

# Increases in Local Unemployment and the Delivery of Trade Adjustment Assistance Services

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## Abstract

This paper investigates how service delivery of employment-related federal programs administered at American Job Centers (AJCs) changes as local unemployment increases. We analyze the impact of such changes on labor market outcomes of program participants using data for the Trade Adjustment Assistance (TAA) participants. We find that the demand for TAA services increases substantially when local unemployment increases. A 5-10% increase in unemployment raises training enrollment through the TAA program by nearly 13 percentage points and increases participation duration by over 9 weeks. Our results do not support the concern that a sudden rise in the demand for AJC services might deteriorate the quality of service delivery and outcomes. In fact, while increases in local unemployment are generally harmful to displaced workers, occupational training during this time is effective at reducing the size of wage loss by at least 46% resulting in a 3.4% average increase for wage replacement rates.

Key words: Trade Adjustment Assistance; local unemployment; American Job Centers; job training; mass layoff; wage replacement

JEL Classification: F16, J65, J68

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## **I. Introduction**

Over the past few decades, the labor force of the United States has been transformed with the decline in manufacturing sector as one of the most noticeable features. Between 1980 and 2013, production-related employment has decreased at an annual rate of 1.13% while non-farm total employment has increased at 1.78%. This trend has strengthened from 2000 to 2013 with a loss of 2.12% in production-related jobs annually compared to growth of 0.25% total nonfarm employment annually.<sup>i</sup> While this decline in manufacturing employment is particularly harsh on low-skilled workers, federal employment-related programs are in place to help these workers by providing various services like job training.

The majority of these programs are administered at the American Job Centers (AJCs)<sup>ii</sup>. AJCs are the brick-and-mortar version of the One Stop System that was created by the Workforce Investment Act (WIA) of 1998<sup>iii</sup> to be the universal access point for many federal programs such as Unemployment Insurance (UI), Employment Services, Welfare to Work, and the Trade Adjustment Assistance (TAA). AJCs also provide services such as dissemination of local labor market information and workshops on resume writing and interview skills to anyone with no eligibility requirement. Currently, there are nearly 3,000 AJCs across the country.

Previous investigations have found that these programs face difficulties when there is a sudden increase in the number of workers in need of assistance (GAO, 2004). (Beneria & Santiago, 2001) described the situation regarding mass-layoffs at the Smith-Corona Corporation in Cortland, NY, in 1992. (GAO) also stated that one of the difficulties that arise from a sudden increase in the workers in need is that the staff does not have enough time to properly assess each worker's training needs. This can prevent the workers from finding the most appropriate training at the AJC. This case is well illustrated by The New Yorker Magazine (Boo, 2004). When a Fruit

of the Loom plant in Texas laid off all of its 791 workers to move its operation to Honduras in 2003, many of these dislocated workers chose the health care assistant training program based on the local employment projections. However, the surge in the supply of workers with this specific skill set made it harder for these trainees to secure a job after exiting the program. (Theodore & Carlson, 1998) found that the assessment of local employment opportunities is based on aggregate labor market information rather than detailed information related to skill-level or occupations. The lack of decent information on more-tailored job opportunities makes the work of AJCs less efficient and this issue could become worse when AJCs face unusually high workloads caused by an increase in the number of unemployed workers in the local area.

This paper addresses the issue of changes in service delivery at AJCs and their potential impacts by focusing on the TAA program during times of increased local unemployment. The TAA program is an attempt by policymakers to help workers displaced due to import competition. It is established by the Trade Act of 1974 to reduce workers' adjustment costs by helping workers find a new career path that would provide them with comparable earnings and a satisfying job experience. The core benefits are job training and extended income support. Various services such as worker assessment and career planning are offered to help participants make training decisions and choose the appropriate occupations for training.

