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Does Occupational Training by the Trade Adjustment Assistance Program Really Help Reemployment?: Success Measured as Matching

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I. Introduction

International trade has constantly increased throughout the second half of the 20th century, and the trend will continue well into the 21st century. International trade used to be mostly in finished goods; however, continuous technological advancement and the resulting reduction in transportation costs expanded international trade to include inputs (Yeats [1998], Hummels et al. [2001]), such as ball bearings for automobile or rubber soles for footwear. As virtually every good (and even services) becomes tradable, international trade is more active than ever.

International trade has changed the competitive structure between developing and developed countries, and this affects employment in both groups of countries. First, goods from developed countries have to compete against cheaper goods from developing countries. This is a more traditional type of competition where firms compete with other firms with their final products. Since the goods from developed countries lose their market shares to goods from developing countries due to their high relative prices, employment in these countries decreases in the sectors that face high import competition (Kletzer, 2002). Secondly, workers from developed countries have to compete against low-wage workers from developing countries. International trade and fragmentation together provide great cost-reduction opportunities for firms. Firms utilize the practice of offshore outsourcing, either by establishing their own subsidiaries in low wage countries or by using arm's length contracts with foreign firms, to perform tasks that were previously performed by high-wage domestic workers. The tasks that are being outsourced offshore are not only production-related, but also include services (Amiti and Wei, 2005). This has both positive and negative effects on employment in the developed countries. Employment may rise as the efficiency of outsourcing firms increases, their prices fall, and market shares rise. Firms maintain some parts of their business process at home, and increases in sales will expand employment in the domestic part of their business as well as the foreign part. If sales gain is substantial, it is possible that employment in the domestic portion of those firms actually rises above the level prior to outsourcing. However, the workers whose tasks are replaced by activities of workers in developing countries lose their job.

While most economists agree on there being a net welfare gain from freer trade through an increase in economic efficiency and aggregate income, larger variety of consumer products, and lower prices, they do not deny the fact that there are winners and losers. The biggest losers from international trade are the workers displaced due to the increase in competition from imports and offshoring. The U.S. Trade Adjustment Assistance (TAA) program is specifically designed to compensate these workers.

Many studies find that TAA participants are, compared to a broader group of displaced workers such as Unemployment Insurance (UI) beneficiaries, more likely to have a harder time finding a job. Corson and Decker (1995) show that the majority (72% compared to 31% for UI exhaustees) are displaced due to plant/company closures; therefore they are less likely to be recalled by their previous employers.[1] Finding a similar job would not be easy for these workers since these layoffs occur in the import-competing sectors, which is suffering not only locally but also nationally from massive job destruction. These facts indicate that TAA participants may benefit from moving to different occupations, but the evidence shows that they are not very likely to have marketable skills. Decker and Corson, in the same study, find that TAA participants have higher tenure with previous employers, indicating a narrow

[1] While only 23% of TAA participants reported that recall is likely, 43% of UI exhaustees reported so.

job experience. Baicker and Rehavi (2004) show that TAA participants are older, less educated, and have a higher fraction of people without a proper level of English proficiency. For this reason, it is believed that training - and income support during training to promote training enrollment - should be the major benefit of the TAA program, and it has been the case since the Trade Act of 1974. Other benefits are summarized in Table 1.

The performance of the TAA program is officially assessed by three performance measures: Average Earnings (which replaced Wage Replacement Rate since 2007), Reemployment Rate, and Retention Rate as of fiscal year 2010. Table 2 summarizes the performance of the TAA program of fiscal years 2003-2010. These performance measures provide a general idea of whether TAA participants find a job that replaces the job prior to participation reasonably well in monetary sense. However, these performance measures do not directly measure the efficacy of the training service in helping participants' re-employment and post-exit economic welfare.

An article in *The New Yorker Magazine* by Katherine Boo (2004)[2] tells a story about a woman who was laid off from the Fruit of the Loom plant located in Harlingen, TX, at the end of 2003. She received medical-assistant training, applied for twenty-nine positions, got three interviews, but ended up serving lunch at a nearby construction site. The article describes the reality of the training program in Cameron County as the following:

> *In the past five years, more than a thousand displaced manufacturing workers had been retrained as medical assistants or air-conditioning repairmen or computer-maintenance technicians. …The state workforce commission had predicted that twenty-five medical-assistant jobs would open in Cameron County in 2003, but it would be difficult to secure one. In one class of laid-off textile workers alone, eighty-five people had been trained for the profession.*

The *New Yorker* article above suggests that many participants receive training in occupations in which there are not enough job openings and end up in occupations unrelated to their training. There are studies investigating whether trainees do better after program exit compared to non-trainees in terms of three performance measures – see Corson and Decker (1995) for the TAA program, and Heckman, LaLonde, and Smith (1999) for federal training programs in general. However, how much obtaining skills for a specific occupation through classroom training contributed to their reemployment is not well explored.

The information on TAA participants, services that they received, and the outcomes – whether they are reemployed after exiting the program, quarterly earnings at new jobs, and retention within three quarters from the program exit - are reported by the Trade Act Participant Report (TAPR). TAPR reports the 8-digit Occupational Skill Training Code (OSTC) and Occupational Code of Employment (OCE) for each participant who received training service. From a preliminary investigation of TAA participants who exited the program between July, 2004 and September, 2007, only 47.98% of people who received occupational skills training have identical codes for OSTC and OCE.[3] This might indicate that for 52% of trainees, the resources put into them did not achieve the goal. This is an inherent problem of federal training programs since the supply of trainees is only loosely linked to the demand for newly trained workers. The mismatch between supply and demand for trainees is not only a problem of the federal

[2] "Letter from South Texas: The Churn," *The New Yorker Magazine*, March 29th, 2004

[3] The number of observations is 143,300. 80,005 participants received occupational skills training, and 66,268 of them found a job after training. Among these 66,268 reemployed trainees, only 17,760 have valid 8-digit codes for both OSTC and OCE.

programs of the United States. Rasmussen and Westergaard-Nielsen (1999) found the apprenticeship systems in Germany and Denmark also have this mismatch. According to the U.S. General Accounting Office (GAO), the cost of training, i.e., tuition for training classes and Additional TRA payments, accounted for 48.36% of TAA expenditures for fiscal years 1995-1999.[4] The supply and demand mismatch issue indicates that there is significant room to improve the cost efficiency and program performances of training programs. For this reason, a good understanding of the mismatch problem is very important.

In this paper, the efficacy of the training service provided through the TAA program will be investigated focusing on the match between OSTC and OCE reported in the TAPR. More specifically, this paper will examine what the probability of matching between OSTC and OCE is and how the matching is affected by the individual characteristics of participants and services that they received. Additionally, this paper will discuss whether matching improves the participants' post-participation economic welfare measured by reemployment rates, wage replacement rates, average post-participation earnings, and retention rates by comparing the outcome measures for trainees with a match, trainees without a match, and non-trainees.

First, validity of a match as a measure of successful training is examined by testing the hypothesis that a match is a preferred option for employment after training. Under the alternative hypothesis, the probability of matching shows a bell-shaped curve over the ability level. Low ability trainees show low matching rates because they are not capable of succeeding in training to obtain a match. High ability trainees show low matching rates since voluntary withdrawal from a match is more likely because they have other marketable skills that would give them better pay and work environment. In the analysis with educational attainment as a proxy for the ability level, the matching rate is generally increasing in educational attainment rather than displaying a bell-shaped link in all specifications. Also the finding that exit years with favorable labor market are associated with higher matching rates supports the validity of matching as a measure of training success.

Investigation of reemployment rates shows that receiving occupational skills training raises the chance of reemployment by 5 percentage points. Where training completion is separately included in the analysis, enrolling in skills training alone only raises the chance by 2 percentage points while skills trainees who complete the training enjoys the chance of reemployment that is 6 percentage points higher than that of non-trainees. On-the-job training (OJT) has a larger impact, 10 to 11 percentage points increase in the rate. The large impact of OJT is likely to be driven by the condition that the employers need to hire the participant to receive the benefits. Other worker characteristics, such as educational attainment, ethnicity, and age, affect reemployment rates by similar magnitude to the impacts of training programs. Participants with a bachelor's degree show reemployment rates of 2 to 3 percentage points higher than those who did not complete high school. Reemployment rates decrease with age. Participants with age between 21 and 30 have reemployment rates that are 4.2 percentage points higher than those of participants of age between 41 and 50. Age group 51 to 60 show nearly 10 percentage points lower reemployment rates than participants of age between 41 and 50. The impact of old age is extremely

[4] Training and Additional TRA accounted for 29.95% and 18.41%, respectively, of the total expenditure. Most of the rest of TAA expenditure was used to pay Basic TRA. Non-training-related services – reemployment services, job search allowances, and relocation allowances accounted for a negligible fraction of the total expenditure.

negative. Workers between ages 61 and 65 display the reemployment rates that are 41 percentage points lower than workers between ages 41 and 50, but this could be explained by their voluntary withdrawal from the labor market.

Matching has significant impacts on the wage replacement rates, raising the rates by 2 to 3 percentage points compared to non-trainees and 4 to 5 percentage points compared to trainees without a match. Trainees without a match display the wage replacement rates lower than those of non-trainees. This is due to the limited skill sets that lead them into training enrollment in the first place. Only those who succeed in obtaining a match after the training show the wage replacement rates 3 percentage points higher than non-trainees. OJT again proves very beneficial to the participants by improving the rates by 4 percentage points. The most important worker characteristic in determining the wage replacement rates is their age. Participants who received occupational skills training but failed to achieve a match experience lower post-participation earnings compared to non-trainees and this pattern is preserved even when pre-participation earnings are controlled. This again indicates the limited sets of skills that these trainees have other than the skills used in the previous employment. Obtaining a match eliminates the effect, indicating the success in occupational skills training compensates their lack of marketable skills.

The retention rate is not influenced by matching but is influenced by various training program participation. Occupational skills training improves retention rates by 2.3 to 2.7 percentage points. Remedial training and OJT raise the rates by 1.0 and 3.7 percentage points, respectively. The impact of education is positive, approximately 1 to 2 percentage points higher for high school or more compared to participants with education of less than high school. Overall, retention is fairly stable across different training programs and various worker characteristics and is not drastically influenced by any.

The analyses of TAA participant data conducted for this paper supports that occupational skills training improve the post-participation outcomes of participants. In the absence of training, participants with limited skill sets suffers from higher adjustment costs such as low chances at reemployment and lower wage replacement rate. Training provision in the TAA program allows these participants to select into training while people with marketable skill sets are more likely opt out of training enrollment. Successful completion of the training program indicated by a match compensates (or more than compensates for some outcome measures) the negative impact of limited skill sets of these participants by providing the skills that generates good employment opportunities. The adjustment costs of these trainees – with a match – is lower than what it would have been if it were not for the training provision. The results from these analyses provide evidence that the focus of the TAA program on provision of training services important and would be more fruitful if it is accompanied by emphasis on choosing the *right* occupations for participants by conducting thorough career assessment and counseling.

The rest of the paper is organized as follows: Section II describes the TAA program in more detail; Section III introduces the data set and provides various descriptive statistics; Section IV presents the analytical methodology and results; and Section V provides conclusion.

II. Trade Adjustment Assistance

The TAA program is a dislocated worker program administered by the Employment and Training Administration of the U.S. Department of Labor (DOL). TAA was first established in 1962, but

it has only been actively implemented since the Trade Act of 1974. The North American Free Trade Agreement (NAFTA) Implementation Act of 1993 added a separate NAFTA-TAA program to help workers who are affected by the free trade agreement. The Trade Reform Act of 2002 integrated NAFTA-TAA into the regular TAA program.

When layoffs occur at a certain establishment, a group of three or more workers from the establishment or any entity representing them may file a petition with DOL. The petitions are filed at the plant level. The Division of Trade Adjustment Assistance investigates the case and issues a certification if they find evidence that employment of the group of workers is adversely affected by any of the following: a shift in production to a foreign country, an increase in company imports, an increase in participant imports, or high and rising aggregate US imports. Once certified, all workers who are laid off from that establishment between the initial layoffs (impact date) and 2 years from the certification date are entitled to the services and benefits listed in Table 1. If a worker is over age 50, he/she may apply for the Alternative TAA (ATAA)[5] program instead of TAA. ATAA is a wage insurance program that subsidizes 50% of the difference between the pre-layoff wage rate and the wage rate in the new job, up to $10,000 a year, in case where the worker obtains reemployment no later than 26 weeks from the date of the qualifying separation. ATAA was added by the TAA Reform Act of 2002.

The most important benefits are training and income support. If career counseling determines that the participant does not have skills useful for reemployment, the worker may enroll in occupational skills training up to 104 weeks. If the participant lacks basic education such as English proficiency or high school education, the participant may enroll in remedial training for an additional 26 weeks in addition to the regular training. Training enrollment is permitted only if it is believed that the participant would benefit from training and has a higher chance of reemployment with training. If this is not the case, the participant may obtain a training requirement waiver. The training waiver is issued if the participant does not need training – if she has marketable skills or will soon be recalled by the previous employer – or is not able to take training – health issues or inability to find a suitable training program. While enrolled in training, TAA participants are entitled to an income support (Basic TRA, Additional TRA, and Remedial TRA). Participants who obtained a training waiver can receive the Basic TRA without enrolling in a training program. The Trade and Globalization Adjustment Assistance Act of 2009 (2009 Amendments) which is part of the American Recovery and Reinvestment Act of 2009 expanded the program benefits. It allows additional 26 weeks for training and TRA payments. It also raised the cap on many adjustment allowances such as ATAA maximum benefit, Job Search Allowances, and Relocation Allowances.[6] These expanded benefits have decreased back to the normal benefits of before 2009 Amendments.

Choice of training occupation is made by participants with the help of local TAA staff through a proper assessment of the worker's ability. The ability assessment is measured based on an applicant's education, work history, potential barriers to employment, basic skills capabilities, aptitudes, work skills, family situation, attitudes toward work, behavioral patterns, supportive service needs, and interests for careers and training as they relate to the local labor market. Information is gathered primarily using

[5] The name has changed to Reemployment Trade Adjustment Assistance (RTAA) by The Trade and Globalization Adjustment Assistance Act of 2009.

[6] Job Search Allowance and Relocation Allowances were 90% of allowable costs up to $1,250 before 2009 Amendments, but they have changed to 100% of allowable costs up to $1,500. 2009 Amendments also allows part-time basis training and allows workers to begin the training program if there is a significant threat of displacement even if they are not yet laid off.

questionnaires, individual interviews, paper and pencil tests, performance tests, behavioral observation, and career guidance instruments.

III. Data

Since the initiation of the TAA program in 1962, a substantial number of workers have received various benefits through the program. However, the collection of participant data became obligatory only for participants who exited the program since July 1, 1999. Through the last quarter of 2008[7], 314,964 participant cases are reported on TAPR. Initially, OSTC and OCE were reported using various classification systems: the 8-digit O*NET code, 5-digit OES code, and 9-digit DOT code. In 2005, TAPR's coding system was revised so that reporting of OSTC and OCE were unified to the O*NET code[8]. Since OSTC and OCE are the main variables of interest, only the observations collected after 2005 Revision were utilized for this study, specifically data reported since the fourth quarter of 2005, to avoid error due to imperfect classification. This restricts the sample size to 143,300.

The TAPR consists of three sections. The first section, *Identification and Participant Characteristics*, collects personal information of participants such as date of birth, gender, ethnicity, and education level. Any information regarding the qualifying separation (date of separation and tenure with previous employer) is also reported here. Section II, *Activity and Service Record*, summarizes the TAA benefits a participant received. If the participant received training, it reports what type of training he/she received, such as occupational skills training (along with OSTC), remedial training, OJT, or customized training. For all participants, receipt of financial assistance including Basic Trade Readjustment Allowance (TRA), Additional TRA, Remedial TRA, job search allowances, and relocation allowances – is reported. Finally, Section III, *Outcomes*, reports whether the participant is employed, which occupation he/she is employed in (OCE), and how much they earn during the three quarters following program exit.

Table 3 summarizes the data set. Columns 1 to 4 summarize data for different years of program exit. The last column summarizes the entire sample. Individual characteristics of the participants differ across exit years. Over time, the fraction of participants ages 55 and above increased while that of workers ages 30 to 44 noticeably decreased. One might think that participation of older workers is encouraged with the establishment of ATAA. However, with a little over 5%[9] of participants ages 50 or above participating in ATAA, the hypothesis is hardly plausible.

Service delivery also changed over time. The fraction of trainees fell noticeably in 2006 and rose back to the previous level in 2007. However, the fraction of trainees who received occupational skills training continues to decrease in 2007. One potential explanation for this is the improvement in labor market situation over time.[10] Occupation switching is less necessary for reemployment when there are more vacancies, reducing the demand for occupational skills training. This argument gains support from the rise in training waiver issuance in 2006 and 2007, which is driven by a rise in workers with

[7] This is the reporting quarter. Each participant is monitored for three quarters from his/her date of program exit before being reported on TAPR. The last program exit date reported by the end of 2008 is 9/30/2007.

[8] The structure of O*NET code is described later in this section.

[9] The participation rates are 5.69% for 2006 and 6.35% for 2007. The participation rates for 2004 and 2005 are only 0.73% and 2.43%, respectively. This is probably because the ATAA was not fully taken advantage of for those early participants. Participants of ATAA are also reported in the TAPR, and they are included in the sample of this study.

[10] The national unemployment rate was 5.8-6% in 2002 and 2003. It started falling in 2004 (5.5%) and continued to decrease until the end of 2007. It was 5.1% in 2005,, 4.6% in 2006, and 4.5% in the first half of 2007.

marketable skills. Whether the participants' existing skill sets are marketable depends on the prospect of reemployment. Another supporting evidence for this argument is the fall in Basic TRA take-up rate in 2006 and 2007. Participants with a training waiver is entitle to Basic TRA, income support up to 26 weeks from the date of UI benefit expiration. The decline in the take-up rate for Basic TRA despite of the large increase in training waiver issuance indicates that a large number of participants with a training waiver exited the program before their unemployment insurance benefit period ended. Despite of the decrease in enrollment in occupational skills training, the fraction of trainees among all participants remains high in 2007. This might be because of the trainees who received workshop-like training of very short duration. Among 90,503 trainees who reported valid dates for the first and last day of training, 6,972 received training shorter than a week.

The main variable of interest in this paper is a match between OSTC and OCE. As discussed earlier, OSTC and OCE are coded with 8-digit O*NET occupation codes. O*NET codes are constructed in the following way. The first two digits represent 23 job families listed in Table 4. The next four digits represent different occupations within each job family. The last two digits represent any additional sub-categories for each occupation.[11] Therefore, the first six digits represent each occupation, and all eight digits together describe more detailed occupational categories.

