,272	10,123	−851	843	.313
Difference				399	1,092	.715
Any Employment in Q5-Q10 (%)						
Women	549	83	80	4	3	.267
Men	473	83	84	−1	3	.655
Difference				−5	5	.272
Average Quarterly Earnings in Q9-Q14 ($)						
Women	549	8,888	9,251	−362	830	.663

	Sample Size	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value
Men	473	11,022	11,060	−38	964	.969
Difference				325	1,268	.798

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 14 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. The subgroup analysis by employment status compares impacts for those with positive earnings in any of those four quarters ("not long-term unemployed") versus those with no earnings in the four quarters before the quarter of random assignment ("long-term unemployed"). Reported impact may not equal the difference between the reported program and control group means because of rounding. The total sample of 1,022 includes 536 program group and 486 control group members.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

The study's sample size is large enough to detect only large differential impacts on earnings between groups. To a lesser degree, such sample size concerns apply to employment, as well. Thus, even if present, substantively important differential impacts plausibly go undetected.

C.2 Detailed Results for the JVS Programs

This section presents additional detail for the JVS programs.

C.2.1 Additional Results on Earnings and Employment for the Full Sample, JVS programs

This section provides additional detail on the JVS programs' impacts on earnings and employment for their full sample. This section also provides additional detail on the levels of earnings, employment, and receipt of Unemployment Insurance among the full sample before and after random assignment, and impacts on these outcomes.

Exhibit C.2-1 reports detailed impacts on measures of aggregate earnings, including on the confirmatory outcome. A subset of these results are shown in the top panel of Exhibit 3-5 in Section 3.2.1 of the *Final Impact Report*.

Exhibit C.2-1: Impacts on Aggregate Earnings for the Full Sample, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Aggregate Earnings, Full Sample								
Average quarterly earnings in Q5-Q10 ($)	*10,183*	*9,680*	*503*	*672*	*.454*	*5*	*492*	*474*
Average quarterly earnings in Q5-Q10, if any employment in Q5-Q10 ($)	*12,823*	*12,138*	*685*	*754*	*.364*	*6*	*399*	*378*
Cumulative earnings in Q5-Q10 ($)	61,096	58,077	3,019	4,034	.454	5	492	474
Cumulative earnings in Q1-Q10 ($)	83,385	83,939	−554	5,497	.920	−1	492	474
Average quarterly earnings in Q9-Q15 ($)	11,494	10,853	641	788	.416	6	492	474
Cumulative earnings in Q9-Q15 ($)	80,462	75,973	4,489	5,517	.416	6	492	474

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 15 quarters after random assignment.

NOTES: **Confirmatory outcome is indicated in bold italics**; exploratory outcomes are neither bolded nor italicized. *Unbolded outcome in italics* applies to the subset of sample members who were ever employed during Q5 through Q10, and is thus non-experimental. All other outcomes apply to the full sample and impact estimates are experimental. Reported impact may not equal the difference between the reported

program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the JVS full sample, Exhibit C.2-2 reports detailed impacts on measures of aggregate employment, including on the secondary outcome. A subset of these results are shown in the bottom panel of Exhibit 3-5 in Section 3.2.1 of the *Final Impact Report*.

Exhibit C.2-2: Impacts on Aggregate Employment for the Full Sample, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Aggregate Employment, Full Sample								
Any Employment (%)								
Q5-Q10	**80.5**	**79.7**	**0.8**	**2.4**	**.748**	**1**	**492**	**474**
Q1-Q10	87.9	84.0	3.9*	2.1	.068	5	492	474
Q9-Q15	77.5	78.9	−1.4	2.5	.570	−2	492	474
Number of Quarters Employed								
Q5-Q10	3.9	4.0	−0.1	0.1	.707	−1	492	474
Q1-Q10	6.1	6.3	−0.2	0.2	.449	−3	492	474
Q9-Q15	4.2	4.4	−0.1	0.2	.447	−3	492	474
Percentage of Quarters Employed (%)								
Q5-Q10	65.1	66.0	−0.9	2.5	.707	−1	492	474
Q1-Q10	61.4	63.0	−1.7	2.2	.449	−3	492	474
Q9-Q15	60.4	62.3	−1.9	2.5	.447	−3	492	474
Longest Job Tenure (quarters)								
Q5-Q10	3.4	3.5	−0.1	0.1	.432	−3	492	474
Q0-Q10	4.7	5.1	−0.5**	0.2	.027	−9	492	474
Q9-Q15	3.6	3.7	−0.1	0.2	.538	−3	492	474

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 15 quarters after random assignment.

NOTES: **Secondary outcome is indicated in bold**; exploratory outcomes are not bolded. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the JVS full sample, Exhibit C.2-3 reports quarterly levels of earnings and impacts on earnings from 2 years before random assignment (8 quarters) through 3.75 years after random assignment (15 quarters). These results are plotted in Exhibit 3-6 in Section 3.2.1 of the *Final Impact Report*. The report also discusses, but does not show, the levels of earnings over time for the control group in Section 1.3.

Exhibit C.2-3: Quarterly Earnings Levels and Impacts for the Full Sample, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter, Full Sample								
Earnings before RA								
Q8 pre-RA ($)	6,560	7,687	−1,127	855	.188	−15	485	467
Q7 pre-RA ($)	6,073	6,932	−859	655	.190	−12	491	474
Q6 pre-RA ($)	6,529	7,528	−998	804	.215	−13	491	474
Q5 pre-RA ($)	6,136	6,398	−262	609	.668	−4	491	474
Q4 pre-RA ($)	6,114	6,948	−834	763	.274	−12	491	474

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Q3 pre-RA ($)	5,698	5,979	−281	794	.724	−5	491	474
Q2 pre-RA ($)	4,758	4,685	73	622	.907	2	491	474
Q1 pre-RA ($)	3,374	3,574	−200	683	.769	−6	491	474
Q0 ($)	1,542	1,859	−317	262	.226	−17	491	474
Earnings after RA								
Q1 ($)	2,506	3,944	−1,438***	396	<.001	−36	492	474
Q2 ($)	5,085	5,689	−604	526	.251	−11	492	474
Q3 ($)	6,684	7,539	−855	605	.158	−11	492	474
Q4 ($)	8,014	8,689	−675	669	.313	−8	492	474
Q5 ($)	8,919	9,243	−324	697	.642	−4	492	474
Q6 ($)	9,646	8,960	686	697	.326	8	492	474
Q7 ($)	10,322	9,338	984	754	.192	11	492	474
Q8 ($)	10,443	10,130	313	771	.685	3	492	474
Q9 ($)	10,954	10,216	738	811	.363	7	492	474
Q10 ($)	10,811	10,189	622	791	.432	6	492	474
Q11 ($)	10,972	10,549	423	816	.605	4	492	474
Q12 ($)	10,896	10,650	246	835	.769	2	492	474
Q13 ($)	11,290	10,941	349	911	.702	3	492	474
Q14 ($)	12,440	11,473	967	991	.329	8	492	474
Q15 ($)	13,099	11,954	1,145	1,041	.272	10	492	474

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 15 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the JVS full sample, Exhibit C.2-4 reports quarterly levels of employment and impacts on employment from 2 years before random assignment (8 quarters) through 3.75 years after random assignment (15 quarters). These results are plotted in Exhibit 3-7 in Section 3.2.1 of the *Final Impact Report*. The report also plots the levels of employment over time for the control group in Exhibit 1-3 in Section 1.3.

Exhibit C.2-4: Quarterly Employment Levels and Impacts for the Full Sample, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter, Full Sample								
Employment before RA								
Q8 pre-RA (%)	50.6	49.9	0.7	2.9	.809	1	485	467
Q7 pre-RA (%)	49.4	50.0	−0.6	2.8	.831	−1	491	474
Q6 pre-RA (%)	49.3	52.3	−3.1	2.6	.247	−6	491	474
Q5 pre-RA (%)	46.8	48.7	−1.9	2.5	.428	−4	491	474
Q4 pre-RA (%)	46.0	46.6	−0.6	2.1	.772	−1	491	474
Q3 pre-RA (%)	45.1	42.8	2.3	2.2	.295	5	491	474
Q2 pre-RA (%)	41.3	42.8	−1.5	2.2	.494	−4	491	474
Q1 pre-RA (%)	36.7	36.1	0.6	2.4	.810	2	491	474
Q0 (%)	29.7	37.8	−8.1***	2.8	.004	−21	491	474
Employment after RA								
Q1 (%)	40.2	49.2	−9.0***	3.0	.003	−18	492	474

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Q2 (%)	56.9	57.0	−0.1	3.1	.985	−0	492	474
Q3 (%)	63.4	62.4	0.9	3.0	.753	2	492	474
Q4 (%)	62.7	65.6	−2.9	3.0	.330	−4	492	474
Q5 (%)	63.5	67.3	−3.8	2.9	.198	−6	492	474
Q6 (%)	66.4	64.6	1.9	2.9	.526	3	492	474
Q7 (%)	66.4	66.5	−0.0	2.9	.987	−0	492	474
Q8 (%)	66.5	66.5	0.0	2.9	.991	0	492	474
Q9 (%)	64.3	66.2	−2.0	3.0	.513	−3	492	474
Q10 (%)	63.3	65.0	−1.7	3.0	.581	−3	492	474
Q11 (%)	60.4	63.9	−3.5	3.0	.251	−5	492	474
Q12 (%)	58.8	60.8	−1.9	3.0	.529	−3	492	474
Q13 (%)	58.0	59.5	−1.5	3.1	.629	−3	492	474
Q14 (%)	58.0	61.4	−3.4	3.1	.265	−6	492	474
Q15 (%)	59.9	59.5	0.4	3.1	.897	1	492	474

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 15 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the JVS full sample, Exhibit C.2-5 reports quarterly levels of receipt of UI and impacts on receipt of UI, from 2 years before random assignment (8 quarters) through 3.75 years after random assignment (15 quarters). The levels of UI receipt are referenced in footnote 20 in Section 1.3 of the *Final Impact Report*.

Exhibit C.2-5: Quarterly Unemployment Insurance Receipt Levels and Impacts for the Full Sample, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Receipt of Unemployment Insurance by Quarter, Full Sample								
Unemployment Insurance receipt before RA								
Q8 pre-RA (%)	5.6	6.9	−1.3	1.5	.385	−19	485	466
Q7 pre-RA (%)	9.2	10.8	−1.6	1.9	.416	−14	491	473
Q6 pre-RA (%)	9.7	10.1	−0.5	1.9	.810	−5	491	473
Q5 pre-RA (%)	11.6	13.1	−1.5	2.1	.470	−12	491	473
Q4 pre-RA (%)	9.8	14.0	−4.2**	2.0	.042	−30	491	473
Q3 pre-RA (%)	10.3	12.9	−2.6	2.0	.192	−20	491	473
Q2 pre-RA (%)	11.8	15.4	−3.7*	2.1	.083	−24	491	473
Q1 pre-RA (%)	17.6	18.6	−1.0	2.3	.659	−5	491	473
Q0 (%)	20.8	19.5	1.3	2.4	.574	7	491	473
Unemployment Insurance receipt after RA								
Q1 (%)	16.1	14.0	2.1	2.2	.331	15	491	473
Q2 (%)	9.6	7.0	2.6	1.7	.130	37	491	473
Q3 (%)	4.9	3.6	1.3	1.3	.298	37	491	473
Q4 (%)	5.8	3.4	2.4*	1.3	.065	72	491	473
Q5 (%)	6.2	5.1	1.1	1.5	.453	22	491	473
Q6 (%)	5.4	6.8	−1.4	1.6	.369	−21	491	473
Q7 (%)	5.7	6.8	−1.1	1.6	.474	−16	491	473
Q8 (%)	6.1	5.1	1.0	1.5	.505	19	491	473
Q9 (%)	7.7	5.1	2.7*	1.6	.092	52	491	473

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Q10 (%)	10.0	11.4	−1.4	2.0	.470	−12	491	473
Q11 (%)	14.3	12.9	1.4	2.1	.514	11	491	473
Q12 (%)	15.5	16.1	−0.5	2.2	.810	−3	491	473
Q13 (%)	17.6	18.4	−0.8	2.4	.745	−4	491	473
Q14 (%)	17.8	17.3	0.4	2.4	.860	2	491	473
Q15 (%)	18.5	18.0	0.5	2.5	.841	3	491	473

KEY: Q=quarter; RA=random assignment.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 15 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the JVS full sample, Exhibit C.2-6 reports quarterly levels of an outcome that combines information on whether an individual was either employed or receiving UI in the given quarter. Exhibit C.2-6 also reports impacts on this combined quarterly outcome, from 2 years before random assignment (8 quarters) through 3.75 years after random assignment (15 quarters). The levels of this outcome are referenced in footnote 20 in Section 1.3 of the *Final Impact Report*. The analysis discusses this measure to assess what proportion of the control group were tied to the labor market two years (8 quarters) before random assignment, as measured by either being employed or receiving UI benefits, presumably associated with a recently held job.[23]

Exhibit C.2-6: Quarterly Employment and/or Unemployment Insurance Receipt Levels and Impacts for the Full Sample, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Any Employment and/or Receipt of Unemployment Insurance, Full Sample								
Employment or Unemployment Insurance receipt before RA								
Q8 pre-RA (%)	51.2	50.7	0.5	2.9	.874	1	485	467
Q7 pre-RA (%)	52.9	52.3	0.6	2.8	.823	1	491	474
Q6 pre-RA (%)	53.2	54.9	−1.7	2.7	.528	−3	491	474
Q5 pre-RA (%)	49.9	53.6	−3.7	2.6	.150	−7	491	474
Q4 pre-RA (%)	50.7	51.1	−0.3	2.2	.876	−1	491	474
Q3 pre-RA (%)	49.7	48.5	1.2	2.2	.588	2	491	474
Q2 pre-RA (%)	47.1	50.0	−2.9	2.1	.154	−6	491	474
Q1 pre-RA (%)	45.4	46.0	−0.6	2.1	.775	−1	491	474
Q0 (%)	42.5	50.2	−7.7***	2.7	.004	−15	492	474
Employment or Unemployment Insurance receipt after RA								
Q1 (%)	48.3	57.0	−8.6***	2.9	.003	−15	492	474
Q2 (%)	60.0	60.1	−0.2	3.0	.954	−0	492	474
Q3 (%)	65.2	63.5	1.7	3.0	.560	3	492	474
Q4 (%)	65.0	67.1	−2.1	2.9	.467	−3	492	474
Q5 (%)	65.8	68.4	−2.6	2.9	.374	−4	492	474
Q6 (%)	68.0	67.1	1.0	2.9	.739	1	492	474
Q7 (%)	68.3	68.8	−0.5	2.9	.862	−1	492	474

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[23] The conventional definition of being in the labor force is employed or unemployed and actively searching for work. This measure is a proxy for that, using receipt of UI in place of the survey concept of actively searching for work.