We investigate how an increase in workloads at local AJCs influences the quality of the delivery of TAA services. We then analyze the impact of such changes on labor market outcomes - reemployment rates and wage replacement rates. We use the change in the number of unemployed workers at the Metropolitan Statistical Area (MSA) level as a proxy for the changes in the workload of AJCs. TAA benefits are provided at AJCs along with many other programs that serve adult workers, youth, and dislocated workers. For this reason, the AJC workload is

linked to a broadly defined group of workers in need of assistance rather than those who are eligible for particular programs.<sup>iv</sup>

Our data comes from the Trade Act Participants Report (TAPR) and Local Area Unemployment Statistics (LAUS). TAPR provides detailed information on the TAA participant characteristics, services they received, and post-participation outcomes for all participants. The evaluation of the TAA program used to rely on specially-designed survey data due to a lack of comprehensive data on TAA participants (Corson & Decker, 1995; Koppel & Hoffman, 1996; Jacobson, 1998; Marcal, 2001). (Park, 2012) and (Reynolds & Palatucci, 2012) were amongst the first papers that utilize this comprehensive dataset. We acquired TAPR data from the U.S. Department of Labor (DOL) through the Freedom of Information Act (FOIA). LAUS provides information on local unemployment statistics that we use to construct our main variable, local unemployment growth.

We first show that the demand for TAA services increases substantially when local unemployment increases. The likelihood of enrolling in any type of training increases by 7.59 percentage points when an MSA experiences a 0-5% increase in unemployment and this jumps up to 12.96 percentage points for an increase of 5-10% compared to an MSA that sees decreases of unemployment at 0-5%. Most of these changes in training enrollment are driven by changes in enrollment to occupational skills training. Specifically, a 0-5% increase in local unemployment increases occupational skills training by 9.27 percentage points and this climbs to 13.75 percentage points for increases of 5-10%. We also find a significant increase in training completion with these completion rates rising by 7.23 percentage points during periods of a 0-5% unemployment increase and by 17.94 percentage points during periods of 5-10% unemployment increases. Higher rates of training enrollment and completion naturally lengthen

the duration of participation by 7.62 (13.43) weeks with training duration rising by 5.95 (9.3) weeks in cases of a 0-5% (5-10%) increase in local unemployment.

One might be worried that such a large increase in the demand for training services could deteriorate the effectiveness of the program; our results find this not to be the case. In fact, while increases in local unemployment are generally harmful to displaced workers, occupational training during this time is effective at reducing the size of wage loss by nearly half (47%). We test the hypothesis that a lengthier participation - possibly by enrolling in occupational skills training - reduces the adverse effect of a bad labor market by allowing participants to wait out unfavorable labor market conditions. We find little evidence of this. The increase of participation duration by 7.6 weeks in cases of a 0-5% unemployment increase at participation only improves the reemployment rate by 0.025 percentage points and the wage replacement rate by 0.022 percentage points. With larger increases in local unemployment of 5-10%, participation duration increases by 13.43 weeks, which improves both the reemployment and wage replacement rates only by 0.04 percentage points.

The rest of the paper is organized as the following. Section II summarizes the TAA program and how various services are delivered to the participants. Section III describes the dataset. Section IV describes the methodology. Section V presents the results along with robustness checks. Section VI concludes.

## **II. Trade Adjustment Assistance and the Service Delivery Process**

The TAA program is a dislocated worker program designed to reduce the adjustment costs of workers adversely affected by import competition.<sup>v</sup> The eligible workers can receive

various services such as job training, income support, job search assistance, and Health Insurance Tax Credits (HITC)<sup>vi</sup>. For the complete list of the TAA benefits<sup>vii</sup>, see (Park, 2012).

The TAA services are provided at the American Job Centers (AJCs). AJCs are part of the One Stop System established by the Workforce Investment Act (WIA) of 1998<sup>viii</sup> to streamline all federal employment and training services. Therefore, the AJC staff does not only serve TAA participants but also any adult or youth workers who seek federal assistance in their immediate and future employment.

