

# The Distributional Impacts of Active Labor Market Programs for Indigenous Populations\*

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## Online Appendix

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## A Defining our comparison groups

We use the “Integrated Labour Market Program” entity (ILMP) available from the *Labour Market Program Data Platform* to define our sample and comparison groups. The ILMP combines program records from a number of administrative sources, including National Employment Services System, Common System for Grants and Contributions, the Human Resources Development Fund, Standard Data File, Employment Benefits and Support Measures. We use the ILMP to define our sample and comparison groups. Inclusion in our sample is based on the first occurrence of participation in an ASETS intervention. We exclude all participants in any school-work-experience and self-employment interventions because we expect those interventions to have different intended outcomes.<sup>1</sup> The ILMP includes a database with a separate record for each time an individual participates in an intervention. Each record contains information about the type of intervention, as well as the start and end date. For most individuals there are multiple intervention records. Many of these records are of the same intervention type, while others indicate participation in different types of intervention. In practice, these interventions might be combined as a part of an “Action Plan”; however, we do not observe any such plans in the data. Instead, we define the first ASETS program participation by combining all interventions that occur without any gaps of non-participation lasting more than 90 days. Non-participation means not participating in any type of intervention, whether it is ASETS or an intervention offered under a different program.

We start by identifying the first occurrence of participation in an ASETS intervention. The start date of that intervention marks the start of the ASETS program participation that we study. Then, we identify every intervention that occurs at the same time as, or any time, up to two years, after the first ASETS intervention, whether it falls under ASETS or any other labor market program. We order these interventions based on their start date. If an intervention begins less than 90 days before the most recent prior intervention has ended, that intervention is included as a part of the first ASETS program participation. If there is a period of more than 90 days during which the individual has not participated in any type of labor market programming, then we code that individual as having ended their first ASETS program participation.

Once the first ASETS program participation has been identified, we separate our sample into two comparison groups following the approach taken by [Andersson et al. \(2016\)](#). Essentially, this separates the sample into two groups based on whether the individuals had

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<sup>1</sup>Specifically, school-work-experience programs may take much longer to realize and our measure of employment earnings does not fully capture the returns to self-employment.

participated in “high”- or “low”- intensity interventions. In our case, participation is classified as low intensity, if the individual had participated in only employment assistance service (EAS) or job counseling interventions. The high-intensity group includes individuals who participated in skills development, including apprenticeships, wage subsidies, job creation partnerships, or essential skills programs. Individuals in the high-intensity group may have participated in these programs in combination with EAS or job counseling, or interventions from other programs.

These comparison groups help us learn generally about whether high-intensity interventions improve outcomes among ASETS participants. Some programs might be more effective than others, and by grouping the interventions together, we estimate a weighted average of the effects across the different types and combinations of high-intensity interventions relative to EAS or job counseling.<sup>2,3</sup>

Figures A.1 and A.2 display the frequency of interventions by sex. High-intensity interventions appear in gray bars for skills development, wage subsidies, essential skills training, or multiple interventions. The skills development, wage subsidies, and essential skills training categories include people who combined those interventions with EAS or job counseling. The multiple interventions category includes people who participated in more than one type of high-intensity intervention, whether in combination with low-intensity or not. The individuals who participated in job creation partnerships are also included with the multiple interventions because there are too few to represent separately. We show the distribution of intervention types to demonstrate the different mixes within the samples of men and women, but all the high-intensity categories are grouped together in the estimation. The proportions of people receiving a low-intensity interventions are depicted by black bars.

One important difference between our comparison groups is the duration of interventions. Figures A.3 and A.4 plot the duration of the days of participation in ASETS for both the high- and low-intensity groups. For both men and women, the average number of days of participation are much higher in the high-intensity group.

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<sup>2</sup>This may be relevant, for instance, if individuals who participate in apprenticeships move between employment and ASETS participation more frequently than with other types of interventions.

<sup>3</sup>When there are multiple unordered alternatives, evaluating the effectiveness of a specific intervention relative to another—for example, essential skills development compared to wage subsidies—requires either very restrictive assumptions on selection into different interventions or information on individuals’ rankings of the various interventions (Kirkeboen et al., 2016).

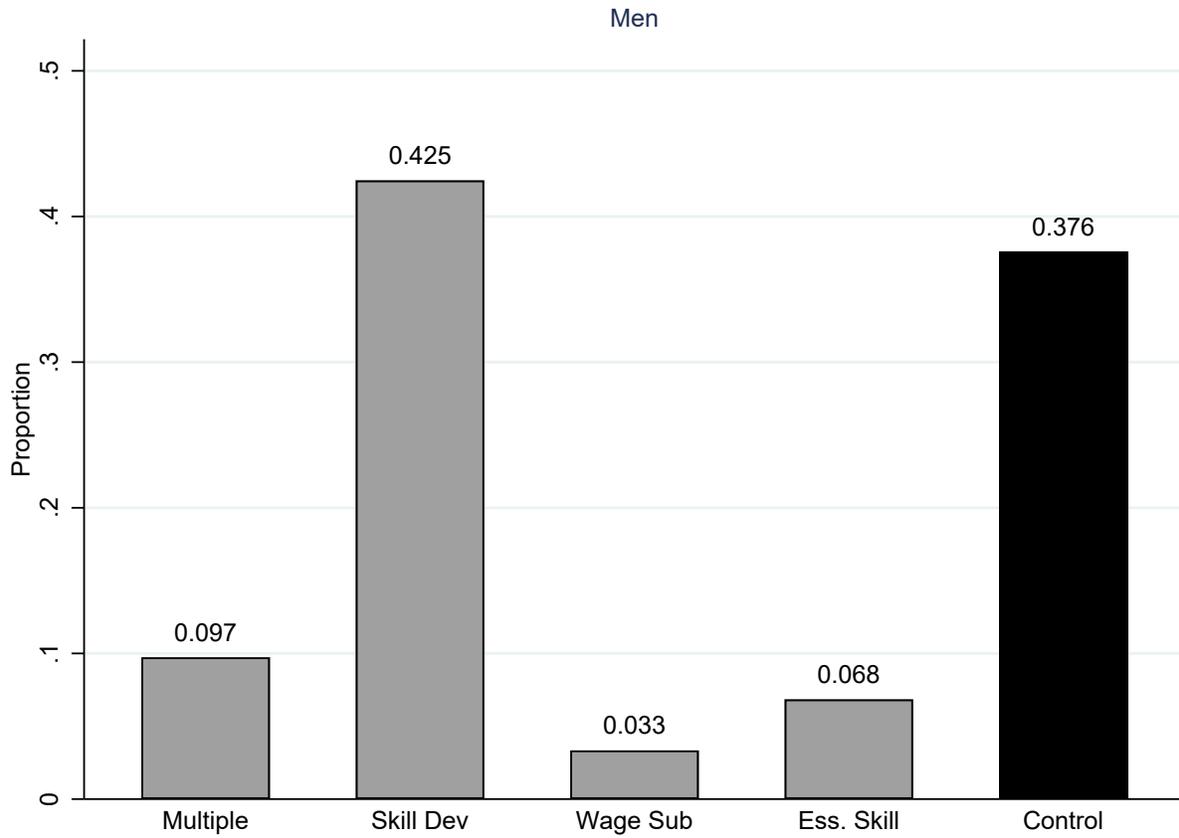


Figure A.1: Distribution of Intervention Type for Men

Distribution of intervention types. The category “multiple” represents individuals who took part in more than one high-intensity intervention and those who took part in job creation partnerships.

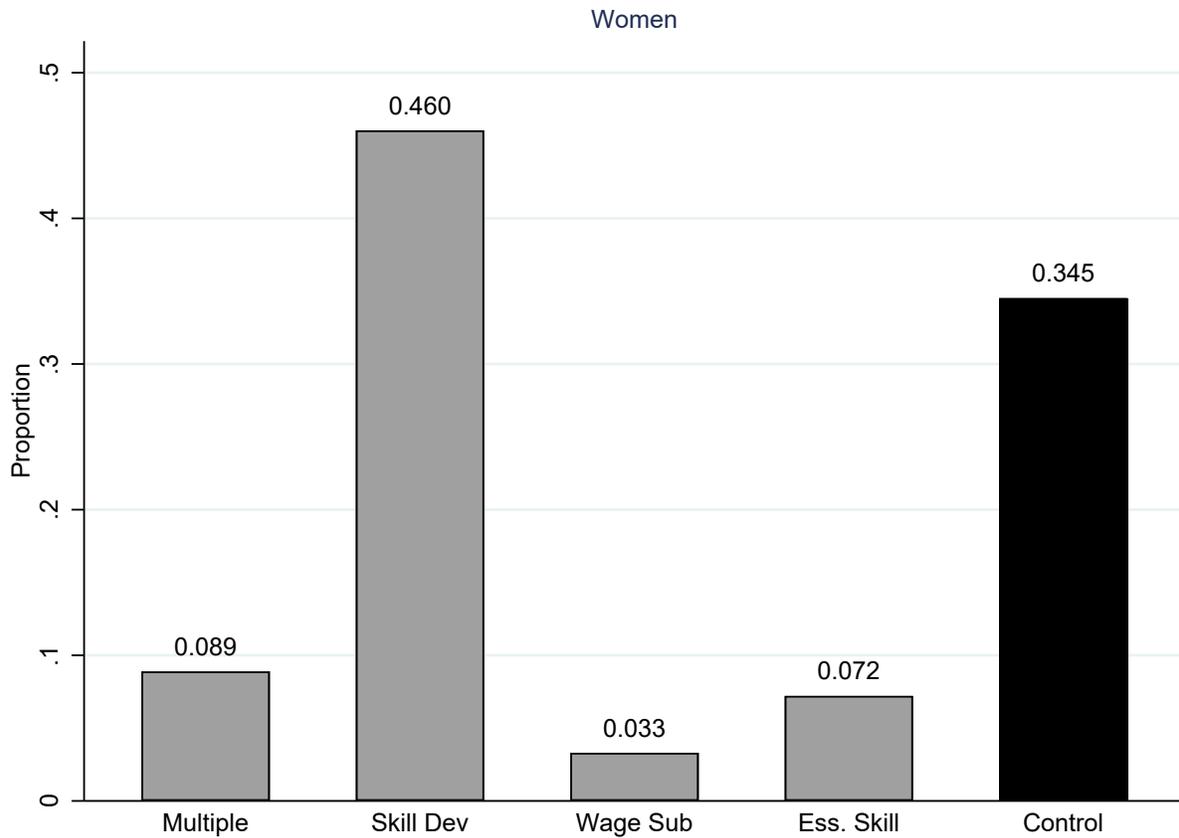


Figure A.2: Distribution of Intervention Type for Women

Distribution of intervention types. The category “multiple” represents individuals who took part in more than one high-intensity intervention and those who took part in job creation partnerships.