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Q8 (%)	69.2	67.9	1.3	2.9	.659	2	492	474
Q9 (%)	66.7	68.6	−1.8	2.9	.527	−3	492	474
Q10 (%)	67.3	70.0	−2.7	2.9	.342	−4	492	474
Q11 (%)	68.0	70.3	−2.2	2.9	.439	−3	492	474
Q12 (%)	68.8	70.5	−1.6	2.9	.566	−2	492	474
Q13 (%)	69.3	69.6	−0.3	2.9	.905	−0	492	474
Q14 (%)	70.7	71.9	−1.2	2.8	.660	−2	492	474
Q15 (%)	71.5	70.5	1.1	2.8	.705	2	492	474

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 15 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the JVS full sample, Exhibit C.2-7 reports levels of aggregate measures of employment and earnings and impacts on these outcomes at two years before random assignment (Q7 to Q4 pre-random assignment) and at three years after random assignment (Q9 to Q12). These results are discussed, but not shown, in Section 1.3 of the *Final Impact Report*.

Exhibit C.2-7: Levels of and Impacts on Earnings and Employment at Two Years before Random Assignment versus at Three Years after for the Full Sample, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
At Two Years before RA (Q7 pre-RA to Q4 pre-RA)								
Any employment (%)	60.1	62.7	−2.5	2.4	.284	−4	491	474
Average quarterly earnings ($)	6,211	6,952	−740	604	.220	−11	492	474
Average quarterly earnings, if any employment in this period ($)	*10,642*	*11,094*	*−452*	*899*	*.615*	*−4*	*297*	*297*
At Three Years after RA (Q9 to Q12)								
Any employment (%)	72.5	74.9	−2.4	2.7	.384	−3	492	474
Average quarterly earnings ($)	10,908	10,401	507	756	.503	5	492	474
Average quarterly earnings, if any employment in this period ($)	*15,238*	*13,888*	*1,350*	*873*	*.122*	*10*	*359*	*355*

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 12 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. *Outcomes in italics* apply to the subset of sample members who were ever employed during the given period (Q7 through Q4 pre-random assignment in the top panel, Q9 through Q12 in the bottom panel), and are thus non-experimental. All other outcomes apply to the full sample and impact estimates are experimental. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.2.2 Additional Results on Earnings and Employment for the Early Cohort, JVS Programs

This section provides additional detail on the JVS programs' impacts on earnings and employment for the early cohort. Exhibit C.2-8 reports detailed impacts on quarterly earnings through 4.75 years after random assignment (19 quarters). These results are plotted in Exhibit 3-8 in Section 3.2.2 of the *Final Impact Report*.

Exhibit C.2-8: Impacts on Quarterly Earnings for the Early Cohort, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter, Early Cohort								
Earnings in Q1 ($)	2,416	3,841	−1,425***	526	.007	−37	237	231
Earnings in Q2 ($)	4,639	5,552	−913	700	.193	−16	237	231
Earnings in Q3 ($)	6,014	7,267	−1,253	787	.112	−17	237	231
Earnings in Q4 ($)	7,317	8,512	−1,195	896	.183	−14	237	231
Earnings in Q5 ($)	7,971	8,618	−646	928	.486	−7	237	231
Earnings in Q6 ($)	8,694	8,291	404	954	.672	5	237	231
Earnings in Q7 ($)	8,972	8,797	175	950	.854	2	237	231
Earnings in Q8 ($)	9,199	9,497	−299	1,042	.774	−3	237	231
Earnings in Q9 ($)	9,938	9,794	144	1,125	.898	1	237	231
Earnings in Q10 ($)	9,627	9,759	−132	1,053	.900	−1	237	231
Earnings in Q11 ($)	10,129	10,335	−206	1,045	.844	−2	237	231
Earnings in Q12 ($)	10,463	11,013	−550	1,119	.623	−5	237	231
Earnings in Q13 ($)	10,791	10,730	61	1,171	.959	1	237	231
Earnings in Q14 ($)	11,141	11,526	−385	1,277	.763	−3	237	231
Earnings in Q15 ($)	11,184	12,317	−1,133	1,293	.381	−9	237	231
Earnings in Q16 ($)	11,193	12,341	−1,148	1,425	.421	−9	237	231
Earnings in Q17 ($)	12,426	11,387	1,039	1,485	.484	9	237	231
Earnings in Q18 ($)	12,435	11,283	1,152	1,512	.447	10	237	231
Earnings in Q19 ($)	12,479	11,684	795	1,399	.570	7	237	231

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 19 quarters after random assignment.
NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]). Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the JVS early cohort, Exhibit C.2-9 reports detailed impacts on quarterly employment through 4.75 years after random assignment (19 quarters). These results are neither discussed nor shown in Section 3.2.2 of the *Final Impact Report*.

Exhibit C.2-9: Impacts on Quarterly Employment for the Early Cohort, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter, Early Cohort								
Employment in Q1 (%)	42.4	48.5	−6.1	4.3	.162	−13	237	231
Employment in Q2 (%)	58.6	57.6	1.0	4.4	.814	2	237	231
Employment in Q3 (%)	65.1	62.3	2.8	4.3	.525	4	237	231
Employment in Q4 (%)	61.2	64.5	−3.3	4.3	.443	−5	237	231
Employment in Q5 (%)	61.3	64.1	−2.8	4.3	.520	−4	237	231
Employment in Q6 (%)	67.3	60.6	6.7	4.2	.116	11	237	231
Employment in Q7 (%)	64.5	64.1	0.5	4.2	.913	1	237	231

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment in Q8 (%)	64.1	64.5	−0.4	4.2	.929	−1	237	231
Employment in Q9 (%)	63.1	63.6	−0.6	4.3	.896	−1	237	231
Employment in Q10 (%)	64.3	62.8	1.5	4.3	.722	2	237	231
Employment in Q11 (%)	64.4	65.4	−1.0	4.2	.818	−1	237	231
Employment in Q12 (%)	64.5	64.9	−0.4	4.2	.918	−1	237	231
Employment in Q13 (%)	62.4	60.6	1.8	4.3	.677	3	237	231
Employment in Q14 (%)	60.9	63.6	−2.8	4.3	.523	−4	237	231
Employment in Q15 (%)	61.8	63.2	−1.4	4.3	.746	−2	237	231
Employment in Q16 (%)	58.3	58.9	−0.5	4.4	.904	−1	237	231
Employment in Q17 (%)	57.7	58.0	−0.3	4.5	.951	−0	237	231
Employment in Q18 (%)	58.2	59.7	−1.5	4.5	.729	−3	237	231
Employment in Q19 (%)	57.9	58.4	−0.5	4.5	.911	−1	237	231

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 19 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]). Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.2.3 Results for the Subgroup Analysis, JVS Programs

This section reports the results of the subgroup analysis for the JVS full sample. Exhibit C.2-10 reports differential impacts by baseline education, age, employment status, and gender for the confirmatory outcome, the secondary outcome, and the exploratory outcome average quarterly earnings three to four years after random assignment (Q9-Q15). Results for the confirmatory and secondary outcomes are discussed, but not shown, in Section 3.2.3 of the *Final Impact Report*. Results for the exploratory outcome are neither discussed nor shown in the report.

For each outcome, Exhibit C.2-10 provides three rows. The first row reports the impact on that outcome for the first group within a given subgroup category (e.g., less than a bachelor's degree in the education subgroup analysis); the second row reports the impact on that outcome for the other group (e.g., bachelor's degree or more). The third row reports the differential impact. The evaluation focuses on the differential impact and on whether there is clear evidence of a positive impact of the JVS programs for at least one of the two groups for each category.

Exhibit C.2-10: Subgroup Analysis Differential Impacts, JVS Programs

	Sample Size	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value
Education						
Average Quarterly Earnings in Q5-Q10 ($)						
Less than bachelor's degree	198	7,771	5,185	2,586**	1,056	.015
Bachelor's degree or more	768	10,959	10,990	−31	801	.969
Difference				−2,617**	1,329	.049
Any Employment in Q5-Q10 (%)						
Less than bachelor's degree	198	81	74	7	5	.179
Bachelor's degree or more	768	81	81	−1	3	.764
Difference				−8	6	.184
Average Quarterly Earnings in Q9-Q15 ($)						
Less than bachelor's degree	198	7,918	5,126	2,792**	1,251	.026

	Sample Size	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value
Bachelor's degree or more	768	12,613	12,523	90	938	.923
Difference				−2,701*	1,567	.085
Age						
Average Quarterly Earnings in Q5-Q10 ($)						
Younger than 49	574	11,698	10,208	1,490*	900	.098
49 or older	392	8,012	8,949	−937	989	.344
Difference				−2,427*	1,331	.068
Any Employment in Q5-Q10 (%)						
Younger than 49	574	82	85	−4	3	.239
49 or older	392	79	72	7*	4	.085
Difference				11**	5	.038
Average Quarterly Earnings in Q9-Q15 ($)						
Younger than 49	574	13,457	11,286	2,171**	1,081	.045
49 or older	392	8,666	10,256	−1,590	1,104	.150
Difference				−3,760**	1,538	.015
Employment Status						
Average Quarterly Earnings in Q5-Q10 ($)						
Not long-term unemployed	393	7,904	7,165	739	1,005	.463
Long-term unemployed	573	11,779	11,437	342	900	.704
Difference				−397	1,349	.769
Any Employment in Q5-Q10 (%)						
Not long-term unemployed	393	69	65	5	5	.332
Long-term unemployed	573	89	90	−2	3	.485
Difference				−6	5	.236
Average Quarterly Earnings in Q9-Q15 ($)						
Not long-term unemployed	393	8,929	8,451	478	1,176	.684
Long-term unemployed	573	13,285	12,532	753	1,058	.477
Difference				275	1,583	.862
Gender						
Average Quarterly Earnings in Q5-Q10 ($)						
Women	613	10,682	9,244	1,438*	855	.093
Men	353	9,289	10,404	−1,115	1,073	.299
Difference				−2,553*	1,366	.062
Any Employment in Q5-Q10 (%)						
Women	613	83	79	4	3	.225
Men	353	77	81	−4	4	.319
Difference				−8	5	.131
Average Quarterly Earnings in Q9-Q15 ($)						
Women	613	11,765	10,751	1,014	993	.307
Men	353	11,019	11,023	−4	1,288	.998
Difference				−1,018	1,623	.531

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 15 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. The subgroup analysis by employment status compares impacts for those with positive earnings in any of those four quarters ("not long-term unemployed") versus those with no earnings in the four quarters before the quarter of random assignment ("long-term unemployed"). Reported impact may not equal the difference between the reported program and control group means because of rounding. The total sample of 965 includes 491 program group and 474 control group members.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.3   Detailed Results for Finger Lakes Hired

This section presents additional detail for FLH.

C.3.1   Additional Results on Earnings and Employment for the Full Sample, FLH

This section provides additional detail on FLH's impacts on earnings and employment for its full sample. This section also provides additional detail on the levels of earnings, employment, and receipt of Unemployment Insurance among the full sample before and after random assignment, and impacts on these outcomes.

Exhibit C.3-1 reports detailed impacts on measures of aggregate earnings, including the confirmatory outcome. A subset of these results are shown in the top panel of Exhibit 3-9 in Section 3.3.1 of the *Final Impact Report*.

Exhibit C.3-1: Impacts on Aggregate Earnings for the Full Sample, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Aggregate Earnings, Full Sample								
Average quarterly earnings in Q5-Q10 ($)	**6,779**	**6,822**	**−43**	**523**	**.935**	**−1**	**300**	**295**
Average quarterly earnings in Q5-Q10, if any employment in Q5-Q10 ($)	*8,149*	*8,214*	*−65*	*556*	*.907*	*−1*	*251*	*245*
Cumulative earnings in Q5-Q10 ($)	40,674	40,930	−256	3,141	.935	−1	300	295
Cumulative earnings in Q1-Q10 ($)	59,038	61,562	−2,524	4,493	.574	−4	300	295
Average quarterly earnings in Q9-Q13 ($)	7,058	7,286	−228	590	.700	−3	300	295
Cumulative earnings in Q9-Q13 ($)	35,290	36,429	−1,139	2,951	.700	−3	300	295

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 13 quarters after random assignment.
NOTES: *Confirmatory outcome is indicated in bold italics*; exploratory outcomes are neither bolded nor italicized. *Unbolded outcome in italics* applies to the subset of sample members who were ever employed during Q5 through Q10, and is thus non-experimental. All other outcomes apply to the full sample and impact estimates are experimental. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the FLH full sample, Exhibit C.3-2 reports detailed impacts on measures of aggregate employment, including on the secondary outcome. A subset of these results are shown in the bottom panel of Exhibit 3-9 in Section 3.3.1 of the *Final Impact Report*.

Exhibit C.3-2: Impacts on Aggregate Employment for the Full Sample, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Aggregate Employment, Full Sample								
Any Employment (%)								
Q5-Q10	**83.6**	**83.1**	**0.6**	**3.0**	**.850**	**1**	**300**	**295**
Q1-Q10	87.7	88.1	−0.4	2.6	.867	−0	300	295
Q9-Q13	79.7	81.0	−1.3	3.1	.672	−2	300	295

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Number of Quarters Employed								
Q5-Q10	4.2	4.3	−0.0	0.2	.812	−1	300	295
Q1-Q10	6.7	6.8	−0.2	0.3	.528	−3	300	295
Q9-Q13	3.4	3.6	−0.2	0.2	.318	−5	300	295
Percentage of Quarters Employed (%)								
Q5-Q10	70.3	71.1	−0.7	3.0	.812	−1	300	295
Q1-Q10	66.8	68.5	−1.7	2.7	.528	−3	300	295
Q9-Q13	67.8	71.1	−3.2	3.2	.318	−5	300	295
Longest Job Tenure (quarters)								
Q5-Q10	3.7	3.8	−0.1	0.2	.448	−4	300	295
Q0-Q10	5.3	5.5	−0.2	0.3	.343	−4	300	295
Q9-Q13	3.1	3.2	−0.1	0.2	.614	−3	300	295

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 13 quarters after random assignment.
NOTES: Secondary outcome is indicated in bold; exploratory outcomes are not bolded. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the FLH full sample, Exhibit C.3-3 reports quarterly levels of earnings and impacts on earnings from 2 years before random assignment (8 quarters) through 3.25 years after random assignment (13 quarters). These results are plotted in Exhibit 3-10 in Section 3.3.1 of the *Final Impact Report*. The report also discusses, but does not show, the levels of earnings over time for the control group in Section 1.3.