The services provided at AJCs are composed of three tiers: *core services* (local vacancy listings, employment projection information, resume writing and interview skill workshops), *intensive services* (worker assessment, counseling, career planning), and *training*. Core services are provided through public-use computers and various brochures available at AJCs without any particular staff assistance. A worker who wants to receive services beyond this point can receive intensive services upon approval. In order to maximize cost efficiency, all participants are required to receive core services before discussing the possibility of receiving intensive services. (Berk & Dolfin, 2010) found that 41.9% of TAA participants in their sample received counseling on whether training is necessary.

Once training is deemed essential to reemployment of a participant, he/she can choose one of many training options provided under the TAA: occupational skills training, on-the-job training (OJT), customized training, and remedial training. Approximately 90% of trainees receive occupational skills training and this takes place at a local community college or a vocational school. OJT is provided on site once a participant is employed. In this case, the DOL pays 50% of the participant's wage up to six months. Customized training is provided by a local firm and is designed to teach skill sets specific to the needs of the firm. The difference between

OJT and customized training is that OJT trainees are employees of the firm and on a payroll during the training and the trainees in customized training are not. In addition to these training opportunities, participants can receive remedial training. Remedial training includes more basic education such as a GED certification or English language instruction. The TAA-certified training can last up to 2 years with 6 additional months for remedial training. (Mack, 2009) found that the decision on whether to receive training is often left to the participants, but AJC staff is more involved in choosing a specific training program.

In order to make training a viable option for the participants, the TAA provides a Trade Readjustment Allowance (TRA); this is extended income support for the entire duration of training. TRA payments kick in when the participant exhausts Unemployment Insurance (UI) benefits. TRA effectively extends income support up to 104 weeks (26 weeks of UI and 78 weeks of TRA) and another 26 weeks in the case of remedial training. If a participant is not enrolled in any training by the time his/her UI benefits expire, the participant may receive a training requirement waiver in order to secure 26 additional weeks of income support. The waiver is issued if immediate employment is not possible but training enrollment is unnecessary or unavailable.<sup>ix</sup> The waiver issuance is often used to earn up to 26 weeks without losing income support and training eligibility in case a participant cannot find a proper training program by the deadline.

The Trade Adjustment Assistance Reform Act of 2002 (2002 Reform Act) tightened the training enrollment deadline to 8 weeks from the certification date or 16 weeks from the qualifying separation date in an attempt to speed up the administrative process. Prior to this amendment, there was no set time limit on training enrollment. (GAO, 2007) described the operational difficulty around this change as “... one state noted that trying to enroll participants in

training by the 8-16 deadline is particularly challenging when dealing with large layoffs because it is difficult to handle all the logistics, such as notifying workers and setting up appointments, for a large number of workers within the deadline." It also reports that meeting the 8-16 week deadline was a challenge for three quarters of 46 states surveyed. This challenge becomes even greater when local unemployment increases (Mack, 2009).

Additionally, the 2002 Reform Act puts tighter restrictions on the use of the TAA budget allocated to each state. 85% of its total funding is tied to training enrollment and TRA payments for trainees. Only 15% of the funds can be spent on any non-training services. In order to deal with the funding needs for other services, including worker assessment and counseling, the 2002 Reform Act encourages co-enrollment of TAA participants in WIA. Once the participant is co-enrolled in WIA, he/she is more likely to receive all eligible services using WIA funds. (Mack, 2009) noted that this co-enrollment - and the resulting delivery of the appropriate level of TAA services - is negatively affected when WIA staff receives a new influx of cases due to an increase in local unemployment.<sup>x</sup>

### **III. Data**

#### **III.1. Trade Act Participant Report (TAPR)**

The Trade Act Participant Report (TAPR) is the data set that the DOL collects on the participants of the TAA program. The data collection began in the third calendar quarter of 1999. We acquired the data set through the Freedom Of Information Act. The sample used in this paper covers 355,295 observations<sup>xi</sup> who participated in the program between 1998Q1 and 2007Q3 and exited between 1999Q3 and 2008Q2. The TAPR consists of three parts. *Identification and Participant Characteristics* covers individual characteristics such as gender, ethnicity, education,



and pre-participation earnings. *Activity and Service Record* summarizes various services the participant receives such as types of training received, occupation of training, and receipt of income support. *Outcomes* reports employment, occupation of reemployment, and earnings for three quarters after the program exit.