Reporting of occupation codes is far from perfect. Out of 143,300 TAA participants observed during the sample period, 80,005 participants received occupational skills training, but only 46,495 observations have valid[12] eight digits of occupational codes of training. Table 5 summarizes the fraction of trainees with valid 8-digit OSTC among occupational skills trainees for each state. The reporting quality – measured in the fraction of trainees with valid OSTC among occupational skills trainees – varies greatly from 0 percent to 100 percent across states. Also, 111,844 participants find a job during the first three quarters from the program exit, but only 28,386 observations are reported with valid 8-digit OCE.[13]

The subjects of the matching analyses are those who received occupational skills training and found a job after program exit. 66,268 participants satisfy this condition, but only 17,760 participants are reported with valid 8-digit codes for both OSTC and OCE. This number increases to 24,802 if only the first six digits are considered.[14] Matching between OSTC and OCE are measured at 8-digit level using 17,760 observations with valid 8 digits for both OSTC and OCE. Matching at 6-digit level are measured using 24,802 observations with valid six digits for both codes. Using all 8-digits provide more exact matching than using only the first 6-digits, but it reduces the sample size.

This paper also uses two definitions of matching between occupations of training and entered employment, first and second degree matching. First degree matching is identified by identical OSTC and OCE. Second degree matching allows matching to a related occupation. The O*NET system specifies related occupations for each occupation based on knowledge areas, skills, abilities, work environment,

[11] For instance, 29 is the job family of 'Healthcare Practitioners and Technical'. 29-2099.00 is the code for 'Health Technologists and Technicians, All Other' This occupation has four sub-categories: 29-2099.01 is for 'Electroneurodiagnostic Technologists,' 29-2099.02 is for 'Hearing Aid Specialists,' 29-2099.03 is for 'Ophthalmic Medical Technologists and Technicians.'

[12] 19,955 have zero codes, 12,795 observations have seven digits or less, and 177 observations have 100,000,000 as OSTC. Among 47,078 observations with eight digits of OSTC, 583 observations have invalid first two digits.

[13] 73,152 observations report zero as OCE, 8,598 observations have seven digits or less, and 1,207 observations have 100,000,000. Among 28,887 observations with eight digits for OCE, 501 observations have invalid first two digits.

[14] A large number of observations are reported only with six or seven digits for OSTC and OCE. (11,490 and 813 observations have six and seven digits, respectively, for OSTC. For OCE,7,796 and 22 observations have six and seven digits, respectively.) These digits correspond to the first six and seven digits of O*NET occupation codes. Instead of discarding these observations, I construct 6-digit OSTC and OCE using observations with valid six, seven, and eight digits of occupation codes.

and work activities.[15] It captures the idea that training in one occupation can help employment in related occupations. Since this type of matching is less direct, I define it as second degree matching. Second degree matching, however, represents a very small fraction of matches compared to first degree matching. At the level of 8-digit, only 437 out of 17,760 observations have a second degree match while 8,521 observations have a first degree match. Table 6 summarizes the matching rates for four different definitions of matching: first and second degree matching at 6- and 8-digit levels. In panel (b), various matching rates are reported excluding the observations from Oklahoma and Virginia. Oklahoma and Virginia show 100% and 99.97% first-degree matching rates, respectively, at 6-digit level. These figures are likely results of miscoding. Observations from these two states accounts for 5.0% of the entire sample and 20.3% of the observations with valid OSTC and OCE. Excluding these observations, the matching rate by either degree decreases greatly from 46.40% to 37.28%. In the analyses that utilize the matching variable are carried out without observations from Oklahoma and Virginia.

The outcome variables are summarized in Table 7. Panel (a) summarizes the outcome measures across different exit years, and Panel (b) summarizes them across different levels of pre-participation earnings. The earnings level is interesting because of its linkage to the participants' potential outcomes. Outcome measures do not vary much across exit years except for the matching rate which increased over time from 33.32% in 2004 to 43.21% in 2007.[16] Across all exit years, trainees display higher reemployment rates, wage replacement rates, and retention rates with variations in sizes of the differences across outcome measures and exit years. Such a trend is the most distinctive for reemployment rate. For all exit years, trainees show 10 percentage points higher reemployment rates.[17] Trainees display higher wage replacement rates for all years, but the differences between those of trainees and non-trainees narrow over time. It is hard to find a distinctive pattern between outcome measures for trainees with and without a match. Wage replacement rates for trainees with a match are substantially higher than those without a match for exit year 2007 (by 7 percentage points); however the rates are higher for trainees without a match for exit years of 2004 and 2005. However, this lack of pattern is not enough of evidence against the hypothesis that a match improves the post-participation outcome. The labor market situation differs greatly across years, so the difficulty of achieving a match could be very different. The association between a match and outcome measures need thorough investigation. Retention rates do not differ much across exit years and across different groups of trainees. Trainees show slightly higher retention rates than non-trainees, and a larger fraction of trainees without a match stay employed after they are initially hired. However, the difference is very small.

Looking at reemployment rates, wage replacement rates, and retention rates across different pre-participation earnings levels provides another dimension to what can be observed across exit years. First of all, matching rates are higher for participants with low earnings levels. It could be because these

[15] For example, occupation code 51-4121.06 (Welders, Cutters, and Welder fitters) has ten related occupations. First six are: 51-2011.00 Aircraft Structure, Surfaces, Rigging, and Systems Assemblers, 51-4031.00 Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic, 51-4032.00 Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic, 51-4071.00 Foundry Mold and Coremakers, 51-4072.00 Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic, 51-4191.00 Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic

[16] Observations from Oklahoma and Virginia display 100% and 99.97% matching rates, respectively. This is more likely to be a coding error rather than perfect matching for those states. Observations from these two states are dropped for matching analysis. The number of observations with both OSTC and OCE codes also only includes observations from states other than Oklahoma and Virginia.

[17] The figures for trainees and non-trainees are not statistically significantly different.

workers have a very limited set of skills and as a result they are less likely to find a job outside their training occupations. Participants within the medium range of pre-participation earnings display a higher reemployment rate than the higher earnings group. This trend is shown by both trainees and non-trainees, but the rates are substantially higher for trainees at all earnings levels.

Wage replacement rates show a very interesting pattern. First of all, the wage replacement rates for the first earnings category, quarterly earnings of $0 to $2,000 are extremely high. The TAPR reports the quarterly earnings of participants for three quarters prior to the date of participation rather than the date of separation. Therefore, these earnings records sometimes show the temporary positions that participants held between separation and participation and the wage rates for those positions tend to be low. The threshold $2,000 is quarterly earning if a person works for 30 hours at minimum wage rate, $5.15.[18] Figures below $2,000 are likely to be indications of such positions; therefore, these earnings level does not reflect their potential earnings level after the program exit. The wage replacement rates for this group of participants are not necessarily meaningful. Second, trainees with a match show higher wage replacement rates for lower earnings level, but trainees without a match display higher rates for higher earnings level. The overall rates are higher for trainees with a match because lower earnings levels have larger numbers of observations. Higher wage replacement rates for higher earnings level could be driven by participants who have more desirable options outside the matching occupations. Workers with more options will choose non-matching occupations when they are better – higher pay, better work environment, and so on – creating association between non-match and higher wage-replacement rate. Trainees show higher rates of retention compared to non-trainees, but trainees with and without a match do not show a clear pattern.

Participants' choices of training occupations deserve a closer look. Some occupation groups such as Management are more generally applicable than others such as Building and Grounds Cleaning and Maintenance. Therefore, the probability of matching might vary across occupational groups. Table 4 shows that the participants are widely distributed to most of the 23 occupation groups in their training choices, while employment is concentrated in a few groups.

Tables 8 and 9 summarize individual characteristics of participants and the matching rate for each training occupation group and each employment occupation group, respectively. The first column shows that matching rates vary greatly across different occupation groups. Especially, the matching rates shown in Table 8 show that the majority of employees in some occupation groups, such as legal (23) and healthcare practitioners and technical (29), received training specific to the occupations, while training does not seem necessary to be employed in some occupations, such as sales and related (41) and farming, fishing, and forestry (45).

Gender is very relevant for participants' selection of occupational training according to Table 8. While some occupational groups for training, such as construction and extraction (47), installation, maintenance, and repair (49) , and transportation and material moving (53), are extremely male-oriented, some other occupation groups, such as legal (23), healthcare support (31), and office and administrative support (43), are highly female-oriented. This pattern is preserved for occupation groups of employment. The importance of English proficiency also differs greatly across occupations. In their training choices,

[18] The federal minimum wage rate increased to $5.85 in 2007 (then $6.55 in 2008 and $7.25 in 2009). Most participants in the sample (whose latest exit year is in 2007), $5.15 is the relevant minimum wage rate for earnings prior to participation.

people with limited English proficiency show high concentration in three occupation groups: food preparation and serving related (35), building and grounds cleaning and maintenance (37), and personal care and service (39). These three occupation groups employ more workers with limited English proficiency, but the farming, fishing, and forestry group (45) is the major employer of these workers.

Table 8 also shows that different ethnic groups concentrate their occupational choices differently. Training in farming, fishing, and forestry (45) is the most popular choice for white TAA participants while Asians choose to be trained for the occupation groups, building and grounds cleaning and maintenance (37) and personal care and service (39). African-American participants tend to choose community and social services (21) and education, training, and library (25), while Hispanic participants choose personal care and services (39) and office and administrative support (43). These choices are reflected in their occupations of employment as well. One noticeable thing, though, is the high concentration of Asian participants employed in architecture and engineering (17) and Hispanic participants in military specific (55). However, the military group is too small for this high concentration of Hispanic employees to be meaningful. Level of education is a very important factor in choosing occupations. Trainees with different education levels display distinctive choices of occupation groups. This pattern is preserved in their employment with higher intensity.

Table 10 summarizes the correlation between occupational choices and post-participation performance. Occupational choices certainly matter for the probability of reemployment after training. The reemployment rates range from 71.43% for farming, fishing, and forestry (45) to 88.79% for protective service (33). Once employed, retention rates and wage replacement differ across occupations of employment. Architecture and engineering (17) and healthcare practitioners and technical (29) show superior post-participation performance with high retention and wage replacement rates. Since choices of training occupation influence the post-participation outcomes, and different personal characteristics show different patterns of occupational choice, it is expected that gender, ethnicity, and education level are linked to the outcomes.

IV. Analyses

As shown in the previous section, matching between occupations of training and entered employment is linked with various personal characteristics of participants, and the outcomes of the program are not only correlated with matching but also with many other individual characteristics. In this section, the relationship between individual characteristics and matching and the relationship between matching and four outcome measures – reemployment, wage replacement, post-participation earnings level, and retention rate – are investigated. This is to improve the understanding of how matching is achieved and how the performance of the TAA program can improve through better matching. First, individual characteristics of participants and their influence on the probability of a match is discussed. Then, how matching and other characteristics of participants affect the outcome: the probability of reemployment, the wage replacement rate, post-participation earnings, and probability of remaining employed is examined. Matching used in the following analyses is first and second degree matching at 8-digit level.

IV.1. What affects matching?

This paper assess the impact of successful training in various outcome measures – reemployment rate, wage replacement rate, post-participation earnings level, and retention rate – to see whether what really matters in achieving a better outcome is the skill sets acquired through the training program or merely the exposure to the intense federal assistance which involves a better access to job-related resources. Matching between occupations of training and entered employment is used as a measure of training success. In order for the analyses of the impacts of matching to be relevant, the validity of matching as a measure of successful training should be verified.

Matching would be a direct indication of training success if the occupation of training is the most preferred occupational choice for all trainees and the best trainees in each training program select into a match. In this case, there will be a clear positive relationship between the probability of matching and the ability level of the trainee.

However, the selection issue around matching is not as straightforward. There are two scenarios in which a trainee does not achieve a match. First, the trainee is not capable of acquiring the skills provided through the training program because the choice of training occupation is not adequate for the trainee's ability level. One reason for this type of matching failure is poor worker assessment or counseling at the One Stop Center. This would provide a direct link between failure in training and failure to achieve a match, strengthening the validity of matching as a measure of training success. In the second scenario, a trainee voluntarily chooses to find a job in a non-match occupation despite his/her ability to successfully acquiring the skills set from training program because the non-match job provides a higher pay and/or better work environment. This is likely to happen to trainees with higher ability that tend to have other marketable skills. If this accounts for a significant portion of matching failure, the link between matching probability and the ability level would show a bell-shaped relationship. Controlling for the occupational choices of training[19], low-ability trainees are more likely to fail in training program, so they tend to display low matching rates. High-ability trainees have marketable skills that are different from the training occupations, so they are more likely to choose a non-match occupation for their employment, showing low matching rates. Medium-ability trainees are more likely to succeed in training with limited outside options due to lack of marketable skills, they display higher matching rates.

The following regression analysis tests the hypothesis that matching is an outcome of successful training by looking at the importance of the variables related to ability level, such as educational attainment, in achieving a match. The outcome variable here is the indicator for matching with value '1' implying a match and '0' implying matching failure. Probit analysis is used for the following estimation:

$$Pr(Match_i = 1) = c + \alpha Edu_i + \beta X_i + \gamma OCC_i + \delta_1 D_{8i} + \delta_2 D_{6i} + \delta_3 D_{7i} + \varepsilon_i \qquad (1)$$

Education measured as degree attainment is used as a proxy for the ability level of each trainee. Five dummy variables for high school degree or equivalent, some college, associate degree, bachelor's degree, and more than bachelor's degree are used. Vector α will test the hypothesis whether matching is a

[19] Trainees with different ability level select into different occupations with different matching rates. This creates a link between ability level and the matching rate that is not necessarily the outcome of success/fail in training.

valid measure of training success. X is a vector of individual characteristics such as gender, ethnicity, educational attainment, completion of training, and age at program exit. OCC_i is a vector of dummy variables for the training occupation groups listed in Table 5. '1' indicates the occupation group of training. As shown in Tables 8 and 9, the probability of matching varies greatly across occupation group. Vector γ will capture such variation. D_{5i}, D_{6i}, and D_{7i} are dummy variables for exit years to capture away the labor market situation as trainees finish training and start looking for a job. For this estimation, only the observations with both valid OSTC and OCE will be used, which requires receipt of occupational skills training. For this reason, investigation of the selection into a match will not be biased by selection issues around training enrollment. As mentioned earlier, observations from the states of Oklahoma and Virginia are omitted.

There are eight specifications. Specification 1 uses only the personal characteristics included in vector X. The reference group for this specification is white females with less than high school education between ages 41 and 50. Specification 2 also includes dummy variables for years of exit, 2005, 2006, and 2007. The reference year is 2004. Specification 3 includes 21 indicator variables for occupation groups of training. Group 11, Management, is used as a reference group. Occupation group 55, Military Specific, is omitted since training and hiring processes for military personnel are different from other occupation groups. Group 55 only accounts for 0.07%[20] of the sample, so it would not affect the analysis in a significant manner. Specification 4 includes both years of program exit and occupation groups. Specifications 5 to 8 repeat specifications 1 through 4 with states of participants' residency controlled. California is used as reference group. For each specification, I perform the analyses with or without the indicator variable for training completion. Table 12 presents the results. The numbers reported are the marginal effect of each variable on the chance of matching.

As discussed above, if matching is not the preferred option for employment, the link between ability level and the probability of matching will display a bell-shaped relationship given that OSTCs are controlled. With degree attainment as the measure of ability level of trainees, bachelor's degree and more are considered as high ability since it is safe to believe their skill sets are applicable to various occupations. High school degree, some college education, and associate degree are considered as medium-ability while less than high-school education is considered as low-ability. Under the hypothesis that matching is not the preferred option for employment, the medium-ability variables have positive coefficients while bachelor's degree and more have coefficients smaller than those of medium-level education variables.

The occupations of training are controlled under specifications 3, 4, 7, and 8. Under specifications 3 and 4, the impacts of medium-level education are very small and highly educated trainees display matching rates that are much higher than low- or medium-ability trainees. Having a bachelor's degree raises the probability of matching by 6-7 percentage points and some graduate school raises the matching rates by 11.5 percentage points compared to trainees with less than high school education. The bell-shaped matching rates are not observed. Specifications 7 and 8 display a similar pattern. Medium-level education again shows very small impacts. Having a bachelor's degree and some graduate work raise the

[20] This is different from the figure shown in the fifth column of Table 5 because it is calculated from the observations with valid codes for both OSTC and OCE.

matching rates by 6 and 8 percentage points, respectively. In all four specifications, the probability of matching is generally increasing with the ability level measured as degree attainment rather than showing the bell-shaped relationship. This supports the hypothesis that matching is a preferred option for employment and proves that the voluntary withdrawals from matching because trainees prefer non-match jobs are not a significant portion of matching failure.

Some might argue that training completion is a better indicator of training success. However, the endogeneity of training completion prevents us from achieving meaningful information about selection into matching. Whether a trainee withdraws from training program because he/she considers a match as undesirable (high-ability trainees) or unattainable (low-ability trainees), early withdrawal is highly correlated with matching failure. For this reason, I use training completion as a control variable rather than a proxy for training success. In all specifications, completion of training is very significant. Considering that the matching rate for the sample studied here is 37.82%, completion of training raising the chance of matching by 17 to 20 percentage points, depending on specifications, is substantial. However, whether training completion is controlled or not does not change the coefficients on educational degree attainments. The result that matching is the preferred option of employment is not affected.

Another piece of evidence that supports that matching is a preferred option for employment is the increasing coefficients on the exit years over time. Labor market was the least favorable in 2004 and gradually improved over time until 2007. Higher matching rates during favorable period imply that people take the matching job when it is more available.

Ethnicity is another important factor. Asians and African Americans show substantially lower matching rates than white participants while Hispanic participants have the matching rates 6 percentage points higher than white participants. This pattern becomes much weaker when the states of residency are controlled indicating a high concentration of certain ethnic groups in few states. The evidence can be found in Table 11. Hispanic participants account for a large fraction of participants in state of California, Colorado, Idaho, New Hampshire, New Jersey, New Mexico, and Nevada. These states, except for Colorado and New Jersey, have matching rates far higher than the matching rates for all trainees with valid OSTC and OCE. Table 11 also explains the weakening of the impacts of being black. Georgia and South Carolina have a large number of black participants and their matching rates are substantially lower than the matching rates for the valid trainee sample. However, Asian trainees still show matching rates about 10 percentage points lower than white trainees regardless of the state control.

IV.2. Effects of training and training with match on Outcome Measures

The conventional literature on the evaluation of training programs compares trainees to non-trainees. That comparison asks a simple question – Does training work? However, it does not answer why training works. If trainees' outcome measures are significantly better than those of non-trainees, it could be because what they need is successful transition away from the previous occupations – for which any type of training suffices - or because they need transition into a specific occupation, so that which training you get becomes very relevant for reemployment.

If the outcome measures of non-trainees do not differ from those of trainees, the failure might arise from three possible reasons. First, training was not necessary and all participants generally had

marketable skills already. Second, training does not work properly; that is, the training programs are poorly designed to teach the participants proper skill sets. Lastly, training works, but occupational choices are poorly made; that is, training did not help participants to earn the skills that are in demand – the occupations with vacancies. It is important to figure out which is causing the failure of training programs because each cause has different solutions.

