Providing Public Workforce Services to Job Seekers: Findings from a Nationally Representative Multi-Armed Randomized Controlled Trial*

Sheena McConnell, Peter Schochet, Dana Rotz,

Kenneth Fortson, Paul Burkander, Annalisa Mastri

June 2019

Abstract: We examine the effects of the Adult and Dislocated Worker programs, two of the largest employment service programs in the United States. Access to program-funded staff-assisted services, such as case management and employment counseling, increased earnings by between 7 and 20 percent over a three-year follow-up period; these benefits exceed program costs. However, access to training did not lead to any significant differences in earnings. These results are based on information on 28 randomly selected, nationally-representative sites and over 34,000 job-seekers randomly assigned to one of three study groups who could receive program-funded staff-assisted services, staff-assisted services and funding for training, or neither.

---

* All authors were affiliated with Mathematica at the time of this research. This work was funded by the Department of Labor (DOL), Employment and Training Administration (ETA), under Contract Number DOLJ081A20678. The contents of this publication do not necessarily reflect the views or policies of the Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement of the same by the U.S. Government.

This project was a joint venture of Mathematica, Social Policy Research Associates, MDRC, and the Corporation for a Skilled Workforce. This work would not have been possible without the dedication of Linda Rosenberg, Ron D'Amico, and Kate Dunham. We would also like to thank Eileen Pederson, Jonathan Simonetta, Jean Grossman, Jane Oates, Gerri Fiala, Mike Jones, Heidi Casta, Adele Gagliardi, Wayne Gordon, Dan Ryan, and the evaluation's peer review board (Burt Barnow, Gary Burtless, Scott Cheney, Virginia Hamilton, Rob Hollister, Richard Hobbie, Robert Moffitt, Peter Mueser, Demetra Nightingale, Robert Rector, and Jeff Smith) for valuable input and guidance throughout the project.

I. Introduction

The Adult and Dislocated Worker programs are among the largest employment and training initiatives in the United States. Funded by the U.S. Department of Labor (DOL), the programs aim to help job-seekers find meaningful employment by providing labor market information and resources on job search (core services), assistance from employment counselors (intensive services), and funding for training. Together, the programs currently reach about 6.5 million people annually at a combined cost of around $2 billion (DOL 2016a,b). Job seekers access program services at American Job Centers located throughout the nation.

Researchers have previously conducted evaluations of the Adult and Dislocated Worker programs using convenience samples of sites and non-experimental comparison group designs (for example, Hollenbeck et al. 2005; Heinrich et al. 2008, 2013; Hollenbeck and Huang 2008, 2014; Hollenbeck 2009; Andersson et al. 2013; Heinrich and Mueser 2014; Bendewald et al. 2016). These studies have produced mixed, and sometimes contradictory, results.

This study provides more rigorous and conclusive evidence on the impacts of these two large programs by using a nationally representative, experimental evaluation. Launched in 2008 by the Employment and Training Administration (ETA) within DOL, the study draws on information from 28 randomly selected local areas across 19 states, and more than 34,000 randomly assigned job-seekers. The study evaluates the Adult and Dislocated Worker programs as implemented from 2011 to 2014, when the programs were authorized by the Workforce Investment Act (WIA) of 1998. The programs were subsequently reauthorized under the Workforce Innovation and Opportunity Act (WIOA) of 2014; however, this reauthorization did not make major changes to either the services offered by the Adult and Dislocated Worker programs or the populations served.

Within each of 28 study areas, local staff randomly assigned nearly all individuals eligible to receive intensive services to one of three study groups. The first group could receive only core services. These basic services were required by WIA (and are currently required by WIOA) to be offered to all eligible job seekers. The second group could receive core and intensive services, including one-on-one assistance with career planning and searching for jobs. The final group—labeled the "full-service group"—could receive all services typically offered by the programs, including core, intensive, and training services. Individuals in all study groups could also access training and employment services available from other sources in their communities. About 88 percent of sample members were assigned to the full-service group to facilitate site recruitment and to minimize the extent to which the study disrupted normal program operations.

To estimate program effects in the three years after random assignment, we used outcome data derived from two rounds of surveys, and data from the National Directory of New Hires (NDNH), an administrative database of earnings reported to state unemployment insurance (UI) agencies. We estimated intention-to-treat (ITT) effects by comparing mean outcomes across the three study groups. These ITTs reflect the effectiveness of the offer of training and intensive services, both separately and together.

Overall, we find evidence that intensive services funded by the Adult and Dislocated Worker programs increased earnings in the three years after individuals became eligible for services. Throughout this period, individuals who could access intensive services through the programs earned about $3,000 to $7,000 more than those not able to use the services—a difference of about 7 to 20 percent of their earnings. Comparing these effects to those of other active labor market policies suggests the effects of intensive services provided by the Adult and Dislocated Worker programs are larger than typical (Card et al. 2017). Comparing these effects

to costs indicates the services produce positive net benefits for job-seekers, taxpayers, and society.

In contrast, the effects of offering all services, including training, compared to offering core and intensive services only, were smaller and statistically insignificant throughout the follow-up period. However, this null finding might reflect limited differences in the services received by the two study groups, rather than the effects of training *per se*.

The remainder of this paper proceeds as follows. In Section II, we summarize key features of the Adult and Dislocated Worker programs, and in Section III, we discuss the related literature. In Section IV, we further discuss the study's design, highlighting the details that allow us to produce estimates with both internal and external validity. Section V discusses the survey and administrative data for the study and Section VI discusses the analysis approach. In Section VII, we describe the different services received by job seekers in the study groups and in Section VIII we discuss the impacts of the Adult and Dislocated Worker programs on employment and earnings outcomes. Section IX concludes and discusses the policy implications of our findings.

II. The Adult and Dislocated Worker programs

The Adult and Dislocated Worker programs offer almost identical services, but each program has its own eligibility rules. The Adult program serves all individuals age 18 and older eligible to work in the United States, with low-income individuals having priority for most services. The Dislocated Worker program serves workers who have become unemployed due to local economic conditions.[1]

[1] Dislocated workers include those who (1) were terminated or laid off from a job, showed attachment to the workforce, and were unlikely to return to their previous occupation or industry; (2) were terminated or laid off as a result of a plant closure or substantial plant downsizing; (3) were self-employed and experiencing unemployment as a result of general economic conditions; or (4) were displaced homemakers, individuals who had provided unpaid services to family members in the home while depending on income of another family member but were no longer supported by that income.

Both adults and dislocated workers can access program services through American Job Centers (previously known as One-Stop Career Centers). Staff at these centers help workers to navigate the programs and determine what services they might be eligible to receive. Although the programs are federally funded, funds are allocated to states as grants based on a formula. States then funnel money to Local Workforce Investment Areas (local areas), which operate the American Job Centers. Local areas have discretion to determine the types of employment and training services offered.

Despite this discretion, local areas are mandated by law to provide three sets of services (Table 1). All individuals are eligible to receive core services, consisting mainly of labor market information and online tools to help workers plan their careers and find employment. Many individuals can also receive intensive services, which typically require more extensive or personalized assistance from job center staff. These services include assessments, workshops, career counseling, and referrals for other services. After receiving core and intensive services, some customers are also eligible for training services, provided mostly through vouchers that can be used to pay for tuition and fees at approved training programs. In addition, the Adult and Dislocated Worker programs may also offer some job seekers supportive services—such as assistance with expenses related to books, uniforms, tools, child care, and transportation.

The Adult and Dislocated Worker programs have provided these services for several decades.[2] The Job Training Partnership Act of 1982 (JTPA) first established the funding streams that would later become the Adult and Dislocated Worker programs as they exist today. At the time of this study, the programs were authorized by WIA, which made numerous changes to the programs as implemented under JTPA. In particular, the WIA legislation aimed to streamline

[2] For an overview of the history of US employment and training programs, see Barnow and Smith (2015).

services, provide services more closely tailored to the individual needs of job-seekers, promote state and local flexibility and accountability, and engage employers.

In contrast, the WIOA legislation of 2014 did not make significant changes to the Adult and Dislocated Worker programs, though a few differences should be noted. First, WIOA combined core and intensive services into a single "career services" tier, although both sets of services are still offered. Second, under WIA, customers had to access core services before receiving intensive services, and intensive services before receiving funding for training. WIOA eliminated the requirement that job-seekers access service tiers sequentially. Finally, WIOA emphasizes the importance of sector-based training, career-pathways approaches, and industry-recognized credentials. However, even under WIA, some local areas were moving in these directions. For example, many either made funding for training contingent on the possibility of attaining a credential or were providing individuals with more funding if they chose a training program linked to a credential (D'Amico et al. 2015).