Table 1 provides summary statistics of the sample on participant characteristics and their service receipts. Panel A presents the individual characteristics of TAA participants in our sample. What we see here is consistent with what (Dolfín & Berk, 2010) have in their sample. Only 25% of the participants in our sample have at least some college education and 65% of the participants are 40 years or older. The literature on the TAA program have consistently found that the TAA participants, compared to other unemployed workers, are older, less educated and have longer tenure with the previous employers; a higher fraction of them have limited English proficiency as well (Baicker & Rehavi, 2004; Corson & Decker, 1995; Dolfín & Berk). We observe the same stylized facts with our sample compared to unemployed manufacturing workers and all unemployed workers reported in (Dolfín & Berk).

[ Table 1 about here ]

Panel B presents the summary of service receipts for our sample. A direct comparison of service receipts to the sample from (Dolfín & Berk, 2010) or to a general sample of unemployed workers is not available.<sup>xiii</sup> 72.68% of the sample received some type of training. Over 90% of trainees received occupational skills training. On-the-job training (OJT) and customized training accounted for a very small fraction of participants: 2.29% and 0.50% respectively. 12.45% of our sample enrolled in remedial training. This fraction is higher in states with a large population of Hispanic workers such as Texas (31.89%) and California (21.03%) potentially for ESL

enrollment. 70.72% of participants who received remedial training also received occupational skills training with 3.25% receiving OJT and 3.39% receiving customized training.

A surprisingly large number of participants were issued a training requirement waiver (83.69%). (GAO, 2004) reported that a training waiver is often issued to earn time before enrolling in training without losing eligibility for training and income support. We find support for this claim in our sample. 69.18% of participants with a training waiver later received some type of training. This falls to 51.50% for the post-reform sample compared to 88% for the pre-reform sample. This is possibly due to the strict 8-16 training enrollment deadline. With this deadline imposed, the incentive to receive a waiver decreases which is evidenced by a much smaller fraction of participants seeking the waiver.

Table 2 summarizes the labor market outcome variables. DOL currently uses reemployment rate, average 6-month post-participation wages, and retention rates to evaluate the program performance. Prior to 2007, wage replacement was used instead of post-participation earnings.<sup>xiii</sup> Pre-participation earnings are also shown for comparison to post-participation earnings. The retention rate is not analyzed here because it does not show much variation across participant characteristics or service receipts (see Park, 2012).

[Table 2 about here]

We find that trainees have a much higher reemployment rate. Wage replacement rates are slightly higher for non-trainees, but post-participation earnings differ greatly. The earnings differentials are observed in pre-participation earnings as well. The average quarterly earnings for non-trainees is more than 20% higher than those that train. It is possible that participants with better skill sets expect to find a job without training or find a new occupation and opt out of

training. Overall, the outcome measures vary across participant characteristics and services they received. We control for these differences in our estimations.

### III.2. TAA Petition Data

In order to analyze the workload changes at the local American Job Centers (AJCs), we need location information for the participants. Unfortunately, TAPR does not report the participant address beyond the state of his/her residency in order to protect their privacy. We merge the TAA petition data to TAPR using the TAA petition number reported in TAPR. TAA petition data include information about the petitioned plant such as location (up to street address), industry, petition date, and whether it is certified or denied. By assuming that a worker lives within a commuting distance from the previous employer, the address of the former workplace is used as a proxy for the participant location. The TAA petition data set is also acquired through FOIA. 289,440 participant cases are successfully matched to the petition data and identified with approximate geographic location.