All these possible scenarios can be summarized by two questions: does training work in general?, and does a choice of training occupation affect the impact of training? For the first question, instead of simply comparing trainees and non-trainees, comparison will be made between trainees without a match and non-trainees to truly test the general validity of training. The second question can be answered by comparing trainees with a match and trainees without a match. Using the following estimation equation, both questions can be answered.

$$Y_i = \alpha_0 + \alpha_1 M_i^{occ} + \alpha_2 TR_i^{occ} + \alpha_3 TR_i^{rmd} + \alpha_4 TR_i^{ojt} + \alpha_5 TR_i^{cst} + \beta X_i + \delta_1 D_{4i} + \delta_2 D_{5i} + \delta_3 D_{6i} + \varepsilon_i \quad (2)$$

The outcome variable, Y_i, is any one of the outcome measures – reemployment, post-participation earnings, wage replacement rate, and retention. Probit analysis is used for reemployment and retention and OLS is used for earnings and wage replacement rate. *TR*'s are indicator variables for various types of training. TR_i^{occ} is 1 if participant *i* received occupational skills training. TR_i^{rmd}, T_i^{ojt}, and TR_i^{cst} are indicator variables for remedial training, OJT, and customized training, respectively. M_i^{occ} is the matching variable – 1 if matched, 0 otherwise. As in the previous section, first or second degree match at 8-digit level is used for all analyses. *X* is a vector of individual characteristics of participants used in the first analysis. D_{4i}, D_{5i}, and D_{6i} are dummy variables for exit years.

α_1 captures the impact of matching on the various outcome measures. α_2, on the other hand, captures the effect of skill training without leading to a match. Therefore, the difference between α_1 and α_2 will provide the comparison between skill trainees with and without a match. α_2 itself measure the impact of occupational skills training over no training. α_3 to α_5 capture the effect of remedial training, OJT, and customized training. Positive α_1 implies that the choice of training occupation is relevant to the outcome, and the occupational choice should be made with caution. If neither α_1 and α_2 is significant, it comes down to either 'occupational skills training is not necessary' or 'training programs are not a good source of new skills.' Good outcome measures for both trainees and non-trainees would signal toward the former, and poor overall performance would signal the latter.

As shown in the previous analyses, the impacts of various individual characteristics and program-related variables differ greatly depending on whether states of residency are controlled or not. This is caused by differences in participants' characteristics as described in Table 11. Different states also experience different labor market situations. Without controlling for the location of participants, the analyses will be influenced by the link between overall participant characteristics – such as educational attainment – and labor market situation of each state. In order to avoid such a bias, only specifications 5 to 8 will be analyzed in this section. These four specifications will be shown with two different measures of education, degree attainment (tables marked with 'a') and years of schooling (tables marked with 'b').

a. Reemployment Rate

The dependent variable is an indicator variable for employment. It takes the value 1 if a participant is employed for at least one quarter during three quarters following exit. In this analysis, the major comparison is between trainees and non-trainees using the Probit analysis. Matching should not be included in this analysis because the participants with match are necessarily all employed. Since matching variable is not included in the analysis, observations from Oklahoma and Virginia are included. Table 13 summarizes the results for analyses with degree attainment and years of school as the measure of education.

First, all types of training programs influence the chance of reemployment substantially. The biggest effect comes from OJT. This is expected because employers can enjoy the benefit only by actually hiring the trainees. Receiving occupational skills training improves the chance of reemployment by 5 percentage points. If a trainee does not complete the skills training, employment rate is only2 percentage points higher than those of non-trainees, completion of training raises the chance of reemployment by additional 4 percentage points. Customized training lowers the chance by 4 to 6 percentage points. Customized training is the training program that is specially designed for incumbent workers to meet the skills needs of a specific firm. That is, if a trainee is not hired by the firm, the skills acquired through this training may not be applicable to other jobs making reemployment rather difficult.

Educational attainment, ethnicity, and, age affect the reemployment rate by similar magnitude. While having associate degree is the most beneficial in terms of the chance of reemployment (6 percentage points higher than less than high school), all educational level display similar reemployment rates, 3 to 4 percentage points higher that of trainees with less than high school education. The coefficients on age variables show a downward trend with age. Younger age (16 to 40) raises the chance of reemployment by approximately 3 percentage points compared to age group between 40 and 50, but the most significant impact of trainees' age is the negative effect of old age. Especially, participants between the ages of 61 and 65 showing substantially lower reemployment rates compared to other age groups. This could be caused by voluntary withdrawal from the job market by participants who are close to retirement. Among 9,069 participants between 61 and 65 who obtained a training requirement waiver, 810 (8.9%) reported retirement as a reason. This is surprisingly high considering that only 1.02% of training waivers issued, for all age groups, are issued for the reason of retirement.

b. Wage Replacement Rates

Wage replacement rates are the ratio of post-participation earnings to pre-participation earnings. Each earnings level takes the average quarterly earnings during three quarters preceding participation and three quarters following exit. For the same reason as in the previous section, observations from Oklahoma and Virginia are excluded. Trainees who received occupational skills training without OSTC or are employed without OCE are also omitted. Again, each specification will be analyzed with or without pre-participation earnings. The results are summarized by Table 14.

The impacts of matching on the wage replacement rates are represented by the differences between the coefficients on matching and those on occupational skills training. The coefficient on the

occupational skills training will capture the impact of receiving the training and failing to obtain a match. Receiving occupational skills training without succeeding in getting a match has a negative impact on the wage replacement rates. This could be driven by the selection into skills training by trainees with limited skill sets. The impact of obtaining a match is substantial; it raises the wage replacement rates by 4 to 5 percentage points compared to the trainees without a match. Where OSTCs are controlled, the impacts are reduced to 3 percentage points. Again, OJT is proved to be highly beneficial to trainees by raising the wage replacement rates by 4 percentage points over those of non-trainees. The effect of customized training is also positive. This implies that, though receiving customizing training is risk in the sense that it could lower the chance of reemployment by making the trainee's skill sets too specific, the risk-taking is rewarded by higher wage replacement rate once hired.

The large and negative coefficient on pre-participation earnings simply implies that it is hard to find a job with a comparable pay for high-earning (pre-layoff) workers and it is relatively easy to find one for low-earning workers. This indicates convergence in earnings after participation. The standard deviation of post-participation earnings is $4,011.10, which is 18.44% smaller than that of pre-participation earnings. On the same line of logic, it is interesting to see the coefficients on educational attainment. When pre-layoff earnings level is not controlled, the impacts of different levels of educational attainment are very small, with relatively larger positive impacts of lower educational attainment. Once the pre-layoff earnings are controlled, higher education has a huge impact on the wage replacement meaning highly educated workers find a job with a higher pay even if the wage replacement rate is not superior to that of less educated workers.

The most important worker characteristic in determining the wage replacement rates is their age. The negative impacts of old age are very large and are not due to the high pre-layoff tenure, which tends to imply a higher wage level, since the coefficients are not much affected by controlling for the level of pre-layoff earnings level. The positive impact of young age, though, is driven by low pre-layoff earnings level. When pre-layoff earnings level is not controlled, the impact of different level of educational attainment is very small.

Gender is significant and very much affected by pre-participation earnings. Male participants display wage replacement rates one percentage point higher than those of female participants. This difference in wage replacement rates increase to 14.4 percentage points indicating that male participants were paid more before participating the TAA program. Hispanic and black participants show higher wage replacement rates compared to white participants, but this is due to low pre-participation earnings. This implies that they benefit more from the program participation. Asian participants display higher wage replacement rates regardless of controlling for pre-layoff earnings. Exit years also matter for the wage replacement rates. In years with a better labor market situation (2007), participants achieved higher wage replacement than they would have received in a relatively bad year (2004).

c. Post-Participation Earnings

The dependent variable is the logarithm of average quarterly earnings during the three quarters following exit. This analysis utilizes the matching variable, so the observations from Oklahoma and Virginia are excluded. Participants who received occupational skills training but without OSTC and

participants who are employed after exit but without OCE are also excluded. For each specification, the analysis is attempted with or without the log of earnings prior to participation. Different ability levels will determine not only the post-participation earnings, but also the pre-participation earnings. So I focus more on the specifications with pre-participation earnings control. Training completion is dropped from analysis because the success of training is proxied by matching variable. Table 15 summarizes the results with two measures of educational attainment.

Again, the impacts of matching are represented by the differences between the coefficients on matching and occupational skills training. Receiving occupational skills training without obtaining a match has a negative impact on post-participation earnings and this is not affected by controlling for the pre-layoff earnings. This again indicates the limited skill sets that these trainees have other than the skills used in the previous employment. Obtaining a match eliminates the effect, indicating that a success in occupational skills training compensates the lack of marketable skills. This is exactly the objective of the training provision of the TAA program. This is the main proof of the importance of the training program in reducing the adjustment cost of these workers.

Remedial training has negative impacts on the post-participation earnings. Participants who received remedial training represent the lower extreme of ability spectrum, hence lower earnings even with intensive training. The positive impacts of OJT are consistent with the findings from other outcome measures. Also, customized training does raise the potential of high earning once hired, making the risk-taking worthwhile.

Despite of the significance of training in affecting the participants' post-participation earnings level, the earnings level is largely determined by the level of educational attainment. Controlling for pre-layoff earnings do not change the power of educational attainment in predicting earnings determination. Also interesting to note is that the importance in educational attainment is not driven by different occupational choices by participants with different level of education. In specifications 7 and 8, where OSTCs are controlled, the coefficients are almost identical to the corresponding specifications 5 and 6.

The influence of gender is also very large. Males in general have higher earnings than females, and the reduction in coefficient with inclusion of pre-participation earnings indicates that they also earned more than female workers prior to participation. Age variables show a bell-shaped link to the earnings level. Participants between the ages of 41 and 50 make the highest earnings, followed by the 31 to 40 age group. Younger workers and older workers generally have lower earning. This pattern is preserved when pre-participation earnings are controlled with a shift of the highest earnings group to participants between the ages of 31 and 40. Exit years also matter for earnings. In years with a better labor market situation, participants receive higher earnings than they would have received in a relatively bad year.

d. Retention Rates

The indicator variable for retention is 1 if a participant is still employed during the remainder of the observation period (up to three quarters) once he/she is employed and 0 otherwise.[21] Probit analysis

[21] The retention variable is constructed using three employment indicator variables. The TAPR reports whether the participant is employed during each of three quarters of observation periods, providing three employment indicators. One caveat of this method of constructing the retention is that being reported as employed for two consecutive quarters does not necessarily mean that the participant is working for the same employer during the two quarters.

is used again for the analyses. Since the matching variable is used, observations from Oklahoma and Virginia are omitted as well as the occupational skills trainees without OSTC and the trainees who are reemployed without OCE. Table 16 summarizes the results. The analyses with pre-participation earnings do not differ significantly from the ones without it, so are not reported.

While matching has little impacts on retention rates, various training program is largely beneficial to participants in terms or retention. Occupational skills training and OJT improves the retention rate, but the coefficients of occupational skills training become very small and insignificant as the occupation groups are controlled. This implies that occupational skills trainees choose occupations with more stable employment. The impacts of OJT are robust across specifications. High retention rates for OJT trainees can be attributed to the fact that they are trained in skills specific to the firms of reemployment. The impacts of ethnicity and gender are negligible for all specifications. Overall, the retention rate for the entire sample is quite high (around 90%), and the variables of individual characteristics and service received have very small effects even if they are significant.

V. Conclusion

Technology continues to advance and it becomes easier to utilize various resources in foreign countries by means of international trade. Competition from cheap imported products has been blamed for replacing domestic goods and jobs of workers who produced the goods that were replaced. With the rise of offshore outsourcing, such replacement of domestic workers with foreign workers has become more direct and massive. As most of labor-intensive manufacturing production no longer takes place in the U.S., many manufacturing workers go through painful layoffs. With the improvement of network technology, this trend is expanding to service workers.

In order to reduce the adjustment costs of these workers, the DOL administers a dislocated worker program called TAA. Since the workers who are displaced by rising import competition tend to be less educated and have limited skill sets, TAA focuses on providing its participants the opportunities to acquire new skills that are in demand in order to improve their chance of reemployment. This paper investigates whether such occupational skills training truly helps participants to find stable employment that also pays relatively well. This paper measures this success of training provision by looking at the match between the occupations of training and entered employment.

First, the hypothesis that matching is the result of successful training is examined by measuring the impact of various individual characteristics of participants on the chance of matching. Under the alternative hypothesis where a match is not necessarily a preferred option of employment, the probability of matching shows a bell-shaped curve over the ability level. Low ability trainees show a low matching rate because they are not capable of succeed in training program to obtain a match. High ability trainees show low matching rate because they voluntarily withdraw from a match because they have other marketable skill that would give them better pay and work environment. In the analysis with educational attainment as a proxy for the ability level, the bell-shape pattern in the coefficients for educational attainment is not observed in any specification. I also find that exit years with favorable labor market situation are associated with higher matching rates, supporting the validity of matching as a measure of training success.

The main question of this paper is whether success in training, which is indicated by a match between the training occupation and the occupation of employment, would lead to a better outcome – measured by four performance measures: reemployment rate, post-participation earnings level, wage replacement rate, and retention rate. The analysis of impacts of various services on reemployment is based on comparison between trainees and non-trainees. Since construction of matching variable requires the occupation code of reemployment, the impact of matching on reemployment rate cannot be analyzed. All types of training programs influence the chance of reemployment substantially. The biggest effect comes from OJT, raising the reemployment rate by 10 to 11 percentage points. Occupational skills training raises the rates by 5 percentage points, but 4 percentage points are contingent on completion of training. Other worker characteristics, such as educational attainment, ethnicity, and age, affect the reemployment rates by similar magnitude to the impacts of training programs.

Matching affects the wage replacement rates significantly. Trainees with a match display wage replacement rates that are 4 to 5 percentage points higher than those of trainees without a match, indicating the importance of a match in achieving better post-participation outcome. Trainees without a match display the wage replacement rates lower than the rates of non-trainees. This is due to the limited skill sets that lead them into training enrollment in the first place. OJT again proves very beneficial to the participants by improving the rate by 4 percentage points. The most important worker characteristic in determining the wage replacement rates is their age. The negative impacts of old age are very large and are not due to the high pre-layoff tenure, hence higher pre-layoff earnings.

Participants who received occupational skills training but failed to achieve a match experience a lower post-participation earnings compared to non-trainees. This again indicates the limited skill sets that these trainees have other than the skills used in the previous employment. Obtaining a match eliminates these negative impacts, indicating the success in occupational skills training compensates their lack of marketable skills. This is the main proof of the importance of the training program (and succeeding in it) in reducing the adjustment cost of these low-skilled workers. Matching does not influence retention rate much. Retention rate is fairly stable across various individual characteristics and services rendered by the TAA program. Occupational skills training is relatively influential raising the retention rates by 2.3 to 2.7 percentage points. However, these effects decrease substantially in magnitude when occupation groups of training are controlled. OJT has the largest impact of raising the retention rate by approximately 3 percentage points.

Overall, various training provision under the TAA program is effective in reducing adjustment cost of the participants by providing better employment opportunities. Receiving occupational skills training itself does not guarantee a good outcome. The skill trainees who do not complete the program display the reemployment rate only 2 percentage points higher than non-trainees. Skills trainees without a match tend to show post-participation earnings performance inferior to non-trainees potentially due to their limited skill sets. Success in training program indicated by a match offsets (more than offsets for some outcome measures) the negative impact of limited skill sets of these participants by providing the skills that generate good employment opportunities. This is the main goal of the training provision of the TAA program. The results from this analyses provide evidence that the TAA program's focus on training program should continue and more effort should be placed on career assessment and counseling so that

participants can choose an occupation that is suitable for their needs and abilities which will directly lead to employment in that occupation.

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Table 1. Benefits and Services Provided by the TAA Program

Services and Benefits	Description	
Rapid Response Assistance	Inform workers of various services available for them. Available for all displaced workers, certification not necessary	
Reemployment Services	Assist workers with reemployment by providing career counseling and assessment, job search related workshops, job search assistance and referrals. Career assessment determines whether and which training is beneficial to each participant.	
Relocation Allowance	When a participant gets a job that requires moving, the program compensates 90% of moving expenses with a stipend of three weeks' wage. Maximum of $1,250[(a)]	
Job Search Allowance	Compensates 90% of the cost of job searches outside commuting area. Maximum of $1,250[(a)]	
Training	Participants are eligible for training up to 104 weeks. To be eligible, the following criteria must be met: i) no suitable employment ii) training would be beneficial to the worker iii) training would lead to employment iv) training must be available v) the workers would be able to complete the training vi) training cost is reasonable	Training waiver may be issued to a participant if i) she will be recalled soon ii) she has marketable skills iii) she has a health problem iv) training is not available v) enrollment is not available
	Classroom Training	Targeted to obtain skill sets that are specific to an occupation of choice. Training provided by local community colleges or vocational training schools.
	Remedial Training	Eg. Literacy, English as a Second Language (ESL), and GED Can occur concurrently with other training or during additional 26 weeks from the end of regular training
	On the Job Training (OJT)	If a participant is employed under OJT, the TAA program pays 50% of the wage rate to the employer during the training
	Customized Training	The training is customized to tasks of a specific firm, but the trainees are not necessarily employed by this firm.
Trade Readjustment Allowance (TRA)	A participant is eligible to receive income support for up to 104 weeks as the following: i) 26 weeks following separation: UI ii) 26 weeks following exhaustion of UI: Basic TRA iii) 52 weeks following exhaustion of Basic TRA: Additional TRA	
	Basic TRA	During the first 26 weeks from exhaustion of UI. This requires training enrollment unless[(b)] i) the participant has obtained a training waiver ii) has completed approved training
	Additional TRA	During 52 weeks from exhaustion of Basic TRA. Training enrollment is required without exception.
	Remedial TRA	Participants who are enrolled in remedial training qualify for 26 weeks of

		income support in addition to 104 weeks of UI, basic TRA, and additional TRA.
Health Insurance Tax Credit (HITC)[c]	This is a subsidy of 65% of the qualifying health insurance premium paid. The subsidy will be paid as a Tax Credit. All TAA and NAFTA-TAA participants all are eligible.	