Exhibit C.3-3: Quarterly Earnings Levels and Impacts for the Full Sample, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter, Full Sample								
Earnings before RA								
Q8 pre-RA ($)	7,024	8,209	−1,185	738	.109	−14	296	289
Q7 pre-RA ($)	8,017	8,907	−890	720	.217	−10	300	295
Q6 pre-RA ($)	8,006	8,258	−252	700	.718	−3	300	295
Q5 pre-RA ($)	7,141	7,841	−700	645	.278	−9	300	295
Q4 pre-RA ($)	7,139	7,495	−356	613	.562	−5	300	295
Q3 pre-RA ($)	7,520	7,637	−117	767	.879	−2	300	295
Q2 pre-RA ($)	6,517	5,776	742	826	.370	13	300	295
Q1 pre-RA ($)	3,111	3,498	−387	656	.555	−11	300	295
Q0 ($)	1,627	1,435	191	354	.589	13	300	295
Earnings after RA								
Q1 ($)	3,239	3,541	−302	437	.489	−9	300	295
Q2 ($)	4,476	5,315	−839	543	.123	−16	300	295
Q3 ($)	5,190	5,809	−619	545	.256	−11	300	295
Q4 ($)	5,458	5,967	−509	522	.330	−9	300	295
Q5 ($)	6,477	6,474	3	571	.996	0	300	295
Q6 ($)	6,559	6,536	24	554	.966	0	300	295
Q7 ($)	6,986	6,736	250	570	.661	4	300	295
Q8 ($)	6,935	6,982	−48	587	.935	−1	300	295
Q9 ($)	7,002	7,180	−178	618	.774	−2	300	295
Q10 ($)	6,715	7,022	−307	620	.621	−4	300	295

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Q11 ($)	7,064	7,374	−310	650	.634	−4	300	295
Q12 ($)	7,080	7,269	−190	658	.773	−3	300	295
Q13 ($)	7,430	7,585	−155	656	.813	−2	300	295

KEY: Q=quarter; RA=random assignment.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 13 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the FLH full sample, Exhibit C.3-4 reports quarterly levels of employment and impacts on employment from 2 years before random assignment (8 quarters) through 3.25 years after random assignment (13 quarters). These results are plotted in Exhibit 3-11 in Section 3.3.1 of the *Final Impact Report*. The report also plots the levels of employment over time for the control group in Exhibit 1-3 in Section 1.3.

Exhibit C.3-4: Quarterly Employment Levels and Impacts for the Full Sample, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter, Full Sample								
Employment before RA								
Q8 pre-RA (%)	63.3	66.1	−2.7	3.5	.439	−4	296	289
Q7 pre-RA (%)	72.2	72.9	−0.7	3.1	.828	−1	300	295
Q6 pre-RA (%)	70.8	70.8	−0.0	3.0	.989	−0	300	295
Q5 pre-RA (%)	68.7	70.5	−1.8	2.9	.546	−2	300	295
Q4 pre-RA (%)	67.4	70.2	−2.8	2.2	.216	−4	300	295
Q3 pre-RA (%)	63.8	66.4	−2.7	2.6	.306	−4	300	295
Q2 pre-RA (%)	58.9	59.3	−0.4	3.0	.893	−1	300	295
Q1 pre-RA (%)	40.5	41.0	−0.5	3.6	.894	−1	300	295
Q0 (%)	35.7	40.0	−4.3	3.8	.259	−11	300	295
Employment after RA								
Q1 (%)	53.9	57.3	−3.4	3.9	.388	−6	300	295
Q2 (%)	60.0	64.7	−4.7	3.8	.212	−7	300	295
Q3 (%)	64.5	68.1	−3.7	3.7	.327	−5	300	295
Q4 (%)	67.0	68.1	−1.1	3.7	.765	−2	300	295
Q5 (%)	68.3	70.5	−2.2	3.7	.547	−3	300	295
Q6 (%)	71.8	72.2	−0.4	3.6	.921	−0	300	295
Q7 (%)	73.8	70.8	2.9	3.6	.415	4	300	295
Q8 (%)	72.1	71.9	0.2	3.6	.958	0	300	295
Q9 (%)	68.2	70.8	−2.7	3.6	.461	−4	300	295
Q10 (%)	68.0	70.2	−2.2	3.7	.550	−3	300	295
Q11 (%)	69.2	71.9	−2.6	3.6	.467	−4	300	295
Q12 (%)	67.8	72.5	−4.7	3.6	.198	−6	300	295
Q13 (%)	66.0	69.8	−3.8	3.7	.303	−5	300	295

KEY: Q=quarter; RA=random assignment.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 13 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x

[impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the FLH full sample, Exhibit C.3-5 reports quarterly levels of receipt of UI and impacts on receipt of UI from 2 years before random assignment (8 quarters) through 3.25 years after random assignment (13 quarters). The levels of UI receipt are referenced in footnote 20 in Section 1.3 of the *Final Impact Report*.

Exhibit C.3-5: Quarterly Unemployment Insurance Receipt Levels and Impacts for the Full Sample, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Receipt of Unemployment Insurance by Quarter, Full Sample								
Unemployment Insurance receipt before RA								
Q8 pre-RA (%)	6.4	5.5	0.8	1.9	.669	15	296	289
Q7 pre-RA (%)	14.2	12.5	1.7	2.7	.535	14	300	295
Q6 pre-RA (%)	17.1	13.6	3.5	2.9	.228	26	300	295
Q5 pre-RA (%)	15.1	13.9	1.2	2.9	.678	9	300	295
Q4 pre-RA (%)	12.2	13.9	−1.7	2.7	.529	−12	300	295
Q3 pre-RA (%)	13.1	13.9	−0.8	2.8	.766	−6	300	295
Q2 pre-RA (%)	30.9	29.5	1.4	3.6	.699	5	300	295
Q1 pre-RA (%)	40.4	39.3	1.0	3.6	.775	3	300	295
Q0 (%)	44.9	41.7	3.2	3.5	.372	8	300	295
Unemployment Insurance receipt after RA								
Q1 (%)	21.3	21.4	−0.1	3.2	.975	−0	300	295
Q2 (%)	10.7	10.5	0.2	2.4	.946	2	300	295
Q3 (%)	6.4	6.4	−0.1	2.0	.974	−1	300	295
Q4 (%)	6.2	5.8	0.4	1.9	.828	7	300	295
Q5 (%)	3.1	4.4	−1.4	1.5	.383	−31	300	295
Q6 (%)	3.9	5.4	−1.5	1.8	.393	−28	300	295
Q7 (%)	6.0	6.1	−0.1	2.0	.963	−2	300	295
Q8 (%)	9.1	7.8	1.3	2.3	.566	17	300	295
Q9 (%)	9.8	7.5	2.4	2.3	.297	32	300	295
Q10 (%)	12.7	7.5	5.2**	2.4	.031	70	300	295
Q11 (%)	10.8	9.5	1.3	2.5	.596	14	300	295
Q12 (%)	10.7	12.2	−1.5	2.5	.547	−12	300	295
Q13 (%)	10.2	8.1	2.1	2.3	.372	26	300	295

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 13 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the FLH full sample, Exhibit C.3-6 reports quarterly levels of an outcome that combines information on whether an individual was either employed or receiving UI in the given quarter. Exhibit C.3-6 also reports impacts on this combined quarterly outcome, from 2 years before random assignment (8 quarters) through 3.25 years after random assignment (13 quarters). The levels of this outcome are referenced in footnote 20 in Section 1.3 of the *Final Impact Report*. The analysis discusses this measure to assess what proportion of the control group were tied to the labor market two years (8 quarters) before random

assignment, as measured by either being employed or receiving UI benefits, presumably associated with a recently held job.[24]

Exhibit C.3-6: Quarterly Employment and/or Unemployment Insurance Receipt Levels and Impacts for the Full Sample, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Any Employment and/or Receipt of Unemployment Insurance, Full Sample								
Employment or Unemployment Insurance receipt before RA								
Q8 pre-RA (%)	63.3	66.8	−3.5	3.5	.327	−5	296	289
Q7 pre-RA (%)	75.3	74.9	0.3	3.1	.911	0	300	295
Q6 pre-RA (%)	74.2	72.9	1.3	2.9	.654	2	300	295
Q5 pre-RA (%)	71.4	73.6	−2.2	2.9	.441	−3	300	295
Q4 pre-RA (%)	69.2	72.9	−3.7	2.3	.112	−5	300	295
Q3 pre-RA (%)	68.4	70.8	−2.5	2.5	.327	−4	300	295
Q2 pre-RA (%)	68.9	70.5	−1.6	2.5	.526	−2	300	295
Q1 pre-RA (%)	65.4	66.1	−0.7	2.6	.801	−1	300	295
Q0 (%)	66.8	67.5	−0.6	3.1	.838	−1	300	295
Employment or Unemployment Insurance receipt after RA								
Q1 (%)	63.5	68.1	−4.7	3.6	.191	−7	300	295
Q2 (%)	65.1	69.5	−4.4	3.6	.226	−6	300	295
Q3 (%)	67.0	70.5	−3.5	3.6	.330	−5	300	295
Q4 (%)	68.9	70.5	−1.6	3.7	.657	−2	300	295
Q5 (%)	69.3	72.9	−3.6	3.6	.318	−5	300	295
Q6 (%)	72.4	74.6	−2.2	3.5	.526	−3	300	295
Q7 (%)	75.0	73.2	1.8	3.5	.613	2	300	295
Q8 (%)	75.1	74.6	0.5	3.4	.883	1	300	295
Q9 (%)	72.9	75.6	−2.7	3.5	.439	−4	300	295
Q10 (%)	74.1	74.9	−0.8	3.5	.814	−1	300	295
Q11 (%)	74.4	76.6	−2.2	3.4	.521	−3	300	295
Q12 (%)	71.6	75.9	−4.3	3.5	.217	−6	300	295
Q13 (%)	71.5	74.2	−2.8	3.6	.440	−4	300	295

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 13 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the FLH full sample, Exhibit C.3-7 reports levels of aggregate measures of employment and earnings and impacts on these outcomes at two years before random assignment (Q7 to Q4 pre-random assignment) and at three years after random assignment (Q9 to Q11). These results are discussed, but not shown, in Section 1.3 of the *Final Impact Report*.

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[24] The conventional definition of being in the labor force is employed or unemployed and actively searching for work. This measure is a proxy for that, using receipt of UI in place of the survey concept of actively searching for work.

Exhibit C.3-7: Levels of and Impacts on Earnings and Employment at Two Years before Random Assignment versus at Three Years after for the Full Sample, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
At Two Years before RA (Q7 pre-RA to Q4 pre-RA)								
Any employment (%)	82.2	82.7	−0.5	2.4	.831	−1	300	295
Average quarterly earnings ($)	7,576	8,125	−550	584	.347	−7	300	295
Average quarterly earnings, if any employment in this period ($)	*9,198*	*9,824*	*−625*	*667*	*.349*	*−6*	*245*	*244*
At Three Years after RA (Q9 to Q12)								
Any employment (%)	78.6	79.7	−1.0	3.2	.752	−1	300	295
Average quarterly earnings ($)	6,965	7,211	−246	591	.677	−3	300	295
Average quarterly earnings, if any employment in this period ($)	*8,899*	*9,052*	*−153*	*646*	*.812*	*−2*	*236*	*235*

KEY: Q=quarter; RA=random assignment.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 12 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. *Outcomes in italics* apply to the subset of sample members who were ever employed during the given period (Q7 through Q4 pre-random assignment in the top panel, Q9 through Q12 in the bottom panel), and are thus non-experimental. All other outcomes apply to the full sample and impact estimates are experimental. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.3.2　Additional Results on Earnings and Employment for the Early Cohort, FLH

This section provides additional detail on FLH's impacts on earnings and employment for its early cohort. Exhibit C.3-8 reports detailed impacts on quarterly earnings through 4.75 years after random assignment (19 quarters). These results are plotted in Exhibit 3-12 in Section 3.3.2 of the *Final Impact Report*.

Exhibit C.3-8: Impacts on Quarterly Earnings for the Early Cohort, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter, Early Cohort								
Earnings in Q1 ($)	2,477	2,884	−407	459	.376	−14	178	173
Earnings in Q2 ($)	3,854	3,988	−134	644	.835	−3	178	173
Earnings in Q3 ($)	5,003	4,181	822	613	.181	20	178	173
Earnings in Q4 ($)	5,298	4,282	1,016*	610	.097	24	178	173
Earnings in Q5 ($)	6,072	4,880	1,192*	688	.084	24	178	173
Earnings in Q6 ($)	6,112	5,047	1,065*	641	.098	21	178	173
Earnings in Q7 ($)	6,584	5,502	1,082	694	.120	20	178	173
Earnings in Q8 ($)	6,567	5,759	808	697	.247	14	178	173
Earnings in Q9 ($)	7,006	6,333	673	788	.393	11	178	173
Earnings in Q10 ($)	6,542	6,348	194	743	.794	3	178	173
Earnings in Q11 ($)	6,895	6,413	481	822	.559	8	178	173
Earnings in Q12 ($)	6,636	6,455	181	774	.815	3	178	173
Earnings in Q13 ($)	6,841	6,579	261	803	.745	4	178	173
Earnings in Q14 ($)	6,448	6,328	121	772	.876	2	178	173
Earnings in Q15 ($)	7,363	6,492	871	844	.303	13	178	173
Earnings in Q16 ($)	6,457	5,889	568	735	.440	10	178	173
Earnings in Q17 ($)	6,452	6,139	313	774	.686	5	178	173

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings in Q18 ($)	6,557	6,536	21	793	.979	0	178	173
Earnings in Q19 ($)	6,724	6,372	352	810	.664	6	178	173

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 19 quarters after random assignment.
NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the FLH early cohort, Exhibit C.3-9 reports detailed impacts on quarterly employment through 4.75 years after random assignment (19 quarters). These results are neither discussed nor shown in Section 3.3.2 of the *Final Impact Report*.