III. Previous studies of the Adult and Dislocated Worker programs and related services

Although this paper summarizes results from the only experimental study of the Adult and Dislocated Worker programs conducted to date, there have been several non-experimental studies of the programs. The most relevant of these is Heinrich et al. (2008, 2013), which examined the effects of services funded by the Adult and Dislocated Worker programs using data on 12 diverse non-randomly selected states. Comparing groups similar to our core-and-intensive and core groups, the authors found that the receipt of staff-assisted core and intensive services led to increased earnings. Adults received a boost in earnings of around $600 in the first quarter after entering the program. That boost declined over time but was still significant four years after program entry. Among dislocated workers, the earnings benefits from receiving staff-assisted

core and intensive services increased over time and were statistically significant one to four years after service receipt.

Heinrich et al. (2008, 2013) also examined the effects of training funded by the Adult and Dislocated Worker programs. The authors demonstrated no positive impacts of training in the early parts of the study's follow-up period, for either adults or dislocated workers. However, after about one year, the effects of training for adults became positive and statistically significant. In contrast, for dislocated workers, training decreased earnings early in the follow-up period and had no effect later on.

Andersson et al. (2013) also examined the effects of training funded by the Adult and Dislocated Worker programs in two (unnamed) states. [3] For adults, the authors found similar training effects on earnings as Heinrich et al. However, unlike Heinrich et al., Andersson et al. found positive training effects for dislocated workers in one state.

Several other non-experimental studies have also examined the effects of training and other services provided by the Adult and Dislocated Worker programs, producing diverse findings. Analyses of jobseekers in Virginia (Hollenbeck and Huang 2008), Indiana (Hollenbeck 2009), Washington (Hollenbeck and Huang 2014), and Minnesota (Bendewald et al. 2016) suggest that services funded by the Adult and Dislocated Worker programs increase earnings. But other analyses reveal variation. For example, Hollenbeck et al. (2005) compared earnings for adults and dislocated workers receiving any WIA services and those receiving WIA-funded training to other job-seekers in nine diverse states. The average effects across states were positive for both groups. But effects varied greatly by state and at least one of nine states exhibited a negative and

[3] See Barnow and Smith (2015) for an extended discussion of Hollenbeck (2009), Heinrich et al. (2008), Andersson et al. (2013) and Heinrich and Mueser (2014), and the studies' similarities and differences.

significant effect of training for each group. Similarly, Heinrich and Mueser (2014) used data from Missouri and demonstrated variation in program effects by gender and year, as well as by adult/dislocated worker status.

Evaluations of other training programs suggest even extensive training and employment services can fail to improve participants' earnings. For example, the Trade Adjustment Assistance (TAA) Program helps manufacturing workers in trade-affected industries obtain reemployment by providing training funding (more generous than the Adult and Dislocated Worker programs), extended UI benefits, and other services. The national evaluation of TAA found no effects of program services on the labor market outcomes of participants after four years (Schochet et al. 2012). These null effects of TAA were also seen in Heinrich and Mueser (2014).

More broadly, Card et al. (2017) identified over 200 studies of employment programs in the US and Europe and used meta-analysis to draw several general conclusions about this literature. This work reveals that labor market programs tend to produce small or null effects in the short-run but more positive effects about two to three years following program completion. However, patterns vary for different types of programs. In particular, gains are larger when services help individuals build human capital (such as training), rather than just allowing them to better negotiate the labor market (like intensive services). Card et al. also note that program effects are heterogeneous with respect to participant characteristics (females and the long-term unemployed tend to experience larger benefits) and labor market conditions (programs are less likely to show positive effects during periods of economic growth).

IV. Designing a nationally representative randomized controlled trial

Two key study design features enable us to produce estimates of the effects of intensive and training services provided by the Adult and Dislocated Worker programs with internal and external validity. First, the study team randomly selected local areas for inclusion in the study, rather than relying on a convenience sample of areas or using areas that volunteered to participate. Second, local area staff randomly assigned a large sample of individuals within the randomly selected local areas to one of three study groups. Because enrollment into the Adult and Dislocated Worker programs occurs on a flow basis, we embedded and tailored random assignment procedures into existing intake processes at the local areas and worked with staff to minimize disruptions to program operations (see Mastri et al. 2015).

To identify the sample frame of local areas for the study, we first obtained a list of all local areas in the contiguous United States, excluding those that served less than 100 job-seekers annually. These 487 local areas represent 83 percent of all areas and more than 98 percent of individuals who received intensive services from the Adult and Dislocated Worker programs in the contiguous United States in 2008.

The study includes 28 of these local areas. Initially, we randomly selected 30 local areas to participate in the study, stratifying by DOL region and sampling areas proportional to their caseloads. Additionally, to ensure variation in our sample, we implicitly stratified our random sampling by state, local area population size, and the rate at which job-seekers received training.

Recruitment of the randomly selected local areas, which were not required to participate, was a key challenge for the study. This effort required careful messaging to the appropriate stakeholders, flexibility in study design, and considerable time and resources. The involvement of DOL was critical in communicating to local areas the importance of the study, as was

including all key stakeholders in the discussions as early as possible. The study also had several design features to help allay site concerns about study burden, including low random assignment rates to the study groups for which access to services was restricted, and the development of a user-friendly, web-based system used for data entry and random assignment. Local area recruitment took 18 months.

Of the 30 selected local areas, 26—or 87 percent—agreed to participate in the evaluation. Two of the four local areas that declined to participate were replaced in the sample with similar, pre-selected back-up areas in the same DOL region.

Program staff in the local areas randomly assigned job-seekers who were eligible for intensive services and consented to participate in the study using a study-developed, web-based system. Some individuals were exempted from study participation—participants in the TAA program (required by law to be offered WIA services), veterans and their spouses (required to be given priority of services), workers referred by an employer to receive services (to avoid potentially damaging relationships between local areas and employers), and individuals already participating in other evaluations. In addition, on a case-by-case basis, a small number of individuals were exempted before random assignment for extenuating circumstances (such as the individual being deemed unable to understand the consent process).

Across all local areas in the study, staff screened 46,213 people for study eligibility (Table 2). Of those, 21 percent were excluded from the study because they met one of the aforementioned exemption criteria. Of the remaining individuals, 97 percent consented to participate in the evaluation. Those who did not consent to participate in the study could receive only core services for the duration of the study intake period.

All consenting participants were randomly assigned to one of three study groups (Table 2).[4] Individuals in the full-service group received services from the Adult and Dislocated Worker programs in the same way they would have in the absence of the evaluation. Under this "business-as-usual" condition, job-seekers could receive any core, intensive, or training services for which they were eligible. It was not required that local areas offer everyone in this group training, nor that everyone offered training actually enrolled in a training program; these practices reflected what occurred in the absence of the evaluation. Individuals in the core-and-intensive group could receive any core or intensive services for which they were eligible but they could not receive training services funded by the Adult or Dislocated Worker programs. Individuals in the core group could receive only core services and no intensive or training services funded by the programs. All study participants could (and often did) receive services similar to those provided by the programs from other community providers (as discussed later).

About 6 percent of job-seekers were randomly assigned to the core group and 6 percent to the core-and-intensive group (Table 2). These random assignment rates were set low for two main reasons. First, denying services to a large proportion of job-seekers would likely change program operations, and the study would thus no longer be able to estimate the impacts of the programs under typical conditions. Second, low rates of assignment to the core-and-intensive and core groups made the study more acceptable to local area staff and hence increased the likelihood that they would agree to participate.

[4] We also considered a sequential design where individuals would first be randomized to the core group or the core and intensive group and then a subset of the latter group would be randomized into the full-service group later in the intake process when they were determined eligible for training. This design would increase power for detecting the effects of training, but the local areas would not agree to this design due to burden on participants and implementation challenges.

After random assignment, study attrition was 3.2 percent for the full-service group, 5.4 percent for the core-and-intensive group, and 5.2 percent for the core group (Table 2, see Mastri et al. 2015 for details). Differences in attrition across groups are not statistically significant. The remaining 34,429 job-seekers served as our study sample. The baseline characteristics of individuals in our different study groups were similar, as expected based on random assignment (Mastri et al. 2015).

V. Administrative and survey data

The findings in this report are based on data from three main sources: a study registration (baseline) form, 15- and 30-month follow-up surveys, and the NDNH.

V.A. Study registration form

Local area staff asked job-seekers who consented to participate in the study to complete a hard-copy study registration form. That form collected data on individuals' demographic characteristics, employment histories, receipt of public benefits and unemployment compensation, and history of seeking services at an American Job Center at the time of study enrollment. The forms were mailed to Mathematica.