Source: Employment and Training Administration, US Department of Labor (http://www.doleta.gov/tradeact/benefits.cfm)

(a) Max $800 prior to Reform Act of 2002
(b) These exceptions do not apply to NAFTA-TAA participants. Training enrollment is required for NAFTA-TAA participants to receive basic TRA.
(c) This is added to TAA benefits by 2002 Reform Act

Table 2. Summary of TAA Performance Goals and Outcomes

Fiscal Year	Number of TAA Certifications Issued	Estimated[i] Number of Workers Covered by Certifications	Wage Replacement Rate (%)[ii]		Average 6-month Wages ($)[ii]		Reemployment Rate (%)		Retention Rate (%)	
			Goal	Outcome	Goal	Outcome	Goal	Outcome	Goal	Outcome
2003	1,894	197,748	90	73			78	62	90	86
2004	1,813	149,705	90	74			70	63	88	89
2005	1,564	118,024	80	76			70	70	89	91
2006	1,448	119,605	80	89			70	72	85	90
2007	1,465	146,898			12,000	13,915	70	70	85	88
2008	1,681	163,004			14,050	14,269	73	69	91	90
2009	3,131	337,071			13,386	15,077	65.2	69	87.5	88
2010	2,715	280,319			13,319	14,487	64.9	58.2	87.3	79.7

Source : ETA, US Department of Labor (http://www.doleta.gov/tradeact/taa_stats.cfm)

(i) These figures are constructed from the number of workers indicated in petition forms. The report is supposed to be an approximate number; therefore, these figures differ from the actual number of workers covered by the petitions certified in each year.
(ii) The performance measure Wage Replacement Rate is replaced by Average Annual Earnings since fiscal year 2007.

Table 3. Summary Statistics of TAA and NAFTA-TAA Participants across Years of Program Exit

Year of Program Exit	2004	2005	2006	2007	All
Number of Participants	27,559[ii]	45,783	43,972	25,987[ii]	143,301
Participant Characteristics[i]					
Gender					
Male	49.51	51.36	52.37	53.21	51.65
Female	50.49	48.64	47.63	46.79	48.35
Age at Participation					
Under 30	10.25	9.53	9.32	9.11	9.53
30-44	39.88	38.13	35.99	33.51	36.97
45-54	32.17	33.15	33.57	34.89	33.40
55 and more	17.70	19.20	21.12	22.50	20.10
Mean Age at Participation (years)	44.02	44.58	45.12	45.62	44.83
Ethnicity					
Hispanic/Latino	13.93	10.45	6.22	5.65	8.87
American Indian/Alaska Native	0.99	0.77	1.00	0.94	0.92
Asian	4.00	3.48	2.32	2.31	2.99
Black or African American	16.07	13.79	15.14	16.13	15.07
Hawaiian Native or Pacific Islander	0.44	0.35	0.29	0.28	0.33
White	64.57	71.16	75.04	74.69	71.82
Education					
Less than High School	19.88	18.45	20.16	20.49	19.63
High School Graduate or Eqv.	54.34	55.73	55.95	55.43	55.49
Some Post High School	19.83	19.61	17.81	17.37	18.70
College Graduate or Eqv.	5.47	5.78	5.37	5.95	5.62
Not Identified	0.48	0.43	0.71	0.76	0.56
English Proficiency					
Not Proficient	5.13	5.23	4.20	4.13	4.70
Benefits & Services Received[i]					
Received Any Training	76.12	76.61	69.76	75.44	74.20
Among Trainees					
Occupational Skill Training	70.82	71.76	66.40	54.95	66.98
On-The-Job Training	3.78	3.00	0.88	0.62	2.14
Remedial Training	14.33	14.63	16.97	16.32	15.57
Completed Training	68.90	65.82	59.12	48.96	61.39
Average Weeks of Training	57.64 wks	61.42wks	63.67wks	61.25wks	61.19wks
Rec'd Travel Allowance	11.55	14.57	17.93	13.34	14.72
Rec'd Subsistence Allowance	1.91	1.32	1.14	0.72	1.28
Training Waiver	56.07	57.21	70.48	76.73	64.60
Recall	7.03	8.50	8.98	1.84	6.98
Marketable Skills	36.93	43.77	59.76	72.45	54.16
Retirement	0.97	1.16	1.91	2.11	1.58
Health problem	1.88	0.89	0.27	0.58	0.78

Enrollment/Training Unavailable	23.68	20.39	19.30	20.30	20.55
Reason unknown	29.50	25.28	9.77	2.72	15.94
Basic TRA	61.29	63.52	61.08	56.83	61.13
Additional TRA	30.40	35.57	30.87	26.18	31.43
Job Search Allowance	1.07	1.12	1.59	1.99	1.41
Relocation Allowance	1.03	1.14	1.47	1.46	1.28

(i) Units in % unless specified otherwise.
(ii) Numbers of participants in 2004 and 2007 are smaller because the data are not collected throughout the whole year.

Table 4. Occupation Categories in O*NET System

Group	Occupation Group Name	Training Occupation (OSTC)[(i)]		Reemployment Occupation (OCE)[(ii)]	
		Obs.	%	Obs.	%
11	Management	2,889	4.91	1,168	3.23
13	Business and Financial Operations	1,701	2.89	644	1.78
15	Computer and Mathematical	3,848	6.54	1,284	3.55
17	Architecture and Engineering	2,170	3.69	1,326	3.66
19	Life, Physical and Social Science	404	0.69	155	0.43
21	Community and Social Services	943	1.6	327	0.9
23	Legal	444	0.76	124	0.34
25	Education, Training, and Library	1,892	3.22	810	2.24
27	Arts, Design, Entertainment, Sports, and Media	578	0.98	237	0.65
29	Healthcare Practitioners and Technical	5,876	9.99	2,127	5.88
31	Healthcare support	6,301	10.72	2,508	6.93
33	Protective Service	643	1.09	411	1.14
35	Food Preparation and Serving Related	500	0.85	580	1.6
37	Building and Grounds Cleaning and Maintenance	303	0.52	789	2.18
39	Personal Care and Service	1,661	2.82	698	1.93
41	Sales and Related	391	0.66	1,122	3.1
43	Office and Administrative Support	8,652	14.71	4,130	11.41
45	Farming, Fishing, and Forestry	88	0.15	230	0.64
47	Construction, and Extraction	1,814	3.09	1,145	3.16
49	Installation, Maintenance, and Repair	5,846	9.94	2,637	7.28
51	Production	7,122	12.11	10,520	29.06
53	Transportation and Material Moving	4,688	7.97	3,196	8.83
55	Military Specific	44	0.07	36	0.1
all		58,798	100.00	36,204	100.00

(i) Figures related to OSTC are drawn from the observations with valid 6-digit occupation codes of training.
(ii) Figures related to OCE are drawn from the observations with valid 6-digit occupation codes of entered employment.

Table 5. Occupation skills Training received and reporting quality by states

States	No. of Obs.	% of all sample	No. of OCC skills trainees	% of state observations	No. of obs with valid OSTC	% of OCC skill trainees
AK	174	0.12	168	96.55	168	100.00
AL	1,175	0.82	1,092	92.94	6	0.55
AR	1,711	1.19	1,691	98.83	0	0.00
AZ	1,220	0.85	520	42.62	0	0.00
CA	3,295	2.3	3,024	91.78	3,024	100.00
CO	1,447	1.01	806	55.70	708	87.84
CT	1,652	1.15	757	45.82	708	93.53
DE	115	0.08	79	68.70	17	21.52
FL	934	0.65	869	93.04	633	72.84
GA	3,653	2.55	2,759	75.53	1,645	59.62
IA	1,151	0.8	1,003	87.14	927	92.42
ID	1,304	0.91	640	49.08	557	87.03
IL	4,594	3.21	3,208	69.83	558	17.39
IN	8,007	5.59	3,105	38.78	900	28.99
KS	1,164	0.81	811	69.67	675	83.23
KY	3,222	2.25	1,683	52.23	1,581	93.94
LA	116	0.08	90	77.59	85	94.44
MA	3,704	2.58	2,506	67.66	1,076	42.94
MD	960	0.67	591	61.56	119	20.14
ME	3,295	2.3	1,806	54.81	1,773	98.17
MI	10,123	7.06	3,263	32.23	3,262	99.97
MN	1,570	1.1	1,146	72.99	106	9.25
MO	1,750	1.22	1,216	69.49	964	79.28
MS	2,892	2.02	1,477	51.07	1,477	100.00
MT	454	0.32	189	41.63	111	58.73
NC	13,917	9.71	12,254	88.05	0	0.00
ND	66	0.05	41	62.12	41	100.00
NE	249	0.17	188	75.50	182	96.81
NH	809	0.56	314	38.81	217	69.11
NJ	1,776	1.24	1,093	61.54	977	89.39
NM	235	0.16	217	92.34	209	96.31
NV	49	0.03	44	89.80	42	95.45
NY	8,398	5.86	2,417	28.78	624	25.82
OH	8,258	5.76	3,399	41.16	3,374	99.26
OK	1,452	1.01	1,452	100.00	1,444	99.45
OR	1,886	1.32	1,319	69.94	1,289	97.73
RI	1,042	0.73	411	39.44	407	99.03
SC	7,526	5.25	3,885	51.62	3,344	86.07
SD	543	0.38	423	77.90	423	100.00
TN	11,099	7.75	2,826	25.46	783	27.71
TX	5,742	4.01	2,639	45.96	2,638	99.96
UT	461	0.32	372	80.69	372	100.00
VA	5,709	3.98	4,356	76.30	4,030	92.52
VT	232	0.16	177	76.29	177	100.00
WA	6,333	4.42	3,367	53.17	3,347	99.41
WI	6,095	4.25	3,807	62.46	1,156	30.37
WV	1,725	1.2	490	28.41	325	66.33
WY	16	0.01	15	93.75	14	93.33

Total	143,300	100	80,005	100.00	46,495	58.12

Table 6. Matching Rates at Various Definitions of Matching

(a) All valid observations

	8 digit		6-digit	
	Total sample	Match (%)	Total Sample	Match (%)
First degree	17,760	47.98	24,802	44.33
Second degree	17,760	2.46	24,802	2.07
Either	17,760	50.44	24,802	46.40

(b) Excluding observations from Oklahoma and Virginia

	8 digit		6-digit	
	Total sample	Match (%)	Total Sample	Match ((%)
First degree	14,155	34.74	21,197	34.86
Second degree	14,155	3.09	21,197	2.42
Either	14,155	37.82	21,197	37.28

Table 7. Summary of the Performance Measures of the TAA Program across Exit years and Pre-participation Earnings Levels

a. Across Exit Years					Reemployment Rate (%)[(i)]		Wage Replacement Rate (%)				Retention Rate (%)			
Exit Year	Number of Obs.	% Trainees	No of obs. with both OSTC&OCE	% Match	Non-Trainees	Trainees[ii]	Non-trainees	Trainees all	Trainees w/ match[(iii)]	Trainees w/o match[(iii)]	Non-trainee	Trainees all	Trainees w/ match	Trainees w/o match
2004	27,559	76.12	4,739	33.32	68.44	82.27	77.71	86.97	89.08	90.19	88.57	91.37	91.83	93.43
2005	45,783	76.62	7,318	36.14	70.15	81.20	81.20	88.43	96.40	97.38	86.79	89.46	89.51	90.04
2006	43,971	69.76	6,196	38.85	71.07	79.96	83.53	88.76	98.49	97.27	89.00	90.54	91.71	91.40
2007	25,987	75.44	2,944	43.21	72.66	78.92	85.08	87.24	96.09	88.85	89.41	90.89	92.95	93.96
All	143,300	74.20	21,197	37.28	70.61	80.64	82.15[(iv)]	88.00[(iv)]	95.49[(iv)]	94.46[(iv)]	88.36	90.41	91.18	91.74

b. Across Pre-Participation Earnings levels					Reemployment Rate (%)[(ii)]		Wage Replacement Rate (%)				Retention Rate (%)			
Quarterly Earnings prior to Participation ($)	Number of Obs.	% Trainees	No of obs. with both OSTC&OCE	% Match	Non-Trainees	Trainees	Non-trainees	Trainees all	Trainees w/ match	Trainees w/o match	Non-trainees	Trainees all	Trainees w/ match	Trainees w/o match
0 – 2,000	6,515	76.59	1,323	36.96	60.92	79.14	2,699.08	2,135.60	1,821.17	1,356.97	84.53	88.08	92.26	89.78
2,001 – 4,999	31,833	75.27	4,454	35.20	67.62	79.48	119.77	124.71	147.20	140.17	86.47	89.36	90.74	89.81
5,000 – 9,999	57,486	73.44	7,996	38.11	70.85	82.36	79.26	82.48	90.83	87.38	89.63	91.22	91.40	91.61
10,000 – 19,999	29,682	71.44	4,590	38.69	75.42	83.03	64.38	65.52	66.87	72.80	88.73	91.23	92.20	93.68
20,000 – 29,999	3,955	63.03	503	35.59	71.89	80.43	50.39	50.29	45.88	57.22	88.82	90.36	89.13	95.59
30,000 – 39,999	1,008	55.06	106	33.96	62.91	75.86	37.53	38.90	27.82	38.55	85.04	88.47	91.89	96.15
40,000 or higher	561	59.54	49	18.37	52.86	76.95	25.72	31.33	24.23	32.75	87.50	88.33	90.00	92.11
All	131,040[(v)]	73.08	19,025	37.35	80.64	70.61	82.15[(iv)]	88.00[(iv)]	95.49[(iv)]	94.46[(iv)]	88.46	90.57	91.47	91.79

(i) Employed at any point during the three quarters of observation following program exit.

(ii) Trainees include participants who received training of all types.

(iii) Trainees with or without a match only includes participants who received occupational skills training.

(iv) The average wage-replacement rate for each group of participants is calculated excluding the observations with quarterly earnings of $2,000 or less prior to participation. Due to extremely high rates for these participants, the average wage-replacement rate would be misleadingly high if they are included in calculation. The average wage-replacement rates including these people are 177.39% for non-trainees, 191.24% for all trainees, 207.40% for trainees with a match, and 175.27% for trainees without a match.

(v) Total number of observation in panel (b) is smaller than that of panel (a) because 12,260 observations either do not have earnings record or have invalid entries.

Table 8. Participant Characteristics and Matching Rates for Occupational Groups of Training

					Ethnicity (%)					Education (%)					
OSTC[(i)] Group	Occupation Group Name	% Match[(ii)]	% Male	% Limited English	White	Asian	Black	Hisp	Other	Less than HS	High Schl	Some Coll	Assoc	Bach	More than Bach
11	Management	23.12	49.05	1.97	66.72	1.74	14.20	3.02	14.33	4.95	45.21	27.87	9.02	10.69	2.26
13	Business and Financial Operations	27.13	39.00	2.14	64.02	2.59	13.27	3.26	16.86	4.67	45.47	27.99	8.09	11.92	1.85
15	Computer and Mathematical	25.77	66.51	2.89	57.14	4.53	11.29	5.07	21.98	5.85	43.89	27.12	9.28	11.82	2.03
17	Architecture and Engineering	31.19	85.45	2.54	59.36	4.26	8.01	4.00	24.37	4.61	42.66	31.08	9.04	11.06	1.55
19	Life, Physical and Social Science	15.26	56.67	3.26	60.14	2.80	10.72	2.10	24.24	2.10	41.72	33.10	8.16	12.59	2.33
21	Community and Social Services	25.06	31.38	1.94	51.18	1.74	29.89	4.09	13.10	5.94	47.59	28.45	10.75	6.35	0.92
23	Legal	40.74	20.93	1.27	60.13	1.05	11.39	3.38	24.05	3.59	49.37	26.37	11.39	7.81	1.48
25	Education, Training, and Library	33.46	31.50	7.32	51.92	2.35	23.36	8.09	14.28	13.10	47.31	18.89	5.87	12.74	2.08
27	Arts, Design, Entertainment, Sports, and Media	26.72	53.91	4.56	53.93	4.87	8.49	4.72	27.99	5.97	43.40	30.50	8.65	9.59	1.89
29	Healthcare Practitioners and Technical	46.41	27.82	2.11	58.89	2.42	15.36	5.29	18.04	5.93	57.60	24.49	5.67	5.34	0.97
31	Healthcare support	53.32	11.14	7.92	51.70	2.28	20.67	11.94	13.41	16.54	64.90	13.26	3.52	1.57	0.22
33	Protective Service	22.19	65.14	1.47	60.62	0.59	16.37	3.54	18.88	6.19	62.98	22.86	5.31	2.21	0.44
35	Food Preparation and Serving Related	30.25	37.42	18.15	40.83	5.26	10.34	8.17	35.39	27.59	50.45	16.52	2.54	2.72	0.18
37	Building and Grounds Cleaning and Maintnc.	47.65	51.08	22.10	41.16	11.60	8.29	4.14	34.81	35.08	46.96	12.71	1.93	2.76	0.55
39	Personal Care and Service	41.80	16.20	18.65	31.32	11.31	17.74	14.55	25.07	24.84	54.63	13.93	4.83	1.65	0.11
41	Sales and Related	18.25	45.62	5.49	58.81	3.43	16.48	3.89	17.39	21.51	42.79	23.57	5.49	6.18	0.46
43	Office and Administrative Support	23.54	13.78	7.49	56.15	2.25	17.37	11.64	12.59	15.08	58.33	17.38	6.15	2.69	0.36
45	Farming, Fishing, and Forestry	6.45	45.05	3.30	74.73	2.20	7.69	2.20	13.19	12.09	48.35	24.18	6.59	7.69	1.10
47	Construction, and Extraction	36.62	95.09	4.42	62.11	1.56	10.60	9.20	16.53	12.16	60.40	19.70	4.26	3.17	0.31
49	Installation, Maintenance, and Repair	37.83	94.54	3.81	62.05	3.42	10.91	7.58	16.04	11.23	60.46	20.00	5.51	2.45	0.36
51	Production	33.28	48.84	3.98	64.13	1.93	18.88	4.65	10.42	32.13	50.58	13.98	1.34	1.73	0.25
53	Transportation and Material Moving	66.47	84.05	4.49	60.87	0.50	19.48	9.13	10.01	23.03	60.69	11.05	2.84	2.02	0.36
55	Military Specific	33.33	48.89	0.00	66.67	0.00	11.11	0.00	22.22	6.67	80.00	6.67	2.22	4.44	0.00
Total		37.28	47.05	5.16	58.02	2.73	16.10	7.52	15.63	14.85	54.70	19.50	5.37	4.80	0.78

(i) Occupation Skills Training Code
(ii) First and Second degree matching at 6-digit level

Table 9. Participant Characteristics and Matching Rates for Occupational Groups of Employment