Exhibit C.3-9: Impacts on Quarterly Employment for the Early Cohort, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter, Early Cohort								
Employment in Q1 (%)	50.5	54.9	−4.4	5.2	.402	−8	178	173
Employment in Q2 (%)	61.2	63.6	−2.4	5.1	.638	−4	178	173
Employment in Q3 (%)	68.1	66.5	1.7	4.9	.735	3	178	173
Employment in Q4 (%)	68.8	64.7	4.0	5.0	.418	6	178	173
Employment in Q5 (%)	70.3	69.4	1.0	4.9	.843	1	178	173
Employment in Q6 (%)	73.1	71.7	1.4	4.8	.770	2	178	173
Employment in Q7 (%)	76.4	71.7	4.7	4.6	.310	7	178	173
Employment in Q8 (%)	75.1	72.3	2.8	4.7	.544	4	178	173
Employment in Q9 (%)	72.5	71.7	0.8	4.7	.866	1	178	173
Employment in Q10 (%)	73.2	72.3	0.9	4.7	.845	1	178	173
Employment in Q11 (%)	75.2	72.3	2.9	4.6	.530	4	178	173
Employment in Q12 (%)	70.9	72.3	−1.3	4.8	.780	−2	178	173
Employment in Q13 (%)	69.2	70.5	−1.3	4.8	.781	−2	178	173
Employment in Q14 (%)	69.0	68.2	0.8	5.0	.866	1	178	173
Employment in Q15 (%)	72.1	65.9	6.2	4.9	.204	9	178	173
Employment in Q16 (%)	70.1	63.0	7.1	5.0	.159	11	178	173
Employment in Q17 (%)	66.0	63.0	3.0	5.1	.565	5	178	173
Employment in Q18 (%)	65.8	64.2	1.6	5.1	.756	2	178	173
Employment in Q19 (%)	68.1	59.5	8.6*	5.1	.094	14	178	173

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 19 quarters after random assignment.
NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.3.3   Results for the Subgroup Analysis, FLH

This section reports the results of the subgroup analysis for the FLH full sample. Exhibit C.3-10 reports differential impacts by baseline education, age, employment status, and gender for the confirmatory outcome, the secondary outcome, and the exploratory outcome average quarterly earnings approximately three years after random assignment (Q9-Q13). Results for the confirmatory and secondary outcomes are

discussed, but not shown, in Section 3.3.3 of the *Final Impact Report*. Results for the exploratory outcome are neither discussed nor shown in the report.

For each outcome, Exhibit C.3-10 provides three rows. The first row reports the impact on that outcome for the first group within a given subgroup category (e.g., less than a bachelor's degree in the education subgroup analysis); the second row reports the impact on that outcome for the other group (e.g., bachelor's degree or more). The third row reports the differential impact. The evaluation focuses on the differential impact and on whether there is clear evidence of a positive impact of the FLH program for at least one of the two groups for each category.

Exhibit C.3-10: Subgroup Analysis Differential Impacts, FLH

	Sample Size	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value
Education						
Average Quarterly Earnings in Q5-Q10 ($)						
Less than bachelor's degree	335	5,587	4,608	979*	531	.066
Bachelor's degree or more	260	8,425	9,791	−1,366	984	.166
Difference				−2,344**	1,121	.037
Any Employment in Q5-Q10 (%)						
Less than bachelor's degree	335	85	82	2	4	.573
Bachelor's degree or more	260	82	84	−2	4	.710
Difference				−4	6	.513
Average Quarterly Earnings in Q9-Q13 ($)						
Less than bachelor's degree	335	6,154	4,870	1,285**	592	.030
Bachelor's degree or more	260	8,340	10,527	−2,187**	1,112	.050
Difference				−3,472***	1,262	.006
Age						
Average Quarterly Earnings in Q5-Q10 ($)						
Younger than 49	295	5,771	5,933	−162	578	.780
49 or older	300	7,792	7,716	76	874	.931
Difference				238	1,048	.821
Any Employment in Q5-Q10 (%)						
Younger than 49	295	86	84	3	4	.511
49 or older	300	81	82	−1	4	.734
Difference				−4	6	.488
Average Quarterly Earnings in Q9-Q13 ($)						
Younger than 49	295	6,353	6,632	−279	662	.673
49 or older	300	7,768	7,944	−177	982	.857
Difference				103	1,187	.931
Employment Status						
Average Quarterly Earnings in Q5-Q10 ($)						
Not long-term unemployed	139	3,083	3,956	−873	782	.265
Long-term unemployed	456	7,875	7,664	211	641	.742
Difference				1,084	1,012	.284
Any Employment in Q5-Q10 (%)						
Not long-term unemployed	139	67	67	−0	8	.974
Long-term unemployed	456	89	88	1	3	.788
Difference				1	9	.900
Average Quarterly Earnings in Q9-Q13 ($)						
Not long-term unemployed	139	3,758	4,163	−405	937	.666
Long-term unemployed	456	8,030	8,204	−174	716	.808
Difference				231	1,179	.845

	Sample Size	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value
Gender						
Average Quarterly Earnings in Q5-Q10 ($)						
Women	329	6,525	6,493	32	661	.962
Men	266	7,046	7,181	−134	843	.873
Difference				−166	1,074	.877
Any Employment in Q5-Q10 (%)						
Women	329	86	87	−1	4	.803
Men	266	81	79	2	5	.614
Difference				3	6	.583
Average Quarterly Earnings in Q9-Q13 ($)						
Women	329	7,043	7,028	16	757	.984
Men	266	7,040	7,568	−528	940	.575
Difference				−544	1,212	.654

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 13 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. The subgroup analysis by employment status compares impacts for those with positive earnings in any of those four quarters ("not long-term unemployed") versus those with no earnings in the four quarters before the quarter of random assignment ("long-term unemployed"). Reported impact may not equal the difference between the reported program and control group means because of rounding. The total sample of 595 includes 300 program group and 295 control group members.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.4   Detailed Results for Reboot Northwest

This section presents additional detail for Reboot NW.

C.4.1   Additional Results on Earnings and Employment for the Full Sample, Reboot NW

This section provides additional detail on Reboot NW's impacts on earnings and employment for its full sample. This section also provides additional detail on the levels of earnings, employment, and receipt of Unemployment Insurance among the full sample before and after random assignment, and impacts on these outcomes.

Exhibit C.4-1 reports detailed impacts on measures of aggregate earnings, including the confirmatory outcome. A subset of these results are shown in the top panel of Exhibit 3-13 in Section 3.4.1 of the *Final Impact Report*.

Exhibit C.4-1: Impacts on Aggregate Earnings for the Full Sample, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Aggregate Earnings, Full Sample								
Average quarterly earnings in Q5-Q10 ($)	*8,548*	*8,266*	*282*	*533*	*.596*	*3*	*489*	*483*
Average quarterly earnings in Q5-Q10, if any employment in Q5-Q10 ($)	*10,256*	*10,056*	*200*	*571*	*.726*	*2*	*408*	*397*
Cumulative earnings in Q5-Q10 ($)	51,288	49,594	1,694	3,198	.596	3	489	483
Cumulative earnings in Q1-Q10 ($)	71,195	70,467	728	4,338	.867	1	489	483

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Average quarterly earnings in Q9-Q16 ($)	9,941	9,236	704	598	.239	8	489	483
Cumulative earnings in Q9-Q16 ($)	79,525	73,890	5,635	4,785	.239	8	489	483

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 16 quarters after random assignment.
NOTES: **Confirmatory outcome is indicated in bold italics**; exploratory outcomes are neither bolded nor italicized. *Unbolded outcome in italics* applies to the subset of sample members who were ever employed during Q5 through Q10, and is thus non-experimental. All other outcomes apply to the full sample and impact estimates are experimental. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the Reboot NW full sample, Exhibit C.4-2 reports detailed impacts on measures of aggregate employment, including on the secondary outcome. A subset of these results are shown in the bottom panel of Exhibit 3-13 in Section 3.4.1 of the *Final Impact Report*.

Exhibit C.4-2: Impacts on Aggregate Employment for the Full Sample, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Aggregate Employment, Full Sample								
Any Employment (%)								
Q5-Q10	**83.5**	**82.2**	**1.3**	**2.4**	**.578**	**2**	**489**	**483**
Q1-Q10	88.1	86.5	1.6	2.1	.456	2	489	483
Q9-Q16	83.3	83.6	−0.4	2.4	.881	−0	489	483
Number of Quarters Employed								
Q5-Q10	4.1	4.1	−0.0	0.1	.933	−0	489	483
Q1-Q10	6.3	6.4	−0.1	0.2	.566	−2	489	483
Q9-Q16	5.4	5.4	0.0	0.2	.938	0	489	483
Percentage of Quarters Employed (%)								
Q5-Q10	68.1	68.3	−0.2	2.4	.933	−0	489	483
Q1-Q10	63.1	64.3	−1.3	2.2	.566	−2	489	483
Q9-Q16	67.5	67.3	0.2	2.4	.938	0	489	483
Longest Job Tenure (quarters)								
Q5-Q10	3.5	3.5	−0.1	0.1	.668	−2	489	483
Q0-Q10	4.9	5.1	−0.2	0.2	.255	−5	489	483
Q9-Q16	4.4	4.5	−0.1	0.2	.592	−2	489	483

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 16 quarters after random assignment.
NOTES: **Secondary outcome is indicated in bold**; exploratory outcomes are not bolded. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the Reboot NW full sample, Exhibit C.4-3 reports quarterly levels of earnings and impacts on earnings from 2 years before random assignment (8 quarters) through 4 years after random assignment (16 quarters). These results are plotted in Exhibit 3-14 in Section 3.4.1 of the *Final Impact Report*. The report also discusses, but does not show, the levels of earnings over time for the control group in Section 1.3.

Exhibit C.4-3: Quarterly Earnings Levels and Impacts for the Full Sample, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter, Full Sample								
Earnings before RA								
Q8 pre-RA ($)	7,176	7,058	118	621	.849	2	450	442
Q7 pre-RA ($)	7,897	7,768	129	673	.848	2	489	483
Q6 pre-RA ($)	7,845	7,264	582	645	.367	8	489	483
Q5 pre-RA ($)	7,600	7,121	479	576	.406	7	489	483
Q4 pre-RA ($)	7,312	6,948	364	651	.577	5	489	483
Q3 pre-RA ($)	6,887	6,863	24	846	.977	0	489	483
Q2 pre-RA ($)	5,373	4,655	718	668	.283	15	489	483
Q1 pre-RA ($)	2,589	2,319	269	325	.407	12	489	483
Q0 ($)	1,355	1,357	−2	170	.990	−0	489	483
Earnings after RA								
Q1 ($)	2,779	3,162	−384	344	.265	−12	489	483
Q2 ($)	4,580	4,864	−284	434	.513	−6	489	483
Q3 ($)	5,906	6,067	−161	496	.746	−3	489	483
Q4 ($)	6,642	6,780	−139	507	.785	−2	489	483
Q5 ($)	7,142	7,542	−400	600	.505	−5	489	483
Q6 ($)	7,718	7,760	−42	589	.944	−1	489	483
Q7 ($)	8,186	8,266	−80	556	.886	−1	489	483
Q8 ($)	9,047	8,154	893	579	.123	11	489	483
Q9 ($)	9,945	9,150	795	775	.305	9	489	483
Q10 ($)	9,249	8,721	529	616	.391	6	489	483
Q11 ($)	9,552	9,100	452	630	.473	5	489	483
Q12 ($)	10,227	9,009	1,218*	652	.062	14	489	483
Q13 ($)	9,997	9,213	784	689	.255	9	489	483
Q14 ($)	9,871	9,081	790	656	.229	9	489	483
Q15 ($)	10,447	9,417	1,029	720	.153	11	489	483
Q16 ($)	10,236	10,198	38	756	.960	0	489	483

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 16 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the Reboot NW full sample, Exhibit C.4-4 reports quarterly levels of employment, and impacts on employment, from 2 years before random assignment (8 quarters) through 4 years after random assignment (16 quarters). These results are plotted in Exhibit 3-15 in Section 3.4.1 of the *Final Impact Report*. The report also plots the levels of employment over time for the control group in Exhibit 1-3 in Section 1.3.

Exhibit C.4-4: Quarterly Employment Levels and Impacts for the Full Sample, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter, Full Sample								
Employment before RA								
Q8 pre-RA (%)	53.4	51.6	1.8	3.1	.550	4	450	442
Q7 pre-RA (%)	60.0	60.0	−0.0	2.8	.998	−0	489	483

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Q6 pre-RA (%)	56.8	59.8	−3.0	2.7	.275	−5	489	483
Q5 pre-RA (%)	57.4	60.9	−3.4	2.6	.188	−6	489	483
Q4 pre-RA (%)	56.4	56.3	0.0	2.2	.984	0	489	483
Q3 pre-RA (%)	53.1	54.9	−1.7	2.3	.459	−3	489	483
Q2 pre-RA (%)	47.8	45.3	2.5	2.5	.337	5	489	483
Q1 pre-RA (%)	37.4	36.2	1.2	2.7	.654	3	489	483
Q0 (%)	36.3	38.3	−2.0	3.0	.494	−5	489	483
Employment after RA								
Q1 (%)	45.9	50.7	−4.9	3.1	.121	−10	489	483
Q2 (%)	54.5	58.0	−3.5	3.1	.259	−6	489	483
Q3 (%)	59.7	61.9	−2.2	3.1	.471	−4	489	483
Q4 (%)	62.1	62.9	−0.8	3.0	.782	−1	489	483
Q5 (%)	64.9	65.8	−0.9	3.0	.756	−1	489	483
Q6 (%)	66.7	65.6	1.1	3.0	.718	2	489	483
Q7 (%)	69.0	69.4	−0.3	2.9	.907	−0	489	483
Q8 (%)	69.2	69.6	−0.4	2.9	.904	−1	489	483
Q9 (%)	70.8	70.6	0.2	2.9	.937	0	489	483
Q10 (%)	68.0	68.9	−0.9	3.0	.756	−1	489	483
Q11 (%)	69.1	71.0	−1.9	2.9	.500	−3	489	483
Q12 (%)	68.6	67.7	0.9	2.9	.757	1	489	483
Q13 (%)	66.5	66.3	0.3	3.0	.928	0	489	483
Q14 (%)	64.5	64.4	0.1	3.0	.974	0	489	483
Q15 (%)	66.5	64.0	2.5	3.0	.410	4	489	483
Q16 (%)	65.6	65.2	0.4	3.0	.898	1	489	483

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 16 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the Reboot NW full sample, Exhibit C.4-5 reports quarterly levels of receipt of UI and impacts on receipt of UI from 2 years before random assignment (8 quarters) through 4 years after random assignment (16 quarters). The levels of UI receipt are referenced in footnote 20 in Section 1.3 of the *Final Impact Report*.