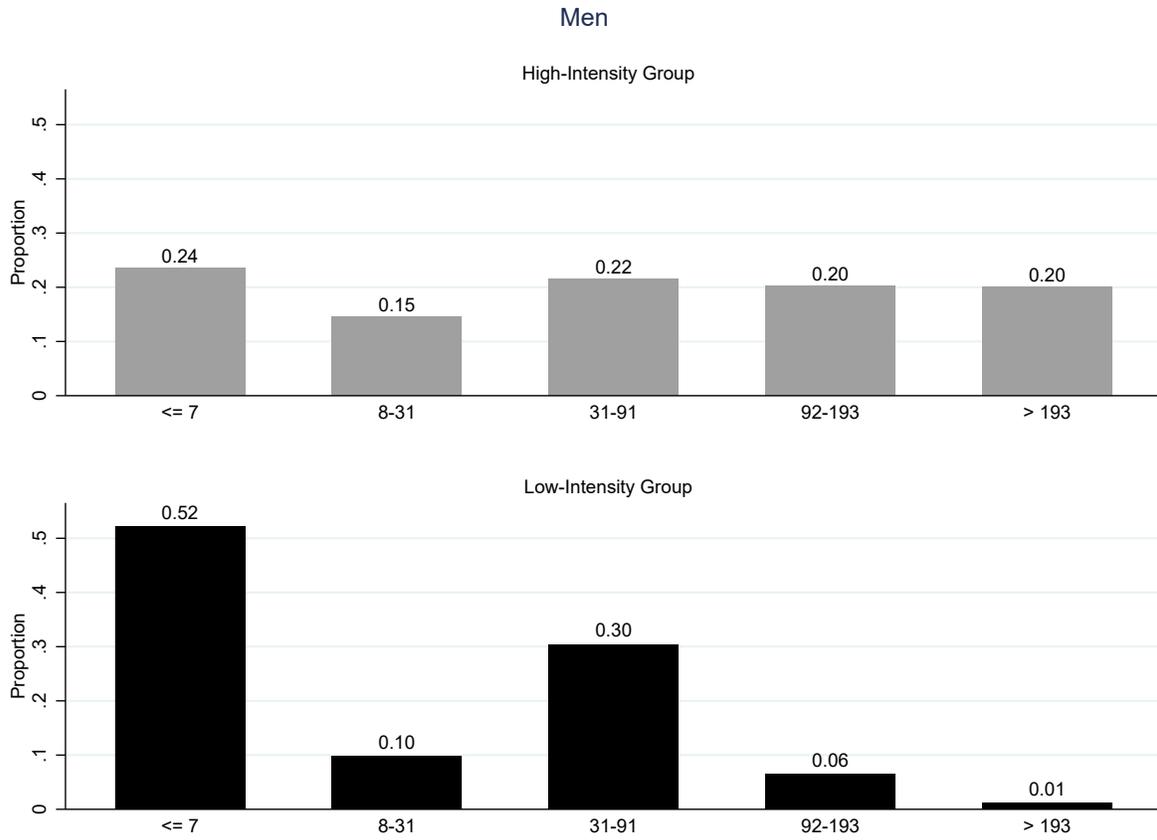


Figure A.3: Duration in Days of the First ASETS Program Participation for Men

The duration is reported based on the start and end dates for all interventions included in the ASETS participation that we analyze. Durations do not include gaps in participation.

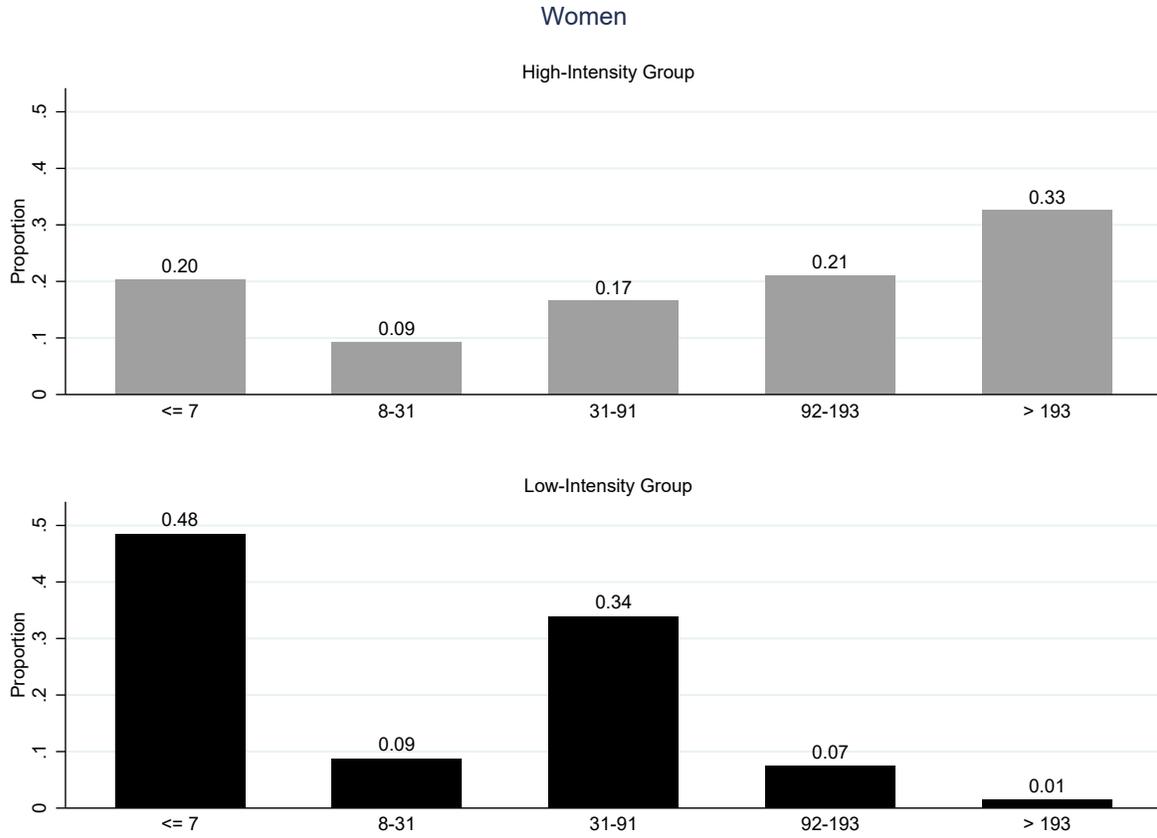


Figure A.4: Duration in Days of the First ASETS Program Participation for Women

The duration is reported based on the start and end dates for all interventions included in the ASETS participation that we analyze. Durations do not include gaps in participation.

## B Variable Definitions

The outcome we study in this paper is annual earnings in the second year following first entry into an ASETS intervention. For example, if an individual's first ASETS participation was in 2011, earnings in the second post-participation year are measured in 2013. We create a measure of annual earnings using T4 records. The T4 form is completed and filed with the Canada Revenue Agency by employers for any employment where pension contributions, Employment Insurance (EI) premiums or income tax have been deducted, or when no deductions have been made, if the earnings were more than \$500. When individuals work for more than one employer in a given year, there are multiple T4 records. We aggregate gross earnings from all T4 records in a given year. Gross earnings include earnings recorded in Box 14, and tax-exempt earnings in Box 71. Earnings from employment on a reserve are tax exempt for First Nations people who have Status under the *Indian Act*, however, those earnings are recorded on T4 forms because they are EI insurable. Because the T4 records provide comprehensive coverage of employment income, we set earnings equal to zero for those without any T4 records in a given year.

We use a comprehensive set of control variables to estimate the propensity score which predicts participation in high-intensity interventions. We describe those variables in the following subsections.

### *Demographics*

The demographic variables we observe in our data include age, marital status, presence of children, Indigenous population group, and disability status. Age is measured at the time the program begins using the participants' dates of birth.

To create the variables for marital status and presence of children, we use data from the T1 in the year prior to starting the ASETS program. We create an indicator that equals one if an individual filed taxes in the year prior and their tax file indicated that they had dependent children. We also include an indicator for living in a married or common law relationship. We observe an individual's Indigenous population group on a demographic database that is constant across time. The population groups included in the data are Status First Nations, non-Status First Nations, Métis, Inuit, and a group who is identified as Indigenous, but whose population group is not recorded in the data. Finally, we construct a disability indicator that equals to one if, when individuals started their first ASETS spell, they are recorded on the program participation records as having any type of disability, including developmental, learning, psychiatric, physical, or unspecified disabilities.

### *Income from T1 Files*

From the T1 tax records, we include a control for total income in the year preceding the first year of participation in ASETS. Because individuals can enter ASETS at any time during a calendar year and the T1 and T4 forms record total earnings and income across a calendar year, we do not include any variable from the same year that the participants enter ASETS. Total income is gross of taxes and includes income from employment, self-employment, pensions, taxable government transfers, social assistance payments, support payments, dividends, rental income, investment income and taxable capital gains. For individuals with no T1 information these values are set to zero, and indicator for not having a T1 record is included. We also include a variable that is the sum of income in the 2 to 10 prior years. Similarly, we include social assistance income in the year prior and the cumulative social assistance income in the 2 to 10 prior years. These values are also set to zero if there are no records, and a dummy variable indicating no social assistance income is included

### *Variables from the T4 Files*

We create measures of gross annual earnings in the same way we construct the outcome variable. We include annual earnings in the years 1 -5 preceding the first ASETS participation, as well as a measure of cumulative earnings in the 5 to 10 prior years. We create employment indicators for each of the 1 to 5 prior years that equal one if earnings are greater than zero. We also separately include cumulative tax-exempt earnings in the three years prior to ASETS participation, and a variable indicating if there are no tax-exempt earnings. We include only three prior years because the Box 71 data begins in 2007.

We also use the T4 records to create another set of variables, and we set each of these variables equal to zero when the individual had no T4 records prior to the ASETS intervention. Accompanying these variables is a dummy variable that equals one if a person has no prior T4 records. We generate variables for whether the individual had at least one T4 in the past five years, as well as, the number of years, out the past five years, in which the individual had at least one T4. There is a variable that indicates whether the last T4 job included union dues, and the number of years, out the past five years, in which there was a T4 where union dues were recorded. Finally, we include a set of dummy variables for the industry associated with the T4 employment in the most recent year prior to the intervention start year. If there were more than one T4 in that year, we used the industry of the employer with which the sample members had their highest earnings. The industry

dummies correspond to the first two digits of the NAICS. Because a much higher fraction of individuals, compared to the total Indigenous population, work in the NAICS industry 914, “Aboriginal Public Administration”, we also create a variable that equals one if an individual had ever worked in this industry in the past 5 years.