					Ethnicity (%)					Education (%)					
OCE[(i)] Group	Occupation Group Name	% Match[(ii)]	% Male	% Limited English	White	Asian	Black	Hisp	Other	Less than HS	High Schl	Some Coll	Assoc	Bach	More than Bach
11	Management	38.60	56.25	1.39	70.32	1.70	6.26	1.78	19.94	5.33	37.71	22.33	9.43	19.01	6.18
13	Business and Financial Operations	44.30	40.68	1.97	61.94	1.69	6.18	2.39	27.81	4.49	32.72	25.42	12.78	20.08	4.49
15	Computer and Mathematical	54.09	67.11	2.18	52.78	3.87	5.63	2.67	35.05	5.00	34.98	28.92	8.44	19.42	3.24
17	Architecture and Engineering	40.41	83.88	2.36	49.86	7.43	4.65	2.64	35.42	3.82	28.82	30.35	12.29	21.39	3.33
19	Life, Physical and Social Science	28.00	65.87	1.80	59.28	0.60	5.99	1.80	32.34	2.99	37.13	29.94	8.38	16.17	5.39
21	Community and Social Services	42.86	38.57	3.71	62.29	0.86	19.43	4.00	13.43	7.43	46.00	26.29	10.29	8.57	1.43
23	Legal	80.21	19.85	0.76	54.55	0.76	8.33	4.55	31.82	5.30	42.42	30.30	11.36	9.09	1.52
25	Education, Training, and Library	39.43	34.81	1.39	59.35	0.81	20.44	2.21	17.19	3.83	38.10	22.18	11.27	21.25	3.37
27	Arts, Design, Entertainment, Sports, and Media	39.74	64.50	2.65	53.41	5.30	2.65	4.55	34.09	3.41	36.36	29.17	11.74	15.91	3.41
29	Healthcare Practitioners and Technical	68.75	30.69	1.72	64.83	1.85	7.59	3.07	22.65	4.43	54.16	26.72	6.37	6.92	1.40
31	Healthcare support	68.15	9.66	5.17	60.27	1.95	18.89	4.90	13.98	12.30	66.93	14.48	4.37	1.61	0.31
33	Protective Service	24.48	67.82	0.92	62.21	0.23	16.59	2.53	18.43	7.14	61.06	20.28	5.76	5.30	0.46
35	Food Preparation and Serving Related	18.55	28.16	12.66	55.36	5.84	15.58	4.22	18.99	23.38	56.17	14.94	3.41	2.11	0.00
37	Building and Grounds Cleaning and Maintnc.	16.95	51.15	15.46	56.09	2.46	14.29	7.38	19.79	33.14	51.52	9.60	2.93	2.58	0.23
39	Personal Care and Service	52.06	16.65	14.52	44.15	7.14	16.98	7.49	24.24	20.14	57.14	14.87	5.15	2.22	0.47
41	Sales and Related	4.04	37.76	2.44	64.06	1.39	12.63	3.10	18.83	12.31	54.20	17.77	7.17	7.58	0.98
43	Office and Administrative Support	24.59	21.68	3.86	63.08	2.11	11.13	5.39	18.29	8.34	56.31	21.90	8.23	4.77	0.45
45	Farming, Fishing, and Forestry	8.16	43.14	51.37	77.25	1.57	1.18	8.24	11.76	60.00	29.41	7.06	2.35	0.78	0.39
47	Construction, and Extraction	36.17	93.70	3.73	65.50	2.10	4.51	6.92	20.98	10.72	58.66	20.90	4.43	4.66	0.62
49	Installation, Maintenance, and Repair	51.11	93.64	3.07	62.84	3.18	6.88	4.89	22.21	10.41	57.11	22.84	6.18	2.97	0.49
51	Production	9.95	51.08	7.88	59.05	5.21	15.32	6.62	13.80	24.92	54.07	14.72	3.52	2.34	0.44
53	Transportation and Material Moving	54.73	76.36	4.72	61.95	1.24	16.06	5.93	14.82	22.63	58.46	13.41	2.76	2.42	0.32
55	Military Specific	33.33	56.10	2.38	61.90	0.00	7.14	9.52	21.43	9.52	59.52	16.67	2.38	9.52	2.38
Total		37.28	50.60	5.56	60.36	3.33	12.39	5.16	18.76	15.58	52.72	18.88	5.77	5.97	1.08

(i) Occupational Code of Employment
(ii) First and Second degree matching at 6-digit level

Table 10. Performance Measures for Occupational Groups of Training and Employment

Occupation Group	Occupation Group Name	Among Trainees[(i)]	Among Employees[(ii)]		
		Reemployment Rate (%)	Retention Rate (%)	Wage Replacement rate (%)	Average Quarterly Earnings ($)
11	Management	82.69	91.01	87.25	10,489
13	Business and Financial Operations	82.12	91.27	93.93	9,528
15	Computer and Mathematical	81.57	90.23	95.81	9,757
17	Architecture and Engineering	83.60	93.75	103.27	12,224
19	Life, Physical and Social Science	82.98	92.21	87.12	9,072
21	Community and Social Services	83.11	94.10	87.65	5,977
23	Legal	83.97	90.76	89.03	7,325
25	Education, Training, and Library	80.70	92.97	77.14	6,163
27	Arts, Design, Entertainment, Sports, and Media	76.10	89.61	93.33	9,372
29	Healthcare Practitioners and Technical	87.79	94.11	106.44	8,130
31	Healthcare support	87.09	92.80	85.83	5,280
33	Protective Service	88.79	94.09	90.11	6,911
35	Food Preparation and Serving Related	81.67	90.40	80.00	4,645
37	Building and Grounds Cleaning and Maintenance	77.62	90.00	88.39	5,658
39	Personal Care and Service	73.39	87.46	87.48	5,070
41	Sales and Related	75.29	90.13	78.20	5,627
43	Office and Administrative Support	80.80	91.79	84.20	6,216
45	Farming, Fishing, and Forestry	71.43	63.11	91.59	5,583
47	Construction, and Extraction	78.07	88.21	91.37	8,440
49	Installation, Maintenance, and Repair	83.97	91.78	89.99	8,918
51	Production	80.50	91.88	96.67	7,301
53	Transportation and Material Moving	85.84	89.44	94.58	7,348
55	Military Specific	73.33	91.43	82.94	7,167
Total		82.85	91.37	91.48	7,475

(i) For each occupation group of training.
(ii) For each occupation group of reemployment. These observations include both trainees and non-trainees as long as occupation codes for reemployment are reported.

Table 11. States and Other Variables

State	No of obs.	% of sample	% Match	% Male	% Lmtd English Profic	Ethnicity (%)					Education (%)				
						White	Asian	Black	Hisp	Other	HS	Some College	Assoc	Bachel	More than B
AK	174	0.12	46.81	77.01	0.57	77.01	5.17	2.3	0.57	14.94	39.66	31.61	0	18.39	1.72
AL	1,175	0.83	0	41.28	0	70.21	1.45	25.28	0.51	2.55	54.81	28.34	0	5.45	1.28
AR	1,711	1.21	0	45.06	1.29	74.23	0.64	23.44	0.88	0.82	86.32	6.78	0	0.7	0.06
AZ	1,220	0.86	0	56.23	0.74	56.39	4.02	4.02	33.28	2.30	29.34	16.48	0	4.26	1.39
CA	3,295	1.91	47.37	47.95	23.64	0	0	0	37.27	62.73	25.64	27.74	0	7.62	1.7
CO	1,447	1.02	36.84	58.33	6.7	74.36	8.91	2.83	11.13	2.76	35.25	34.9	0	17.21	7.67
CT	1,652	1.16	0	48.01	8.23	56.66	4.96	10.65	18.34	9.38	24.88	14.65	0.06	3.57	0
DE	115	0.08	0	60.00	6.09	69.57	6.09	20.87	0.87	2.61	69.57	6.09	6.09	4.35	0
FL	934	0.66	0	36.62	11.46	38.87	3	14.56	38.87	4.71	66.49	12.42	0.64	4.6	1.07
GA	3,653	2.58	23.13	34.55	1.18	50.18	1.45	46.48	0.66	1.23	58.97	18.94	1.48	1.2	0.22
IA	1,151	0.81	25.00	48.39	2.26	94.87	0.87	0.78	0.78	2.69	58.3	31.54	0.26	5.65	1.48
ID	1,304	0.92	32.65	54.91	6.52	11.96	0.31	0.15	26.46	61.12	41.41	21.24	5.83	7.44	0
IL	4,594	3.23	24.47	52.47	4.55	78.3	2.68	8.69	5.75	4.59	64.74	15.98	0.15	5.68	1.15
IN	8,007	5.29	31.58	64.27	1.2	48.03	0.41	4.35	0.74	46.47	68.68	16.47	0.72	4.07	0.8
KS	1,164	0.82	27.58	59.62	1.12	79.38	4.04	10.91	2.75	2.92	52.41	27.23	3.61	7.82	2.06
KY	3,222	2.27	14.94	43.89	1.49	89.7	0.22	5.59	0.4	4.10	68.93	11.73	5.09	2.48	0.22
LA	116	0.08	66.67	39.66	0	61.21	1.72	31.9	0	5.17	68.97	10.34	0	7.76	0.86
MA	3,704	2.61	30.37	55.26	15.12	76.19	8.1	4.48	8.64	2.59	50.78	6.21	7.4	8.5	3.4
MD	960	0.67	0.00	42.81	1.67	63.13	1.25	30	0.73	4.90	71.35	11.67	0.94	1.88	0.31
ME	3,295	2.33	36.79	62.43	2.7	94.2	0.91	1.76	0.12	3.00	54.84	13.57	1.91	4.98	1.76
MI	10,123	7.14	45.03	60.75	3.9	86.9	1.86	10.02	0	1.22	61.97	10.13	0.94	8.11	2
MN	1,570	1.11	36.84	59.32	19.49	74.97	6.43	2.99	5.67	9.94	69.04	20.89	0	5.41	0.57
MO	1,750	1.23	27.99	42.29	0.17	83.26	0.57	8.4	0.8	6.97	69.89	14.17	1.26	1.54	0.29
MS	2,892	2.04	22.47	41.15	1.45	20.33	0.14	15.25	0.03	64.25	42.67	16.53	22.54	3.39	0.45
MT	454	0.26	45.31	74.86	0.88	94.71	0.22	0	0.88	4.19	66.3	22.03	0	2.64	0.66
NC	13,917	9.81	34.13	39.36	4.44	62.17	2.43	31.22	1.88	2.30	56.74	13.43	12.06	3.37	0.37
ND	66	0.05	0	43.94	0	98.48	0	0	0	1.52	43.94	21.21	27.27	6.06	0
NE	249	0.18	47.22	37.75	0.8	94.78	1.61	0.8	0	2.81	71.89	21.69	0	3.61	0
NH	809	0.57	43.82	60.32	13.1	51.3	4.7	1.11	12.36	30.53	61.43	10.14	0.37	9.02	2.1
NJ	1,776	1.24	10.14	50.80	16.39	38.68	4.5	15.93	30.69	10.19	65.48	9.74	3.27	4.05	1.13
NM	235	0.17	58.02	67.23	0.85	38.3	2.13	1.7	54.47	3.40	61.28	32.34	0	4.68	1.7
NV	49	0.03	73.33	77.55	4.08	71.43	0	10.2	14.29	4.08	36.73	26.53	2.04	18.37	8.16
NY	8,398	5.72	22.22	62.22	1.55	74.47	2.81	6.37	5.04	11.31	66.79	11.51	6.69	3.97	0.92
OH	8,258	5.82	50.22	59.93	0.02	84.22	0.52	11.92	1.32	2.02	68.15	18.15	0	3.11	1.86
OK	1,452	1.02	100.00	43.32	0.9	52	2.55	9.44	0.14	35.88	50.76	30.1	0	9.57	1.65
OR	1,886	1.33	71.06	62.46	10.13	46.5	6.26	0.8	9.07	37.38	51.33	20.47	6.68	8.38	3.02
RI	1,042	0.74	59.57	45.39	33.3	77.83	5.09	7.29	8.73	1.06	48.75	10.17	0.77	5.28	0.67
SC	7,526	5.31	13.81	44.80	0.85	50.47	1.29	39.37	0.54	8.33	58.42	14.27	0	3.16	0.5
SD	543	0.38	30.70	44.20	2.21	94.48	1.29	2.03	1.47	0.74	66.11	7.73	12.15	10.87	1.84
TN	11,099	7.83	0	45.54	0.97	88.32	0.41	9.18	0.11	1.97	46.5	2.45	1.04	0.82	0.26
TX	5,742	4.05	0	51.01	15.88	28.51	6.18	7.92	54.35	3.03	44.31	15.01	2.06	4.81	0.42
UT	461	0.33	45.78	53.15	19.96	79.18	13.45	0.65	1.95	4.77	46.2	27.55	0.22	7.38	1.08
VA	5,709	4.01	99.97	36.93	0	68.03	0.4	30.15	0.44	0.98	36.15	13.33	0.18	2.05	0.18
VT	232	0.16	25.00	50.00	1.29	96.12	0.86	0.43	0	2.59	53.02	21.55	0	11.21	1.29
WA	6,333	4.47	32.63	64.16	7.86	11.81	12.43	3.49	1.47	70.80	44.39	30.19	10.53	8.97	0.08
WI	6,095	4.30	33.33	53.52	3.94	89.58	1.18	5.61	1.62	2.00	65.43	18.75	0.31	5.04	0.82
WV	1,725	1.22	0.00	72.29	0.06	86.2	0.12	3.65	0	10.03	59.36	15.42	4	3.83	0.7
WY	16	0.01	75.00	81.25	0	100	0	0	0	0.00	31.25	50	12.5	6.25	0
Total	143,300	100.00	37.82	51.65	4.69	64.57	2.56	13.46	6.22	13.20	56.05	15.17	3.53	4.64	0.98

Table 12. What Affects Matching? Education as Degree Attainment

	1		2		3		4		5		6		7		8	
ind. Variable	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
Male	0.018*	0.014	0.020*	0.016	0.026*	0.021	0.028*	0.023*	0.004	0.000	0.006	0.001	0.007	-0.001	0.009	0.001
	(0.008)	(0.008)	(0.008)	(0.008)	(0.011)	(0.011)	(0.011)	(0.011)	(0.009)	(0.009)	(0.009)	(0.009)	(0.011)	(0.011)	(0.011)	(0.011)
Limited Engl Proficiency	0.016	0.019	0.014	0.017	0.004	0.007	0.004	0.006	-0.021	-0.019	-0.022	-0.021	-0.033	-0.032	-0.033	-0.032
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Eth: Hispanic	0.054**	0.061**	0.060**	0.066**	0.057**	0.062**	0.061**	0.065**	0.011	0.015	0.010	0.014	0.000	0.003	-0.001	0.002
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Eth: Asian	-0.094**	-0.106**	-0.074**	-0.088**	-0.090**	-0.103**	-0.074**	-0.088**	-0.093**	-0.098**	-0.088**	-0.094**	-0.101**	-0.107**	-0.097**	-0.104**
	(0.022)	(0.021)	(0.022)	(0.022)	(0.022)	(0.022)	(0.023)	(0.022)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Eth: Black	-0.074**	-0.087**	-0.067**	-0.081**	-0.091**	-0.103**	-0.085**	-0.097**	-0.023	-0.033	-0.027	-0.036	-0.037	-0.045*	-0.040	-0.047*
	(0.018)	(0.018)	(0.019)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.021)	(0.020)	(0.021)	(0.020)	(0.021)	(0.020)	(0.021)	(0.020)
Eth: Others	0.036**	0.030**	0.051**	0.043**	0.045**	0.040**	0.057**	0.050**	-0.014	-0.013	-0.016	-0.014	-0.024	-0.023	-0.025	-0.024
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Edu: High School	-0.039**	-0.044**	-0.034*	-0.040**	-0.025	-0.029	-0.021	-0.025	-0.013	-0.015	-0.012	-0.014	-0.002	-0.003	0.000	-0.002
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)	(0.015)
Edu: Some College	-0.033*	-0.036*	-0.024	-0.028	0.013	0.013	0.021	0.020	-0.021	-0.022	-0.017	-0.019	0.022	0.023	0.025	0.026
	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.016)	(0.017)	(0.017)	(0.017)	(0.017)	(0.018)	(0.017)
Edu: Associate	-0.076**	-0.080**	-0.069**	-0.073**	-0.016	-0.017	-0.010	-0.011	-0.028	-0.025	-0.030	-0.027	0.032	0.037	0.030	0.035
	(0.023)	(0.023)	(0.023)	(0.023)	(0.025)	(0.025)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.028)	(0.028)	(0.028)	(0.028)
Edu: Bachelor's	-0.012	-0.016	-0.009	-0.013	0.064**	0.065**	0.066**	0.067**	-0.014	-0.016	-0.013	-0.016	0.060**	0.061**	0.060**	0.061**
	(0.021)	(0.021)	(0.021)	(0.021)	(0.023)	(0.023)	(0.023)	(0.023)	(0.021)	(0.021)	(0.021)	(0.021)	(0.023)	(0.023)	(0.023)	(0.023)
Edu: More than B	0.016	0.011	0.018	0.011	0.114**	0.114**	0.115**	0.114**	-0.016	-0.025	-0.014	-0.024	0.080	0.076	0.082	0.077
	(0.042)	(0.041)	(0.042)	(0.041)	(0.044)	(0.044)	(0.044)	(0.044)	(0.041)	(0.041)	(0.041)	(0.041)	(0.045)	(0.045)	(0.045)	(0.045)
Age: 16_20	0.059	0.066	0.056	0.063	0.057	0.061	0.054	0.057	0.059	0.063	0.051	0.056	0.045	0.045	0.039	0.040
	(0.119)	(0.118)	(0.119)	(0.118)	(0.118)	(0.117)	(0.118)	(0.117)	(0.120)	(0.118)	(0.119)	(0.118)	(0.118)	(0.117)	(0.118)	(0.116)
Age: 21_30	0.026	0.025	0.026	0.025	0.043**	0.043**	0.043**	0.044**	0.007	0.007	0.010	0.009	0.025	0.026	0.027	0.028
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)	(0.016)	(0.016)
Age: 31_40	0.019	0.019	0.018	0.019	0.024*	0.025*	0.023*	0.024*	0.015	0.016	0.016	0.017	0.021	0.022*	0.021	0.022*
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Age: 51_60	-0.039**	-0.036**	-0.042**	-0.039**	-0.044**	-0.042**	-0.046**	-0.044**	-0.045**	-0.042**	-0.047**	-0.044**	-0.049**	-0.048**	-0.051**	-0.049**
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Age: 60_65	-0.021	-0.016	-0.027	-0.022	-0.004	0.000	-0.011	-0.006	-0.020	-0.017	-0.025	-0.021	-0.006	-0.003	-0.011	-0.007
	(0.029)	(0.029)	(0.029)	(0.029)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.031)	(0.031)	(0.031)	(0.030)
Training Completed	0.200**		0.203**		0.184**		0.187**		0.183**		0.189**		0.167**		0.172**	
	(0.009)		(0.009)		(0.010)		(0.010)		(0.010)		(0.010)		(0.010)		(0.010)	
Exit Year 2005			0.033**	0.041**			0.033**	0.041**			0.017	0.024*			0.018	0.025*
			(0.012)	(0.011)			(0.012)	(0.012)			(0.012)	(0.012)			(0.012)	(0.012)
Exit Year 2006			0.088**	0.086**			0.082**	0.080**			0.067**	0.061**			0.058**	0.053**
			(0.012)	(0.012)			(0.013)	(0.012)			(0.013)	(0.013)			(0.013)	(0.013)
Exit Year 2007			0.121**	0.118**			0.103**	0.099**			0.120**	0.111**			0.094**	0.086**
			(0.014)	(0.014)			(0.014)	(0.014)			(0.016)	(0.016)			(0.016)	(0.016)