Exhibit C.4-5: Quarterly Unemployment Insurance Receipt Levels and Impacts for the Full Sample, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Receipt of Unemployment Insurance by Quarter, Full Sample								
Unemployment Insurance receipt before RA								
Q8 pre-RA (%)	9.2	7.2	1.9	1.8	.284	27	450	442
Q7 pre-RA (%)	14.4	14.7	−0.3	2.2	.898	−2	489	483
Q6 pre-RA (%)	17.8	18.2	−0.4	2.4	.876	−2	489	483
Q5 pre-RA (%)	20.9	19.3	1.6	2.6	.522	8	489	483
Q4 pre-RA (%)	19.2	16.6	2.6	2.4	.276	16	489	483
Q3 pre-RA (%)	22.4	20.9	1.4	2.6	.574	7	489	483
Q2 pre-RA (%)	30.8	27.5	3.3	2.7	.231	12	489	483

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Q1 pre-RA (%)	34.2	31.7	2.5	2.8	.362	8	489	483
Q0 (%)	36.1	35.0	1.1	2.8	.700	3	489	483
Unemployment Insurance receipt after RA								
Q1 (%)	26.0	22.2	3.8	2.6	.135	17	489	483
Q2 (%)	13.7	9.3	4.4**	2.0	.026	48	489	483
Q3 (%)	8.0	7.5	0.5	1.7	.752	7	489	483
Q4 (%)	5.0	5.2	−0.2	1.4	.912	−3	489	483
Q5 (%)	4.8	3.9	0.9	1.3	.491	23	489	483
Q6 (%)	6.1	4.8	1.3	1.4	.363	27	489	483
Q7 (%)	6.2	5.4	0.8	1.5	.589	15	489	483
Q8 (%)	6.0	7.7	−1.7	1.6	.298	−22	489	483
Q9 (%)	6.4	8.7	−2.3	1.7	.171	−27	489	483
Q10 (%)	8.4	9.3	−0.9	1.8	.620	−10	489	483
Q11 (%)	8.8	9.7	−0.9	1.9	.632	−9	489	483
Q12 (%)	12.5	13.5	−1.0	2.1	.641	−7	489	483
Q13 (%)	13.2	13.9	−0.7	2.2	.741	−5	489	483
Q14 (%)	15.3	15.5	−0.3	2.3	.904	−2	489	483
Q15 (%)	15.7	14.9	0.8	2.3	.731	5	489	483
Q16 (%)	14.6	13.5	1.2	2.2	.600	9	489	483

KEY: Q=quarter; RA=random assignment.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 16 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the Reboot NW full sample, Exhibit C.4-6 reports quarterly levels of an outcome that combines information on whether an individual was either employed or receiving UI in the given quarter. Exhibit C.4-6 also reports impacts on this combined quarterly outcome, from 2 years before random assignment (8 quarters) through 4 years after random assignment (16 quarters). The levels of this outcome are referenced in footnote 20 in Section 1.3 of the *Final Impact Report*. The analysis discusses this measure to assess what proportion of the control group were tied to the labor market two years (eight quarters) before random assignment, as measured by either being employed or receiving UI benefits, presumably associated with a recently held job.

Exhibit C.4-6: Quarterly Employment and/or Unemployment Insurance Receipt Levels and Impacts for the Full Sample, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Any Employment and/or Receipt of Unemployment Insurance, Full Sample								
Employment or Unemployment Insurance receipt before RA								
Q8 pre-RA (%)	54.4	52.5	1.9	3.1	.535	4	450	442
Q7 pre-RA (%)	64.3	65.2	−0.9	2.7	.735	−1	489	483
Q6 pre-RA (%)	63.6	65.0	−1.4	2.7	.611	−2	489	483
Q5 pre-RA (%)	64.9	65.2	−0.3	2.6	.909	−0	489	483
Q4 pre-RA (%)	64.2	62.7	1.4	2.3	.540	2	489	483
Q3 pre-RA (%)	62.6	61.5	1.1	2.4	.635	2	489	483
Q2 pre-RA (%)	61.1	58.2	2.9	2.4	.224	5	489	483
Q1 pre-RA (%)	60.4	57.8	2.6	2.4	.268	5	489	483

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Q0 (%)	60.4	59.6	0.8	2.7	.781	1	489	483
Employment or Unemployment Insurance receipt after RA								
Q1 (%)	61.6	63.4	−1.7	2.9	.556	−3	489	483
Q2 (%)	61.8	63.1	−1.3	3.0	.665	−2	489	483
Q3 (%)	63.7	64.4	−0.7	3.0	.817	−1	489	483
Q4 (%)	65.0	65.0	−0.0	3.0	.995	−0	489	483
Q5 (%)	67.2	67.5	−0.3	2.9	.914	−0	489	483
Q6 (%)	68.6	67.5	1.1	2.9	.706	2	489	483
Q7 (%)	71.1	71.0	0.1	2.9	.964	0	489	483
Q8 (%)	70.9	71.8	−0.9	2.9	.740	−1	489	483
Q9 (%)	73.3	73.3	−0.0	2.8	.989	−0	489	483
Q10 (%)	70.8	72.7	−1.9	2.9	.510	−3	489	483
Q11 (%)	73.5	74.7	−1.2	2.8	.657	−2	489	483
Q12 (%)	74.1	73.3	0.8	2.8	.763	1	489	483
Q13 (%)	72.7	73.3	−0.5	2.8	.847	−1	489	483
Q14 (%)	73.5	72.9	0.6	2.8	.822	1	489	483
Q15 (%)	75.4	72.0	3.4	2.8	.224	5	489	483
Q16 (%)	73.8	71.4	2.4	2.8	.406	3	489	483

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 16 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the Reboot NW full sample, Exhibit C.4-7 reports levels of aggregate measures of employment and earnings and impacts on these outcomes, at two years before random assignment (Q7 to Q4 pre-random assignment) and at three years after random assignment (Q9 to Q12). These results are discussed, but not shown, in Section 1.3 of the *Final Impact Report*.

Exhibit C.4-7: Levels of and Impacts on Earnings and Employment Two Years before Random Assignment versus Three Years after for the Full Sample, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
At Two Years before RA (Q7 pre-RA to Q4 pre-RA)								
Any employment (%)	73.0	76.4	−3.4	2.2	.114	−5	489	483
Average quarterly earnings ($)	7,664	7,275	388	525	.460	5	489	483
Average quarterly earnings, if any employment in this period ($)	*10,206*	*9,523*	*683*	*670*	*.308*	*7*	*349*	*369*
At Three Years after RA (Q9 to Q12)								
Any employment (%)	79.4	80.3	−0.9	2.5	.715	−1	489	483
Average quarterly earnings ($)	9,743	8,995	748	599	.212	8	489	483
Average quarterly earnings, if any employment in this period ($)	*12,306*	*11,197*	*1,109**	*644*	*.085*	*10*	*388*	*388*

KEY: Q=quarter; RA=random assignment.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 12 quarters after random assignment.
NOTES: All outcomes in this table are exploratory. Outcomes in italics apply to the subset of sample members who were ever employed during the given period (Q7 through Q4 pre-random assignment in the top panel, Q9 through Q12 in the bottom panel), and are thus non-experimental. All other outcomes apply to the full sample and impact estimates are experimental. Reported impact may not equal the difference

between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.4.2   Additional Results on Earnings and Employment for the Early Cohort, Reboot NW

This section provides additional detail on Reboot NW's impacts on earnings and employment for the early cohort. Exhibit C.4-8 reports detailed impacts on quarterly earnings through 4.75 years after random assignment (19 quarters). These results are plotted in Exhibit 3-16 in Section 3.4.2 of the *Final Impact Report*.

Exhibit C.4-8: Impacts on Quarterly Earnings for the Early Cohort, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter, Early Cohort								
Earnings in Q1 ($)	2,950	2,731	219	402	.586	8	341	336
Earnings in Q2 ($)	4,859	4,592	268	526	.611	6	341	336
Earnings in Q3 ($)	6,268	5,603	665	588	.259	12	341	336
Earnings in Q4 ($)	6,653	6,345	308	583	.598	5	341	336
Earnings in Q5 ($)	7,137	7,258	−121	721	.867	−2	341	336
Earnings in Q6 ($)	7,923	7,087	836	667	.211	12	341	336
Earnings in Q7 ($)	8,481	8,104	377	692	.586	5	341	336
Earnings in Q8 ($)	9,084	7,893	1,191*	707	.092	15	341	336
Earnings in Q9 ($)	10,344	8,729	1,614*	973	.097	18	341	336
Earnings in Q10 ($)	9,637	8,594	1,043	746	.162	12	341	336
Earnings in Q11 ($)	10,181	8,962	1,219	752	.106	14	341	336
Earnings in Q12 ($)	10,966	9,157	1,808**	781	.021	20	341	336
Earnings in Q13 ($)	10,435	9,403	1,032	822	.210	11	341	336
Earnings in Q14 ($)	10,638	9,136	1,501*	772	.052	16	341	336
Earnings in Q15 ($)	11,061	9,623	1,438	890	.107	15	341	336
Earnings in Q16 ($)	10,782	9,856	925	900	.304	9	341	336
Earnings in Q17 ($)	10,651	10,181	470	998	.638	5	341	336
Earnings in Q18 ($)	10,484	9,519	965	877	.271	10	341	336
Earnings in Q19 ($)	11,468	9,800	1,669*	950	.079	17	341	336

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 19 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For the Reboot NW early cohort, Exhibit C.4-9 reports detailed impacts on quarterly employment through 4.75 years after random assignment (19 quarters). These results are neither discussed nor shown in Section 3.4.2 of the *Final Impact Report*.

Exhibit C.4-9: Impacts on Quarterly Employment for the Early Cohort, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter, Early Cohort								
Employment in Q1 (%)	47.9	49.1	−1.2	3.8	.750	−2	341	336
Employment in Q2 (%)	55.1	57.4	−2.3	3.7	.531	−4	341	336

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment in Q3 (%)	60.3	61.9	−1.6	3.7	.674	−3	341	336
Employment in Q4 (%)	62.7	62.5	0.2	3.7	.954	0	341	336
Employment in Q5 (%)	64.4	66.4	−2.0	3.6	.582	−3	341	336
Employment in Q6 (%)	68.1	64.6	3.5	3.6	.331	5	341	336
Employment in Q7 (%)	70.3	68.2	2.1	3.5	.544	3	341	336
Employment in Q8 (%)	69.8	68.5	1.3	3.5	.706	2	341	336
Employment in Q9 (%)	72.1	69.0	3.1	3.5	.375	4	341	336
Employment in Q10 (%)	70.1	69.3	0.7	3.5	.833	1	341	336
Employment in Q11 (%)	72.3	72.3	0.0	3.4	.995	0	341	336
Employment in Q12 (%)	71.8	70.8	0.9	3.4	.783	1	341	336
Employment in Q13 (%)	69.4	70.5	−1.1	3.5	.751	−2	341	336
Employment in Q14 (%)	68.6	67.3	1.4	3.6	.697	2	341	336
Employment in Q15 (%)	68.7	66.7	2.1	3.6	.566	3	341	336
Employment in Q16 (%)	65.9	67.6	−1.7	3.6	.640	−2	341	336
Employment in Q17 (%)	62.8	67.9	−5.1	3.6	.161	−8	341	336
Employment in Q18 (%)	60.7	63.7	−3.0	3.7	.418	−5	341	336
Employment in Q19 (%)	61.1	62.2	−1.1	3.7	.771	−2	341	336

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 19 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.4.3   Results for the Subgroup Analysis, Reboot NW

This section reports the results of the subgroup analysis for the Reboot NW full sample. Exhibit C.4-10 reports differential impacts by baseline education, age, employment status, and gender for the confirmatory outcome, the secondary outcome, and the exploratory outcome average quarterly earnings three to four years after random assignment (Q9-Q16). Results for the confirmatory and secondary outcomes are discussed, but not shown, in Section 3.4.3 of the *Final Impact Report*. Results for the exploratory outcome are neither discussed nor shown in the report.

For each outcome, Exhibit C.4-10 provides three rows. The first row reports the impact on that outcome for the first group within a given subgroup category (e.g., less than a bachelor's degree in the education subgroup analysis); the second row reports the impact on that outcome for the other group (e.g., bachelor's degree or more). The third row reports the differential impact. The evaluation focuses on the differential impact and on whether there is clear evidence of a positive impact of the Reboot NW program for at least one of the two groups for each category.