#### *Previous EI use and Occupations from the EI Status Vector*

Using the data from EI status vector, we construct variables measuring previous receipt of EI. We include controls for the total number of weeks of EI receipt, and the total value of EI Benefits in the 5 years preceding the ASETS start date. We include any type of benefits in these measures. These variables are set to zero if there is no prior EI receipt. We also include a set of dummies representing the occupations recorded on the most recent prior EI claim. One of the categories represents individuals who have never had an EI claim. We create a set of four variable that indicate the participants’ EI eligibility status at the time they enter ASETS: 1) an EI claim was active at the start of program participation or a claim was establish with 28 days, 2) the most recent claim ended within 3 years of starting ASETS, 3) the most recent claim ended more than 3 after starting ASETS, and 4) the participant has had no prior claim. For those with an active EI claim, we include measures of the number of days between when the EI claim was initiated and when they started an ASETS intervention, the number of weeks in which the participant had earnings in the period between the start of the EI claim and the start of ASETS, and the number of insured hours of work the participant had when establishing the claim that was active when ASETS participation began.

#### *Variables from ROE Files*

We use data from the Record of Employment (ROE) files to characterize the last spell of employment that terminated prior to the individual’s ASETS spell. There is a set of dummy variables indicating why the job was terminated: layoff, quit, dismissal, return to school or apprentice training, illness, injury or leave, and other reasons. This set also includes an indicator for not having a prior ROE. We also create a variable that equals one if there is a ROE that indicates the person was working when they began their ASETS participation. It is worth noting that this latter variable only partially measures employment at the program start, because we do not observe on-going employment in the ROEs, only employment that terminated before 2017.

### *Prior program participation*

We use the ILMP database to generate variables that characterize program participation prior to the first ASETS spell. We include an indicator for whether the prior program was completed. We also include the duration of the prior intervention, and the total amount of time spent in any interventions prior to starting the first ASETS spell. There is also an indicator for whether the last program was a “high-intensity” intervention, as opposed to counseling or employment assistance services, and a variable that measures the total time spent in high-intensity participation prior to the ASETS spell.

### *FSA Aggregates*

Using all of the T4 records on the data platform, we construct two aggregate variables at the FSA level: earnings and unemployment. These variables are generated from the full sample of clients in the LMPDP. The data contains the first three digits of postal codes for each year in which participants filed a T1. If an individual is missing a postal code in a given year, we use their most recent postal code up to a maximum of three years prior to the missing year. So for instance, if an individual is missing a postal code in 2013, we use their 2012 postal code if it is available. Given that individuals may move and that the probability of this increases with time, we do not look for postal codes farther back than three years. We also only use individuals aged 18-60 in each year to generate aggregates. Given these adjustments, we then compute the average earnings and employment (=1 if an individual has a T4 record in a given year) by FSA-year. These variables are used to control for potential labor market conditions in the FSA in which individuals reside; however, they come with the caveat that they are constructed using the sample of individuals in the LMPDP and may not be representative of the broader labor market conditions of a given region.

## C Empirical Methodology

This section describes our empirical methodology using language that is common in the program evaluation literature that refers to “treatment” and “control” groups, which in our case is analogous to the “high-intensity intervention” group and the “low-intensity intervention” group, respectively. Differences in the outcomes of these groups are referred to as “average treatment effects” when we are discussing mean differences and “quantile treatment effects” when we are discussing differences in outcomes at various quantiles of the outcome distribution. Specifically, we use a doubly-robust inverse propensity score weighted regression adjustment procedure to estimate average treatment effects and the unconditional quantile treatment effects estimator if [Firpo \(2007\)](#) to estimate quantile treatment effects. Both strategies identify ATEs and QTEs under the assumption of strong ignorability. Identification of QTEs further requires uniqueness of quantiles. This section describes identification in more detail, followed by a discussion of the estimation methods used. We then provide evidence that the identification assumptions are plausible in our context.

### C.1 Identification

The potential outcomes framework forms the theoretical basis for our estimation strategy. In this framework,  $Y_i^1$  is the earnings that person  $i$  would experience had they participated in treatment  $D$ . Analogously,  $Y_i^0$  is the earnings in the counterfactual where person  $i$  did not participate in the treatment. In the data, only one the potential outcome is ever observed. With that in mind, the observed outcome can be written as:

$$Y_i(D_i) = Y_i^1 D_i + Y_i^0 (1 - D_i) \tag{1}$$

where  $D_i = 1$  when a person participates in treatment and zero otherwise. Each individual is associated with a matrix of covariates  $X_i$ , which are assumed to be unaffected by treatment. If assignment to treatment is not random, as is the case with ASETS, further restrictions are needed to identify the effect of participation. The following assumptions, known collectively as *strong ignorability*, must be met in order to estimate average effects by adjusting for differences in covariates across treated and control units:

$$(Y_i^0, Y_i^1) \perp D_i | X_i \quad (\text{unconfoundedness}) \tag{2}$$

$$0 \leq p(x) < 1 \quad (\text{overlapping support}), \tag{3}$$

where,  $p(x) = \mathbb{E}[D_i | X_i = x] = Pr(D_i = 1 | X_i = x)$  is the propensity score.

Given unconfoundedness and a common support, we can then identify the average treat-

ment effect (ATE) as:

$$\alpha_{ATE} = \mathbb{E} \left[ Y_i^1 - Y_i^0 \right] \quad (4)$$

In addition to strong ignorability, identification of the quantile treatment effects (QTE) also require uniqueness of quantiles, which is equivalent to requiring that the distribution functions of each of the potential outcomes are continuous and are not flat at any percentile. Under these assumptions, then QTEs are identified as:

$$\Delta_\tau = \mathbb{E} \left[ \frac{D_i}{p(X_i)} \cdot \mathbb{1}\{Y \leq q_{1,\tau}\} - \frac{1 - D_i}{1 - p(X_i)} \cdot \mathbb{1}\{Y \leq q_{0,\tau}\} \right], \quad (5)$$

where,  $\tau$  is a real number in  $(0, 1)$ , and  $q_{j,\tau} \equiv \inf_q \Pr[Y(j) \leq q] \geq \tau, j = 0, 1$ .

It is important to keep in mind that we do not estimate an average or quantile treatment effects for the population. Instead, we condition on participation in ASETS, and as such, the treatment effects we estimate are actually conditional effects.

There are several practical ways to estimate  $\alpha_{ATE}$  and  $\Delta_\tau$ . The next section discusses our estimation strategies, followed by an analysis of the plausibility of each underlying assumption.

## C.2 Estimation

We estimate average treatment effects using a doubly robust procedure that combines inverse propensity weighting and a regression-based adjustment (henceforth, doubly robust IPW-RA). This strategy requires an estimate for the propensity score, or the probability of being in high-intensity training,  $\hat{p}(X_i)$ . The regression adjustment piece is a regression of the outcome  $Y_i$  on a set of covariates separately for the treatment and control groups generating fitted values  $\hat{\mu}_1(X_i)$  and  $\hat{\mu}_0(X_i)$ , respectively. These pieces are combined in the following way for the ATE:

$$\hat{\alpha}_{ATE} = \frac{1}{N} \sum_{i=1}^N \left( \frac{D_i(Y_i - \hat{\mu}_1(X_i))}{\hat{p}(X_i)} + \hat{\mu}_1(X_i) \right) - \frac{1}{N} \sum_{i=1}^N \left( \frac{(1 - D_i)(Y_i - \hat{\mu}_0(X_i))}{1 - \hat{p}(X_i)} + \hat{\mu}_0(X_i) \right) \quad (6)$$

The benefit of this procedure is that only one of the two models—either the propensity score or the regression adjustment—need to be correctly specified to obtain unbiased parameter estimates (Bang and Robins, 2005).<sup>4</sup>

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<sup>4</sup>Intuitively, equation (6) can be rearranged and expressed as an estimator for the mean response if everyone had been treated/untreated plus an augmentation comprised of the product of two bias terms.

We estimate all the parts of (6) simultaneously using a Generalized Method of Moments estimator.<sup>5</sup> In the regression adjustment models, we control for factors that directly affect labor market outcomes, including sex, Indigenous population group, previous earnings and employment, age and age-squared, marital status, disability status, an indicator for children, and the year of program entry.

To estimate QTEs, we use the two-step approach of [Firpo \(2007\)](#).<sup>6</sup> The first step estimates the propensity score,  $\hat{p}(X_i)$ , nonparametrically and the second stage minimizes the criterion function:

$$G_{\tau,N}(q; \hat{p}(X_i)) = \frac{1}{N} \sum_{i=1}^N \frac{D_i}{\hat{p}(X_i)} \cdot (Y_i - q) \cdot (\tau - \mathbb{1}\{Y_i \leq q\}), \quad (7)$$

Our estimation methods can identify the ATE and QTEs under the assumption of strong ignorability and QTEs under the additional assumption of uniqueness of quantiles described in section C.1. In what follows, we provide evidence supporting the overlapping support and uniqueness assumptions, as we discuss the plausibility of unconfoundedness in detail in the main text of the paper.

### C.3 Overlapping Support

For men and women, respectively, Figures C.5 and C.6 report the distribution of estimated propensity scores in the high- and low-intensity groups. To construct each figure, we estimate the propensity scores by computing the fitted values from a logit model where the dependent variable is an indicator for high-intensity participation, and the control variables include all those described in section B.

Overall, there is considerable overlap in the propensity-score distributions for both men and women. To some degree, this is likely due to fact that we condition on ASETS participation. To further ensure we have overlapping support, we trim observations whose propensity scores are above 0.9 or below 0.1. These bounds were suggested by [Crump et al. \(2009\)](#) to provide a good approximation of the bounds selected under an optimal rule for minimizing the asymptotic variance.<sup>7</sup> In the figures, those bounds are depicted by solid red lines. After trimming observations above 0.9 and below 0.1, we still have occurrences of a very small amount mass in one group with no mass at the same point the support of the

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One bias term is derived from the propensity score model and the other from the outcome regression model. Since the augmentation is the product of two bias terms, only one bias term needs to be 0 in order for the estimate of the ATE to provide an unbiased estimate of the population ATE ([Funk et al., 2011](#)).

<sup>5</sup>Specifically, we use the Stata `teffects ipwra` routine.

<sup>6</sup>This is implemented using the `ivqte` syntax in Stata ([Fölich and Melly, 2010](#)).

<sup>7</sup>[Bodory et al. \(2020\)](#) suggest an optimal trimming procedure for finite samples. In practice, our samples are so large this method does not identify any observations for trimming.

other group. To eliminate these areas without common support we drop observations in the top and bottom one-tenth of a percentile of the overall propensity score distribution. The top and bottom one-tenth of a percentile are indicated on the figures by the dashed blue line. Overall, we drop 1,677 observations for men, and 1,492 observations for women, representing 2.6% and 2.7% of the sample, respectively.