13.Business & Financial					0.000	0.006	0.000	0.006					0.009	0.016	0.007	0.014
					(0.033)	(0.033)	(0.033)	(0.033)					(0.034)	(0.034)	(0.034)	(0.034)
15.Computer, Math					0.061*	0.069**	0.064*	0.071**					0.079**	0.087**	0.081**	0.088**
					(0.027)	(0.027)	(0.027)	(0.027)					(0.028)	(0.028)	(0.028)	(0.028)
17.Architecture					0.101**	0.107**	0.101**	0.107**					0.112**	0.119**	0.110**	0.117**
					(0.029)	(0.029)	(0.029)	(0.029)					(0.030)	(0.030)	(0.030)	(0.030)
19.Science					-0.080	-0.073	-0.077	-0.069					-0.060	-0.049	-0.061	-0.049
					(0.049)	(0.050)	(0.050)	(0.050)					(0.052)	(0.052)	(0.052)	(0.052)
21.Community Service					0.139**	0.145**	0.142**	0.147**					0.122**	0.126**	0.121**	0.125**
					(0.040)	(0.040)	(0.041)	(0.040)					(0.042)	(0.041)	(0.042)	(0.041)
23.Legal					0.261**	0.263**	0.267**	0.267**					0.296**	0.298**	0.298**	0.299**
					(0.049)	(0.048)	(0.049)	(0.048)					(0.048)	(0.048)	(0.048)	(0.048)
25.Education, Training					0.163**	0.169**	0.163**	0.169**					0.189**	0.195**	0.187**	0.192**
					(0.034)	(0.033)	(0.034)	(0.034)					(0.035)	(0.034)	(0.035)	(0.034)
27.Arts, Design					0.055	0.068	0.057	0.069					0.070	0.084	0.069	0.083
					(0.044)	(0.044)	(0.044)	(0.044)					(0.045)	(0.045)	(0.045)	(0.045)
29.Healthcare Pract'r					0.315**	0.317**	0.313**	0.315**					0.342**	0.344**	0.337**	0.340**
					(0.023)	(0.023)	(0.023)	(0.023)					(0.024)	(0.023)	(0.024)	(0.023)
31.Healthcare Support					0.349**	0.363**	0.347**	0.362**					0.362**	0.373**	0.360**	0.372**
					(0.023)	(0.023)	(0.023)	(0.023)					(0.024)	(0.023)	(0.024)	(0.023)
33.Protective Service					-0.051	-0.068	-0.052	-0.070					-0.074	-0.086*	-0.073	-0.086*
					(0.043)	(0.042)	(0.043)	(0.042)					(0.042)	(0.041)	(0.042)	(0.041)
35.Food Prep & Serving					0.152**	0.145**	0.143**	0.136**					0.152**	0.145**	0.143**	0.136**
					(0.048)	(0.047)	(0.048)	(0.047)					(0.049)	(0.048)	(0.049)	(0.048)
37.Building Maintenance					0.334**	0.340**	0.331**	0.337**					0.336**	0.343**	0.333**	0.340**
					(0.049)	(0.048)	(0.049)	(0.048)					(0.050)	(0.049)	(0.051)	(0.050)
39.Personal Care&Service					0.274**	0.289**	0.272**	0.287**					0.266**	0.281**	0.261**	0.277**
					(0.032)	(0.031)	(0.032)	(0.031)					(0.033)	(0.033)	(0.034)	(0.033)
41.Sales and Related					0.089	0.094	0.094	0.100					0.084	0.089	0.085	0.091
					(0.065)	(0.065)	(0.065)	(0.065)					(0.067)	(0.067)	(0.067)	(0.067)
43.AdministrativeSupport					0.100**	0.110**	0.103**	0.113**					0.106**	0.115**	0.106**	0.114**
					(0.025)	(0.025)	(0.026)	(0.025)					(0.026)	(0.026)	(0.026)	(0.026)
45.Farming & Fishing					-0.192	-0.187	-0.191	-0.185					-0.172	-0.158	-0.174	-0.160
					(0.138)	(0.140)	(0.139)	(0.140)					(0.146)	(0.151)	(0.145)	(0.150)
47.Construction					0.197**	0.209**	0.197**	0.209**					0.190**	0.203**	0.187**	0.200**
					(0.031)	(0.031)	(0.031)	(0.031)					(0.032)	(0.032)	(0.032)	(0.032)
49.Installation & Repair					0.181**	0.194**	0.182**	0.195**					0.214**	0.228**	0.213**	0.227**
					(0.025)	(0.025)	(0.025)	(0.025)					(0.026)	(0.026)	(0.026)	(0.026)
51.Production					0.128**	0.138**	0.126**	0.135**					0.136**	0.153**	0.135**	0.151**
					(0.027)	(0.027)	(0.027)	(0.027)					(0.029)	(0.028)	(0.029)	(0.028)
53.Transportation					0.429**	0.447**	0.425**	0.444**					0.451**	0.468**	0.445**	0.464**
					(0.021)	(0.020)	(0.022)	(0.021)					(0.021)	(0.020)	(0.022)	(0.021)
States									YES	YES	YES	YES	YES	YES	YES	YES
Number of obs	13,800	13,800	13,800	13,800	13,800	13,800	13,800	13,800	13,800	13,800	13,800	13,800	13,800	13,800	13,800	13,800
LR chi2	508.9	132.41	609.47	223.46	1,417.45	1,115.38	1,490.22	1,180.61	1,274.82	980.57	1,351.38	1,041.31	2,223.3	1,991.14	2,268.56	2,025.59
Prob >chi2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pseudo R2	0.0278	0.0072	0.0333	0.0122	0.0774	0.0609	0.0814	0.0645	0.0697	0.0536	0.0738	0.0569	0.1215	0.1088	0.124	0.1107

• * and ** indicate significance at the 95% and 99% level, respectively. Numbers in the parentheses are standard errors.

Table 13. Reemployment Rates

	Education: Degree Completion								Education: Years of Schooling							
	5a		6a		7a		8a		5b		6b		7b		8b	
ind. Variable	with	without	with	without	with	without	with	without	with	without	with	without	with	without	with	without
Male	-0.001	-0.002	-0.001	-0.002	0.000	-0.001	0.000	-0.001	-0.001	-0.002	-0.001	-0.002	0.000	-0.001	0.000	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Limited Engl Proficiency	-0.014*	-0.012*	-0.014*	-0.012*	-0.013*	-0.011	-0.013*	-0.011	-0.018**	-0.016**	-0.018**	-0.015**	-0.016**	-0.015*	-0.016**	-0.015*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Eth: Hispanic	0.002	0.003	0.003	0.003	0.002	0.002	0.002	0.002	-0.002	-0.002	-0.002	-0.001	-0.003	-0.003	-0.003	-0.003
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Eth: Asian	-0.049**	-0.049**	-0.048**	-0.048**	-0.044**	-0.045**	-0.044**	-0.044**	-0.050**	-0.050**	-0.050**	-0.050**	-0.046**	-0.046**	-0.045**	-0.046**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Eth: Black	0.018**	0.016**	0.018**	0.016**	0.017**	0.015**	0.017**	0.015**	0.017**	0.016**	0.017**	0.015**	0.017**	0.015**	0.017**	0.015**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Eth: Others	-0.023**	-0.024**	-0.022**	-0.023**	-0.024**	-0.025**	-0.023**	-0.024**	-0.022**	-0.024**	-0.021**	-0.023**	-0.023**	-0.025**	-0.022**	-0.024**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Edu: High School	0.038**	0.038**	0.038**	0.038**	0.038**	0.038**	0.038**	0.038**								
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)								
Edu: Some College	0.041**	0.042**	0.041**	0.042**	0.043**	0.044**	0.043**	0.044**								
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)								
Edu: Associate	0.055**	0.060**	0.055**	0.060**	0.059**	0.063**	0.058**	0.063**								
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)								
Edu: Bachelor's	0.027**	0.027**	0.027**	0.028**	0.030**	0.032**	0.031**	0.032**								
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)								
Edu: More than B	0.038**	0.038**	0.038**	0.038**	0.040**	0.040**	0.041**	0.041**								
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)								
Schooling									0.003**	0.003**	0.003**	0.003**	0.003**	0.003**	0.003**	0.003**
									(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age: 16_20	0.031	0.028	0.032	0.029	0.031	0.028	0.032	0.029	0.030	0.027	0.031	0.028	0.030	0.027	0.031	0.028
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Age: 21_30	0.043**	0.042**	0.043**	0.042**	0.043**	0.042**	0.043**	0.042**	0.043**	0.042**	0.043**	0.043**	0.043**	0.042**	0.043**	0.043**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Age: 31_40	0.028**	0.028**	0.028**	0.028**	0.028**	0.028**	0.028**	0.028**	0.029**	0.029**	0.029**	0.029**	0.028**	0.028**	0.028**	0.028**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Age: 51_60	-0.098**	-0.099**	-0.098**	-0.099**	-0.097**	-0.098**	-0.098**	-0.098**	-0.099**	-0.100**	-0.099**	-0.100**	-0.098**	-0.099**	-0.098**	-0.099**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Age: 61_65	-0.404**	-0.406**	-0.404**	-0.406**	-0.402**	-0.404**	-0.402**	-0.404**	-0.406**	-0.408**	-0.407**	-0.409**	-0.405**	-0.406**	-0.405**	-0.407**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Train: Occupational	0.020**	0.048**	0.020**	0.048**	0.014**	0.036**	0.014**	0.036**	0.023**	0.051**	0.023**	0.052**	0.017**	0.039**	0.017**	0.039**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)
Train: Remedial	-0.015**	-0.008	-0.016**	-0.008*	-0.015**	-0.008*	-0.016**	-0.009*	-0.023**	-0.015**	-0.024**	-0.015**	-0.023**	-0.016**	-0.024**	-0.016**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Train : OJT	0.108**	0.116**	0.109**	0.117**	0.109**	0.117**	0.110**	0.117**	0.109**	0.117**	0.110**	0.118**	0.109**	0.117**	0.110**	0.118**
	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)
Train: Customized	-0.052**	-0.066**	-0.050**	-0.064**	-0.045**	-0.055**	-0.043*	-0.054**	-0.047**	-0.061**	-0.044**	-0.059**	-0.040*	-0.050**	-0.038*	-0.048**
	(0.017)	(0.018)	(0.017)	(0.018)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Marketable Skills	0.011**	0.010**	0.009**	0.008**	0.011**	0.010**	0.009**	0.008**	0.012**	0.010**	0.009**	0.008**	0.012**	0.011**	0.009**	0.008**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Training Completed	0.044**		0.045**		0.041**		0.042**		0.045**		0.045**		0.042**		0.043**	
	(0.003)		(0.003)		(0.003)		(0.003)		(0.003)		(0.003)		(0.003)		(0.003)	

Exit Year 2005			0.002	0.001			0.002	0.001			0.002	0.002			0.002	0.002
			(0.003)	(0.003)			(0.003)	(0.003)			(0.003)	(0.003)			(0.003)	(0.003)
Exit Year 2006			0.005	0.003			0.004	0.003			0.006	0.004			0.005	0.004
			(0.003)	(0.003)			(0.003)	(0.003)			(0.003)	(0.003)			(0.003)	(0.003)
Exit Year 2007			0.015**	0.014**			0.015**	0.014**			0.016**	0.015**			0.016**	0.015**
			(0.004)	(0.004)			(0.004)	(0.004)			(0.004)	(0.004)			(0.004)	(0.004)
13.Business & Financial					-0.011	-0.007	-0.011	-0.006					-0.010	-0.005	-0.010	-0.005
					(0.011)	(0.011)	(0.011)	(0.011)					(0.011)	(0.011)	(0.011)	(0.011)
15.Computer, Math					-0.021**	-0.016*	-0.020**	-0.015					-0.021**	-0.014	-0.020*	-0.013
					(0.008)	(0.008)	(0.008)	(0.008)					(0.008)	(0.008)	(0.008)	(0.008)
17.Architecture					-0.007	-0.002	-0.006	-0.002					-0.005	-0.001	-0.005	0.000
					(0.010)	(0.009)	(0.010)	(0.009)					(0.010)	(0.009)	(0.010)	(0.009)
19.Science					-0.020	-0.014	-0.019	-0.014					-0.019	-0.013	-0.018	-0.013
					(0.022)	(0.021)	(0.022)	(0.021)					(0.022)	(0.021)	(0.022)	(0.021)
21.Community Service					-0.015	-0.010	-0.015	-0.010					-0.012	-0.007	-0.012	-0.007
					(0.014)	(0.014)	(0.014)	(0.014)					(0.014)	(0.014)	(0.014)	(0.014)
23.Legal					-0.018	-0.011	-0.017	-0.011					-0.015	-0.009	-0.015	-0.008
					(0.021)	(0.020)	(0.021)	(0.020)					(0.021)	(0.020)	(0.021)	(0.020)
25.Education, Training					-0.003	0.003	-0.002	0.004					-0.003	0.003	-0.003	0.004
					(0.009)	(0.009)	(0.009)	(0.009)					(0.009)	(0.009)	(0.009)	(0.009)
27.Arts, Design					-0.069**	-0.063**	-0.068**	-0.063**					-0.067**	-0.061**	-0.066**	-0.060**
					(0.019)	(0.019)	(0.019)	(0.019)					(0.019)	(0.019)	(0.019)	(0.019)
29.Healthcare Pract'r					0.040**	0.043**	0.040**	0.044**					0.041**	0.045**	0.042**	0.045**
					(0.006)	(0.006)	(0.006)	(0.006)					(0.006)	(0.006)	(0.006)	(0.006)
31.Healthcare Support					0.046**	0.053**	0.047**	0.053**					0.046**	0.053**	0.047**	0.053**
					(0.006)	(0.005)	(0.006)	(0.005)					(0.006)	(0.005)	(0.006)	(0.005)
33.Protective Service					0.032*	0.034*	0.032*	0.034*					0.033*	0.035*	0.034*	0.036*
					(0.016)	(0.016)	(0.016)	(0.016)					(0.016)	(0.016)	(0.016)	(0.016)
35.Food Prep & Serving					0.017	0.018	0.017	0.018					0.016	0.017	0.016	0.017
					(0.018)	(0.018)	(0.018)	(0.018)					(0.018)	(0.018)	(0.018)	(0.018)
37.Building Maintenance					-0.023	-0.018	-0.023	-0.018					-0.025	-0.020	-0.026	-0.021
					(0.024)	(0.023)	(0.024)	(0.023)					(0.024)	(0.024)	(0.024)	(0.024)
39.Personal Care&Service					-0.088**	-0.080**	-0.088**	-0.080**					-0.088**	-0.080**	-0.088**	-0.080**
					(0.012)	(0.012)	(0.012)	(0.012)					(0.012)	(0.012)	(0.012)	(0.012)
41.Sales and Related					-0.036	-0.034	-0.035	-0.033					-0.038	-0.035	-0.037	-0.034
					(0.021)	(0.021)	(0.021)	(0.021)					(0.021)	(0.021)	(0.021)	(0.021)
43.AdministrativeSupport					0.005	0.009	0.005	0.009					0.005	0.010	0.006	0.010
					(0.005)	(0.005)	(0.005)	(0.005)					(0.005)	(0.005)	(0.005)	(0.005)
45.Farming & Fishing					-0.098	-0.094	-0.096	-0.092					-0.099	-0.094	-0.096	-0.093
					(0.051)	(0.050)	(0.050)	(0.050)					(0.051)	(0.050)	(0.051)	(0.050)
47.Construction					-0.045**	-0.037**	-0.044**	-0.037**					-0.045**	-0.037**	-0.044**	-0.037**
					(0.011)	(0.011)	(0.011)	(0.011)					(0.011)	(0.011)	(0.011)	(0.011)
49.Installation & Repair					0.013*	0.018**	0.013*	0.019**					0.013*	0.019**	0.013*	0.019**
					(0.006)	(0.006)	(0.006)	(0.006)					(0.006)	(0.006)	(0.006)	(0.006)
51.Production					0.028**	0.034**	0.029**	0.034**					0.028**	0.033**	0.028**	0.033**
					(0.006)	(0.005)	(0.006)	(0.005)					(0.006)	(0.005)	(0.006)	(0.005)
53.Transportation					0.044**	0.054**	0.044**	0.054**					0.042**	0.051**	0.042**	0.052**
					(0.006)	(0.006)	(0.006)	(0.006)					(0.006)	(0.006)	(0.006)	(0.006)
States	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of obs	139,291	139,291	139,291	139,291	139,291	139,291	139,291	139,291	139,291	139,291	139,291	139,291	139,291	139,291	139,291	139,291
LR chi2	12,165	11,957	12,186	11,974	12,497	12,319	12,517	12,337	12,049	11,832	12,071	11,851	12,376	12,188	12,398	12,208
Prob >chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.0855	0.083	0.085	0.083	0.087	0.086	0.087	0.086	0.084	0.082	0.084	0.083	0.086	0.085	0.086	0.085

• * and ** indicate significance at the 95% and 99% level, respectively. Numbers in the parentheses are standard errors.