Exhibit C.4-10: Subgroup Analysis Differential Impacts, Reboot NW

	Sample Size	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value
Education						
Average Quarterly Earnings in Q5-Q10 ($)						
Less than bachelor's degree	462	7,074	6,406	668	560	.233
Bachelor's degree or more	510	9,822	9,887	−65	891	.942
Difference				−733	1,063	.491
Any Employment in Q5-Q10 (%)						

	Sample Size	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value
Less than bachelor's degree	462	86	82	4	3	.221
Bachelor's degree or more	510	81	82	−1	3	.725
Difference				−5	5	.269
Average Quarterly Earnings in Q9-Q16 ($)						
Less than bachelor's degree	462	7,928	7,355	573	655	.382
Bachelor's degree or more	510	11,700	10,877	823	977	.400
Difference				250	1,180	.832
Age						
Average Quarterly Earnings in Q5-Q10 ($)						
Younger than 49	593	8,636	8,444	191	653	.769
49 or older	379	8,435	8,010	425	915	.643
Difference				233	1,126	.836
Any Employment in Q5-Q10 (%)						
Younger than 49	593	85	84	1	3	.714
49 or older	379	81	79	2	4	.672
Difference				1	5	.899
Average Quarterly Earnings in Q9-Q16 ($)						
Younger than 49	593	10,463	9,422	1,041	749	.165
49 or older	379	9,150	8,970	179	995	.857
Difference				−861	1,248	.490
Employment Status						
Average Quarterly Earnings in Q5-Q10 ($)						
Not long-term unemployed	291	6,104	5,611	493	855	.564
Long-term unemployed	681	9,531	9,338	193	673	.774
Difference				−299	1,097	.785
Any Employment in Q5-Q10 (%)						
Not long-term unemployed	291	71	74	−3	5	.535
Long-term unemployed	681	89	85	3	3	.202
Difference				7	6	.263
Average Quarterly Earnings in Q9-Q16 ($)						
Not long-term unemployed	291	7,200	6,602	598	962	.534
Long-term unemployed	681	11,050	10,301	749	750	.318
Difference				151	1,223	.902
Gender						
Average Quarterly Earnings in Q5-Q10 ($)						
Women	229	9,444	8,026	1,419	1,279	.268
Men	743	8,272	8,337	−65	581	.911
Difference				−1,483	1,412	.294
Any Employment in Q5-Q10 (%)						
Women	229	84	77	6	5	.243
Men	743	83	84	−0	3	.967
Difference				−6	6	.292
Average Quarterly Earnings in Q9-Q16 ($)						
Women	229	10,147	9,083	1,064	1,362	.435
Men	743	9,876	9,282	595	664	.371
Difference				−469	1,520	.758

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 16 quarters after random assignment.

NOTES: All outcomes in this table are exploratory. The subgroup analysis by employment status compares impacts for those with positive earnings in any of those four quarters ("not long-term unemployed") versus those with no earnings in the four quarters before the quarter of random assignment ("long-term unemployed"). Reported impact may not equal the difference between the reported program and control group

means because of rounding. The total sample of 972 includes 489 program group and 483 control group members.
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

C.5   Estimates of Treatment on the Treated Impact

The results reported in Sections C.1 through C.4 above report the standard random assignment estimator—the impact of workers being *offered* training through the RTW grantee program. This impact is sometimes called the "intention to treat" (ITT) effect. The estimates reflect the impact of the program applicant being *offered* the training, whether or not they start or complete the training.

For some purposes, it is also useful to know the impact of actually *receiving* the training, sometimes called the "treatment on the treated" (TOT) effect. This section reports the TOT impact estimate on the confirmatory outcome (*average quarterly earnings from 1 year to 2.5 years after random assignment*) and the secondary outcome (*any employment during this same period*) for each grantee program. This evaluation estimates the TOT impact using a version of the Bloom correction (Bloom 1984).

This section reports two different TOT estimates. The first TOT estimate is calculated as:

$$\delta'_g = \delta_g / r_g \qquad \text{[Eq. C.1]}$$

where δ_g is the original (ITT) impact estimate, δ'_g is the corresponding TOT impact estimate, and r_g is the take-up rate for program group members at the given grantee; that is, the proportion of the program group that ever attended any of the grantee's structured employment-related activities. In the Bloom correction, the standard error for the TOT impact estimator is likewise calculated by dividing the standard error for the original impact estimate by the take-up rate, r_g. This first TOT estimate can thus be viewed as the **impact per program group member using any intervention services**.

The second TOT estimate is calculated in the same manner, but uses an alternate take-up rate to instead adjust for the *difference* in the take-up rate between members of the program group and control group in the given grantee study sample (Heckman et al. 2000). This TOT estimate can thus be viewed as the **impact per additional person induced to use services as a result of the intervention**. For most purposes, when similar services are available to the program and control groups, this second TOT estimate is more appropriate.

For each of the four RTW programs, Exhibit C.5-1 reports the take-up rates used to calculate the TOT estimates. The take up rate is measured based on responses to questions about services received on the evaluation's 18-month follow-up survey.[25] The "Program Group Take-up Rate" column of Exhibit C.5-1 is used as r_g for the first TOT estimator. The "Program/Control Take-up Rate Difference" column is used as r_g for the second TOT estimator.

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[25] For more detail on the follow-up survey, see Appendix Section B.2.2 of the *Interim Appendix* (Herr et al. 2022).

Exhibit C.5-1: Take-up Rates for Calculating Treatment on the Treated (TOT) Estimators

	Program Group Take-up Rate	Control Group Take-up Rate	Program/Control Take-up Rate Difference
Ever Attended Any Structured Employment-Related Activity (%)			
MTC	75.1	44.2	30.9
JVS programs (adjusted)	89.5	16.3	73.2
FLH	58.8	46.2	12.5
Reboot NW	89.1	70.5	18.5

SOURCE AND FOLLOW-UP PERIOD: 18-month follow-up survey; as of 18 months after random assignment.
NOTES: Program and control group take-up rates, measured as the self-reported proportion who ever attended any structured employment-related activity, are as reported in the *Interim Appendix* (Herr et al. 2022): Exhibit F.2-1 (MTC); Exhibit G.2-1 (JVS programs) using the value that adjusts for the survey response issue discussed in the opening of Appendix G; Exhibit H.2-1 (FLH), and Exhibit I.2-1 (Reboot NW). The values reported here, in the "Program Group Take-up Rate" and "Control Group Take-up Rate" columns, reflect the "Program Group Mean" and "Control Group Mean" columns, respectively, in the given *Interim Appendix* exhibit. The values reported here in the "Program/Control Take-up Rate Difference" column reflect the "Impact (Difference)" column in the given *Interim Appendix* exhibit.

For each of the four programs, Exhibit C.5-2 reports TOT impact estimates for the confirmatory and secondary outcomes. These TOT estimates are calculated as in Equation C.1, using the take-up rates reported in Exhibit C.5-1. The first pair of columns in Exhibit C.5-2 reports the original impact estimates, which reflect the ITT impact estimate. The second pair of columns reports the TOT impact estimates after adjusting for the program group take-up rate. The third pair of columns reports the TOT impact estimates after adjusting for the difference in the take-up rate between the program and control groups. As is standard in such TOT analyses, the impact estimates increase but statistical significance does not change.

Exhibit C.5-2: Treatment on the Treated Impact Estimates on Earnings and Employment

	Original (ITT) Estimator		TOT Estimator Correcting for Program Group Take-up Rate		TOT Estimator Correcting for Program/Control Group Take-up Rate Difference	
	Impact Estimate	Standard Error	Impact Estimate	Standard Error	Impact Estimate	Standard Error
Average Quarterly Earnings in Q5-Q10 ($)						
MTC	−1,065**	540	−1,418**	719	−3,447**	1,748
JVS programs	503	672	562	751	687	918
FLH	−43	523	−73	889	−341	4,151
Reboot NW	282	533	316	598	1,516	2,866
Any Employment in Q5-Q10 (%)						
MTC	1.2	2.3	1.6	3.1	3.9	4.7
JVS programs	0.8	2.4	0.9	2.7	1.1	3.3
FLH	0.6	3.0	1.0	5.1	4.8	23.8
Reboot NW	1.3	2.4	1.5	2.7	7.0	12.9

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 10 quarters after random assignment.

NOTES: Original impact estimates for average quarterly earnings in Q5 through Q10 and any employment during Q5 through Q10 as reported in Exhibit 3-1 (MTC), Exhibit 3-5 (JVS programs), Exhibit 3-9 (FLH), and Exhibit 3-13 (Reboot NW) in the *Final Impact Report* (Klerman, Herr, and Martinson 2022).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

As reported here and in Chapter 3 of the *Final Impact Report*, there are no favorable and statistically significant ITT impacts. Similarly, there are no favorable and statistically significant TOT impacts (using either TOT concept).

C.6 Selected Results Considering the Grantees Jointly

As reported in Sections 3.1 to 3.4 of the *Final Impact Report*, the evaluation's main analyses and strategy for adjusting for multiple comparisons consider each grantee separately. This section also reports the results of three approaches to considering the estimates for the four grantee programs together for the confirmatory outcome and secondary outcome for the *Final Impact Report*. For technical discussion of the methods used in this section, see Appendix Sections A.2.3 and A.4 of the *Interim Appendix* (Herr et al. 2022).

Section C.6.1 reports the estimated impacts for all four grantees together, making the appropriate corrections for multiple comparisons, to assess which grantee shows evidence of effectiveness. **Section C.6.2** reports more detail on the pooled estimates discussed in Section 3.5 of the *Final Impact Report*, which assess the average impact of the four grantee programs included in the evaluation. **Section C.6.3** tests for differential impacts across the four programs, to assess whether one program had more favorable impacts than another, for any pair of the four programs included.

C.6.1 Evidence of Any Impact

The results reported in this section assess whether there is evidence of impacts on the confirmatory and secondary outcomes for the four RTW programs when considering the four programs together. As discussed in Appendix Section A.4, assessing impacts across multiple programs raises a "multiple comparisons" problem. As the number of impacts estimated increases, the potential grows for at least one

false positive result to occur—that is, detecting an impact even when the program did not have an effect (Schochet, 2009).

For instance, suppose the evaluation deemed an RTW program effective if there were less than a 5 percent chance that the observed impact on a grantee-specific confirmatory outcome would result due to chance ($p < .05$). Because this evaluation presents results for four grantee programs, even if the true impact on the confirmatory outcome were zero for all four RTW programs, the chance that the evaluation would (spuriously) detect an impact on at least one of the four confirmatory outcomes is not 5 percent but nearly 20 percent.[26]

For each program's confirmatory outcome and secondary outcome, the evaluation therefore uses the Bonferroni-Holm correction (Holm, 1979) to compute adjusted p-values corresponding to the familywise error rate. Significance tests then compare these adjusted p-values to the threshold of 5 percent (or 10 percent, or 1 percent). This stricter test for significance assesses whether, considering the four grantee programs *together*, there is evidence that any of them was effective.

For the confirmatory and secondary outcomes, Exhibit C.6-1 reports the impact estimates and their statistical significance levels as reported in Sections 3.1.1, 3.2.1, 3.3.1, and 3.4.1 of the *Final Impact Report*. The exhibit also includes statistical significance levels based on the Bonferroni-Holm familywise error test to assess the impacts for the four programs taken together.

Exhibit C.6-1: Summary of Estimated Impacts on the Confirmatory and Secondary Outcomes, by Program and Pooled

Outcome	MTC Impact	SG	B-H	JVS RTW Impact	SG	B-H	FLH Impact	SG	B-H	Reboot NW Impact	SG	B-H	Pooled Impact	SE
Average quarterly earnings in Q5-Q10 ($)	−1,065	**		503			−43			282			−81	285
Any employment in Q5-Q10 (%)	1.2			0.9			0.6			1.3			1.0	1.3

KEY: B-H=Bonferroni-Holm; Q=quarter; SE=standard error; SG=single grantee.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 10 quarters after random assignment.
NOTES: **Confirmatory outcome is bolded and italicized; secondary outcome is bolded.** See Exhibits 3-1, 3-5, 3-9, and 3-13 in the *Final Impact Report* for the single grantee test results and sample sizes.
Statistical significance based on two-sided hypothesis tests. Single grantee test and pooled test significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. Bonferroni-Holm familywise error test significance levels are as follows: ### = 1 percent; ## = 5 percent; # = 10 percent.

Considering the four programs together, the evaluation finds no evidence of impacts either on *average quarterly earnings from 1 year to 2.5 years after random assignment (Q5-Q10),* the confirmatory outcome; or on *any employment in this same period*, the secondary outcome. In particular, the program-specific analysis found evidence that MTC had a negative impact on average quarterly earnings in this period; however, when the four program impacts are considered together, the negative impact is no longer statistically significant.

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[26] Formally, the probability of at least one spuriously significant impact is 18.5 percent: $p = .185 = 1 − (1 − .05)^4$. Namely, if the probability of an error is 5 percent for *each* of the four grantees, that means the chance of *avoiding* an error is 95 percent for each, $(1 − .05)$ in this calculation. Multiplying this per-grantee chance of avoiding an error to the fourth power because it applies at each of the four grantees, the probability of avoiding an error *across all four grantees* is 81.5 percent ($.815 = (1 − .05)^4$). Thus, the chance of *at least one error occurring across all four grantees* is 18.5 percent ($1 − .815$) when the chance of an error occurring at *each grantee* is only 5 percent.

This result is not surprising. Making a multiple comparisons correction leads to less evidence of impact. At best, weak evidence stays weak; often weak evidence disappears. In this particular case, considered together, the negative impact detected for MTC disappears.

C.6.2 Impact of the Funding Stream

As discussed in Section 3.5 of the *Final Impact Report*, all four grantee programs included in the evaluation were designed in response to the RTW *Solicitation for Grant Applications* (DOL/ETA 2014). This section therefore considers pooled estimates of the average impact of the four programs, to provide an estimate of the average impact across all four as a summary measure of the impact of the RTW grant funding stream as a whole. Because this estimate pools the four grantee-specific study samples into one, larger sample, the impact is more precisely estimated than for the four programs individually.

The final two columns of Exhibit C.6-1 above report the pooled impact estimate for the four programs together, and the corresponding standard error. Based on these pooled results, there is no evidence that the RTW grantee programs had a positive impact on average quarterly earnings or on employment from 1 year to 2.5 years after random assignment.

C.6.3 Pairwise Tests

This section reports pairwise tests across each pair of results for the four grantee programs to assess whether one program had more favorable impacts than another. Exhibit C.6-2 presents pairwise tests (i.e., for pairs of grantees) for the confirmatory and secondary outcomes. These tests are exploratory, so there is no correction for multiple comparisons. Given the large number of pairwise tests, the apparently statistically significant differences may be spurious.

Exhibit C.6-2: Pairwise Tests of Impacts on the Confirmatory and Secondary Outcomes, across Programs

| Outcome | [A] | | | | [B] | | | [C] | | [D] |
	MTC	JVS	FLH	Reboot NW	MTC = JVS	MTC = FLH	MTC = Reboot NW	JVS = FLH	JVS = Reboot NW	FLH = Reboot NW
Average quarterly earnings Q5-Q10 ($)	−1,065**	503	−43	282	*		*			
Ever employed Q5-Q10 (%)	1.2	0.8	0.6	1.3						

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 10 quarters after random assignment.
NOTES: *Confirmatory outcome is bolded and italicized*; **secondary outcome is bolded.** See Exhibits 3-1, 3-5, 3-9, and 3-13 in the *Final Impact Report* for the single grantee test results, sample sizes, and standard errors.
Statistical significance for impact estimates (Panel A) based on two-sided hypothesis tests. Statistical significance for pairwise testing (Panels B, C, and D) based on two-sided hypothesis t-tests. Significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

In Exhibit C.6-2, Panel A repeats the program-specific impact estimates reported in Sections 3.1 through 3.4 of the *Final Impact Report*; only MTC's impact was significant. Panel B presents evidence on whether the impact for the MTC program equals the impact for the JVS programs, for the FLH program, or for the Reboot NW program. Panel C presents equivalent evidence for the remaining pairwise tests for the JVS programs: versus FLH and versus Reboot NW. Panel D reports the last pairwise test, comparing the impact of FLH versus Reboot NW.