### III.3. Local Area Unemployment Statistics (LAUS)

In order to measure the workload variation of local AJCs we use changes in the number of unemployed workers at the MSA-level<sup>xiv</sup> from LAUS published by the U.S. Bureau of Labor Statistics. LAUS report the number of employed workers, number of unemployed workers, unemployment rate, and the size of labor force at various aggregation levels of local areas ranging from states to towns.<sup>xv</sup> Since not all participants live in a MSA, this reduces our sample size to 82,857. The overall participant characteristics do not change as we move from all TAPR

observations to a MSA-identified sample. The participant characteristics for the MSA sample are reported in the third and fourth columns of Table 1.

A total of 332 MSAs are identified with an average size of 4 million employed people with a standard deviation of approximately 126 thousand in LAUS. A brief summary of MSA-level unemployment rates and the annual changes of the number of unemployed workers are presented in Table 3. During the observation period, the average unemployment rates lay between 5.10% and 7.33% with the standard deviation less than 1%. The changes of the number of unemployed people fluctuate a lot during this period ranging from -7.72% in 2006 to 21.15% in 2001. Years 2001 and 2002 experienced exceptionally large increases in the number of unemployed workers.<sup>xvi</sup> Columns 4-10 show the percentage of MSAs that fall into each range of changes in unemployment. Other than 2001 and 2002, the majority (83.81%) of MSAs experience an unemployment change between -15% and 15%.

[Table 3 about here]

Merging the LAUS data to TAPR data, we show changes in service delivery and labor market outcomes with local unemployment growth in Table 4. Similar to Table 3, most (76.88%) participants join the program during periods of unemployment changes that range between -15% and 15%. As seen in Table 3, most cases of large increases in unemployment occurred in 2001 and 2002. The sample excluding 2001 and 2002 has 92.27% of the sample within the -15% to 15% range. This is approximately the same (95.62%) for our post-reform sample (participated in 2003 and after).

[Table 4 about here]

Panel A of Table 4 summarizes service delivery and Panel B summarizes post-participation outcomes. Training enrollment is the lowest when the change in unemployment is close to zero. Training enrollment increases drastically from 58.83% to 80.23% as local unemployment rises by 5-15%. This could be driven by the marketability of their current skill sets. In bad labor market situations, it is harder to find a job with the skill sets that could have been marketable in normal times. This raises the incentive to enroll in training and acquire new skills. Additional increases in unemployment raises training enrollment further by a small amount indicating most changes in service receipt occur in cases of a moderate increase in local unemployment. The link between training enrollment and changes in local unemployment shows a U-shaped relationship. When the unemployment changes by a rate between -15% and -25%, training enrollment rises up to 76.21% compared to 58.83% during more normal periods. Perhaps in an extremely favorable labor market, people feel secure enough to take this as a skill-upgrading opportunity. In all cases, the majority of training enrollment takes the form of occupational skills training.

The impacts of changes in local unemployment on labor market outcome measures are less straightforward. Reemployment rates are largely unaffected by the changes in local unemployment. Wage replacement rates are affected more. While it does not display a monotonic trend, wage replacement rates are lower during periods of high increases in unemployment. This is also the case in terms of the level of post-participation earnings.

#### **IV. Estimation**

The main goal of this paper is to investigate how an increase in the workload at the access point of TAA services influences the delivery of these services and what such a change in

service delivery means for their post participation reemployment and wage replacement rates.

While usage of these measures in evaluating federal training program is problematic (Barnow & Smith, 2004), these are easily measurable by using information reported in the TAPR.