Table 14. Wage Replacement Rates

	Education: Degree Attainment								Education: Years of Schooling							
	5a		6a		7a		8a		5b		6b		7b		8b	
ind. Variable	without	with	without	with	without	with	without	with	without	with	without	with	without	with	without	with
Male	0.018**	0.144**	0.018**	0.144**	0.010	0.135**	0.010*	0.135**	0.020**	0.146**	0.020**	0.146**	0.012*	0.137**	0.012*	0.137**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Limited Engl Proficiency	0.021	-0.021	0.020	-0.021	0.022	-0.018	0.022	-0.018	0.023	-0.024*	0.023	-0.025*	0.025	-0.021	0.025	-0.021
	(0.013)	(0.011)	(0.013)	(0.011)	(0.013)	(0.011)	(0.013)	(0.011)	(0.013)	(0.011)	(0.013)	(0.011)	(0.013)	(0.011)	(0.013)	(0.011)
Eth: Hispanic	0.066**	-0.016	0.065**	-0.016	0.065**	-0.017	0.065**	-0.017	0.069**	-0.019*	0.068**	-0.019*	0.068**	-0.020*	0.068**	-0.020*
	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)
Eth: Asian	0.045**	0.036**	0.044**	0.036**	0.045**	0.037**	0.044**	0.037**	0.047**	0.043**	0.046**	0.043**	0.047**	0.045**	0.046**	0.045**
	(0.014)	(0.012)	(0.014)	(0.012)	(0.014)	(0.012)	(0.014)	(0.013)	(0.014)	(0.013)	(0.014)	(0.013)	(0.014)	(0.013)	(0.014)	(0.013)
Eth: Black	0.040**	0.002	0.040**	0.002	0.040**	0.002	0.040**	0.002	0.039**	0.001	0.039**	0.001	0.039**	0.001	0.039**	0.001
	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)
Eth: Others	0.045**	0.013	0.045**	0.013	0.045**	0.012	0.044**	0.012	0.045**	0.016*	0.045**	0.016*	0.045**	0.015*	0.044**	0.015*
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Edu: High School	-0.037**	0.015*	-0.037**	0.015*	-0.037**	0.015*	-0.036**	0.016*								
	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)								
Edu: Some College	-0.022*	0.097**	-0.021*	0.098**	-0.023*	0.096**	-0.022*	0.096**								
	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)								
Edu: Associate	-0.002	0.150**	-0.002	0.149**	-0.002	0.149**	-0.002	0.148**								
	(0.015)	(0.014)	(0.015)	(0.014)	(0.015)	(0.014)	(0.015)	(0.014)								
Edu: Bachelor's	0.012	0.207**	0.013	0.207**	0.012	0.206**	0.013	0.207**								
	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)								
Edu: More than B	0.021	0.283**	0.022	0.284**	0.020	0.282**	0.022	0.283**								
	(0.021)	(0.019)	(0.021)	(0.019)	(0.021)	(0.019)	(0.021)	(0.019)								
Schooling									0.000	0.009**	0.000	0.009**	0.000	0.008**	0.000	0.009**
									(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age: 16_20	0.267**	-0.029	0.262**	-0.033	0.268**	-0.029	0.263**	-0.033	0.266**	-0.019	0.260**	-0.024	0.267**	-0.020	0.262**	-0.024
	(0.049)	(0.044)	(0.049)	(0.044)	(0.049)	(0.044)	(0.049)	(0.044)	(0.049)	(0.044)	(0.049)	(0.044)	(0.049)	(0.044)	(0.049)	(0.044)
Age: 21_30	0.142**	0.011	0.142**	0.011	0.143**	0.012	0.143**	0.012	0.140**	0.015	0.141**	0.015	0.142**	0.015	0.142**	0.016
	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)
Age: 31_40	0.061**	0.021**	0.061**	0.022**	0.061**	0.021**	0.062**	0.022**	0.061**	0.025**	0.062**	0.026**	0.061**	0.025**	0.062**	0.026**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Age: 51_60	-0.081**	-0.068**	-0.082**	-0.069**	-0.081**	-0.068**	-0.082**	-0.068**	-0.080**	-0.066**	-0.081**	-0.067**	-0.079**	-0.065**	-0.080**	-0.066**
	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)
Age: 61_65	-0.162**	-0.185**	-0.164**	-0.187**	-0.162**	-0.184**	-0.163**	-0.186**	-0.161**	-0.183**	-0.162**	-0.185**	-0.160**	-0.182**	-0.162**	-0.183**
	(0.014)	(0.012)	(0.014)	(0.012)	(0.014)	(0.012)	(0.014)	(0.012)	(0.014)	(0.012)	(0.014)	(0.012)	(0.014)	(0.012)	(0.014)	(0.012)
Match	0.029**	0.020*	0.027**	0.019*	0.027**	0.019*	0.025*	0.017	0.028**	0.019*	0.027**	0.017	0.027**	0.020*	0.025*	0.018*
	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)
Train: Occupational	-0.016*	-0.027**	-0.013	-0.024**	0.001	-0.013	0.000	-0.014	-0.019*	-0.027**	-0.016*	-0.024**	0.000	-0.008	-0.001	-0.009
	(0.008)	(0.007)	(0.008)	(0.007)	(0.012)	(0.011)	(0.012)	(0.011)	(0.008)	(0.007)	(0.008)	(0.007)	(0.012)	(0.011)	(0.012)	(0.011)
Train: Remedial	0.017	-0.053**	0.016	-0.055**	0.019	-0.049**	0.017	-0.051**	0.022*	-0.061**	0.021*	-0.062**	0.025*	-0.056**	0.023*	-0.057**
	(0.011)	(0.009)	(0.011)	(0.009)	(0.011)	(0.010)	(0.011)	(0.010)	(0.010)	(0.009)	(0.010)	(0.009)	(0.011)	(0.009)	(0.011)	(0.010)
Train : OJT	0.043*	0.037*	0.043*	0.038*	0.045*	0.040*	0.044*	0.039*	0.039	0.027	0.040	0.028	0.043*	0.035	0.042*	0.034
	(0.020)	(0.018)	(0.020)	(0.018)	(0.021)	(0.018)	(0.021)	(0.018)	(0.020)	(0.018)	(0.020)	(0.018)	(0.021)	(0.019)	(0.021)	(0.019)
Train: Customized	0.023	0.076	0.022	0.075	0.027	0.078	0.025	0.076	0.023	0.086*	0.022	0.085*	0.028	0.091*	0.025	0.089*
	(0.047)	(0.042)	(0.047)	(0.042)	(0.048)	(0.042)	(0.048)	(0.042)	(0.048)	(0.042)	(0.048)	(0.042)	(0.048)	(0.042)	(0.048)	(0.042)
Marketable Skills	-0.022**	-0.003	-0.023**	-0.005	-0.022**	-0.002	-0.022**	-0.004	-0.022**	-0.001	-0.023**	-0.003	-0.021**	0.000	-0.022**	-0.002
	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)
log(Prev Earning)		-0.478**		-0.478**		-0.479**		-0.479**		-0.453**		-0.453**		-0.455**		-0.454**
		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)

Exit Year 2005			0.041**	0.031**			0.041**	0.031**			0.042**	0.034**			0.042**	0.033**
			(0.008)	(0.007)			(0.008)	(0.007)			(0.008)	(0.007)			(0.008)	(0.007)
Exit Year 2006			0.038**	0.036**			0.037**	0.036**			0.039**	0.040**			0.038**	0.039**
			(0.008)	(0.007)			(0.008)	(0.007)			(0.008)	(0.007)			(0.008)	(0.007)
Exit Year 2007			0.041**	0.039**			0.040**	0.038**			0.041**	0.041**			0.040**	0.041**
			(0.009)	(0.008)			(0.009)	(0.008)			(0.009)	(0.008)			(0.009)	(0.008)
13.Business & Financial					-0.076**	-0.047	-0.070*	-0.041					-0.074**	-0.035	-0.068*	-0.029
					(0.028)	(0.025)	(0.028)	(0.025)					(0.028)	(0.025)	(0.028)	(0.025)
15.Computer, Math					-0.020	-0.012	-0.014	-0.005					-0.018	-0.001	-0.011	0.007
					(0.019)	(0.016)	(0.019)	(0.016)					(0.019)	(0.017)	(0.019)	(0.017)
17.Architecture					0.041	0.057**	0.048*	0.064**					0.044*	0.068**	0.050*	0.075**
					(0.022)	(0.019)	(0.022)	(0.019)					(0.022)	(0.019)	(0.022)	(0.019)
19.Science					-0.039	0.009	-0.034	0.014					-0.036	0.024	-0.030	0.030
					(0.047)	(0.041)	(0.047)	(0.041)					(0.047)	(0.042)	(0.047)	(0.042)
21.Community Service					-0.030	-0.072*	-0.025	-0.066*					-0.032	-0.070	-0.027	-0.064*
					(0.034)	(0.030)	(0.034)	(0.030)					(0.034)	(0.030)	(0.034)	(0.030)
23.Legal					-0.039	0.005	-0.035	0.010					-0.040	0.006	-0.036	0.012
					(0.043)	(0.038)	(0.043)	(0.038)					(0.043)	(0.039)	(0.043)	(0.039)
25.Education, Training					-0.099**	-0.118**	-0.094**	-0.114**					-0.090**	-0.089**	-0.086**	-0.085**
					(0.027)	(0.023)	(0.027)	(0.023)					(0.026)	(0.024)	(0.027)	(0.024)
27.Arts, Design					0.051	0.038	0.058	0.045					0.051	0.043	0.058	0.051
					(0.036)	(0.032)	(0.036)	(0.032)					(0.036)	(0.032)	(0.036)	(0.032)
29.Healthcare Pract'r					0.057**	0.066**	0.062**	0.072**					0.054**	0.065**	0.060**	0.071**
					(0.017)	(0.015)	(0.017)	(0.015)					(0.017)	(0.016)	(0.017)	(0.016)
31.Healthcare Support					-0.092**	-0.096**	-0.087**	-0.090**					-0.097**	-0.111**	-0.092**	-0.105**
					(0.018)	(0.016)	(0.018)	(0.016)					(0.018)	(0.016)	(0.018)	(0.016)
33.Protective Service					-0.034	-0.005	-0.032	-0.002					-0.038	-0.017	-0.036	-0.013
					(0.037)	(0.033)	(0.037)	(0.033)					(0.037)	(0.033)	(0.037)	(0.033)
35.Food Prep & Serving					-0.024	-0.069	-0.020	-0.064					-0.030	-0.083*	-0.025	-0.078*
					(0.041)	(0.036)	(0.041)	(0.036)					(0.041)	(0.036)	(0.041)	(0.036)
37.Building Maintenance					0.020	-0.001	0.024	0.003					0.020	-0.015	0.024	-0.011
					(0.053)	(0.047)	(0.053)	(0.047)					(0.053)	(0.048)	(0.053)	(0.048)
39.Personal Care&Service					-0.039	-0.065*	-0.035	-0.060*					-0.044	-0.085**	-0.040	-0.080**
					(0.029)	(0.026)	(0.029)	(0.026)					(0.029)	(0.026)	(0.029)	(0.026)
41.Sales and Related					-0.097	-0.048	-0.088	-0.039					-0.099	-0.054	-0.090	-0.044
					(0.053)	(0.047)	(0.053)	(0.047)					(0.053)	(0.048)	(0.053)	(0.048)
43.AdministrativeSupport					-0.056**	-0.060**	-0.050**	-0.054**					-0.061**	-0.072**	-0.055**	-0.065**
					(0.017)	(0.015)	(0.017)	(0.015)					(0.017)	(0.015)	(0.017)	(0.015)
45.Farming & Fishing					-0.152	-0.098	-0.154	-0.097					-0.154	-0.096	-0.156	-0.096
					(0.175)	(0.155)	(0.175)	(0.155)					(0.175)	(0.157)	(0.175)	(0.157)
47.Construction					0.000	0.003	0.006	0.009					-0.006	-0.013	0.000	-0.007
					(0.025)	(0.022)	(0.025)	(0.022)					(0.025)	(0.022)	(0.025)	(0.022)
49.Installation & Repair					-0.027	-0.011	-0.022	-0.005					-0.032	-0.029	-0.027	-0.023
					(0.017)	(0.015)	(0.017)	(0.015)					(0.017)	(0.015)	(0.017)	(0.015)
51.Production					0.022	0.006	0.026	0.010					0.017	-0.007	0.021	-0.003
					(0.018)	(0.016)	(0.018)	(0.016)					(0.018)	(0.016)	(0.018)	(0.016)
53.Transportation					0.001	0.003	0.006	0.009					-0.003	-0.020	0.001	-0.014
					(0.019)	(0.017)	(0.020)	(0.017)					(0.019)	(0.017)	(0.019)	(0.017)
Constant	0.897**	5.171**	0.863**	5.140	0.903**	5.192**	0.870**	5.161**	0.884**	4.898**	0.848**	4.863**	0.891**	4.930	0.856**	4.895**
	(0.017)	(0.048)	(0.018)	(0.048)	(0.018)	(0.048)	(0.019)	(0.048)	(0.019)	(0.048)	(0.020)	(0.048)	(0.020)	(0.048)	(0.021)	(0.048)
States	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of obs	32559	32559	32559	32559	32559	32559	32559	32559	32559	32559	32559	32559	32559	32559	32559	32559
F	38.03	236.06	36.42	222.72	27.48	163.93	26.8	157.66	40.35	239.22	38.45	224.62	28.37	161.89	27.61	155.42
Prob > F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R-squared	0.0511	0.2544	0.052	0.2552	0.0544	0.2582	0.0553	0.2589	0.0495	0.2403	0.0505	0.2412	0.0529	0.2446	0.0539	0.2454
Adj R-squared	0.0497	0.2534	0.0506	0.254	0.0524	0.2567	0.0533	0.2573	0.0483	0.2393	0.0492	0.2401	0.0511	0.2431	0.0519	0.2439

Table 15. Post-Participation Earnings

	Education: Degree Attainment								Education: Years of Schooling							
	5a		6a		7a		8a		5b		6b		7b		8b	
ind. Variable	without	with	without	with	without	with	without	with	without	with	without	with	without	with	without	with
Male	0.274**	0.152**	0.274**	0.152**	0.263**	0.141**	0.263**	0.142**	0.290**	0.154**	0.290**	0.154**	0.279**	0.144**	0.279**	0.144**
	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Limited Engl Proficiency	-0.069**	-0.019	-0.069**	-0.020	-0.063**	-0.016	-0.063**	-0.016	-0.085**	-0.023	-0.084**	-0.023*	-0.077**	-0.018	-0.076**	-0.019
	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)
Eth: Hispanic	-0.093**	-0.010	-0.092**	-0.011	-0.096**	-0.013	-0.094**	-0.013	-0.112**	-0.014	-0.111**	-0.014	-0.114**	-0.016	-0.112**	-0.016
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Eth: Asian	0.040**	0.044**	0.043**	0.044**	0.042**	0.045**	0.044**	0.045**	0.053**	0.052**	0.056**	0.052**	0.056**	0.054**	0.058**	0.054**
	(0.012)	(0.013)	(0.012)	(0.013)	(0.012)	(0.013)	(0.012)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Eth: Black	-0.054**	-0.014	-0.055**	-0.014	-0.054**	-0.014	-0.054**	-0.014	-0.059**	-0.015	-0.060**	-0.015	-0.059**	-0.015	-0.059**	-0.015
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Eth: Others	-0.029**	0.003	-0.026**	0.004	-0.030**	0.003	-0.027**	0.003	-0.028**	0.007	-0.025**	0.007	-0.030**	0.006	-0.027**	0.006
	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Edu: High School	0.053**	0.011	0.054**	0.012	0.053**	0.012	0.054**	0.012								
	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)								
Edu: Some College	0.202**	0.101**	0.202**	0.101**	0.198**	0.099**	0.198**	0.100**								
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)								
Edu: Associate	0.287**	0.164**	0.286**	0.163**	0.282**	0.162**	0.282**	0.161**								
	(0.013)	(0.014)	(0.013)	(0.014)	(0.013)	(0.014)	(0.013)	(0.014)								
Edu: Bachelor's	0.397**	0.217**	0.398**	0.217**	0.393**	0.217**	0.395**	0.217**								
	(0.010)	(0.011)	(0.010)	(0.011)	(0.010)	(0.011)	(0.010)	(0.011)								
Edu: More than B	0.562**	0.317**	0.564**	0.319**	0.558**	0.317**	0.560**	0.318**								
	(0.019)	(0.020)	(0.019)	(0.020)	(0.019)	(0.020)	(0.019)	(0.020)								
Schooling									0.015**	0.009**	0.016**	0.009**	0.015**	0.009**	0.015**	0.009**
									(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age: 16_20	-0.324**	-0.071	-0.327**	-0.077	-0.327**	-0.072	-0.330**	-0.078	-0.343**	-0.061	-0.346**	-0.067	-0.345**	-0.062	-0.348**	-0.068
	(0.040)	(0.046)	(0.040)	(0.046)	(0.040)	(0.046)	(0.040)	(0.046)	(0.041)	(0.046)	(0.041)	(0.046)	(0.041)	(0.046)	(0.041)	(0.046)
Age: 21_30	-0.124**	-0.008	-0.124**	-0.007	-0.124**	-0.007	-0.124**	-0.006	-0.131**	-0.003	-0.131**	-0.003	-0.131**	-0.003	-0.131**	-0.002
	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)
Age: 31_40	-0.016**	0.023**	-0.016**	0.024**	-0.017**	0.023**	-0.017**	0.024**	-0.013*	0.027**	-0.013*	0.028**	-0.015*	0.027**	-0.014*	0.028**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Age: 51_60	-0.083**	-0.098**	-0.084**	-0.099**	-0.082**	-0.097**	-0.083**	-0.098**	-0.077**	-0.095**	-0.079**	-0.096**	-0.076**	-0.094**	-0.078**	-0.095**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Age: 61_65	-0.304**	-0.277**	-0.305**	-0.279**	-0.301**	-0.276**	-0.302**	-0.277**	-0.301**	-0.274**	-0.302**	-0.276**	-0.299**	-0.273**	-0.299**	-0.275**
	(0.012)	(0.013)	(0.012)	(0.013)	(0.012)	(0.013)	(0.012)	(0.013)	(0.012)	(0.013)	(0.012)	(0.013)	(0.012)	(0.013)	(0.012)	(0.013)
Match	-0.008	0.003	-0.010	0.001	-0.006	0.004	-0.008	0.002	-0.008	0.001	-0.011	-0.001	-0.001	0.006	-0.003	0.003
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.009)	(0.010)
Train: Occupational	-0.047**	-0.047**	-0.043**	-0.043**	-0.025*	-0.027*	-0.026*	-0.029**	-0.045**	-0.048**	-0.041**	-0.044**	-0.015	-0.022*	-0.016	-0.024*
	(0.007)	(0.007)	(0.007)	(0.007)	(0.010)	(0.011)	(0.010)	(0.011)	(0.007)	(0.007)	(0.007)	(0.007)	(0.011)	(0.011)	(0.011)	(0.011)
Train: Remedial	-0.117**	-0.059**	-0.119**	-0.061**	-0.107**	-0.053**	-0.109**	-0.055**	-0.148**	-0.067**	-0.150**	-0.068**	-0.135**	-0.059**	-0.137**	-0.061**
	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)
Train : OJT	0.058**	0.071**	0.062**	0.072**	0.069**	0.076**	0.070**	0.075**	0.045**	0.059**	0.048**	0.061**	0.066**	0.070**	0.067**	0.069**
	(0.017)	(0.019)	(0.017)	(0.019)	(0.017)	(0.019)	(0.017)	(0.019)	(0.017)	(0.019)	(0.017)	(0.019)	(0.018)	(0.019)	(0.018)	(0.019)
Train: Customized	0.151**	0.113**	0.149**	0.113**	0.151**	0.113**	0.149**	0.111*	0.182**	0.125**	0.180**	0.124**	0.187**	0.128**	0.184**	0.126**
	(0.041)	(0.044)	(0.041)	(0.044)	(0.041)	(0.044)	(0.041)	(0.044)	(0.042)	(0.044)	(0.042)	(0.044)	(0.042)	(0.044)	(0.042)	(0.044)
Marketable Skills	0.022**	-0.002	0.016**	-0.004	0.023**	-0.001	0.017**	-0.004	0.029**	0.001	0.022**	-0.002	0.030**	0.001	0.023**	-0.001
	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)
log(Prev Earning)		0.465**		0.465**		0.464**		0.464**		0.493**		0.493**		0.491**		0.491**
		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)