As evident in Exhibit C.6-2, there is weak evidence that MTC's negative impact on *average quarterly earnings from 1 year to 2.5 years after random assignment (Q5-Q10)* is statistically different from the impact of the JVS programs and of Reboot NW.[27] With these two exceptions, there is no evidence that the impacts on earnings and employment varied across the four RTW programs included in the evaluation.

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[27] The estimated impact of MTC on average quarterly earnings for Q5-Q10 is statistically significantly different from the estimated impact of the JVS programs on average quarterly earnings at the 10 percent level ($p = .069$). The estimated impact of MTC on average quarterly earnings is statistically significantly different from the estimated impact of Reboot NW on average quarterly earnings at the 10 percent level ($p = .076$).

Appendix D: Impacts before and during the COVID-19 Pandemic

This study's confirmatory and secondary outcomes consider earnings and employment from 1 year to 2.5 years after random assignment (Q5-Q10). For most of the sample, the COVID-19 pandemic arrived after this period (i.e., Q11 or later). Specifically, the percentage of each grantee's study sample whose confirmatory outcome includes the period affected by COVID was

- 25 percent for AAWDC (MTC);

- 24 percent for JVS;

- 23 percent for RochesterWorks! (FLH); and

- 8 percent for WSI (Reboot NW).

Given that the confirmatory and secondary outcomes also include earlier quarters, COVID has little effect on the levels of these outcomes. The main analysis presented in the *Final Impact Report* therefore does not specifically examine how the COVID-19 pandemic might have affected the impacts of the RTW programs on these two outcomes.

In contrast, for later quarters (i.e., past Q10), an increasing share of the study samples reached the given quarter after the emergence of COVID-19 (see Exhibit D.0-1 below). This appendix therefore presents separate pre- and during-COVID estimates of program impacts on quarterly earnings and employment, and tests for differences in the estimated impacts for these later quarters.

These analyses are potentially important because if the COVID-19 pandemic influenced program impacts, then these influences could affect estimated impacts at different grantee programs to varying degrees. To the extent that the RTW programs succeeded in increasing employment in targeted occupations and such occupations were relatively resistant to the pandemic-related downturn, program group members might fare considerably better than control group members.

Overall, the analysis detects little evidence of a difference in the impacts of any of the RTW programs *before* compared to *during* COVID. For that reason, these analyses are not discussed in the *Final Impact Report*. Note, however, that small sample sizes imply that only quite large differences in impacts could be detected.

This appendix first explains the approach for examining the extent to which the pandemic affected program impacts (**Section D.1**). Then it presents impacts separately for each grantee program before and during COVID, and compares the impacts for the two time periods. **Sections D.2 through D.5** provide the results for each grantee program separately. These sections share a common structure. First, each section reports the comparison of impacts on quarterly earnings and employment before compared to during COVID. Then each section reports the details of those impact estimates, separately for those study members for whom the given quarter occurred before COVID, and for those for whom the given quarter occurred during COVID.

Exhibit D.0-1: Sample Sizes Pre- Versus During COVID and Share of Sample That Is During-COVID, by Grantee Program

Quarter	AAWDC (MTC)			JVS Programs			RochesterWorks! (FLH)			WSI (Reboot NW)		
	Pre-COVID Sample Size	During-COVID Sample Size	During-COVID Share of Full Sample	Pre-COVID Sample Size	During-COVID Sample Size	During-COVID Share of Full Sample	Pre-COVID Sample Size	During-COVID Sample Size	During-COVID Share of Full Sample	Pre-COVID Sample Size	During-COVID Sample Size	During-COVID Share of Full Sample
Q10	773	249	24%	746	220	23%	–	–	–	–	–	–
Q11	643	379	37%	614	352	36%	407	188	32%	797	175	18%
Q12	549	473	46%	468	498	52%	351	244	41%	677	295	30%
Q13	483	539	53%	359	607	63%	302	293	49%	568	404	42%
Q14	378	644	63%	296	670	69%	248	325	55%	494	478	49%
Q15	301	621	61%	241	725	75%	181	359	60%	381	591	61%
Q16	208	565	55%	–	–	–	–	–	–	261	711	73%
Q17	–	–	–	–	–	–	–	–	–	179	720	74%

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; through 17 quarters after random assignment.

NOTES: In each panel: The first column reports the count of sample members who experienced the given quarter (e.g., Q11) BEFORE the onset of the COVID-19 pandemic (i.e., in the first quarter of 2020 or earlier). The second column reports the count of sample members who experienced the given quarter AFTER the onset of the COVID-19 pandemic (2020 Q2 or later). The third column reports what percentage of the grantee's full sample experienced the given quarter during COVID. The denominators for these percentages are the full sample sizes for each grantee: AAWDC = 1,022, JVS = 965, RochesterWorks! = 595, WSI = 972. The evaluation only report results comparing program impacts before versus during COVID for quarters with at least 150 observations in both the pre-COVID and during-COVID periods. Cells marked with "-" indicate quarters that were not analyzed for the given program because of insufficient sample sizes.

D.1   Background and Analytic Approach

Starting in March 2020, a global outbreak of the coronavirus SARS-CoV-2 began to spread rapidly in the United States. The resulting pandemic (COVID-19) triggered a massive economic downturn. By April 2020, the U.S. unemployment rate rose to 14.8 percent, a level not seen since the Great Depression, and remained above 6 percent through April 2021.[28]

In the *Final Impact Report* (Klerman, Herr, and Martinson 2022), Exhibit 1-2 in Chapter 1 shows the spike in local unemployment rates brought on by COVID for each of the four grantee programs. Its Chapter 3 analyzes quarterly employment and earnings, as measured in the National Directory of New Hires (NDNH), through late 2021. For this analysis, the evaluation assumes the COVID-19 pandemic started at the beginning of the second quarter of 2020 (i.e., April 2020). Thus, the follow-up period for the RTW impact study includes several quarters that occurred after the arrival of the pandemic. However, because random assignment continued over several years and varied across programs (see Exhibit 2-1 of the *Final Impact Report*), the pre-pandemic versus during-pandemic split of observations for any follow-up quarter varies across grantees.

The pre-specified confirmatory outcome and secondary outcomes for the RTW evaluation consider the period 1 year to 2.5 years after random assignment (Q5-Q10). For most, but not all of the study sample, this 2.5-year follow-up period ended before the arrival of the pandemic (see Exhibit D.0-1 above). The RTW Evaluation also examines a longer follow-up through 3 to 4 years after random assignment. As the follow-up period lengthens, more of the sample is during the pandemic.

This Appendix D estimates the pre-COVID versus during-COVID difference in impact (and whether that difference is statistically different from zero). For some early follow-up quarters, the sample sizes for the during-COVID period are small. Conversely, for some late follow-up quarters, the pre-COVID sample sizes also are small.

To lessen the effect of small sample sizes, the tables that follow report results only for quarters with at least 150 observations in both the pre-COVID and during-COVID periods. Thus, the set of quarters analyzed varies by grantee. Even with that condition, samples are small, so estimates are often imprecise. Specifically, impacts of more than $2,500 per quarter for earnings and more than 10 percentage points for employment could not be detected.[29]

D.2   Results for Maryland Tech Connection

This section presents the results of the comparison of impacts before compared to during COVID for AAWDC's MTC program. Exhibit D.2-1 reports the comparison of impacts on quarterly earnings and employment from 2.5 years after random assignment (Q10) through 4 years after random assignment (Q16).

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[28] U.S. Bureau of Labor Statistics, "Data Tools" (https://data.bls.gov/timeseries/LNS14000000), reporting the U.S. monthly unemployment rate (results for 2012 through 2022, accessed on May 5, 2022).

[29] Given the standard errors reported in the exhibits that follow for each grantee program, these figures reflect an approximate 95 percent confidence interval (the standard error multiplied by 1.96).

Exhibit D.2-1: Difference in Impacts on Quarterly Earnings and Employment before/during COVID, MTC

Outcome	Impact Before COVID	Impact During COVID	Difference (Impact)	Standard Error	p-Value	Sample Size Before COVID	Sample Size During COVID
Earnings by Quarter							
Earnings in Q10 ($)	152	−1,452	-1,605	1,852	.386	773	249
Earnings in Q11 ($)	224	564	339	1,552	.827	643	379
Earnings in Q12 ($)	202	−1,343	-1,545	1,510	.306	549	473
Earnings in Q13 ($)	812	−953	-1,764	1,483	.234	483	539
Earnings in Q14 ($)	548	575	27	1,456	.985	378	644
Earnings in Q15 ($)	807	−419	-1,226	1,502	.414	301	621
Earnings in Q16 ($)	728	−21	-749	1,685	.657	208	565
Employment by Quarter							
Employment in Q10 (%)	4.3	−1.2	-5.5	6.8	.418	773	249
Employment in Q11 (%)	3.3	6.1	2.8	6.0	.642	643	379
Employment in Q12 (%)	1.7	0.3	-1.4	5.7	.799	549	473
Employment in Q13 (%)	2.1	−2.0	-4.1	5.8	.484	483	539
Employment in Q14 (%)	5.2	2.6	-2.6	6.0	.659	378	644
Employment in Q15 (%)	−1.3	0.4	1.8	6.6	.786	301	621
Employment in Q16 (%)	3.6	0.6	-3.0	7.6	.696	208	565

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 10 through 16 quarters after random assignment.
NOTES: Reported impact may not equal the difference between the impact before COVID and the impact during COVID because of rounding. Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

For each outcome, the first column of Exhibit D.2-1 reports the impact for that outcome in the period before COVID, estimated based on outcomes for sample members who reached the given quarter (e.g., Q10) before COVID emerged. The second column of Exhibit D.2-1 reports the impact for each quarterly outcome in the period during COVID, estimated based on outcomes for sample members who reached the given quarter during COVID (in the second quarter of 2020 or later). The next three columns of Exhibit D.2-1 report the results of the test for equality of impacts before compared to during COVID–the difference, its standard error, and the corresponding p-value. The last two columns report the sample size of study members on which the pre- and during-COVID impacts are estimated. As shown in Exhibit D.2-1, the study detects no evidence that MTC had different impacts before compared to during COVID.

The top panels of Exhibits D.2-2 and D.2-3 below provide details on the impact estimates for the pre-COVID period for earnings and employment, respectively. (Exhibits D.2-2 and D.2-3 have the same structure as the impact tables reported in Exhibit C (e.g., Exhibit C.1-1), testing for differences in outcomes between the program group and control group.) The bottom panels of Exhibits D.2-2 and D.2-3 provide details on the impact estimates for the during-COVID period for earnings and employment, respectively.

Exhibit D.2-2: Impacts on Quarterly Earnings before/during COVID, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter before COVID								
Earnings in Q10 ($)	8,735	8,583	152	666	.819	2	407	366
Earnings in Q11 ($)	9,151	8,927	224	850	.792	3	339	304
Earnings in Q12 ($)	8,803	8,601	202	794	.799	2	290	259
Earnings in Q13 ($)	8,933	8,122	812	837	.332	10	252	231
Earnings in Q14 ($)	8,711	8,162	548	940	.560	7	197	181
Earnings in Q15 ($)	9,239	8,432	807	1,102	.465	10	156	145
Earnings in Q16 ($)	8,936	8,208	728	1,372	.596	9	110	98
Earnings by Quarter during COVID								
Earnings in Q10 ($)	11,236	12,688	−1,452	1,728	.401	−11	129	120
Earnings in Q11 ($)	11,730	11,166	564	1,299	.665	5	197	182
Earnings in Q12 ($)	10,968	12,311	−1,343	1,284	.296	−11	246	227
Earnings in Q13 ($)	11,091	12,044	−953	1,224	.437	−8	284	255
Earnings in Q14 ($)	11,990	11,415	575	1,112	.605	5	339	305
Earnings in Q15 ($)	10,655	11,074	−419	1,021	.681	−4	329	292
Earnings in Q16 ($)	9,815	9,836	−21	979	.983	−0	297	268

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 10 through 16 quarters after random assignment.
NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Exhibit D.2-3: Impacts on Quarterly Employment before/during COVID, MTC

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter before COVID								
Employment in Q10 (%)	71.5	67.2	4.3	3.2	.183	6	407	366
Employment in Q11 (%)	71.1	67.8	3.3	3.6	.347	5	339	304
Employment in Q12 (%)	72.0	70.3	1.7	3.7	.644	2	290	259
Employment in Q13 (%)	70.9	68.8	2.1	4.1	.612	3	252	231
Employment in Q14 (%)	70.4	65.2	5.2	4.7	.262	8	197	181
Employment in Q15 (%)	66.9	68.3	−1.3	5.3	.801	−2	156	145
Employment in Q16 (%)	67.8	64.3	3.6	6.4	.581	6	110	98
Employment by Quarter during COVID								
Employment in Q10 (%)	65.5	66.7	−1.2	6.0	.841	−2	129	120
Employment in Q11 (%)	69.9	63.7	6.1	4.8	.205	10	197	182
Employment in Q12 (%)	66.4	66.1	0.3	4.3	.948	0	246	227
Employment in Q13 (%)	62.7	64.7	−2.0	4.1	.630	−3	284	255
Employment in Q14 (%)	66.5	63.9	2.6	3.7	.481	4	339	305
Employment in Q15 (%)	64.5	64.0	0.4	3.8	.910	1	329	292
Employment in Q16 (%)	61.4	60.8	0.6	4.1	.886	1	297	268

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 10 through 16 quarters after random assignment.
NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

D.3   Results for the JVS Programs

This section presents the results of the comparison of impacts before compared to during COVID for the JVS programs. Exhibit D.3-1 reports the comparison of impacts on quarterly earnings and employment from 2.5 years after random assignment (Q10) through 3.75 years after random assignment (Q15). Exhibits D.3-2 and D.3-3 below report the details on the impact estimates for the pre-COVID period (top panel) and during-COVID period (bottom panel) for earnings and employment, respectively.