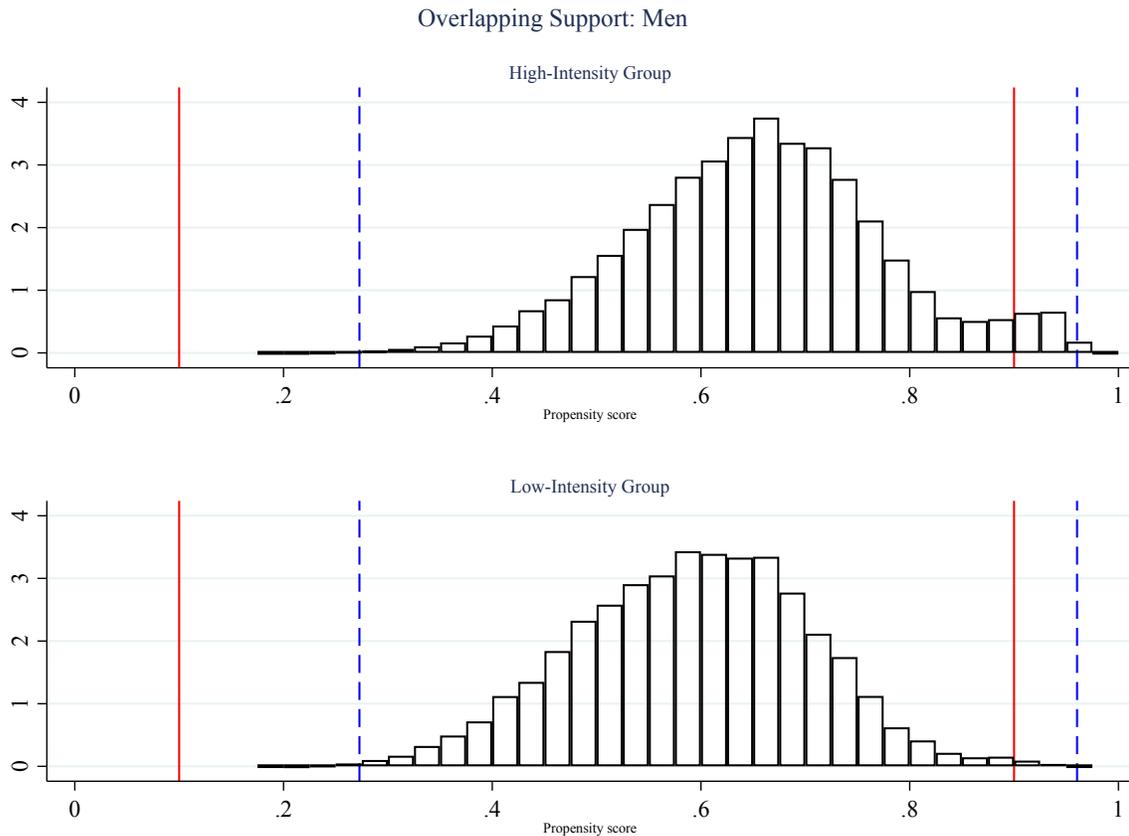


Figure C.5: Histogram of Estimated Propensity Scores: Men

The propensity score is the estimated probability of participating in high-intensity training, estimated using a Logit model. The red vertical lines mark the levels of 0.1 and 0.9. The dashed blue lines indicate the top and bottom one-tenth of a percentile in the propensity score distribution. The sample is trimmed at the minimum of these two lines in the upper tail, and the maximum in the lower tail.

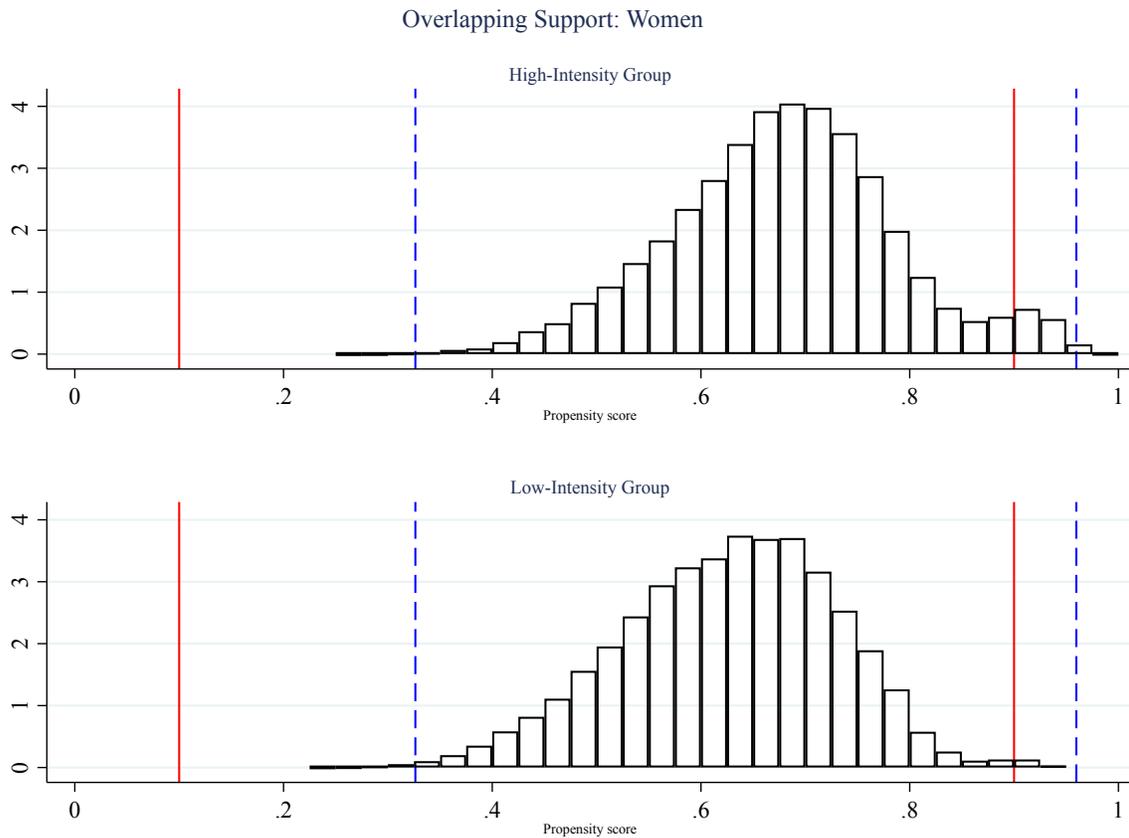


Figure C.6: Histogram of Estimated Propensity Scores: Women

The propensity score is the estimated probability of participating in high-intensity training, estimated using a Logit model. The red vertical lines mark the levels of 0.1 and 0.9. The dashed blue lines indicate the top and bottom one-tenth of a percentile in the propensity score distribution. The sample is trimmed at the minimum of these two lines in the upper tail, and the maximum in the lower tail.

## C.4 Uniqueness of Quantiles

The final assumption required for identifying QTEs is that the quantiles are unique. To assess this assumption, we plot the CDFs of earnings two-years post program participation for high-intensity and low-intensity programs. We do this separately for men and women in Figure C.7. The top panel displays CDFs for men and the bottom panel for women. Here, we see quite clearly that the distributions are smooth across all quantiles, in both high- and low-intensity groups, and for both the male and female samples.

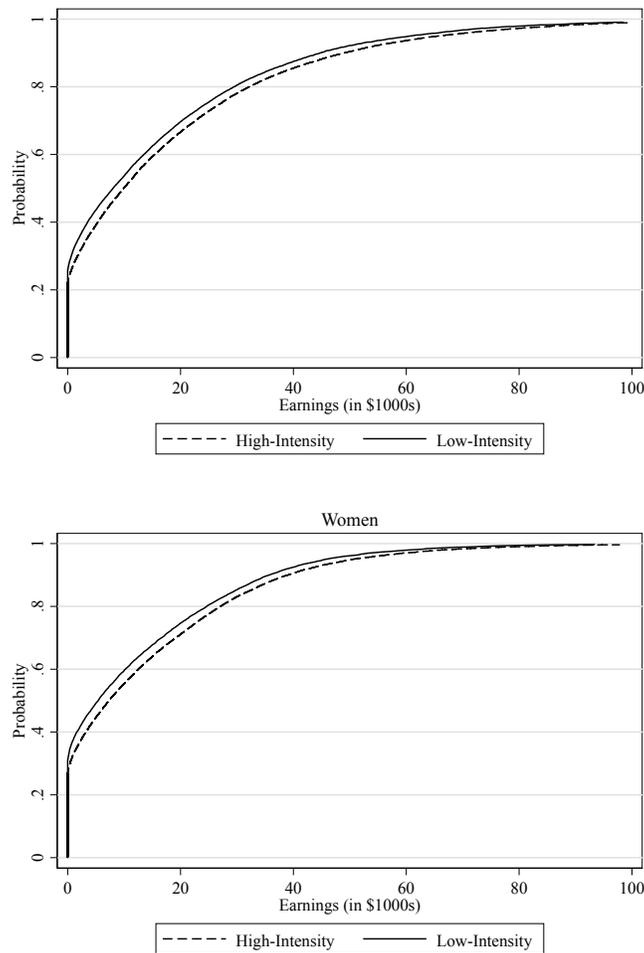


Figure C.7: CDFs for Earnings Two Years Post Participation

The CDFs display the probability of observing an individual whose earnings fall at or below the level of earnings indicated along the horizontal axis. Earnings are displayed in \$1,000s.

## C.5 ATE Versus ATT

As is common in the program evaluation literature, we also estimate the Average Treatment Effect on the Treated (ATT) in addition to the ATE. Assuming strong ignorability holds, then the ATT is identified by:

$$\alpha_{ATT} = \mathbb{E} [Y_i^1 - Y_i^0 | D_i = 1] \quad (8)$$

We also use the doubly-robust IPW-RA procedure to estimate the ATT, which we find to be very close to the ATE displayed in the main text of the paper.

Table C.1: Earnings Effects Two Years Post

|                                  | Men                   |         | Women                 |         |
|----------------------------------|-----------------------|---------|-----------------------|---------|
|                                  | Estimate              | Level   | Estimate              | Level   |
| <i>Average Treatment Effects</i> |                       |         |                       |         |
| ATE                              | 0.7585***<br>(0.2186) | 16.3359 | 1.1812***<br>(0.1761) | 12.6358 |
| ATT                              | 0.7631***<br>(0.2501) |         | 1.2857***<br>(0.2099) |         |
| Sample Size                      | 63,766                | 63,766  | 54,631                | 54,631  |

The dependent variable is earnings 2 years post-participation and is reported in \$1,000s. All dollars are real 2010 Canadian dollars. Standard errors in parentheses clustered by Forward Sortation Area. Columns titled Level present the level of the mean in the control group.

Table C.1 displays the ATEs and ATTs for men and women. For men, the ATE is 0.759 and the ATT is 0.763, while for women the ATE is 1.181 and the ATT is 1.286. The similarity of these estimates suggests that those who receive high-intensity training do not benefit differentially from those who receive low-intensity training.