Exit Year 2005			0.019**	0.040**			0.018**	0.039**			0.020**	0.043**			0.020**	0.042**
			(0.006)	(0.007)			(0.006)	(0.007)			(0.007)	(0.007)			(0.007)	(0.007)
Exit Year 2006			0.034**	0.041**			0.033**	0.040**			0.036**	0.045**			0.035**	0.044**
			(0.007)	(0.007)			(0.007)	(0.007)			(0.007)	(0.007)			(0.007)	(0.008)
Exit Year 2007			0.055**	0.051**			0.054**	0.050**			0.057**	0.053**			0.056**	0.053**
			(0.007)	(0.008)			(0.007)	(0.008)			(0.008)	(0.008)			(0.008)	(0.008)
13.Business & Financial					-0.011	-0.061*	-0.004	-0.054*					0.017	-0.048	0.024	-0.040
					(0.024)	(0.026)	(0.024)	(0.026)					(0.024)	(0.026)	(0.024)	(0.026)
15.Computer, Math					-0.002	0.000	0.006	0.008					0.017	0.012	0.025	0.021
					(0.016)	(0.017)	(0.016)	(0.017)					(0.017)	(0.017)	(0.017)	(0.017)
17.Architecture					0.085**	0.076**	0.092**	0.084**					0.106**	0.088**	0.113**	0.096**
					(0.019)	(0.020)	(0.019)	(0.020)					(0.019)	(0.020)	(0.019)	(0.020)
19.Science					0.043	0.025	0.050	0.032					0.074	0.042	0.081*	0.049
					(0.040)	(0.043)	(0.040)	(0.043)					(0.041)	(0.044)	(0.041)	(0.044)
21.Community Service					-0.139**	-0.099**	-0.132**	-0.093**					-0.131**	-0.097**	-0.125**	-0.090**
					(0.030)	(0.031)	(0.030)	(0.031)					(0.031)	(0.032)	(0.031)	(0.032)
23.Legal					0.024	-0.023	0.033	-0.017					0.031	-0.021	0.039	-0.015
					(0.040)	(0.040)	(0.040)	(0.040)					(0.041)	(0.040)	(0.041)	(0.040)
25.Education, Training					-0.169**	-0.175**	-0.164**	-0.170**					-0.119**	-0.143**	-0.115**	-0.138**
					(0.022)	(0.024)	(0.022)	(0.024)					(0.023)	(0.025)	(0.023)	(0.025)
27.Arts, Design					0.022	0.030	0.032	0.040					0.028	0.036	0.038	0.046
					(0.032)	(0.033)	(0.032)	(0.033)					(0.033)	(0.033)	(0.033)	(0.033)
29.Healthcare Pract'r					0.061**	0.036*	0.067**	0.043**					0.061**	0.035*	0.067**	0.042**
					(0.015)	(0.016)	(0.015)	(0.016)					(0.015)	(0.016)	(0.015)	(0.016)
31.Healthcare Support					-0.104**	-0.099**	-0.097**	-0.092**					-0.135**	-0.116**	-0.128**	-0.109**
					(0.015)	(0.016)	(0.015)	(0.016)					(0.016)	(0.016)	(0.016)	(0.016)
33.Protective Service					0.022	0.011	0.027	0.014					0.002	-0.002	0.006	0.002
					(0.032)	(0.034)	(0.032)	(0.034)					(0.033)	(0.035)	(0.033)	(0.035)
35.Food Prep & Serving					-0.123**	-0.086*	-0.118**	-0.080*					-0.150**	-0.102**	-0.145**	-0.095*
					(0.038)	(0.037)	(0.038)	(0.037)					(0.039)	(0.038)	(0.039)	(0.038)
37.Building Maintenance					-0.153**	-0.072	-0.150**	-0.068					-0.182**	-0.088	-0.179**	-0.084
					(0.044)	(0.049)	(0.044)	(0.049)					(0.045)	(0.050)	(0.045)	(0.050)
39.Personal Care&Service					-0.118**	-0.086**	-0.112**	-0.080**					-0.157**	-0.109**	-0.151**	-0.102**
					(0.025)	(0.027)	(0.025)	(0.027)					(0.026)	(0.027)	(0.026)	(0.027)
41.Sales and Related					-0.054	-0.090	-0.046	-0.079					-0.060	-0.096	-0.051	-0.085
					(0.047)	(0.049)	(0.047)	(0.049)					(0.048)	(0.050)	(0.048)	(0.050)
43.AdministrativeSupport					-0.084**	-0.062**	-0.077**	-0.055**					-0.106**	-0.075**	-0.099**	-0.068**
					(0.014)	(0.015)	(0.014)	(0.015)					(0.015)	(0.016)	(0.015)	(0.016)
45.Farming & Fishing					-0.050	-0.192	-0.043	-0.191					-0.037	-0.189	-0.030	-0.189
					(0.138)	(0.162)	(0.138)	(0.162)					(0.142)	(0.163)	(0.141)	(0.163)
47.Construction					-0.027	-0.014	-0.020	-0.007					-0.054*	-0.032	-0.047*	-0.024
					(0.022)	(0.023)	(0.022)	(0.023)					(0.023)	(0.023)	(0.023)	(0.023)
49.Installation & Repair					-0.008	-0.013	-0.001	-0.007					-0.041**	-0.033*	-0.034*	-0.026
					(0.015)	(0.015)	(0.015)	(0.015)					(0.015)	(0.016)	(0.015)	(0.016)
51.Production					-0.023	-0.004	-0.017	0.002					-0.049**	-0.018	-0.042**	-0.012
					(0.015)	(0.016)	(0.016)	(0.016)					(0.016)	(0.017)	(0.016)	(0.017)
53.Transportation					-0.026	-0.005	-0.020	0.001					-0.070**	-0.030	-0.063**	-0.024
					(0.017)	(0.018)	(0.017)	(0.018)					(0.017)	(0.018)	(0.017)	(0.018)
Constant	8.775**	4.622**	8.746**	4.584**	8.797**	4.648**	8.767**	4.609**	8.724**	4.326**	8.690**	4.284**	8.752**	4.363**	8.719**	4.320**
	(0.016)	(0.050)	(0.017)	(0.050)	(0.016)	(0.050)	(0.017)	(0.050)	(0.018)	(0.050)	(0.019)	(0.050)	(0.018)	(0.050)	(0.019)	(0.050)
States	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of obs	44871	32559	44871	32559	44871	32559	44871	32559	44871	32559	44871	32559	44871	32559	44871	32559
F	358.87	474.19	338.92	447.23	250.04	327.21	240.69	314.6	322.78	491.97	303.42	461.65	220.8	330.28	212.14	316.88
Prob > F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R-squared	0.2734	0.4067	0.2744	0.4075	0.278	0.41	0.2789	0.4108	0.2364	0.3942	0.2374	0.3951	0.2426	0.3978	0.2436	0.3988
Adj R-squared	0.2727	0.4059	0.2736	0.4066	0.2769	0.4087	0.2778	0.4095	0.2357	0.3934	0.2367	0.3942	0.2415	0.3966	0.2424	0.3975

Table 16. Retention Rates

	Education: Degree Attainment								Education: Years of Schooling							
	5a		6a		7a		8a		5b		6b		7b		8b	
ind. Variable	without	with	without	with	without	with	without	with	without	with	without	with	without	with	without	with
Male	-0.002	-0.006*	-0.002	-0.006*	0.000	-0.006	0.000	-0.005	-0.001	-0.006*	-0.001	-0.006	0.000	-0.006	0.000	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Limited Engl Proficiency	-0.021**	-0.013	-0.020**	-0.013	-0.018*	-0.010	-0.017*	-0.010	-0.023**	-0.015	-0.021**	-0.015	-0.020**	-0.012	-0.019**	-0.012
	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)
Eth: Hispanic	-0.007	-0.002	-0.006	-0.001	-0.008	-0.003	-0.006	-0.002	-0.010	-0.004	-0.008	-0.002	-0.010	-0.005	-0.008	-0.003
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Eth: Asian	0.011	0.003	0.012	0.005	0.011	0.003	0.013	0.005	0.011	0.003	0.012	0.005	0.011	0.003	0.013	0.005
	(0.007)	(0.009)	(0.007)	(0.009)	(0.007)	(0.009)	(0.007)	(0.009)	(0.007)	(0.009)	(0.007)	(0.009)	(0.007)	(0.009)	(0.007)	(0.009)
Eth: Black	-0.003	-0.002	-0.003	-0.003	-0.002	-0.002	-0.003	-0.003	-0.003	-0.002	-0.003	-0.003	-0.002	-0.002	-0.003	-0.002
	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)
Eth: Others	-0.001	-0.005	0.001	-0.003	-0.001	-0.005	0.001	-0.003	0.000	-0.005	0.002	-0.003	-0.001	-0.005	0.001	-0.003
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Edu: High School	0.016**	0.009*	0.016**	0.009*	0.015**	0.009**	0.016**	0.009*								
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)								
Edu: Some College	0.024**	0.017**	0.023**	0.017**	0.022**	0.015**	0.022**	0.015**								
	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)								
Edu: Associate	0.017*	0.010	0.017*	0.009	0.016*	0.008	0.015*	0.007								
	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)								
Edu: Bachelor's	0.009	0.000	0.010	0.001	0.007	-0.001	0.008	-0.001								
	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.008)	(0.006)	.								
Edu: More than B	0.024*	0.013	0.025**	0.014	0.023*	0.012	0.024*	0.013								
	(0.010)	(0.012)	(0.010)	(0.012)	(0.010)	(0.012)	(0.010)	(0.012)								
Schooling									0.001**	0.000	0.001**	0.000	0.001**	0.000	0.001**	0.000
									(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
Age: 16_20	-0.010	0.013	-0.006	0.014	-0.009	0.012	-0.005	0.013	-0.010	0.013	-0.006	0.014	-0.009	0.012	-0.005	0.013
	(0.025)	(0.028)	(0.024)	(0.028)	(0.025)	(0.029)	(0.024)	(0.028)	(0.025)	(0.028)	(0.024)	(0.028)	(0.025)	(0.029)	(0.024)	(0.028)
Age: 21_30	-0.013*	-0.006	-0.013*	-0.005	-0.013*	-0.006	-0.013*	-0.006	-0.013*	-0.005	-0.013*	-0.005	-0.013*	-0.006	-0.013*	-0.006
	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)
Age: 31_40	0.004	0.002	0.004	0.002	0.003	0.001	0.003	0.001	0.004	0.002	0.004	0.002	0.004	0.001	0.004	0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Age: 51_60	-0.016**	-0.022**	-0.017**	-0.022**	-0.016**	-0.021**	-0.016**	-0.022**	-0.017**	-0.022**	-0.017**	-0.023**	-0.016**	-0.022**	-0.017**	-0.022**
	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)
Age: 61_65	-0.103**	-0.100**	-0.104**	-0.100**	-0.103**	-0.099**	-0.103**	-0.100**	-0.105**	-0.101**	-0.105**	-0.101**	-0.104**	-0.100**	-0.104**	-0.101**
	(0.009)	(0.011)	(0.009)	(0.011)	(0.009)	(0.011)	(0.009)	(0.011)	(0.009)	(0.011)	(0.009)	(0.011)	(0.009)	(0.011)	(0.009)	(0.011)
Match	-0.005	-0.007	-0.006	-0.007	-0.004	-0.007	-0.005	-0.008	-0.005	-0.007	-0.006	-0.008	-0.005	-0.007	-0.005	-0.008
	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)
Train: Occupational	0.026**	0.023**	0.027**	0.023**	0.011	-0.001	0.009	-0.002	0.028**	0.024**	0.028**	0.024**	0.012	0.000	0.010	-0.002
	(0.004)	(0.005)	(0.004)	(0.005)	(0.007)	(0.008)	(0.007)	(0.008)	(0.004)	(0.005)	(0.004)	(0.005)	(0.007)	(0.008)	(0.007)	(0.008)
Train: Remedial	0.010	0.011	0.009	0.010	0.009	0.009	0.007	0.007	0.007	0.009	0.005	0.008	0.005	0.007	0.004	0.005
	(0.005)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
Train : OJT	0.031**	0.036**	0.033**	0.037**	0.026**	0.029**	0.028**	0.030**	0.031**	0.036**	0.033**	0.037**	0.027**	0.029**	0.028**	0.030**
	(0.009)	(0.010)	(0.009)	(0.010)	(0.010)	(0.011)	(0.010)	(0.011)	(0.009)	(0.010)	(0.009)	(0.010)	(0.010)	(0.011)	(0.010)	(0.011)
Train: Customized	0.010	0.030	0.010	0.031	0.008	0.027	0.007	0.027	0.011	0.031	0.011	0.032	0.008	0.027	0.008	0.028
	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)	(0.025)	(0.025)	(0.025)	(0.024)	(0.024)	(0.024)	(0.023)	(0.025)	(0.025)	(0.025)	(0.025)
Marketable Skills	0.009**	0.005	0.003	0.000	0.009**	0.005	0.003	0.000	0.009**	0.005	0.003	0.000	0.010**	0.005	0.003	0.000
	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)
log(Prev Earning)		0.013**		0.013**		0.013**		0.013**		0.014**		0.014**		0.013**		0.013**
		(0.003)		(0.003)		(0.003)		(0.003)		(0.003)		(0.003)		(0.003)		(0.003)

Exit Year 2005			-0.016**	-0.013**			-0.015**	-0.012*			-0.016**	-0.013**			-0.016**	-0.012*
			(0.004)	(0.005)			(0.004)	(0.005)			(0.004)	(0.005)			(0.004)	(0.005)
Exit Year 2006			0.006	0.004			0.007	0.006			0.006	0.003			0.007	0.006
			(0.004)	(0.005)			(0.004)	(0.005)			(0.004)	(0.005)			(0.004)	(0.005)
Exit Year 2007			0.015**	0.015**			0.016**	0.017**			0.015**	0.015**			0.017**	0.017**
			(0.004)	(0.005)			(0.004)	(0.005)			(0.004)	(0.005)			(0.004)	(0.005)
13.Business & Financial					0.027*	0.028	0.029*	0.030*					0.027*	0.028	0.029*	0.030*
					(0.013)	(0.015)	(0.013)	(0.014)					(0.013)	(0.015)	(0.013)	(0.014)
15.Computer, Math					0.028**	0.033**	0.030**	0.036**					0.028**	0.033**	0.031**	0.036**
					(0.009)	(0.010)	(0.009)	(0.009)					(0.009)	(0.010)	(0.009)	(0.009)
17.Architecture					0.014	0.028	0.017	0.030**					0.015	0.028*	0.018	0.031**
					(0.012)	(0.012)	(0.011)	(0.011)					(0.012)	(0.012)	(0.011)	(0.011)
19.Science					0.025	0.038	0.027	0.039					0.025	0.038	0.028	0.040
					(0.023)	(0.023)	(0.023)	(0.022)					(0.023)	(0.023)	(0.023)	(0.022)
21.Community Service					0.016	0.020	0.019	0.022					0.017	0.021	0.020	0.024
					(0.018)	(0.019)	(0.018)	(0.019)					(0.018)	(0.019)	(0.018)	(0.019)
23.Legal					0.056**	0.052**	0.058**	0.054**					0.056**	0.052**	0.058**	0.054**
					(0.019)	(0.020)	(0.018)	(0.019)					(0.018)	(0.019)	(0.018)	(0.019)
25.Education, Training					0.021	0.040**	0.022	0.040**					0.020	0.039**	0.022	0.040**
					(0.012)	(0.013)	(0.012)	(0.012)					(0.012)	(0.013)	(0.012)	(0.012)
27.Arts, Design					0.024	0.033	0.026	0.034					0.025	0.034	0.027	0.035*
					(0.018)	(0.018)	(0.018)	(0.018)					(0.018)	(0.018)	(0.018)	(0.017)
29.Healthcare Pract'r					0.035**	0.039**	0.037**	0.041**					0.036**	0.040**	0.038**	0.042**
					(0.008)	(0.008)	(0.008)	(0.008)					(0.008)	(0.008)	(0.008)	(0.008)
31.Healthcare Support					0.032**	0.033**	0.034**	0.036**					0.032**	0.034**	0.034**	0.036**
					(0.008)	(0.009)	(0.008)	(0.009)					(0.008)	(0.009)	(0.008)	(0.009)
33.Protective Service					0.019	0.014	0.023	0.017					0.020	0.014	0.024	0.017
					(0.019)	(0.022)	(0.018)	(0.021)					(0.019)	(0.022)	(0.018)	(0.021)
35.Food Prep & Serving					-0.046	-0.027	-0.045	-0.026					-0.046	-0.026	-0.045	-0.026
					(0.027)	(0.027)	(0.026)	(0.026)					(0.027)	(0.027)	(0.026)	(0.026)
37.Building Maintenance					-0.025	-0.022	-0.023	-0.021					-0.027	-0.024	-0.025	-0.022
					(0.029)	(0.033)	(0.029)	(0.033)					(0.029)	(0.033)	(0.029)	(0.033)
39.Personal Care&Service					-0.029	-0.004	-0.026	-0.002					-0.029	-0.005	-0.027	-0.003
					(0.017)	(0.017)	(0.017)	(0.017)					(0.017)	(0.017)	(0.017)	(0.017)
41.Sales and Related					0.026	0.055*	0.028	0.056*					0.028	0.056*	0.029	0.057**
					(0.028)	(0.023)	(0.027)	(0.022)					(0.027)	(0.022)	(0.027)	(0.022)
43.AdministrativeSupport					0.013	0.024**	0.016	0.026**					0.014	0.024**	0.017*	0.027**
					(0.009)	(0.009)	(0.009)	(0.009)					(0.009)	(0.009)	(0.008)	(0.009)
45.Farming & Fishing					0.020	0.029*	0.025	0.031*					0.019	0.030*	0.025	0.032*
					(0.080)	(0.013)	(0.076)	(0.013)					(0.080)	(0.013)	(0.076)	(0.013)
47.Construction					0.013	0.028**	0.015	0.030**					0.014	0.028**	0.015	0.030**
					(0.013)	(0.009)	(0.013)	(0.009)					(0.013)	(0.009)	(0.013)	(0.009)
49.Installation & Repair					0.017	0.025**	0.019*	0.028**					0.018*	0.025**	0.020*	0.028**
					(0.009)	(0.009)	(0.009)	(0.009)					(0.009)	(0.009)	(0.008)	(0.009)
51.Production					0.021*	0.010	0.024**	0.012					0.022*	0.010	0.025**	0.012
					(0.009)	(0.011)	(0.009)	(0.011)					(0.009)	(0.011)	(0.009)	(0.011)
53.Transportation					-0.004	0.002	-0.002	0.000					-0.005	0.003	-0.002	0.001
					(0.011)	(0.013)	(0.011)	(0.013)					(0.011)	(0.013)	(0.011)	(0.013)
States	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of obs	55136	39331	55136	39331	55134	39324	55134	39324	55136	39331	55136	39331	55134	39324	55134	39324
LR chi2	660.35	478.46	730.86	516.56	714.73	519.42	789.4	561.59	637.65	466.35	709.42	505.46	694.26	508.79	770.21	551.92
Prob >chi2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pseudo R2	0.0178	0.019	0.0198	0.0205	0.0193	0.0206	0.0213	0.0223	0.0172	0.0185	0.0192	0.02	0.0188	0.0202	0.0208	0.0219

• * and ** indicate significance at the 95% and 99% level, respectively. Numbers in the parentheses are standard errors.