As shown in Exhibit D.3-1, the study detects no evidence that the JVS programs had different impacts before compared to during COVID.

Exhibit D.3-1: Difference in Impacts on Quarterly Earnings and Employment before/during COVID, JVS Programs

Outcome	Impact Before COVID	Impact During COVID	Difference (Impact)	Standard Error	p-Value	Sample Size Before COVID	Sample Size During COVID
Earnings by Quarter							
Earnings in Q10 ($)	−298	3,379	3,677*	2,038	0.071	746	220
Earnings in Q11 ($)	90	843	753	1,736	0.665	614	352
Earnings in Q12 ($)	−550	1,080	1,630	1,660	0.326	468	498
Earnings in Q13 ($)	−502	1,019	1,521	1,819	0.403	359	607
Earnings in Q14 ($)	−963	1,886	2,848	1,975	0.149	296	670
Earnings in Q15 ($)	−2,071	2,403	4,474**	2,112	0.034	241	725
Employment by Quarter							
Employment in Q10 (%)	−1.9	−1.3	0.6	7.5	0.942	746	220
Employment in Q11 (%)	−2.4	−5.3	-2.9	6.4	0.650	614	352
Employment in Q12 (%)	−0.4	−3.4	-3.0	6.1	0.622	468	498
Employment in Q13 (%)	2.3	−3.3	-5.6	6.3	0.376	359	607
Employment in Q14 (%)	1.3	−5.8	-7.1	6.6	0.284	296	670
Employment in Q15 (%)	0.2	0.3	0.1	7.1	0.992	241	725

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 10 through 15 quarters after random assignment.
NOTES: Reported impact may not equal the difference between the impact before COVID and the impact during COVID because of rounding. Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Exhibit D.3-2: Impacts on Quarterly Earnings before/during COVID, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter before COVID								
Earnings in Q10 ($)	10,008	10,306	−298	878	.735	−3	378	368
Earnings in Q11 ($)	10,824	10,734	90	997	.928	1	310	304
Earnings in Q12 ($)	10,463	11,013	−550	1,119	.623	−5	237	231
Earnings in Q13 ($)	10,306	10,808	−502	1,364	.713	−5	182	177
Earnings in Q14 ($)	9,409	10,372	−963	1,514	.525	−9	149	147
Earnings in Q15 ($)	9,256	11,327	−2,071	1,680	.219	−18	122	119
Earnings by Quarter during COVID								
Earnings in Q10 ($)	13,164	9,785	3,379*	1,840	.068	35	114	106
Earnings in Q11 ($)	11,060	10,217	843	1,421	.553	8	182	170
Earnings in Q12 ($)	11,385	10,305	1,080	1,225	.378	10	255	243
Earnings in Q13 ($)	12,040	11,021	1,019	1,203	.398	9	310	297

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings in Q14 ($)	13,855	11,969	1,886	1,268	.138	16	343	327
Earnings in Q15 ($)	14,567	12,164	2,403*	1,279	.061	20	370	355

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 10 through 15 quarters after random assignment.
NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Exhibit D.3-3: Impacts on Quarterly Employment before/during COVID, JVS Programs

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter before COVID								
Employment in Q10 (%)	63.9	65.8	−1.9	3.4	.581	−3	378	368
Employment in Q11 (%)	64.4	66.8	−2.4	3.7	.520	−4	310	304
Employment in Q12 (%)	64.5	64.9	−0.4	4.2	.918	−1	237	231
Employment in Q13 (%)	60.5	58.2	2.3	5.0	.648	4	182	177
Employment in Q14 (%)	59.8	58.5	1.3	5.5	.815	2	149	147
Employment in Q15 (%)	60.7	60.5	0.2	6.1	.974	0	122	119
Employment by Quarter during COVID								
Employment in Q10 (%)	60.9	62.3	−1.3	6.6	.842	−2	114	106
Employment in Q11 (%)	53.5	58.8	−5.3	5.2	.310	−9	182	170
Employment in Q12 (%)	53.4	56.8	−3.4	4.4	.435	−6	255	243
Employment in Q13 (%)	56.9	60.3	−3.3	3.9	.393	−6	310	297
Employment in Q14 (%)	56.9	62.7	−5.8	3.7	.119	−9	343	327
Employment in Q15 (%)	59.4	59.2	0.3	3.6	.939	0	370	355

KEY: Q=quarter.
SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 10 through 15 quarters after random assignment.
NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).
Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

D.4 Results for Finger Lakes Hired

This section presents the results of the comparison of impacts before compared to during COVID for RochesterWorks!'s FLH program. Exhibit D.4-1 reports the comparison of impacts on quarterly earnings and employment from 2.75 years after random assignment (Q11) through 3.75 years after random assignment (Q15). Exhibits D.4-2 and D.4-3 below report the details on the impact estimates for the pre-COVID period (top panel) and during-COVID period (bottom panel) for earnings and employment, respectively.

As shown in Exhibit D.4-1, the study detects no evidence that FLH had different impacts before compared to during COVID.

Exhibit D.4-1: Difference in Impacts on Quarterly Earnings and Employment before/during COVID, FLH

Outcome	Impact Before COVID	Impact During COVID	Difference (Impact)	Standard Error	p-Value	Sample Size Before COVID	Sample Size During COVID
Earnings by Quarter							
Earnings in Q11 ($)	192	−1,232	-1,425	1,451	.326	407	188
Earnings in Q12 ($)	181	−605	-785	1,373	.567	351	244
Earnings in Q13 ($)	79	−342	-421	1,326	.751	302	293
Earnings in Q14 ($)	215	−836	-1,052	1,354	.437	248	325
Earnings in Q15 ($)	449	−8	-457	1,512	.762	181	359
Employment by Quarter							
Employment in Q11 (%)	1.3	−10.8	-12.2	8.1	.133	407	188
Employment in Q12 (%)	−1.3	−8.5	-7.1	7.4	.335	351	244
Employment in Q13 (%)	−2.7	−5.2	-2.5	7.5	.740	302	293
Employment in Q14 (%)	2.9	−5.5	-8.3	7.7	.282	248	325
Employment in Q15 (%)	−1.5	3.5	5.0	8.1	.539	181	359

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 11 through 15 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the impact before COVID and the impact during COVID because of rounding.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Exhibit D.4-2: Impacts on Quarterly Earnings before/during COVID, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter before COVID								
Earnings in Q11 ($)	6,937	6,744	192	773	.804	3	206	201
Earnings in Q12 ($)	6,636	6,455	181	774	.815	3	178	173
Earnings in Q13 ($)	6,991	6,912	79	890	.929	1	154	148
Earnings in Q14 ($)	6,912	6,696	215	942	.819	3	126	122
Earnings in Q15 ($)	7,879	7,429	449	1,205	.710	6	92	89
Earnings by Quarter during COVID								
Earnings in Q11 ($)	7,487	8,720	−1,232	1,228	.317	−14	94	94
Earnings in Q12 ($)	7,820	8,424	−605	1,134	.594	−7	122	122
Earnings in Q13 ($)	7,920	8,262	−342	983	.728	−4	146	147
Earnings in Q14 ($)	7,379	8,215	−836	972	.390	−10	162	163
Earnings in Q15 ($)	7,548	7,556	−8	913	.993	−0	180	179

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 11 through 15 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Exhibit D.4-3: Impacts on Quarterly Employment before/during COVID, FLH

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter before COVID								
Employment in Q11 (%)	74.0	72.6	1.3	4.3	.756	2	206	201
Employment in Q12 (%)	70.9	72.3	−1.3	4.8	.780	−2	178	173
Employment in Q13 (%)	70.3	73.0	−2.7	5.2	.598	−4	154	148
Employment in Q14 (%)	72.5	69.7	2.9	5.7	.618	4	126	122
Employment in Q15 (%)	74.9	76.4	−1.5	6.3	.818	−2	92	89
Employment by Quarter during COVID								
Employment in Q11 (%)	59.4	70.2	−10.8	6.9	.116	−15	94	94
Employment in Q12 (%)	64.5	73.0	−8.5	5.7	.136	−12	122	122
Employment in Q13 (%)	61.5	66.7	−5.2	5.4	.335	−8	146	147
Employment in Q14 (%)	61.4	66.9	−5.5	5.2	.294	−8	162	163
Employment in Q15 (%)	64.9	61.5	3.5	5.0	.485	6	180	179

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 11 through 15 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]). Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

D.5   Results for Reboot Northwest

This section presents the results of the comparison of impacts before compared to during COVID for Worksystems Inc.'s Reboot NW program. Exhibit D.5-1 below reports the comparison of impacts on quarterly earnings and employment from 2.75 years after random assignment (Q11) through 4.25 years after random assignment (Q17). Exhibits D.5-2 and D.5-3 below report the details on the impact estimates for the pre-COVID period (top panel) and during-COVID period (bottom panel) for earnings and employment, respectively.

As shown in Exhibit D.5-1, the study detects no evidence that Reboot NW had different impacts before compared to during COVID.

Exhibit D.5-1: Difference in Impacts on Quarterly Earnings and Employment before/during COVID, Reboot NW

Outcome	Impact Before COVID	Impact During COVID	Difference (Impact)	Standard Error	p-Value	Sample Size Before COVID	Sample Size During COVID
Earnings by Quarter							
Earnings in Q11 ($)	636	−241	-877	1,731	.612	797	175
Earnings in Q12 ($)	1,808	300	-1,509	1,430	.292	677	295
Earnings in Q13 ($)	503	1,318	814	1,424	.568	568	404
Earnings in Q14 ($)	1,392	504	-887	1,308	.497	494	478
Earnings in Q15 ($)	1,804	626	-1,179	1,494	.430	381	591
Earnings in Q16 ($)	1,911	−645	-2,555	1,650	.121	261	711
Earnings in Q17 ($)	497	−506	-1,003	1,844	.586	179	720
Employment by Quarter							
Employment in Q11 (%)	−1.5	−3.9	-2.5	8.0	.759	797	175
Employment in Q12 (%)	0.9	2.6	1.6	6.5	.800	677	295
Employment in Q13 (%)	−2.4	4.3	6.7	6.2	.279	568	404
Employment in Q14 (%)	−0.2	1.2	1.5	6.1	.810	494	478

Outcome	Impact Before COVID	Impact During COVID	Difference (Impact)	Standard Error	p-Value	Sample Size Before COVID	Sample Size During COVID
Employment in Q15 (%)	−1.3	5.2	6.5	6.1	.289	381	591
Employment in Q16 (%)	−0.6	1.2	1.8	6.5	.779	261	711
Employment in Q17 (%)	−6.9	−3.5	3.4	7.7	.656	179	720

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 11 through 17 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the impact before COVID and the impact during COVID because of rounding.

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Exhibit D.5-2: Impacts on Quarterly Earnings before/during COVID, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Earnings by Quarter before COVID								
Earnings in Q11 ($)	9,795	9,158	636	685	.353	7	401	396
Earnings in Q12 ($)	10,966	9,157	1,808**	781	.021	20	341	336
Earnings in Q13 ($)	10,174	9,670	503	911	.581	5	285	283
Earnings in Q14 ($)	10,713	9,321	1,392	899	.122	15	246	248
Earnings in Q15 ($)	11,312	9,508	1,804	1,171	.124	19	192	189
Earnings in Q16 ($)	11,868	9,957	1,911	1,381	.168	19	127	134
Earnings in Q17 ($)	10,278	9,781	497	1,546	.748	5	88	91
Earnings by Quarter during COVID								
Earnings in Q11 ($)	8,593	8,834	−241	1,590	.880	−3	88	87
Earnings in Q12 ($)	8,970	8,670	300	1,199	.803	3	148	147
Earnings in Q13 ($)	9,883	8,565	1,318	1,095	.230	15	204	200
Earnings in Q14 ($)	9,333	8,828	504	949	.596	6	243	235
Earnings in Q15 ($)	9,985	9,359	626	927	.500	7	297	294
Earnings in Q16 ($)	9,646	10,291	−645	903	.475	−6	362	349
Earnings in Q17 ($)	9,756	10,262	−506	1,004	.615	−5	363	357

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 11 through 17 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

Exhibit D.5-3: Impacts on Quarterly Employment before/during COVID, Reboot NW

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	p-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment by Quarter before COVID								
Employment in Q11 (%)	71.0	72.5	−1.5	3.1	.637	−2	401	396
Employment in Q12 (%)	71.8	70.8	0.9	3.4	.783	1	341	336
Employment in Q13 (%)	69.7	72.1	−2.4	3.8	.524	−3	285	283
Employment in Q14 (%)	71.1	71.4	−0.2	4.1	.952	−0	246	248
Employment in Q15 (%)	72.3	73.5	−1.3	4.6	.785	−2	192	189
Employment in Q16 (%)	75.5	76.1	−0.6	5.4	.912	−1	127	134
Employment in Q17 (%)	68.9	75.8	−6.9	6.8	.310	−9	88	91
Employment by Quarter during COVID								
Employment in Q11 (%)	60.4	64.4	−3.9	7.3	.593	−6	88	87
Employment in Q12 (%)	63.1	60.5	2.6	5.5	.638	4	148	147

Outcome	Program Group Mean	Control Group Mean	Impact (Difference)	Standard Error	*p*-Value	Relative Impact (%)	Program Sample Size	Control Sample Size
Employment in Q13 (%)	62.3	58.0	4.3	4.9	.382	7	204	200
Employment in Q14 (%)	58.2	57.0	1.2	4.5	.787	2	243	235
Employment in Q15 (%)	63.0	57.8	5.2	4.0	.193	9	297	294
Employment in Q16 (%)	62.3	61.0	1.2	3.6	.736	2	362	349
Employment in Q17 (%)	59.3	62.7	−3.5	3.6	.337	−6	363	357

KEY: Q=quarter.

SOURCE AND FOLLOW-UP PERIOD: National Directory of New Hires; from 11 through 15 quarters after random assignment.

NOTES: Reported impact may not equal the difference between the reported program and control group means because of rounding. "Relative impact" represents impacts as a percentage of the corresponding control group mean (i.e., 100 x [impact / control group mean]).

Statistical significance based on two-sided hypothesis tests; significance levels are as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

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