The main variable used as a proxy for the increase in AJC's workload is the percentage change in the number of unemployed workers at the MSA level compared to the previous year. We use the unemployment change rather than the unemployment rate because it is more directly linked to the workload of AJCs. We believe that the change in local unemployment is better at capturing the workload of AJCs than the change in TAA participants or the unemployment rate. We do not use the change in the size of TAA participants because the TAA is a relatively small program compared to other programs accessible at AJCs and therefore the change in TAA participants is not likely to have a large influence on the overall operation of AJCs. A reasonable increase in TAA participants can be handled by spreading the cases among the staff members. This may affect the quality of service delivery if these TAA layoffs are associated with a mass layoff in which case the increase in local unemployment would reflect this large increase.

We do not use the unemployment rate or its changes because the unemployment rate is influenced by the changes in the labor force as well as the changes in the unemployed and the unemployment change captures the changes in people flowing through AJCs.<sup>xvii</sup> AJCs serve anyone who is seeking assistance in finding a job. Whether a worker's need for assistance is due to a recent displacement or re-entry into the labor force, the worker is not likely to make a substantial difference in AJC operations. Furthermore, in an area with high jobless rates, the AJC is more likely to be prepared to handle the consistently large flow of participants of any programs they handle. In fact, TAA funds are allocated to each state based on the number of participants in the previous fiscal year. The difficulty arises when there is an unusually large

flow of participants increasing the typical workload of case workers. However, following the insights of (Beaudry & DiNardo, 1991), we use the unemployment rate at the time of exit as a control in our estimations to separate the effect of job search in a bad labor market from the effect of service changes due to workload increases.<sup>xviii</sup>

#### IV.1. Methodology

We use increases in unemployment at the time of participation as a proxy for the workload of local AJCs in investigating how the delivery of TAA services might change along with the labor market outcomes from receiving these services as a result of increased workloads. Equation (1) describes the baseline estimation for evaluating the delivery of TAA services while Equation (2) provides the baseline estimation for evaluating outcomes. We use probit analysis for the indicators of training enrollments and reemployment. We use ordinary least squares for duration variables and wage replacement rates.

Equation (1) introduces the first set of estimations that examine the impact of rising local unemployment on the delivery of TAA services. The dependent variables are indicator variables for enrollment in any training, enrollment in a specific training program (occupational skills, on-the-job (OJT), customized, and remedial training), training completion, receipt of training waiver, matching between occupations of training and reemployment, participation duration, and training duration.

$$Y_i = \alpha_0 + \beta D_{\Delta Unemp,i} + \gamma u_i + \eta Z_i + \lambda ST_i + \zeta IN_i + \varepsilon_i \quad (1)$$

$D_{\Delta Unemp,i}$  is a vector of indicator dummies describing changes of unemployment for the MSA of the individual at the time of displacement. These indicators take the value of one if an MSA meets one of the following changes in unemployment: an increase of 25% or more, an

increase of 15-25%, an increase of 10-15%, an increase of 5-10%, an increase of 0-5%, a decrease of 25% or more, a decrease of 15-25%, a decrease of 10-15% or a decrease of 5-10%. Therefore, a decrease of 0-5% unemployment at a MSA makes the comparison group in our estimation. We use indicator variables rather than percentage changes due to the nonlinear relationship between unemployment changes and service delivery variables as shown in Table 4.<sup>xix</sup> Our data displays a prominent U-shape for enrolling in training compared to changes in local unemployment. However, this shape is not symmetric in size. Therefore, we use dummy indicators to provide the most flexibility in analyzing the data regarding the delivery of services. We control for the unemployment rate at the time of displacement with  $u_i$ .  $Z_i$  is a vector of individual characteristics that might affect choices such as gender, ethnicity, English proficiency, age at the time of participation and educational attainment. Education is controlled for the level of degree attainment: high school or equivalent, some college education<sup>xx</sup>, bachelor's degree, and an advanced degree. The base group for this estimation is white females with less than a high school education.  $ST_i$  is a vector of dummy variables for the state of participant's residency and  $IN_i$  is a vector of dummy variables for the 2-digit SIC industry of employment before displacement.