V.B. 15- and 30-month follow-up surveys

The evaluation team conducted follow-up telephone surveys with a subset of study participants about 15 and 30 months after each participant was randomly assigned. The surveys targeted all members of the core and core-and-intensive groups, along with 2,066 randomly selected members of the full-service group. We attempted 30-month interviews with participants regardless of whether they completed a 15-month interview. The surveys asked for information

about service receipt, participation in training, and employment and earnings since random assignment.[5]

Our final survey data analysis sample includes all study participants who responded to the 30-month survey. The sample includes 4,777 individuals in total, yielding a survey response rate of 77 percent. Response rates did not differ significantly across the three study groups, and baseline equivalence was maintained in data weighted to account for differential nonresponse based on demographic and background characteristics (Appendix Table 1).[6]

V.C. National Directory of New Hires (NDNH)

The NDNH contains information collected by all state UI agencies and submitted to the Office of Child Support Enforcement of the U.S. Department of Health and Human Services (Solomon-Fears 2014). Our analysis uses NDNH data on quarterly earnings covering the 12 quarters after each study participant was randomly assigned. These data are available for almost all study participants, including participants not selected for the survey in the full-services group and survey nonrespondents. We can therefore use the administrative data to validate estimates based on survey data during overlapping periods using a larger sample of individuals, as well as to estimate longer-term earnings impacts.

The NDNH analysis sample includes 33,773 job-seekers. We excluded 577 members of the study sample (1.7 percent) because the individuals provided invalid combinations of name and Social Security number (prior to random assignment). We also excluded 79 members of the study sample (0.2 percent) who were randomly assigned very late in the random assignment

[5] For individuals who responded to the 15-month survey, the 30-month survey asked for information on these same outcomes starting on the date of their last interview. For individuals who did not respond to the 15-month survey, the 30-month survey asked for information covering the entire period after random assignment.

[6] See Rotz et al. (2017) for information on the construction of nonresponse weights.

period, and thus did not have 12 quarters of earnings records in the NDNH at the time the data were obtained. Rates of exclusion did not differ significantly across study groups.

V.D. Comparing the NDNH and survey data

Survey and NDNH data each have advantages for measuring earnings. NDNH data are available for the entire sample (survey respondents, nonrespondents, and those in the full-service group the study team did not attempt to survey) and are not subject to recall error. However, NDNH data do not cover all types of jobs or jobs in all industries, contain less detailed information on jobs than the survey, and are subject to other reporting errors. The omissions are nontrivial and workers in sectors with no or partial coverage in the NDNH comprise about 10 percent of U.S. employment (Kornfeld and Bloom 1999; Hotz and Scholz 2002).

NDNH data also exclude workers who are self-employed and those whose employers do not report their earnings to the UI agency because of flexible staffing arrangements, including work part of the gig economy (Abraham et al. 2018; Katz and Krueger 2016, 2019), or illegally neglecting to report. An audit study of Illinois employers' UI reports suggests that illegal failure to report wages affects about one in seven workers (Blakemore et al. 1996). Additionally, there is reason to believe that this type of undercoverage might be increasing due to recent increases in flexible staffing arrangements (Houseman 1999; Hotz and Scholz 2002; Abraham et al. 2018; Katz and Krueger 2016, 2019). Finally, previous research suggests that inconsistencies in reports of Social Security numbers can lead to potentially important inaccuracies in the NDNH (Schochet et al. 2003).

VI. Methods used to estimate ITT effects

We estimated ITT effects for the three pairwise contrasts across the three research groups using the following OLS regression model:

(1) $y_{isr} = \alpha + T_{f,isr}\beta_{f-c} + T_{ci,isr}\beta_{ci-c} + \delta_r + \varepsilon_{is}$,

where y_{isr} is the outcome of interest for individual i in local area s and DOL region r; $T_{f,isr}$ is an indicator for an individual being in the full-service group; $T_{ci,isr}$ is an indicator for an individual being in the core-and-intensive group; δ_r are region-fixed effects; and ε_{is} are mean-zero regression errors. In this model, $\beta_{ci\text{-}c}$ is the effect of the offer of intensive services compared with core services only, $\beta_{f\text{-}c}$ is the effect of the offer of all services compared with core services only (that is, the effect of training and intensive services), and $\beta_{f\text{-}ci} = \beta_{f\text{-}c} - \beta_{ci\text{-}c}$ is the effect of the offer of all services compared with core and intensive services only (that is, the effect of training). Our estimation strategy accounts for the study's design through the use of region fixed-effects (to account for stratification of local areas prior to random selection) and the clustering of standard errors at the local-area level (the primary sampling unit). [7]

Data are also weighted to account for differences in the probability an individual was observed in the study sample, the variation in random assignment probabilities over time and across local areas (to achieve target sample sizes), and survey nonresponse bias (for the survey analysis only). In addition to reporting significance at standard levels, for effects on earnings, the study's pre-specified confirmatory outcomes, we also report if an effect is significant at the 0.05 level after adjusting for the inflation in Type I errors due to multiple hypothesis testing across the three study contrasts.[8]

[7] Standard errors are also adjusted to account for the large share of individuals receiving services from the Adult and Dislocated Worker programs in our sample. The impact results discussed in this study generalize to a finite sample universe of participants in the Adult and Dislocated Worker programs. Thus, we employed a finite population correction for variance estimation based on a 10.7 percent estimate of the share of the total population of Adult and Dislocated Worker program participants over the study period who were in our sample.

[8] For each earnings outcome, we used the Tukey-Kramer procedure to adjust for correlations across the three pairwise contrasts due to repetitions of the research groups. This method suggests using a critical *p*-value of 0.0185 in place of the standard value of 0.05. The method is less conservative than a Bonferroni correction, which would suggest a critical p-value of 0.0167 (see Schochet 2009).

Because of random assignment, Equation (1) will produce asymptotically unbiased estimates of ITT effects without controlling for any additional covariates. We also explored adding controls to the regression models; however, this had little substantive effect on our findings (see Rotz et al. 2017, which also presents sensitivity analyses from other model specifications).

The model in Equation (1) estimates ITT parameters because random assignment was conducted at the point of program eligibility, so not all sample members received the full array of services offered to their study group. ITT parameters are policy relevant because service non-compliance is common for eligible participants in large-scale employment and training programs. (However, understanding these effects does require detailed information on the services offered and received; see Section VII.)

We did not transform the ITT effects into plausible effects of the treatment-on-the-treated (TOT) or complier average causal effects for several reasons. First, there are four possible compliance types in each research condition (those receiving both intensive and training services, only one service but not the other, or no services), yielding 64 possible compliance cells. Even assuming standard identification conditions discussed in Angrist et al. (1996) for instrumental variables (IV) estimators for two-armed trials (monotonicity and exclusion restrictions), many cells and TOT parameters remain, requiring additional ad hoc conditions to identify the various complier parameters of interest. Second, standard IV exclusion restrictions do not always hold in our setting due to interactions in the receipt of specific program services across the research groups. For example, to estimate TOT parameters for training would require that individuals in the full-service and core-and-intensive groups received the same amount and type of core and intensive services. But, as we demonstrate in the following section, in addition to influencing uptake of training, access to training increased use of core and intensive services,

violating the exclusion restriction. Developing methods for the plausible estimation of TOT effects in our tiered, multi-armed trial is an interesting area for future research.

VII. Services offered and received

VII.A. Services offered through the Adult and Dislocated Worker programs

The evaluation's implementation study (D'Amico et al. 2015) found that most local areas offered the same basic set of services—a resource room, workshops, assessments, career and service planning, and training (see Table 1). The key core service typically provided to job-seekers was access to a resource room with information about available community services, job matching systems, labor market information, job search tools, and career exploration tools. Many of these tools were also available to individuals online. The key intensive service was typically individualized assistance by a career counselor, including discussion of findings of assessments, career and service receipt planning, case management, and referrals to other services. Local areas generally provided occupational training through individual training accounts, which operate like vouchers that participants use to fund training programs from approved providers.

Although the study did not restrict job-seekers in the full-service group from receiving training, local areas imposed eligibility restrictions for training throughout the study in the same way as they did in the absence of the evaluation. These typically included requiring an applicant to have a minimum level of education and some work experience, to have obtained a minimum score on a basic skills test, and to have the necessary supports in place to complete training. Individuals typically had to develop a training plan that involved completing a series of activities, such as researching occupations and training programs. In addition to ensuring an informed choice, some local areas used these activities to test individuals' motivations and hence their likelihood of completing the training program and becoming employed.

For the study, participants in the core and core-and-intensive groups could not access services for 15 months after random assignment. After this period, individuals were permitted to receive any services offered by the programs that they would typically be able to receive (but program staff did not reach out to offer these services at this point). In addition, all individuals could seek training and employment services elsewhere in their communities at any time.

VII.B. Services received from the Adult and Dislocated Worker programs and elsewhere

The survey data suggest that members of the full-service group used more core, intensive, and supportive services than members of the core-and-intensive group, who in turn used more services than members of the core group (Table 3). This pattern holds when looking at receipt of all services, and not just for services provided through the Adult and Dislocated Worker programs. Combining information on services received by all providers, members of the full-service group were significantly more likely than members of the core-and-intensive group to take an assessment and receive supportive services. They were also significantly more likely than core group members to use a resource room, participate in workshops, take assessments, meet one on one with a staff member, and receive supportive services. In addition, members of the core-and-intensive group were significantly more likely than members of the core group to participate in workshops, take assessments, meet one on one with a staff member, and receive supportive services.