## D Summary Statistics

In this appendix, we report summary statistics for our control variables and a descriptive figure for the earnings outcome both before and after ASETS participation. Figure D.8 reports the differences earnings quantiles between the high- and low-intensity groups. The differences in earnings one year prior to ASETS participation, and two years post-participation are shown in the top and bottom panels respectively. These figures are based on the sample after trimming observations using the procedure described in section C.3. The data is unweighted, however, to provide a descriptive summary of the outcomes pre- and post-participation. The top panel reveals that even before reweighting the data, below the 90th percentile, the earnings quantiles prior to ASETS participation are quite similar in the high- and low-intensity groups. We do not estimate quantile effects above the 90th percentile.

For the control variables used to estimate the propensity score, we first report summary statistics for some selected variables in Table D.2 showing the sample of men and women side-by-side for comparison. We also include summary statistics separately for men (Table D.3) and women (Table D.4) for the full set of control variables. In each of these tables, we report the mean and standard deviation in the high- and low-intensity groups, then we report the difference in means and the standard error of that difference in parentheses. Because our sample is very large, even small differences can be statistically significant. For this reason, we report the normalized differences that provide a measure of the difference that does not depend on scale or sample size (Imbens, 2015).<sup>8</sup>

Most of the normalized differences in Tables D.3 and D.4 are small. Imbens and Rubin (2015) suggest that a normalized difference below 0.13 is a degree of balance comparable to random assignment. In our data, for both men and women, only four covariates have normalized differences exceeding 0.13 and most are below 0.10. Although the normalized differences do not provide information on unobservable characteristics that differ between high- and low-intensity groups, they do provide evidence that even before we re-weight the data to account for the potential of non-random selection, the comparison groups are reasonably balanced.

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<sup>8</sup>The normalized difference for covariate  $X_{i,k}$  is defined as:  $\Delta_{X,k} = \frac{\bar{X}_{h,k} - \bar{X}_{l,k}}{\sqrt{(S_{X,h,k}^2 + S_{X,l,k}^2)/2}}$ , where  $\bar{X}_{h,k}$  and  $\bar{X}_{l,k}$  are the means of  $X_{i,k}$  for the high- and low-intensity groups, respectively, and  $S_{X,h,k}^2$  and  $S_{X,l,k}^2$  are the standard deviations for the high- and low-intensity groups, respectively.

### Difference in Earnings Quantiles High- and Low-Intensity Participants

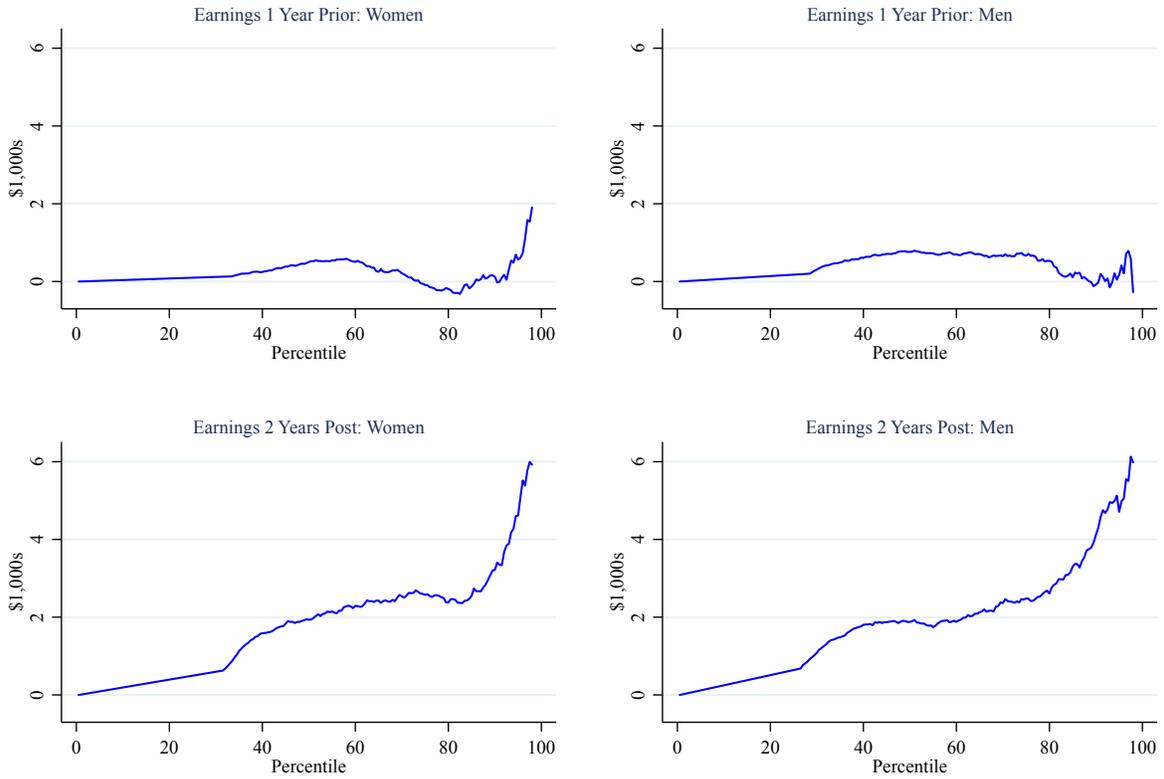


Figure D.8: Differences in Earnings Quantiles, One Year Prior and Two Years Post

Differences in earnings quantiles between the high- and low-intensity groups are reported for the year prior to the first ASETS intervention in the top panel, and two year after starting an ASETS intervention in the bottom panel. Unweighed differences for the trimmed sample are reported.

Table D.2: Descriptive Statistics for Men and Women

|                          | Men            |        |               |        |                      |        | Women          |        |               |        |                      |        |
|--------------------------|----------------|--------|---------------|--------|----------------------|--------|----------------|--------|---------------|--------|----------------------|--------|
|                          | High-Intensity |        | Low-Intensity |        | Diff.                | Norm.  | High-Intensity |        | Low-Intensity |        | Diff.                | Norm.  |
|                          | Mean           | S.D.   | Mean          | S.D.   |                      |        | Mean           | S.D.   | Mean          | S.D.   |                      |        |
| Rural resident           | 0.597          | 0.490  | 0.485         | 0.500  | 0.112***<br>(0.004)  | 0.226  | 0.487          | 0.500  | 0.384         | 0.486  | 0.103***<br>(0.004)  | 0.208  |
| Age                      | 31.557         | 10.859 | 32.918        | 11.003 | -1.361***<br>(0.090) | -0.124 | 31.430         | 10.756 | 32.875        | 11.146 | -1.446***<br>(0.099) | -0.132 |
| Status First Nations     | 0.705          | 0.456  | 0.723         | 0.448  | -0.017***<br>(0.004) | -0.038 | 0.674          | 0.469  | 0.693         | 0.461  | -0.019***<br>(0.004) | -0.042 |
| Métis                    | 0.124          | 0.330  | 0.108         | 0.311  | 0.016***<br>(0.003)  | 0.050  | 0.171          | 0.376  | 0.139         | 0.346  | 0.032***<br>(0.003)  | 0.088  |
| Inuit                    | 0.033          | 0.178  | 0.011         | 0.104  | 0.022***<br>(0.001)  | 0.150  | 0.025          | 0.158  | 0.011         | 0.102  | 0.015***<br>(0.001)  | 0.113  |
| Non-Status First Nations | 0.043          | 0.202  | 0.067         | 0.251  | -0.025***<br>(0.002) | -0.108 | 0.040          | 0.197  | 0.067         | 0.250  | -0.027***<br>(0.002) | -0.119 |
| Unknown, Indigenous      | 0.095          | 0.293  | 0.091         | 0.288  | 0.004<br>(0.002)     | 0.013  | 0.089          | 0.285  | 0.090         | 0.286  | -0.000<br>(0.003)    | -0.002 |
| Employed 1 year prior    | 0.735          | 0.441  | 0.716         | 0.451  | 0.019***<br>(0.004)  | 0.043  | 0.680          | 0.467  | 0.665         | 0.472  | 0.014***<br>(0.004)  | 0.031  |
| Employed at start        | 0.114          | 0.318  | 0.126         | 0.331  | -0.011***<br>(0.003) | -0.035 | 0.146          | 0.353  | 0.160         | 0.367  | -0.014***<br>(0.003) | -0.039 |
| <b>Sample Size</b>       | 39,823         |        | 23,943        |        |                      |        | 35,712         |        | 23,943        |        |                      |        |

Diff. represents difference in means tests and Norm. represents the normalized difference.

Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|                                    | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|------------------------------------|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|                                    | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| <b>Demographic Characteristics</b> |                       |             |                      |             |                      |                              |
| Lives in a Rural Area              | 0.597                 | 0.490       | 0.485                | 0.500       | 0.112***<br>(0.004)  | 0.226                        |
| Urban/Rural info missing           | 0.086                 | 0.281       | 0.086                | 0.281       | -0.000<br>(0.002)    | -0.001                       |
| Married                            | 0.227                 | 0.419       | 0.191                | 0.393       | 0.036***<br>(0.003)  | 0.089                        |
| Has children                       | 0.096                 | 0.295       | 0.083                | 0.276       | 0.013***<br>(0.002)  | 0.045                        |
| Disability                         | 0.060                 | 0.238       | 0.050                | 0.218       | 0.010***<br>(0.002)  | 0.045                        |
| Age                                | 31.557                | 10.859      | 32.918               | 11.003      | -1.361***<br>(0.090) | -0.124                       |
| <b>Indigenous subgroup</b>         |                       |             |                      |             |                      |                              |

*Continued on next page*

Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|--|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Status First Nations                               | 0.705                 | 0.456       | 0.723                | 0.448       | -0.017***<br>(0.004) | -0.038                       |
| Métis  | 0.124                 | 0.330       | 0.108                | 0.311       | 0.016***<br>(0.003)  | 0.050                        |
| Inuit  | 0.033                 | 0.178       | 0.011                | 0.104       | 0.022***<br>(0.001)  | 0.150                        |
| Non-Status First Nations                           | 0.043                 | 0.202       | 0.067                | 0.251       | -0.025***<br>(0.002) | -0.108                       |
| Unknown, Indigenous                                | 0.095                 | 0.293       | 0.091                | 0.288       | 0.004<br>(0.002)     | 0.013                        |
| <b>Earnings prior to program entry (\$1,000's)</b> |                       |             |                      |             |                      |                              |
| 1 year prior                                       | 12.830                | 18.801      | 12.483               | 18.662      | 0.347**<br>(0.153)   | 0.019                        |