Equation (2) provides the basis for the second set of estimations on post-participation labor market outcome measures: reemployment and wage replacement rates. Again, the post-participation outcomes are observed for three quarters. The reemployment indicator is 1 if a participant is employed for at least one quarter during the first three quarters from the exit. Another outcome variable we explore is the wage replacement rate. It is the ratio of quarterly earnings of new employment to that of previous employment.<sup>xxi</sup>



$$Y_i = \alpha_0 + \beta_1 U_{inc} + \beta_2 U_{inc}^2 + \beta_3 U_{dec} + \beta_4 U_{dec}^2 + \gamma Train_i + \delta M_i + \eta \widehat{Z}_i + \lambda ST_i + \zeta IN_i + \varepsilon_i$$

(2)

For labor market outcomes we use a different specification identifying changes in unemployment in a quadratic fashion. The  $U_i^j$  variables provide this specification where  $i$  indicates whether the change in unemployment is greater than zero (*inc*) or less than zero (*dec*) and  $j$  provides the quadratic shape. We separate changes in unemployment into increases versus decreases because of the substantially different responses of service delivery to local unemployment increases and decreases. Since the main goal of this paper is to analyze the impact of changes in service delivery – both in quantity (observable) and quality (unobservable) – we see it fitting that we allow different coefficients for the cases of increasing and decreasing unemployment.  $Train_i$  is a vector of indicators for various training enrollment: occupational skills training, OJT, customized training, and remedial training.  $M_i$  controls for location-specific characteristics: logarithm of the total number of unemployed workers and the unemployment rate at the time of program exit. Otherwise, we use several of the same variables from Equation (1) including  $ST_i$  and  $IN_i$ .  $\widehat{Z}_i$  in Equation (2) is the same as  $Z_i$  from Equation (1) but it also includes pre-participation earnings due to the fact that higher earnings are harder to replace as workers go through displacement and career changes as shown in Table 2. The age variable in this estimation is the age at the time of program exit rather than participation. While age at participation in Equation (1) captures the differences in the voluntary decisions in choosing services and training program, age at exit in Equation (2) is to capture the influence of the worker’s age on the job search and the hiring process. Analysis of the impact of service delivery changes on labor market outcomes focuses on two major changes we observe in the analysis of service delivery: enrollment in occupational training and participation duration (in weeks). The

impact of receiving these services during the period of higher AJC workloads is captured by the interaction terms between the local unemployment changes and the service variables.

## **V. Results**

### **V.1. Service Delivery**

Table 5 presents the results for the estimation of equation (1) where our dependent variables of choice are various measures for service variables. In this table we certainly see evidence of changes in service delivery when local unemployment increases. The most prominent change we observe is in enrollment in occupational skills training, training completion rate, duration of training and duration of participation.

[ Table 5 about here ]

A 0-5% increase in local unemployment at the time of participation raises the likelihood of enrolling in any type of training by 7.59 percentage points compared to a period with a 0-5% decrease in unemployment at the MSA. This increases to 12.96 percentage points for a 5-10% increase in local unemployment. This is driven by an enrollment increase in occupational skills training which climbs 9.27 percentage points for a 0-5% increase in local unemployment or 13.75% for a 5-10% increase in local unemployment. To put this in context, recall that the average training enrollment rates for the MSA sample are 69.52% for any training and 65.00% for occupational skills training (Table 4). When a worker is displaced with a small chance of finding a job with an existing skill set, he/she has an incentive to enroll in job training to acquire new marketable skills. As discussed above, whether to take training is largely up to the participants themselves when the AJC staff receives an unusually high workload. With the

training opportunities readily available under the TAA program, it is not surprising to see such a large increase in training enrollment.