Access to training significantly increased the proportion of individuals who enrolled in any training program; however, differences are not as large as might have been expected (Table 4). Fifty percent of the full-service group enrolled in training (funded by the Adult and Dislocated Worker programs or another source) at some point in the 30 months after random assignment, 9 percentage points more often than the core-and-intensive group and 16 percentage points more often than the core group. Throughout the period, job-seekers in the full-service group spent, on

average, about 89 more hours in training than job-seekers in the core-and-intensive group and 121 more hours in training than job-seekers in the core group. Members of the full-service group were also more likely to have completed a training program or to have received a credential through a training or education program than those in the core-and-intensive group, who were in turn more likely to have received such a credential than those in the core group.

Even among individuals who enrolled in training, training experiences differed across study groups. Although, in each study group, trainees were more likely to choose vocationally-oriented training programs over general educational programs, trainees in the full-service and core-and-intensive groups were significantly more likely than trainees in the core group to enroll in vocational programs (Table 4). The most commonly selected programs geared towards specific occupations included those related to truck driving, nursing, and medical coding. These top programs did not vary much across study groups, although full-service trainees were significantly more likely than trainees in either other study group to choose a truck driving program. Full-service and core-and-intensive trainees were also more likely to receive a credential than core trainees, while core trainees were more likely to leave a training program prior to completion. Finally, the differences in the training experiences of the full-service group are most apparent in the funding of their training. Compared with core-and-intensive trainees, full-service trainees were 11 percentage points more likely to have paid nothing for their training and 16 percentage points less likely to have paid the full cost of their training. Differences between full-service and core trainees are even larger (see Fortson et al. 2017 for further details).

VIII. Impacts on earnings and employment

VIII.A. Impacts on earnings

Overall, our analysis demonstrates that providing job-seekers with intensive services increased earnings, while providing job-seekers with funding for training through the Adult and

Dislocated Worker programs did not significantly affect earnings during the study period (Figures 1 and 2). Combining these effects, we find that providing all program services increased earnings compared to providing only core services, though by less than the effect of the provision of core and intensive services alone.

Comparing the core-and-intensive and core groups. According to the survey data, intensive services significantly increased participants' earnings over much of the 30-month study period (Table 5). The average core-and-intensive group member earned more than the average core group member in each quarter after random assignment. Consistent significant positive impacts materialized beginning in Quarter 4 and persisted through Quarter 10 (although the impact in Quarter 7 is only significant at the 10 percent level). The results in Quarters 5 to 6 and 8 to 10 remain statistically significant after adjusting for multiple testing across the three pairwise contrasts. Taken over the full 30-month study period, intensive services raised earnings significantly by $7,133, or 20 percent of the core group's total earnings.

The administrative data reveal a similar, though muted pattern of estimates (Table 5). Differences in average earnings between the core-and-intensive and core groups were statistically significant in Quarters 5 and 8 and during the entire period taken together (although only the effect in Quarter 5 is significant after adjusting for multiple testing). But, in contrast to the estimates using survey data, the NDNH data suggest that impacts were not statistically significant from Quarter 9 onward.

Comparing the full-service and core-and-intensive groups. The survey data do not suggest that access to training funded by the Adult and Dislocated Worker programs increased earnings. In the first four quarters after random assignment, when members of the full-service group were more likely to be in training than members of the core-and-intensive group, the full-service

group earned about $650 per quarter less than the core-and-intensive group. Earnings for both groups increased substantially over the 30-month study period, and the full-service group's earnings grew closer to those of the core-and-intensive group, but did not overtake them. Over the entire 10-quarter study period, the average earnings of the full-service and core-and-intensive groups were statistically indistinguishable.

The NDNH impact estimates also indicate that the full-service group did not have higher earnings than the core-and-intensive group. According to this data source, individuals in the full-service group earned an average of $683 less than individuals in the core-and-intensive group did in Quarter 1. But the gap later closed, with no subsequent statistically significant differences. Over the 12 calendar quarters after random assignment, the full-service group earned about 3 percent less than the core-and-intensive group, a statistically insignificant difference.

Comparing the full-service and core groups. Finally, the results suggest that access to both training and intensive services increased average earnings compared to access to core services only (Table 5). In the survey data, treatment effects in Quarters 4 to 10 were all statistically significant at the 5 or 10 percent levels and ranged from $340 to $773 per quarter. As a result, the full-service group earned about 10 percent more than the core group over the entire 30-month study period ($p = 0.061$). It is likely that these effects were driven by the increased receipt of intensive services for the full-service group and not the extra training that they received. In the NDNH, individuals in the full-service group had average earnings that were higher in each quarter from Quarter 3 to 12, although the difference is statistically significant only in Quarter 5.

In other work, members of the evaluation team explored potential reasons why estimates of earnings impacts and levels might differ in the survey and administrative data (see Mastri et al. 2018). This research found that three factors likely explain the majority of the observed

differences across data sources: (1) many survey respondents reported jobs not captured by the NDNH; (2) survey respondents typically overreported earnings in any given job, especially early in the follow-up period when recall error was most likely; and (3) survey respondents typically underreported the number of jobs they held early in the follow-up period.

VIII.B. Impacts on employment experiences

The survey data reveal that a variety of differences in the employment experiences of job-seekers may be responsible for the observed differences in earnings (Tables 6 and 7). For this analysis, we examine estimated ITT effects on quarterly employment rates as well as the characteristics of individuals' current or most recent job. The latter analysis is restricted to individuals who were employed at some point following random assignment. Therefore, the results, conditional on being employed, might not be unbiased estimates of treatment effects.

We find that although individuals in the different study groups were equally likely to be employed during most quarters, there are notable differences in survey-based employment rates during the middle of the period (Table 6). In particular, intensive services were associated with an increase in employment of 6 to 10 percentage points in Quarter 5 in the survey data. The NDNH data also indicate core-and-intensive group members were more likely to be employed in Quarter 5 than core group members, though other differences are not statistically significant. Additionally, access to full services was associated with higher hours worked per week in a workers' current or most recent job (Table 7). Likewise, full-service and core-and-intensive workers were both more likely than core workers to report that their current or most recent job was full-time. Despite these differences, there were no significant differences across groups in the number of hours or weeks worked throughout the entire 30-month study period.

Although all differences in wage rates for workers' current or most recent jobs are not significant, intensive services funded through the Adult and Dislocated Worker programs also

appear to have precipitated access to better jobs, as measured by the benefits offered and type of work (Table 7). Individuals in the core-and-intensive group were significantly more likely than those in the core group to receive paid holidays or paid sick days. Additionally, individuals in the full-service group were more likely to have had access to pension or retirement benefits at work than individuals in the core group. They were also more likely to have a "regular" full- or part-time job (rather than employment situations such as on-call labor or self-employment). In contrast, there is no evidence that training affected job quality.

IX. Conclusions

This paper provides rigorous experimental evidence of the effectiveness of the Adult and Dislocated Worker programs, two of the largest public workforce investment programs in the U.S. We used a multi-arm, experimental study design to understand the effects of both intensive and training services provided by these programs, comparing outcomes for job-seekers that could access core program services only, both core and intensive services, and all services (that is, core, intensive, and training services). We compared earnings across groups using survey data from the first 10 quarters, and administrative data from the first 12 quarters, after random assignment. We designed the study so that the findings are nationally representative of the individuals served by the programs.

The results suggest that intensive services, when offered without training, increased earnings. On average, core-and-intensive group members received about 30 minutes more one-on-one assistance than did core group members and were more likely to attend workshops and take assessments. These and other similar services significantly increased earnings over the study period by $3,000 to $7,000, or 7 to 20 percent. Impacts of intensive services persisted for at least two years after random assignment. Comparing the impacts of intensive services against those from the broader literature on active labor market programs suggests that these services might be

particularly effective (Card et al. 2017). Moreover, the estimated effects are somewhat larger than those generated by Heinrich et al. (2008, 2013), who used administrative UI wage records similar to those in the NDNH to measure impacts of staff-assisted core and intensive services in a purposeful sample of 12 states using a matched comparison group design.

Comparing the costs of program services to the differences in earnings further suggests that providing intensive services produces positive net benefits for job-seekers, taxpayers, and society. Society as a whole benefited by about $8,500 per job-seeker offered core and intensive services instead of core services only (see Mastri and McCutcheon 2016 and Fortson et al. 2017). Of this, about $6,600 in benefits accrued to the job seeker and $1,900 to taxpayers.

In contrast to the effects of intensive services, our results suggest that the average individual did not benefit from access to training within the three-year study period. At the end of the period, members of the full-service group earned about the same and were about as likely to be employed as members of the core-and-intensive group. This pattern is true for both adults and dislocated workers (see Fortson et al. 2017).