*Continued on next page*

Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|--|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| 2 years prior                            | 12.589                | 18.738      | 12.387               | 18.864      | 0.202<br>(0.154)     | 0.011                        |
| 3 years prior                            | 12.036                | 18.310      | 11.991               | 18.439      | 0.045<br>(0.150)     | 0.002                        |
| 4 years prior                            | 11.356                | 17.533      | 11.572               | 18.025      | -0.216<br>(0.146)    | -0.012                       |
| 5 years prior                            | 10.675                | 17.987      | 11.038               | 17.352      | -0.362**<br>(0.144)  | -0.021                       |
| Total 6-10 years prior                   | 40.387                | 66.513      | 42.338               | 66.968      | -1.950***<br>(0.546) | -0.029                       |
| <b>Employment prior to program entry</b> |                       |             |                      |             |                      |                              |
| 1 year prior                             | 0.735                 | 0.441       | 0.716                | 0.451       | 0.019***<br>(0.004)  | 0.043                        |
| 2 years prior                            | 0.720                 | 0.449       | 0.702                | 0.457       | 0.017***             | 0.038                        |

*Continued on next page*

Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|   | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>   | <b>Normalized<br/>Difference</b> |
|---|-----------------------|-------------|----------------------|-------------|---------------------|----------------------------------|
|   | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                     |                                  |
| 3 years prior   | 0.709                 | 0.454       | 0.698                | 0.459       | 0.011***<br>(0.004) | 0.024                            |
| 4 years prior   | 0.694                 | 0.461       | 0.689                | 0.463       | 0.005<br>(0.004)    | 0.012                            |
| 5 years prior   | 0.665                 | 0.472       | 0.670                | 0.470       | -0.005<br>(0.004)   | -0.010                           |
| <b>Tax exempt earnings prior to program entry (\$1,000's)</b> |                       |             |                      |             |                     |                                  |
| Total 1-3 years prior   | 14.248                | 33.273      | 11.023               | 30.177      | 3.225***<br>(0.257) | 0.102                            |
| No prior T4S records  | 0.035                 | 0.185       | 0.032                | 0.177       | 0.003*<br>(0.001)   | 0.016                            |
| Had a T4 in last five years                                   | 0.981                 | 0.137       | 0.978                | 0.146       | 0.003**<br>(0.001)  | 0.018                            |

*Continued on next page*

Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|   | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|---|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|   | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Years with T4 records in past 5           | 3.527                 | 1.693       | 3.479                | 1.707       | 0.048***<br>(0.014)  | 0.028                        |
| Last T4 included union dues               | 0.108                 | 0.311       | 0.125                | 0.331       | -0.017***<br>(0.003) | -0.052                       |
| Years with union dues in past 5           | 0.297                 | 0.859       | 0.327                | 0.898       | -0.030***<br>(0.007) | -0.034                       |
| <b>Industry of previous employer</b>      |                       |             |                      |             |                      |                              |
| Ever worked for a First Nation            | 0.484                 | 0.500       | 0.392                | 0.488       | 0.092***<br>(0.004)  | 0.186                        |
| Agriculture, forestry, fishing, hunting   | 0.042                 | 0.201       | 0.045                | 0.208       | -0.003*<br>(0.002)   | -0.014                       |
| Mining, quarrying, oil and gas extraction | 0.036                 | 0.187       | 0.031                | 0.174       | 0.005***<br>(0.001)  | 0.027                        |
| Utilities and construction                | 0.161                 | 0.367       | 0.191                | 0.393       | -0.030***            | -0.080                       |

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Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|                                     | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|-------------------------------------|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|                                     | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Manufacturing                       | 0.050                 | 0.219       | 0.060                | 0.238       | (0.003)<br>-0.010*** | -0.043                       |
| Wholesale trade                     | 0.018                 | 0.134       | 0.022                | 0.146       | (0.002)<br>-0.004*** | -0.025                       |
| Retail trade                        | 0.066                 | 0.248       | 0.057                | 0.232       | (0.001)<br>0.009***  | 0.037                        |
| Transportation and warehousing      | 0.024                 | 0.154       | 0.029                | 0.167       | (0.002)<br>-0.004*** | -0.026                       |
| Information and cultural industries | 0.003                 | 0.059       | 0.004                | 0.064       | (0.001)<br>-0.001    | -0.009                       |
| Finance and insurance               | 0.005                 | 0.069       | 0.007                | 0.085       | (0.001)<br>-0.002*** | -0.032                       |
| Real estate and rental and leasing  | 0.014                 | 0.117       | 0.015                | 0.120       | (0.001)<br>-0.001    | -0.005                       |

*Continued on next page*

Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|   | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|---|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|   | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Professional, scientific and tech. services | 0.018                 | 0.133       | 0.019                | 0.138       | -0.001<br>(0.001)    | -0.010                       |
| Management of companies and enterprises     | 0.008                 | 0.086       | 0.008                | 0.089       | -0.000<br>(0.001)    | -0.006                       |
| Waste management admin and support          | 0.068                 | 0.252       | 0.099                | 0.298       | -0.030***<br>(0.002) | -0.110                       |
| Educational services                        | 0.021                 | 0.145       | 0.020                | 0.138       | 0.002<br>(0.001)     | 0.013                        |
| Health care, social assist., arts, rec.     | 0.042                 | 0.200       | 0.047                | 0.211       | -0.005***<br>(0.002) | -0.024                       |
| Accommodation and food services             | 0.052                 | 0.221       | 0.056                | 0.230       | -0.004**<br>(0.002)  | -0.019                       |
| Other services (except public admin)        | 0.031                 | 0.173       | 0.031                | 0.173       | -0.000<br>(0.001)    | -0.000                       |
| Public administration                       | 0.257                 | 0.437       | 0.170                | 0.376       | 0.086***             | 0.212                        |

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Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|   | <u>High-Intensity</u> |         | <u>Low-Intensity</u> |         | Difference                     | Normalized Difference |
|---|-----------------------|---------|----------------------|---------|--------------------------------|-----------------------|
|   | Mean                  | S.D.    | Mean                 | S.D.    |                                |                       |
| Missing industry or no prior t4         | 0.084                 | 0.277   | 0.090                | 0.286   | (0.003)<br>-0.006**<br>(0.002) | -0.022                |
| <b>Income from T1</b>                   |                       |         |                      |         |                                |                       |
| 1 year prior                            | 10.651                | 18.232  | 11.280               | 18.328  | -0.629***<br>(0.150)           | -0.034                |
| Cumulative Income in Years 2-10         | 70.575                | 120.850 | 78.268               | 121.116 | -7.694***<br>(0.990)           | -0.064                |
| Had Social Assistance Income 1 Yr Pre   | 0.134                 | 0.340   | 0.168                | 0.374   | -0.034***<br>(0.003)           | -0.095                |
| Social Assistance Income 1 Yr Pre       | 0.651                 | 2.209   | 0.863                | 2.531   | -0.212***<br>(0.020)           | -0.089                |
| No Social Assistance Income in Yrs 2-10 | 0.784                 | 0.411   | 0.741                | 0.438   | 0.043***<br>(0.004)            | 0.102                 |

*Continued on next page*

Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|--|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Cumulative Social Assistance in Yrs 2-10       | 1.954                 | 6.179       | 2.623                | 7.346       | -0.669***<br>(0.057) | -0.099                       |
| <b>Prior EI receipt (any type of benefits)</b> |                       |             |                      |             |                      |                              |
| Benefits in 5 prior years (\$1,000's)          | 6.623                 | 12.207      | 6.223                | 11.571      | 0.400***<br>(0.097)  | 0.034                        |
| Weeks in 5 prior years                         | 18.161                | 31.900      | 17.125               | 30.154      | 1.036***<br>(0.252)  | 0.033                        |
| Wks earnings b/w EI start-ASETS start          | 2.022                 | 7.581       | 1.918                | 7.318       | 0.104*<br>(0.061)    | 0.014                        |
| EI insured hours at ASETS start                | 0.653                 | 0.703       | 0.680                | 0.710       | -0.027***<br>(0.006) | -0.039                       |
| Months b/w start of EI and ASETS               | 23.185                | 45.365      | 26.012               | 47.880      | -2.827***<br>(0.384) | -0.061                       |
| No prior EI claim                              | 0.467                 | 0.499       | 0.450                | 0.497       | 0.017***             | 0.034                        |

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Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|--|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Former EI claimant ( <i>i</i> 3 years ago) | 0.172                 | 0.378       | 0.197                | 0.398       | (0.004)<br>-0.025*** | -0.065                       |
| Former EI claimant (within 3 years)        | 0.216                 | 0.411       | 0.221                | 0.415       | (0.003)<br>-0.005    | -0.013                       |
| Active EI claimant                         | 0.145                 | 0.352       | 0.132                | 0.338       | (0.003)<br>0.014***  | 0.040                        |
| <b>Occupation from last EI claim</b>       |                       |             |                      |             |                      |                              |
| Management                                 | 0.016                 | 0.126       | 0.014                | 0.116       | (0.001)<br>0.003**   | 0.021                        |
| Business, finance and administration       | 0.020                 | 0.141       | 0.023                | 0.150       | (0.001)<br>-0.002**  | -0.017                       |
| Health, sciences and related               | 0.024                 | 0.152       | 0.022                | 0.148       | (0.001)<br>0.001     | 0.009                        |

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Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|   | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|---|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|   | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Educ, law, community and gov't services                     | 0.021                 | 0.142       | 0.022                | 0.145       | -0.001<br>(0.001)    | -0.007                       |
| Art, culture, recreation and sport                          | 0.005                 | 0.071       | 0.006                | 0.079       | -0.001*<br>(0.001)   | -0.016                       |
| Sales and service   | 0.081                 | 0.273       | 0.079                | 0.270       | 0.002<br>(0.002)     | 0.007                        |
| Trades, transport, equipment operators                      | 0.249                 | 0.432       | 0.258                | 0.438       | -0.009***<br>(0.004) | -0.022                       |
| Nat. resources, agriculture and related.                    | 0.079                 | 0.269       | 0.078                | 0.268       | 0.001<br>(0.002)     | 0.004                        |
| Manufacturing and utilities                                 | 0.041                 | 0.197       | 0.049                | 0.216       | -0.009***<br>(0.002) | -0.042                       |
| <b>Reason for separation from last Record of Employment</b> |                       |             |                      |             |                      |                              |
| No previous ROE   | 0.114                 | 0.318       | 0.092                | 0.289       | 0.022***             | 0.071                        |