For dislocated workers, it is not atypical for studies to show no effect of training, the key difference in services received between the full-service and core-and-intensive groups; however, results have tended to be more positive for adults. For example, Heinrich et al. (2008, 2013) found that training had no (positive or negative) effect on earnings for dislocated workers two or more years after training participation, while the results in Andersson et al. (2013) varied by state.[9] But, in contrast to our findings, the impacts estimated for adults in those studies turned positive during later quarters. Andersson et al. (2013) estimated that the impact of training on

[9] However, note that Heinrich et al. (2008) and Andersson et al. (2013) both estimated impacts relative to the timing of training, while we estimate impacts with respect to the timing of random assignment. As job-seekers did not immediately enroll in training after random assignment, the time horizons are not directly comparable.

earnings for adults became positive within seven quarters of training participation; Heinrich et al. (2008) found positive impacts for adults within four quarters.

Several factors could explain the differences in findings. The past studies might have produced different results than this study because of differences in context (that is, time and location). Moreover, our study results are nationally representative, whereas the previous studies were conducted in purposeful samples of sites. In addition, our study used experimental methods, while the other authors used non-experimental matched comparison group designs. Finally, Heinrich et al. (2008) and Andersson et al. (2013) both produced TOT estimates, while we estimate ITT effects. This could change the magnitude of the observed impacts but not their sign.

Related to this, an important potential explanation for the lack of effects in this research is that the difference in the training rate between the full-service and core-and-intensive groups was not large. Fifty percent of individuals in the full-service group enrolled in training, about two-thirds of whom received funding from the Adult and Dislocated Worker programs. In contrast, the core-and-intensive group did not receive any funding for training from the Adult and Dislocated Worker programs but 41 percent of group members enrolled in training and about half of trainees in the core-and intensive group received some financial assistance for training from another source. The small difference in training actually received could be responsible for the null effects of access to training funded by the Adult and Dislocated Worker programs.

Longer-term follow-up might also be necessary to measure the full returns to training; however, initial job placements of trainees suggest this is not likely. Only 51 percent of full-service trainees reported getting a job because of their training and, among full-service trainees that trained for a specific occupation, only 41 percent found a job related to their training (Fortson et al. 2017). This suggests that individuals might not be enrolling in training programs

leading to in-demand skills and that effects of training on earnings might not emerge given more time.

Altogether, our findings suggest that policymakers should continue to invest in intensive services but should look to improve training. However, our findings do not suggest that training is unnecessary. Intensive services alone are unlikely to help all job-seekers achieve satisfactory longer-term employment outcomes or economic self-sufficiency. Moreover, intensive services largely benefit workers by decreasing labor-market frictions. They do not build human capital and are thus unlikely to increase productivity in the long run. Additionally, at the end of our study period, 20 percent of the core-and-intensive group was not employed, average annual household income for group-members was only about $30,000, and many group members still relied on public assistance (see Fortson et al. 2017). Moreover, there may be important general equilibrium effects of intensive services. Intensive services may largely produce benefits by allowing certain individuals to "jump the queue" for a job. If all individuals were given intensive services, these benefits could disappear. Considering these facts, training or other employment services could still be needed, in addition to intensive services, to help workers obtain self-sufficiency.

References

Abraham, Katharine G., John C. Haltiwanger, Kristin Sandusky, and James R. Spletzer. "Measuring the Gig Economy: Current Knowledge and Open Issues." NBER Working Paper No. 24950. Cambridge, MA: National Bureau of Economic Research, 2018.

Andersson, Fredrik, Harry Holzer, Julia Lane, David Rosenblum, and Jeffrey Smith. "Does Federally-Funded Job Training Work? Nonexperimental Estimates of WIA Training Impacts Using Longitudinal Data on Workers and Firms." NBER Working Paper No. 19446. Cambridge, MA: National Bureau of Economic Research, 2013.

Angrist, Joshua D., Guido W. Imbens, and Donald B. Rubin. "Identification of causal effects using instrumental variables." Journal of the American statistical Association 91, no. 434 (1996): 444-455.

Barnow, Burt S., and Jeffrey Smith. "Employment and training programs." In *Economics of Means-Tested Transfer Programs in the United States, Volume 2*, pp. 127-234. University of Chicago Press, 2015.

Bendewald, E., Maryns, N., & Robertson, R. (2016). An Evaluation of the Workforce Investment Act Adult Program in Minnesota: Lessons from the Financial Crisis. *IZA Discussion Paper* No. 10107.

Blakemore, Arthur E., Paul L. Burgess, Stuart A. Low, and Robert D. St. Louis. "Employer tax evasion in the unemployment insurance program." *Journal of Labor Economics*, vol. 14, no. 2, 1996, pp. 210-230.

Card, David, Jochen Kluve, and Andrea Weber. "What works? A meta analysis of recent active labor market program evaluations." *Journal of the European Economic Association*, vol. 16, no. 3, 2017, pp. 894-931.

D'Amico, Ronald, Kate Dunham, Verenice Chavoya-Perez, Deborah Kogan, Melissa Mack, Marian Negoita, Anne Paprocki, Sheena McConnell, and Linda Rosenberg. "Providing Public Workforce Services to Job Seekers: Implementation Findings on the WIA Adult and Dislocated Worker Programs." Washington, DC: Mathematica Policy Research, 2015.

Fortson, Kenneth, Dana Rotz, Paul Burkander, Annalisa Mastri, Peter Schochet, Linda Rosenberg, Sheena McConnell, and Ron D'Amico. "Providing Public Workforce Services to Job Seekers: 30-Month Impact Findings on the WIA Adult and Dislocated Worker Programs, Technical Supplement." Washington, DC: Mathematica Policy Research, 2017.

Heinrich, Carolyn J., and Peter Mueser. "Training Program Impacts and the Onset of the Great Recession." Unpublished manuscript, University of Missouri (2014).

Heinrich, Carolyn J., Peter Mueser, and Kenneth Troske. "Workforce Investment Act Non-Experimental Net Impact Evaluation: Final Report." Washington, DC: IMPAQ International, 2008.

Heinrich, C.J., P.R. Mueser, R.K. Troske, K.S. Jeon, and D.C. Kahvecioglu. "Do Public Employment and Training Programs Work?" *IZA Journal of Labor Economics*, vol. 2, no. 1, 2013, pp. 1–23.

Hollenbeck, Kevin. "Return on Investment Analysis of a Selected Set of Workforce System Programs in Indiana." Report submitted to Indiana Chamber of Commerce Foundation, Indianapolis, IN: 2009. Available at http://research.upjohn.org/reports/15. Accessed July 3, 2015.

Hollenbeck, Kevin M., and Wei-Jang Huang. "Workforce Program Performance Indicators for the Commonwealth of Virginia." Upjohn Institute Technical Report No. 08-024. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2008.

Hollenbeck, Kevin M., and Wei-Jang Huang. "Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State." Upjohn Institute Technical Report No. 13-029. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2014. Available at http://research.upjohn.org/up_technicalreports/29. Accessed July 3, 2015.

Hollenbeck, Kevin, Daniel Schroeder, Christopher T. King, and Wei-Jang Huang. "Net Impact Estimates for Services Provided through the Workforce Investment Act." Report prepared for the Division of Research and Demonstration, Office of Policy and Research, Employment and Training Administration, U.S. Department of Labor. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2005.

Hotz, V. Joseph, and John Karl Scholz. "Measuring Employment and Income Outcomes for Low Income Populations with Administrative and Survey Data." In *Studies of Welfare Populations: Data Collection and Research Issues*. Washington, DC: National Academy Press, 2002.

Houseman, Susan N. "Flexible Staffing Arrangements: A Report on Temporary Help, OnCall, Direct-Hire Temporary, Leased, Contract Company, and Independent Contractors Employment in the United States." Washington, DC: U.S. Department of Labor, 1999.

Katz, Lawrence F. and Alan B. Krueger. "The Rise and Nature of Alternative Work Arrangements in the United States, 1995-2015." NBER Working Paper No. 22667. Cambridge, MA: National Bureau of Economic Research, 2016.

Katz, Lawrence F. and Alan B. Krueger. "Understanding Trends in Alternative Work Arrangesments in the United States" NBER Working Paper No. 25425. Cambridge, MA: National Bureau of Economic Research, 2019.

Kornfeld, Robert, and Howard S. Bloom. "Measuring Program Impacts on Earnings and Employment: Do Unemployment Insurance Wage Reports from Employers Agree with Surveys of Individuals?" *Journal of Labor Economics*, vol. 17, no. 1, 1999, pp. 168-197.

Mastri, Annalisa, Sheena McConnell, Linda Rosenberg, Peter Schochet, Dana Rotz, Andrew Clarkwest, Ken Fortson, AnnaMaria McCutcheon, Katie Bodenlos, Jessica Ziegler, and Paul Burkander. "Evaluating National Ongoing Programs: Implementing the WIA Adult and Dislocated Worker Programs Gold Standard Evaluation." Washington, DC: Mathematica Policy Research, 2015.

Mastri, Annalisa and AnnaMaria McCutcheon. Costs of Services Provided by the WIA Adult and Dislocated Worker Programs. Issue Brief. Oakland, CA: Mathematica Policy Research and Social Policy Research Associates, 2016.

Mastri, Annalisa, Dana Rotz, and Elias Hanno. "Comparing Job Training Impact Estimates using Survey and Administrative Data." Washington, DC: Mathematica Policy Research, 2018.

Rotz, Dana, Paul Burkander, Mary Grider, Kenneth Fortson, Linda Molinari, Elias Sanchez-Eppler, and Lindsay Cattell. "Providing Public Workforce Services to Job Seekers: 30-Month Impact Findings on the WIA Adult and Dislocated Worker Programs, Technical Supplement." Washington, DC: Mathematica Policy Research, 2017.

Schochet, Peter, Ronald D'Amico, Jillian Berk, Sarah Dolfin, and Nathan Wozny. "Estimated Impacts for Participants in the Trade Adjustment Assistance (TAA) Program Under the 2002 Amendments." Oakland, CA: Social Policy Research and Mathematica Policy Research, 2012.

Schochet, Peter Z. "An approach for addressing the multiple testing problem in social policy impact evaluations." *Evaluation Review,* vol. 33, no. 6 (2009): 539-567.

Schochet, Peter Z., Sheena McConnell and John Burghardt. "National Job Corps Study: Findings using administrative earnings records data." Princeton, NJ: Mathematica Policy Research, 2003.

Solomon-Fears, Carmen. *The National Directory of New Hires*. Washington, DC: Congressional Research Service, 2014.

U.S. Department of Labor, 2016a. "WIA Performance Results." Available at: https://www.doleta.gov/performance/results/eta_default.cfm.

U.S. Department of Labor, 2016b. "FY 2016 Congressional Budget Justification: Employment and Training Administration, Training and Employment Services." Available at: https://www.dol.gov/sites/default/files/documents/general/budget/2016/CBJ-2016-V1-04.pdf.

U.S. Department of Labor, Employment and Training Administration. "Comparison of State Unemployment Insurance Laws." Washington, DC: Employment and Training Administration, 2014. Available at http://unemploymentinsurance.doleta.gov/unemploy/comparison2014.asp. Accessed November 1, 2016.

Table 1. Services provided through the Adult and Dislocated Worker programs

Service Type	Examples
	Core services
Core services consisted mainly of information and online tools to help job-seekers plan their careers and find employment.	Welcome and initial guidance to job-seekers entering a center
	Assessment of new job-seekers' needs on first visit to center*
	Orientation to core services
	Resource rooms
	Workshops open to all job-seekers*
	On-line assessments*
	Light-touch staff assistance in the resource room or elsewhere
	Intensive services
Intensive services generally required higher levels of staff assistance than core services.	Assessments of basic skills and occupational aptitudes and interests
	Career and service receipt planning, development of an Individualized Employment Plan Training planning
	Job search assistance: resume review, customized job searches, assistance with interviewing skills Case management and referrals for additional services
	Workshops limited to intensive-service job-seekers*
	Work experience and internships**
	Prevocational training**
	Training services
After receiving core and intensive services, some job-seekers were eligible for training services designed to prepare them for jobs in high-demand fields. WIA required that the majority of training be funded through individuals training accounts.	Occupational skills upgrading, retraining
	On-the-job training
	Customized training
	Adult basic education and literacy activities, English as a second language (provided only in combination with another type of training) Entrepreneurial training
	Supportive services
Financial assistance designed to help job-seekers succeed in their training and employment goals; available to job-seekers in all study groups.	Bus passes
	Gas cards
	Money to pay for tools and supplies
	Money to pay for uniforms
	Child care or financial assistance with child care

Source: D'Amico et al. (2015).

*In some, but not all, local areas.

**Rarely offered, and offered to only a small number of job-seekers.

Table 2. Sample sizes

	All study groups	Full-service group	Core-and-intensive group	Core group
Screened for eligibility	46,213			
Determined eligible for study	36,586			
Consented to study	35,665			
Randomly assigned	35,665	31,304	2,181	2,180
Study sample	34,429	30,299	2,064	2,066
NDNH analysis sample	33,773	29,710	2,034	2,029
Attempted to survey	6,196	2,066	2,064	2,066
Survey data analysis sample	4,777	1,623	1,578	1,576

Table 3. Core, intensive, and supportive services received by study group, survey sample

	Means			Impacts		
	Full-service group (F)	Core-and-intensive group (C&I)	Core group (C)	F – C&I	C&I – C	F – C
Used any resource room (%)	83.2	79.7	77.7	3.47 (2.51)	2.00 (3.14)	5.47*** (1.64)
Attended any workshop (%)	55.2	52.1	45.9	3.05 (3.65)	6.24** (2.42)	9.29** (3.94)
Took any assessment (%)	74.8	66.7	60.3	8.11*** (2.88)	6.41** (2.77)	14.52*** (4.35)
Attended any job club (%)	35.0	32.5	30.9	2.53* (1.43)	1.63 (2.89)	4.16 (2.82)
Received any one-on-one assistance (%)	63.1	60.5	47.1	2.60 (1.92)	13.37*** (3.39)	15.97*** (3.12)
Total time spent in one-on-one sessions (minutes)	103.5	87.9	61.3	15.64*** (5.56)	26.54*** (7.60)	42.18*** (6.51)
Received any supportive services (%)	24.6	14.2	7.9	10.41*** (1.36)	6.32*** (1.76)	16.74*** (2.39)
Sample size	**1,623**	**1,578**	**1,576**			

Sources: WIA Gold Standard Evaluation 15- and 30-month follow-up surveys.

Notes: Estimated means and impacts are regression-adjusted. Standard errors reported in parentheses. Data are weighted to account for the probability (1) that the local area was selected to participate in the study, (2) that the local area agreed to participate in the study, (3) of assignment to each study group, (4) that the job-seeker consented to the study, (5) that the job-seeker was selected for the survey, and (6) that the job-seeker completed the survey. Sample sizes for specific outcomes might vary slightly due to item nonresponse.

*/**/*** Significantly different from zero at the .10/.05/.01 level.

Table 4. Training received by study group, survey sample

	Means			Impacts		
	Full-service group (F)	Core-and-intensive group (C&I)	Core group (C)	F – C&I	C&I – C	F – C
Enrolled in any training or education program (%)	49.7	41.1	33.8	8.57***	7.29*	15.86***
				(2.74)	(4.27)	(5.09)
Enrolled in an education program (%)	8.9	8.1	8.4	0.77	-0.27	0.50
				(2.41)	(2.07)	(3.53)
Enrolled in a vocational program (%)	45.0	37.3	29.2	7.76***	8.09**	15.85***
				(2.16)	(3.82)	(4.26)
Hours spent in training/education	391.5	302.4	270.9	89.1**	31.5	120.6***
				(36.17)	(19.08)	(43.09)
Completed any training or education program (%)	39.0	30.1	22.4	8.91***	7.65*	16.6***
				(2.23)	(4.13)	(5.04)
Received a credential through training/education (%)	29.2	23.6	15.3	5.62***	8.32**	13.93***
				(1.25)	(3.76)	(3.94)
Sample size	**1,623**	**1,578**	**1,576**			

Sources: WIA Gold Standard Evaluation 15- and 30-month follow-up surveys.

Notes: Estimated means and impacts are regression-adjusted. Standard errors reported in parentheses. Data are weighted to account for the probability (1) that the local area was selected to participate in the study, (2) that the local area agreed to participate in the study, (3) of assignment to each study group, (4) that the job-seeker consented to the study, (5) that the job-seeker was selected for the survey, and (6) that the job-seeker completed the survey. Sample sizes for specific outcomes might vary slightly due to item nonresponse.

*/**/*** Significantly different from zero at the .10/.05/.01 level.

Table 5. Earnings for each study group, by quarter and data source

Quarter after random assignment	Survey						NDNH					
	Means			Impacts			Means			Impacts		
	Full-service group (F)	Core-and-intensive group (C&I)	Core group (C)	F – C&I	C&I – C	F – C	F	C&I	C	F – C&I	C&I – C	F – C
1	2,363	3,260	2,729	-589	376*	-213	1,880	2,562	2,275	-683**	287	-396
2	3,170	3,832	3,052	-896*	531	-365	2,669	3,269	2,907	-600*	363	-238
3	3,580	4,014	3,194	-663*	780*	117	3,104	3,507	2,915	-402	592	190
4	3,816	4,358	3,477	-434	821**	387*	3,432	3,560	3,263	-128	297	168
5	4,643	4,829	4,035	-541	881**†	340*	3,746	3,729	3,203	17	526**†	543**†
6	4,975	4,892	4,417	-186	794**†	608***†	3,983	4,160	3,750	-177	410*	233
7	5,118	5,248	4,483	82	475*	557**	4,246	4,254	4,017	-8	237	229
8	5,242	5,472	4,570	-129	765***†	636*	4,335	4,400	4,090	-65	310**	245
9	5,244	5,435	4,472	-231	903***†	672*	4,556	4,356	4,337	199	20	219
10	2,363	3,260	2,729	-191	963***†	773**	4,704	4,599	4,632	105	-33	72
11							4,917	4,790	4,615	127	175	302
12							4,938	4,775	4,662	163	112	276
All quarters	39,528	43,211	36,079	-3,684	7,133**†	3,449*	46,509	47,960	44,665	-1,451	3,296**	1,844
Sample size	**1,616**	**1,574**	**1,570**				**29,710**	**2,034**	**2,029**			

Source: National Directory of New Hires and WIA Gold Standard Evaluation 15- and 30-month follow-up surveys.