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Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|                             | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>            | <b>Normalized Difference</b> |
|-----------------------------|-----------------------|-------------|----------------------|-------------|------------------------------|------------------------------|
|                             | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                              |                              |
| Working when starting ASETS | 0.114                 | 0.318       | 0.126                | 0.331       | (0.002)<br>-0.011***         | -0.035                       |
| Layoff                      | 0.366                 | 0.482       | 0.343                | 0.475       | (0.003)<br>0.022***          | 0.046                        |
| Quit                        | 0.210                 | 0.407       | 0.231                | 0.422       | (0.004)<br>-0.021***         | -0.051                       |
| Dismissal                   | 0.081                 | 0.273       | 0.104                | 0.305       | (0.003)<br>-0.023***         | -0.080                       |
| Schooling or apprenticeship | 0.033                 | 0.177       | 0.015                | 0.123       | (0.002)<br>0.017***          | 0.113                        |
| Illness, injury or leave    | 0.011                 | 0.105       | 0.013                | 0.115       | (0.001)<br>-0.002**          | -0.021                       |
| Other reasons               | 0.072                 | 0.258       | 0.075                | 0.263       | (0.001)<br>-0.003<br>(0.002) | -0.012                       |

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Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|--|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| <b>Previous participation in labour market programing</b>                    |                       |             |                      |             |                      |                              |
| Most recent prior intervention completed                                     | 0.439                 | 0.496       | 0.426                | 0.495       | 0.012***<br>(0.004)  | 0.025                        |
| Participated in training previously  | 0.593                 | 0.491       | 0.593                | 0.491       | -0.000<br>(0.004)    | -0.000                       |
| Months in most recent prior intervention                                     | 1.534                 | 2.445       | 1.501                | 2.278       | 0.034*<br>(0.019)    | 0.014                        |
| Total # of months of prior training  | 5.246                 | 9.464       | 5.271                | 9.452       | -0.025<br>(0.077)    | -0.003                       |
| <b>Local labour market (among all individuals observed on data platform)</b> |                       |             |                      |             |                      |                              |
| Unemployment Rate in FSA   | 0.192                 | 0.079       | 0.201                | 0.085       | -0.009***<br>(0.001) | -0.114                       |
| Average Earnings in FSA  | 25677.453**           | 10226.885   | 25141.894**          | 10316.745   | 535.559***           | 0.052                        |

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Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|  | <u>High-Intensity</u> |       | <u>Low-Intensity</u> |       | Difference           | Normalized<br>Difference |
|--|-----------------------|-------|----------------------|-------|----------------------|--------------------------|
|  | Mean                  | S.D.  | Mean                 | S.D.  |                      |                          |
| <b>Year of first ASETS participation</b> |                       |       |                      |       | (84.093)             |                          |
| 2010                                     | 0.046                 | 0.210 | 0.037                | 0.188 | 0.010***<br>(0.002)  | 0.048                    |
| 2011                                     | 0.279                 | 0.448 | 0.272                | 0.445 | 0.006*<br>(0.004)    | 0.014                    |
| 2012                                     | 0.269                 | 0.444 | 0.265                | 0.441 | 0.005<br>(0.004)     | 0.011                    |
| 2013                                     | 0.216                 | 0.412 | 0.222                | 0.415 | -0.005<br>(0.003)    | -0.013                   |
| 2014                                     | 0.189                 | 0.392 | 0.205                | 0.403 | -0.015***<br>(0.003) | -0.038                   |

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Table D.3: High- and Low-Intensity Group Means for Men, Differences in Means, and Normalized Differences in Means

|             | <u>High-Intensity</u> |      | <u>Low-Intensity</u> |      | Difference | Normalized<br>Difference |
|-------------|-----------------------|------|----------------------|------|------------|--------------------------|
|             | Mean                  | S.D. | Mean                 | S.D. |            |                          |
| Sample Size | 39,823                |      | 23,943               |      |            |                          |

Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|                                    | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|------------------------------------|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|                                    | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| <b>Demographic Characteristics</b> |                       |             |                      |             |                      |                              |
| Lives in a Rural Area              | 0.487                 | 0.500       | 0.384                | 0.486       | 0.103***<br>(0.004)  | 0.208                        |
| Urban/Rural info missing           | 0.049                 | 0.216       | 0.052                | 0.222       | -0.003<br>(0.002)    | -0.014                       |
| Married                            | 0.229                 | 0.420       | 0.203                | 0.402       | 0.026***<br>(0.004)  | 0.064                        |
| Has children                       | 0.284                 | 0.451       | 0.284                | 0.451       | 0.000<br>(0.004)     | 0.001                        |
| Disability                         | 0.050                 | 0.218       | 0.050                | 0.218       | 0.000<br>(0.002)     | 0.000                        |
| Age                                | 31.430                | 10.756      | 32.875               | 11.146      | -1.446***<br>(0.099) | -0.132                       |
| <b>Indigenous subgroup</b>         |                       |             |                      |             |                      |                              |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|--|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Status First Nations                               | 0.674                 | 0.469       | 0.693                | 0.461       | -0.019***<br>(0.004) | -0.042                       |
| Métis  | 0.171                 | 0.376       | 0.139                | 0.346       | 0.032***<br>(0.003)  | 0.088                        |
| Inuit  | 0.025                 | 0.158       | 0.011                | 0.102       | 0.015***<br>(0.001)  | 0.113                        |
| Non-Status First Nations                           | 0.040                 | 0.197       | 0.067                | 0.250       | -0.027***<br>(0.002) | -0.119                       |
| Unknown, Indigenous                                | 0.089                 | 0.285       | 0.090                | 0.286       | -0.000<br>(0.003)    | -0.002                       |
| <b>Earnings prior to program entry (\$1,000's)</b> |                       |             |                      |             |                      |                              |
| 1 year prior                                       | 9.918                 | 14.939      | 9.714                | 15.699      | 0.203<br>(0.139)     | 0.013                        |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|--|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| 2 years prior                            | 10.072                | 15.261      | 10.032               | 15.454      | 0.040<br>(0.138)     | 0.003                        |
| 3 years prior                            | 9.630                 | 15.203      | 9.805                | 14.835      | -0.175<br>(0.135)    | -0.012                       |
| 4 years prior                            | 9.072                 | 14.747      | 9.328                | 14.465      | -0.256*<br>(0.131)   | -0.018                       |
| 5 years prior                            | 8.388                 | 14.165      | 8.655                | 13.589      | -0.267**<br>(0.124)  | -0.019                       |
| Total 6-10 years prior                   | 31.845                | 55.947      | 33.218               | 54.831      | -1.373***<br>(0.497) | -0.025                       |
| <b>Employment prior to program entry</b> |                       |             |                      |             |                      |                              |
| 1 year prior                             | 0.680                 | 0.467       | 0.665                | 0.472       | 0.014***<br>(0.004)  | 0.031                        |
| 2 years prior                            | 0.674                 | 0.469       | 0.662                | 0.473       | 0.011***             | 0.024                        |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|   | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>   | <b>Normalized Difference</b> |
|---|-----------------------|-------------|----------------------|-------------|---------------------|------------------------------|
|   | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                     |                              |
| 3 years prior   | 0.666                 | 0.472       | 0.661                | 0.473       | (0.004)<br>0.006    | 0.012                        |
| 4 years prior   | 0.650                 | 0.477       | 0.656                | 0.475       | (0.004)<br>-0.006   | -0.013                       |
| 5 years prior   | 0.624                 | 0.484       | 0.629                | 0.483       | (0.004)<br>-0.005   | -0.010                       |
| <b>Tax exempt earnings prior to program entry (\$1,000's)</b> |                       |             |                      |             |                     |                              |
| Total 1-3 years prior   | 12.629                | 28.973      | 11.149               | 28.958      | 1.480***<br>(0.260) | 0.051                        |
| No prior T4S records  | 0.053                 | 0.223       | 0.048                | 0.214       | 0.005**<br>(0.002)  | 0.021                        |
| Had a T4 in last five years                                   | 0.965                 | 0.183       | 0.964                | 0.186       | 0.001<br>(0.002)    | 0.008                        |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|   | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|---|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|   | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Years with T4 records in past 5           | 3.297                 | 1.799       | 3.276                | 1.803       | 0.021<br>(0.016)     | 0.012                        |
| Last T4 included union dues               | 0.135                 | 0.342       | 0.149                | 0.356       | -0.014***<br>(0.003) | -0.039                       |
| Years with union dues in past 5           | 0.364                 | 0.969       | 0.401                | 1.019       | -0.037***<br>(0.009) | -0.037                       |
| <b>Industry of previous employer</b>      |                       |             |                      |             |                      |                              |
| Ever worked for a First Nation            | 0.441                 | 0.497       | 0.371                | 0.483       | 0.070***<br>(0.004)  | 0.143                        |
| Agriculture, forestry, fishing, hunting   | 0.010                 | 0.101       | 0.013                | 0.114       | -0.003***<br>(0.001) | -0.026                       |
| Mining, quarrying, oil and gas extraction | 0.008                 | 0.088       | 0.007                | 0.084       | 0.001<br>(0.001)     | 0.008                        |
| Utilities and construction                | 0.027                 | 0.164       | 0.032                | 0.175       | -0.004***            | -0.025                       |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|                                     | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|-------------------------------------|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|                                     | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Manufacturing                       | 0.017                 | 0.130       | 0.020                | 0.141       | (0.002)<br>-0.003**  | -0.023                       |
| Wholesale trade                     | 0.008                 | 0.088       | 0.010                | 0.100       | (0.001)<br>-0.002*** | -0.025                       |
| Retail trade                        | 0.107                 | 0.310       | 0.103                | 0.304       | (0.001)<br>0.004     | 0.013                        |
| Transportation and warehousing      | 0.012                 | 0.110       | 0.013                | 0.114       | (0.003)<br>-0.001    | -0.008                       |
| Information and cultural industries | 0.005                 | 0.071       | 0.006                | 0.078       | (0.001)<br>-0.001    | -0.014                       |
| Finance and insurance               | 0.011                 | 0.105       | 0.012                | 0.110       | (0.001)<br>-0.001    | -0.009                       |
| Real estate and rental and leasing  | 0.011                 | 0.103       | 0.012                | 0.109       | (0.001)<br>-0.001    | -0.013                       |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|   | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|---|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|   | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Professional, scientific and tech. services | 0.015                 | 0.122       | 0.018                | 0.133       | -0.003**<br>(0.001)  | -0.022                       |
| Management of companies and enterprises     | 0.008                 | 0.087       | 0.009                | 0.092       | -0.001<br>(0.001)    | -0.009                       |
| Waste management admin and support          | 0.055                 | 0.229       | 0.077                | 0.267       | -0.022***<br>(0.002) | -0.088                       |
| Educational services                        | 0.048                 | 0.213       | 0.042                | 0.201       | 0.005***<br>(0.002)  | 0.026                        |
| Health care, social assist., arts, rec.     | 0.113                 | 0.317       | 0.133                | 0.340       | -0.020***<br>(0.003) | -0.061                       |
| Accommodation and food services             | 0.120                 | 0.325       | 0.131                | 0.337       | -0.011***<br>(0.003) | -0.032                       |
| Other services (except public admin)        | 0.044                 | 0.205       | 0.050                | 0.218       | -0.006***<br>(0.002) | -0.029                       |
| Public administration                       | 0.277                 | 0.447       | 0.212                | 0.408       | 0.065***             | 0.152                        |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|   | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>           | <b>Normalized Difference</b> |
|---|-----------------------|-------------|----------------------|-------------|-----------------------------|------------------------------|
|   | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                             |                              |
| Missing industry or no prior t4         | 0.103                 | 0.304       | 0.099                | 0.299       | (0.004)<br>0.004<br>(0.003) | 0.012                        |
| <b>Income from T1</b>                   |                       |             |                      |             |                             |                              |
| 1 year prior                            | 9.661                 | 14.444      | 10.115               | 14.170      | -0.454***<br>(0.128)        | -0.032                       |
| Cumulative Income in Years 2-10         | 63.322                | 97.960      | 69.596               | 92.428      | -6.274***<br>(0.849)        | -0.066                       |
| Had Social Assistance Income 1 Yr Pre   | 0.227                 | 0.419       | 0.273                | 0.446       | -0.047***<br>(0.004)        | -0.108                       |
| Social Assistance Income 1 Yr Pre       | 1.579                 | 3.720       | 1.934                | 3.981       | -0.355***<br>(0.035)        | -0.092                       |
| No Social Assistance Income in Yrs 2-10 | 0.679                 | 0.467       | 0.629                | 0.483       | 0.050***<br>(0.004)         | 0.105                        |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|--|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| Cumulative Social Assistance in Yrs 2-10       | 5.270                 | 12.005      | 6.647                | 13.316      | -1.378***<br>(0.116) | -0.109                       |
| <b>Prior EI receipt (any type of benefits)</b> |                       |             |                      |             |                      |                              |
| Benefits in 5 prior years (\$1,000's)          | 4.373                 | 8.760       | 4.427                | 8.600       | -0.054<br>(0.078)    | -0.006                       |
| Weeks in 5 prior years                         | 13.522                | 25.726      | 13.591               | 24.785      | -0.068<br>(0.226)    | -0.003                       |
| Wks earnings b/w EI start-ASETS start          | 1.914                 | 7.567       | 1.830                | 7.305       | 0.084<br>(0.067)     | 0.011                        |
| EI insured hours at ASETS start                | 0.606                 | 0.713       | 0.655                | 0.732       | -0.049***<br>(0.007) | -0.068                       |
| Months b/w start of EI and ASETS               | 23.999                | 46.132      | 24.682               | 46.592      | -0.683<br>(0.418)    | -0.015                       |
| No prior EI claim                              | 0.519                 | 0.500       | 0.495                | 0.500       | 0.024***             | 0.049                        |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>               | <b>Normalized Difference</b> |
|--|-----------------------|-------------|----------------------|-------------|---------------------------------|------------------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                                 |                              |
| Former EI claimant ( <i>i</i> 3 years ago) | 0.183                 | 0.387       | 0.189                | 0.392       | (0.004)<br>-0.006*              | -0.016                       |
| Former EI claimant (within 3 years)        | 0.195                 | 0.396       | 0.202                | 0.402       | (0.004)<br>-0.007**             | -0.018                       |
| Active EI claimant                         | 0.103                 | 0.304       | 0.114                | 0.318       | (0.004)<br>-0.011***<br>(0.003) | -0.036                       |
| <b>Occupation from last EI claim</b>       |                       |             |                      |             |                                 |                              |
| Management                                 | 0.023                 | 0.150       | 0.026                | 0.160       | -0.003**<br>(0.001)             | -0.020                       |
| Business, finance and administration       | 0.111                 | 0.314       | 0.117                | 0.322       | -0.006**<br>(0.003)             | -0.020                       |
| Health, sciences and related               | 0.026                 | 0.159       | 0.031                | 0.173       | -0.005***<br>(0.002)            | -0.029                       |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|   | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>   | <b>Normalized Difference</b> |
|---|-----------------------|-------------|----------------------|-------------|---------------------|------------------------------|
|   | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                     |                              |
| Educ, law, community and gov't services                     | 0.077                 | 0.266       | 0.081                | 0.273       | -0.004<br>(0.002)   | -0.015                       |
| Art, culture, recreation and sport                          | 0.008                 | 0.091       | 0.006                | 0.080       | 0.002**<br>(0.001)  | 0.023                        |
| Sales and service   | 0.177                 | 0.381       | 0.181                | 0.385       | -0.005<br>(0.003)   | -0.012                       |
| Trades, transport, equipment operators                      | 0.035                 | 0.183       | 0.036                | 0.185       | -0.001<br>(0.002)   | -0.005                       |
| Nat. resources, agriculture and related.                    | 0.012                 | 0.108       | 0.011                | 0.104       | 0.001<br>(0.001)    | 0.008                        |
| Manufacturing and utilities                                 | 0.014                 | 0.117       | 0.016                | 0.126       | -0.002**<br>(0.001) | -0.020                       |
| <b>Reason for separation from last Record of Employment</b> |                       |             |                      |             |                     |                              |
| No previous ROE   | 0.138                 | 0.345       | 0.119                | 0.324       | 0.019***            | 0.058                        |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|                             | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>            | <b>Normalized Difference</b> |
|-----------------------------|-----------------------|-------------|----------------------|-------------|------------------------------|------------------------------|
|                             | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                              |                              |
| Working when starting ASETS | 0.146                 | 0.353       | 0.160                | 0.367       | (0.003)<br>-0.014***         | -0.039                       |
| Layoff                      | 0.218                 | 0.413       | 0.204                | 0.403       | (0.003)<br>0.014***          | 0.035                        |
| Quit                        | 0.262                 | 0.439       | 0.273                | 0.445       | (0.004)<br>-0.011***         | -0.025                       |
| Dismissal                   | 0.078                 | 0.268       | 0.094                | 0.292       | (0.004)<br>-0.016***         | -0.056                       |
| Schooling or apprenticeship | 0.036                 | 0.186       | 0.023                | 0.149       | (0.003)<br>0.013***          | 0.079                        |
| Illness, injury or leave    | 0.040                 | 0.197       | 0.042                | 0.201       | (0.001)<br>-0.002            | -0.011                       |
| Other reasons               | 0.082                 | 0.275       | 0.086                | 0.281       | (0.002)<br>-0.004<br>(0.003) | -0.014                       |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             |                      | <b>Normalized</b> |
|--|-----------------------|-------------|----------------------|-------------|----------------------|-------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> | <b>Difference</b>    | <b>Difference</b> |
| <b>Previous participation in labour market programing</b>                    |                       |             |                      |             |                      |                   |
| Most recent prior intervention completed                                     | 0.384                 | 0.486       | 0.404                | 0.491       | -0.020***<br>(0.004) | -0.041            |
| Participated in training previously  | 0.514                 | 0.500       | 0.531                | 0.499       | -0.017***<br>(0.004) | -0.034            |
| Months in most recent prior intervention                                     | 1.801                 | 2.877       | 1.637                | 2.537       | 0.164***<br>(0.024)  | 0.060             |
| Total # of months of prior training  | 5.639                 | 10.629      | 5.489                | 10.226      | 0.150<br>(0.093)     | 0.014             |
| <b>Local labour market (among all individuals observed on data platform)</b> |                       |             |                      |             |                      |                   |
| Unemployment Rate in FSA   | 0.198                 | 0.070       | 0.206                | 0.076       | -0.007***<br>(0.001) | -0.097            |
| Average Earnings in FSA  | 26880.940***          | 9219.081    | 26138.337**          | 9272.853    | 742.603***           | 0.080             |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|  | <b>High-Intensity</b> |             | <b>Low-Intensity</b> |             | <b>Difference</b>    | <b>Normalized Difference</b> |
|--|-----------------------|-------------|----------------------|-------------|----------------------|------------------------------|
|  | <b>Mean</b>           | <b>S.D.</b> | <b>Mean</b>          | <b>S.D.</b> |                      |                              |
| <b>Year of first ASETS participation</b> |                       |             |                      |             | (83.216)             |                              |
| 2010                                     | 0.064                 | 0.244       | 0.040                | 0.196       | 0.023***<br>(0.002)  | 0.106                        |
| 2011                                     | 0.274                 | 0.446       | 0.269                | 0.443       | 0.006<br>(0.004)     | 0.013                        |
| 2012                                     | 0.247                 | 0.432       | 0.259                | 0.438       | -0.011***<br>(0.004) | -0.026                       |
| 2013                                     | 0.216                 | 0.412       | 0.217                | 0.412       | -0.000<br>(0.004)    | -0.000                       |
| 2014                                     | 0.198                 | 0.399       | 0.216                | 0.412       | -0.018***<br>(0.004) | -0.044                       |

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Table D.4: High- and Low-Intensity Group Means for Women, Differences in Means, and Normalized Differences in Means

|                    | <u>High-Intensity</u> |      | <u>Low-Intensity</u> |      | Difference | Normalized Difference |
|--------------------|-----------------------|------|----------------------|------|------------|-----------------------|
|                    | Mean                  | S.D. | Mean                 | S.D. |            |                       |
| <b>Sample Size</b> | 35,712                |      | 18,919               |      |            |                       |

## References

- Andersson, F., H. J. Holzer, J. I. Lane, D. Rosenblum, and J. A. Smith (2016). Does Federally-Funded Job Training Work? Non-experimental Estimates of WIA Training Impacts Using Longitudinal Data on Workers and Firms. CESifo Working Paper Series 6071, CESifo Group Munich.
- Bang, H. and J. M. Robins (2005). Doubly robust estimation in missing data and causal inference models. *Biometrics* 61(4), 962–973.
- Bodory, H., L. Camponovo, M. Huber, and M. Lechner (2020). The finite sample performance of inference methods for propensity score matching and weighting estimators. *Journal of Business & Economic Statistics* 38(1), 183–200.
- Crump, R. K., V. J. Hotz, G. W. Imbens, and O. A. Mitnik (2009). Dealing with limited overlap in estimation of average treatment effects. *Biometrika* 96(1), 187–199.
- Firpo, S. (2007). Efficient semiparametric estimation of quantile treatment effects. *Econometrica* 75(1), 259–276.
- Fölich, M. and B. Melly (2010). Estimation of quantile treatment effects with stata. *The Stata Journal* 10(3), 423–457.
- Funk, M. J., D. Westreich, C. Wiesen, T. Stürmer, M. A. Brookhart, and M. Davidian (2011). Doubly robust estimation of causal effects. *Practice of Epidemiology* 173(7), 761–767.
- Imbens, G. W. (2015). Matching methods in practice. *The Journal of Human Resources* 50(2), 373–419.
- Imbens, G. W. and D. B. Rubin (2015). *Causal Inference for Statistics, Social, and Biomedical Sciences*. Cambridge University Press.
- Kirkeboen, L. J., E. Leuven, and M. Mogstad (2016). Field of study, earnings, and self-selection. *The Quarterly Journal of Economics* 131(3), 1057–1111.