Notes: For the NDNH, means and impacts are by calendar quarter. Estimated means and impacts are regression-adjusted. Means and impacts include zeroes for those who were not employed in the corresponding time period. Data are weighted to account for the probability (1) that the local area was selected to participate in the study, (2) that the local area agreed to participate in the study, (3) of assignment to each study group, (4) that the job-seeker consented to the study, (5) that the job-seeker was selected for the survey (survey data only), and (6) that the job-seeker completed the survey (survey data only). Sample sizes for specific outcomes might vary slightly due to item nonresponse.

*/**/*** Significantly different from zero at the .10/.05/.01 level. For exact p-values, see Rotz et al. (2017).

† Significantly different from zero at the 0.05 level after accounting for multiple comparisons using the Tukey-Kramer procedure (see Schochet 2009 for details).

Table 6. Employment for each study group, by quarter and data source

Quarter after random assignment	Survey						NDNH					
	Means			Impacts			Means			Impacts		
	Full-service group (F)	Core-and-intensive group (C&I)	Core group (C)	F – C&I	C&I – C	F – C	F	C&I	C	F – C&I	C&I – C	F – C
1	37.36	45.05	40.37	-7.68*	4.68	-3.00	49.79	54.66	55.26	-4.87	-0.59	-5.46
2	47.86	57.58	54.10	-9.72*	3.48	-6.24***	56.36	61.40	58.86	-5.04	2.54	-2.50
3	60.48	62.85	59.54	-2.37	3.31	0.94	60.06	63.80	62.34	-3.74	1.45	-2.29**
4	64.90	65.31	60.06	-0.41	5.26	4.85	63.19	63.34	61.72	-0.15	1.62	1.47
5	68.74	72.11	62.33	-3.37	9.78***	6.41***	65.08	67.30	62.19	-2.21	5.11**	2.89
6	74.81	75.89	70.82	-1.08	5.07	3.99	67.52	69.30	66.71	-1.78	2.59	0.81
7	75.06	75.22	72.38	-0.16	2.83	2.67	68.47	69.38	68.49	-0.91	0.89	-0.02
8	77.69	76.27	74.15	1.42	2.12	3.54	68.80	70.20	68.50	-1.40	1.70	0.30
9	79.73	79.05	75.30	0.68	3.75	4.43	70.11	70.80	68.47	-0.69	2.33	1.64
10	78.53	79.02	75.44	-0.48	3.58	3.10	70.53	70.25	70.85	0.28	-0.60	-0.32
11							70.87	72.25	69.23	-1.38	3.03	1.65
12							70.37	70.69	69.99	-0.32	0.70	0.38
Any quarter	92.31	92.63	90.09	-0.32	2.55	2.22	90.93	90.87	92.99	0.05	-2.12*	-2.06**
Sample size	**1,620**	**1,578**	**1,575**				**29,710**	**2,034**	**2,029**			

Source: National Directory of New Hires and WIA Gold Standard Evaluation 15- and 30-month follow-up surveys.

Notes: For the NDNH, means and impacts are by calendar quarter. Estimated means and impacts are regression-adjusted. Means and impacts include zeroes for those who were not employed in the corresponding time period. Data are weighted to account for the probability (1) that the local area was selected to participate in the study, (2) that the local area agreed to participate in the study, (3) of assignment to each study group, (4) that the job-seeker consented to the study, (5) that the job-seeker was selected for the survey (survey data only), and (6) that the job-seeker completed the survey (survey data only). Sample sizes for specific outcomes might vary slightly due to item nonresponse.

*/**/*** Significantly different from zero at the .10/.05/.01 level. For exact p-values, see Rotz et al. (2017).

Table 7. Characteristics of employment and most recent job, survey data

	Means			Impacts		
	Full-service group (F)	Core-and-intensive group (C&I)	Core group (C)	F – C&I	C&I – C	F – C
Weeks worked during study period	72.6	75.7	70.3	-3.1	5.4	2.3
				(2.01)	(3.19)	(2.67)
Hours worked during study period	2,931.7	2,992.0	2,758.6	-60.3	233.4	173.1
				(98.3)	(161.6)	(127.1)
Current or most recent job						
Hours worked per week	37.9	36.4	36.0	1.56**	0.32	1.88***
				(0.56)	(0.68)	(0.58)
Employed full-time (35 or more hours per week, %)	74.4	71.1	66.4	3.37	4.71**	8.07***
				(2.31)	(2.23)	(1.85)
Hourly wage rate ($)	13.76	14.30	13.56	-0.52	0.73	0.21
				(0.56)	(0.69)	(0.47)
Job offered health insurance (%)	68.7	65.8	60.1	2.87	5.73*	8.61*
				(3.79)	(2.94)	(4.84)
Job offered paid vacation (%)	67.1	60.2	57.1	6.93	3.06	9.99*
				(4.45)	(2.56)	(4.90)
Job offered paid holidays (%)	67.5	62.3	55.2	5.17	7.11**	12.28**
				(4.30)	(2.60)	(4.77)
Job offered paid sick days (%)	54.3	51.5	42.1	2.74	9.37**	12.11**
				(3.21)	(3.42)	(4.97)
Job offered pension or retirement benefits (%)	61.1	54.1	50.7	6.99	3.34	10.34**
				(4.43)	(2.37)	(4.74)
Job classified as (%)						
Regular full- or part-time	82.6	80.6	78.5	2.03	2.13	4.17***
				(2.82)	(3.47)	(1.40)
Self-employed or independent contractor	4.8	5.7	7.8	-0.89	-2.15	-3.03
				(1.59)	(1.95)	(1.88)
Temporary or day labor	8.0	6.3	9.4	1.72	-3.14*	-1.42
				(2.05)	(1.72)	(1.21)
On-call employee	3.8	4.5	3.0	-0.71	1.52	0.81
				(1.32)	(1.34)	(0.99)
Job at contractor	1.7	3.0	2.1	-1.38	0.96**	-0.42
				(0.99)	(0.37)	(0.93)
Unionized job (%)	8.2	7.5	6.3	0.68	1.28	1.96
				(1.04)	(0.92)	(1.29)
Sample size	**1,621**	**1,578**	**1,575**			

Sources: WIA Gold Standard Evaluation 15- and 30-month follow-up surveys.

Notes: Data on the most recent job is only available for the sample of individuals who worked any job after random assignment. Therefore, estimates should not be interpreted as unbiased average treatment effects.

Estimated means and impacts are regression-adjusted. Standard errors reported in parentheses. Data are weighted to account for the probability (1) that the local area was selected to participate in the study, (2) that the local area agreed to participate in the study, (3) of assignment to each study group, (4) that the job-seeker consented to the study, (5) that the job-seeker was selected for the survey, and (6) that the job-seeker completed the survey. Sample sizes for specific outcomes might vary slightly due to item nonresponse.

*/**/*** Significantly different from zero at the .10/.05/.01 level.

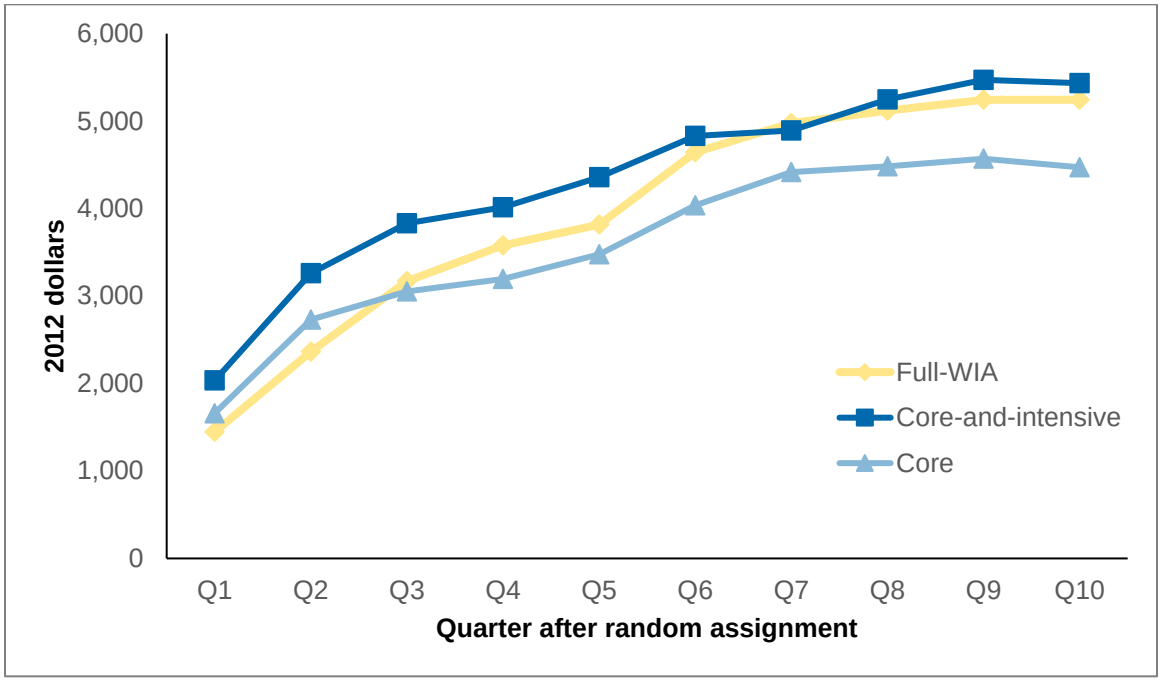
Appendix Table 1. Baseline equivalence among survey respondents

	Means			Differences		
	Full-service group (F)	Core-and-intensive group (C&I)	Core group (C)	F – C&I	C&I – C	F – C
Adult only (%)	58.1	57.9	58.8	0.20	-0.89	-0.69
				(1.50)	(1.73)	(1.66)
Dislocated worker only (%)	32.8	33.8	33.2	-1.04	0.58	-0.47
				(1.64)	(1.71)	(1.17)
Female (%)	60.9	59.6	58.8	1.31	0.77	2.08*
				(1.70)	(1.72)	(1.04)
Age	38.5	39.3	38.8	-0.77	0.45	-0.31
				(0.73)	(1.31)	(1.19)
Race/ethnicity (%)						
Hispanic	11.7	14.3	16.4	-2.63	-2.02	-4.64
				(2.31)	(3.41)	(3.45)
White, non-Hispanic	36.4	40.5	39.3	-4.09*	1.18	-2.91
				(2.39)	(3.33)	(2.74)
Black, non-Hispanic	45.0	39.7	38.1	5.30	1.56	6.86**
				(3.31)	(1.22)	(2.94)
Other	7.0	5.5	6.3	1.41	-0.72	0.69
				(0.70)	(0.77)	(1.02)
Marital status (%)						
Currently married	28.1	26.7	31.1	1.49	-4.47	-2.98
				(1.98)	(4.09)	(3.58)
Separated, divorced, or widowed	25.5	26.3	27.8	-0.84	-1.47	-2.30
				(3.37)	(4.23)	(1.78)
Never married	46.4	47.0	41.1	-0.65	5.93	5.28
				(4.79)	(7.16)	(4.59)
Working at time of random assignment (%)	2.0	1.2	2.2	0.82	-0.97	-0.15
				(0.80)	(0.80)	(0.48)
Employed in past five years (%)	77.2	76.1	75.7	1.10	0.38	1.49
				(1.86)	(3.24)	(2.65)
Last real hourly wage if employed in past five years[a] ($)	14.07	15.09	14.27	-1.02	0.82**	-0.20
				(0.90)	(0.35)	(0.90)
Highest degree (%)						
Less than high school	7.4	8.6	6.4	-1.16	2.15	0.99
				(1.78)	(1.33)	(1.6)
High school or GED	70.3	64.6	68.7	5.72**	-4.15	1.57
				(2.73)	(2.55)	(2.95)
Associates or equivalent	8.0	10.4	9.7	-2.35	0.69	-1.66
				(1.39)	(1.99)	(1.47)
Bachelors or equivalent	11.4	13.6	11.8	-2.25	1.83	-0.42
				(1.75)	(1.62)	(0.96)
Masters or higher	2.9	2.8	3.4	0.05	-0.52	-0.47
				(0.7)	(0.61)	(0.96)
Health problems that limit work or training (%)	4.7	5.1	6.4	-0.34	-1.34	-1.69**
				(0.59)	(0.97)	(0.8)
Receipt of Public Assistance (%)						
TANF, SSI/SSDI, or GA	9.9	10.8	15.3	-0.96	-4.48**	-5.44**
				(1.32)	(2.06)	(2.23)
SNAP or WIC	37.3	39.7	36.4	-2.43	3.38	0.95
				(2.97)	(5.01)	(3.14)
Unemployment Compensation	30.1	25.2	27.5	4.90	-2.30	2.60
				(3.87)	(2.66)	(3.08)
Sample size	**1,623**	**1,578**	**1,576**			

Source: WIA Gold Standard Evaluation study registration form.

Notes: Dollars are 2012 dollars. Standard errors reported in parentheses. Data are weighted to account for the probability (1) that the local area was selected to participate in the study, (2) that the local area agreed to participate in the study, (3) of assignment to each study group, (4) that the job-seeker consented to the study, (5) that the job-seeker was selected for the survey, and (6) that the job-seeker completed the survey. Sample sizes for specific outcomes might vary slightly due to item nonresponse. */**/*** Significantly different from zero at the .10/.05/.01 level.

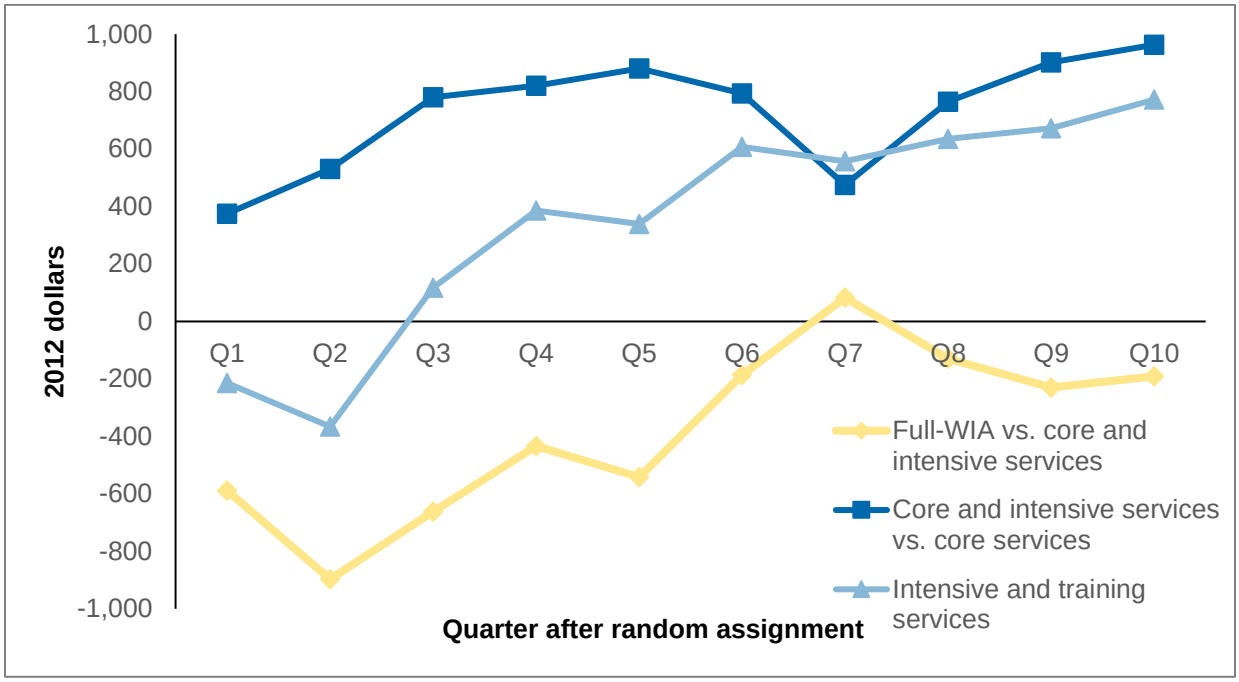
Figure 1. Earnings for each study group from survey data, by quarter



Sources: WIA Gold Standard Evaluation 15- and 30-month follow-up surveys.

Note: Sample sizes for survey data are 1,616 for the full-service group, 1,574 for the core-and-intensive group, and 1,570 for the core group. Estimated means are regression-adjusted. Data are weighted to account for the probability (1) that the local area was selected to participate in the study, (2) that the local area agreed to participate in the study, (3) of assignment to each study group, (4) that the job-seeker consented to the study, (5) that the job-seeker was selected for the survey, and (6) that the job-seeker completed the survey.

Figure 2. Impacts on earnings from survey data, by quarter



Sources: WIA Gold Standard Evaluation 15- and 30-month follow-up surveys.

Note: Sample sizes for survey data are 1,616 for the full-service group, 1,574 for the core-and-intensive group, and 1,570 for the core group. Estimated means are regression-adjusted. Data are weighted to account for the probability (1) that the local area was selected to participate in the study, (2) that the local area agreed to participate in the study, (3) of assignment to each study group, (4) that the job-seeker consented to the study, (5) that the job-seeker was selected for the survey, and (6) that the job-seeker completed the survey.