Training completion rates rise by 7.23 percentage points with a 0-5% increase in local unemployment where the average training completion rate is around 70%. This again jumps to 17.94 percentage points for a 5-10% increase in local unemployment compared to a 0-5% decrease in unemployment. Again, this is not surprising. One reason to leave the training program early is that a trainee finds a job. In a harsher labor market, the chance of finding a job during training is smaller; trainees are more likely to stay until the end of training program. Similarly to the training enrollment rate, the impact of increases in local unemployment on training completion makes the large jump in the 5-10% increases. Additional increases are not statistically different than the results seen in the 5-10% increases.

More training enrollment and higher completion rates translate to a longer duration of training and participation. A 0-5% increase in local unemployment leads to 7.6 more weeks in the TAA program with 5.95 more weeks in training compared to a 0-5% decrease in local unemployment. Again, this takes another big jump with a 5-10% increase in unemployment leading to 13.4 more weeks of participation in the program and 9.3 more weeks of training. Matching between the occupation of training and that of reemployment actually increases by 9.3 percentage points with a 0-5% increase in local unemployment while it drops by 13.6 percentage points in cases of extremely large unemployment increases (25% or more).

## V.2. Altered Service Delivery and the Outcomes

The previous section shows that an increase in workload at the AJC - proxied by increases in local unemployment - alters the nature of service delivery for the TAA program

greatly. The most noticeable trend is that there is a substantial increase in the demand for various services. This is especially true for occupational skills training leading to longer durations of participation. In this section, we investigate how such changes in service delivery influence the labor market outcomes of participants who enter the program in a labor market with increasing local unemployment.

One hypothesis discussed earlier is that the choice of training occupation is less than ideal during periods of high local unemployment increases due to the reduction in resources assigned to each participant. As noted in (Mack, 2009), training choices are generally left to participants in cases of a large increase in the AJC staff workload. These unsupervised choices could deteriorate the program performances. On the other hand, the training opportunities provide a means for dealing with harsh labor markets by providing new marketable skills.

In order to test these hypotheses, we focus on occupation skills training enrollment<sup>xxii</sup> and participation duration. The labor market outcome measures used here are the reemployment rate and the wage replacement rate. We estimate three specifications. The first is a simple estimation of the impact of various services on reemployment and wage replacement rates without any variables containing local unemployment changes. The second specification includes the change in unemployment separated by increases and decreases along with the quadratic terms as described earlier. The third specification is our main specification to analyze the impact of altered service delivery induced by changes in local unemployment on labor market outcomes. We use the interaction term between the unemployment change and service variables of interest: the indicator for occupational skills training enrollment and participation duration measured in weeks. The results are shown in Tables 6 and 7.

[ Table 6 about here ]

Enrolling in occupational skills training raises the reemployment rate and lowers the wage replacement rate regardless of the local labor market situation. The lower wage replacement rate for occupational skills training is likely to be picking up the selection problem around training enrollment. The workers who lack other marketable skills due to low educational attainment and narrow job experience are more likely to enroll in occupational skills training. The previous employment for these workers could have been protected by unions resulting in a high wage rate. This combined with a lower skill level makes it harder for these workers to find a new job with comparable wage compared to workers with more marketable skills.

Both reemployment and wage replacement rates are negatively affected by the rise in local unemployment. A 5% increase in local unemployment at the time of participation reduces the reemployment rate by 0.77 percentage points compared to workers displaced with no change in local unemployment. The impact on wage replacement rates is larger. A 5% increase in unemployment reduces wage replacement rates by 1.38 percentage points.<sup>xxiii</sup> In this second specification, the coefficients are nearly the same when considering both positive and negative changes in unemployment.

The third specification for both the reemployment rate and the wage replacement rate provides two facts. First, we do not find any evidence of worse outcomes for the trainees who entered training during periods of high unemployment growth. For wage replacement rates, we find a significant positive effect. While high unemployment growth causes a large decline in the wage replacement rate, enrolling in occupational skills training reduces this decline by nearly half.

In cases of an increase in local unemployment, the wage replacement rate of the TAA participants falls but occupational skills training offsets this decline by 46%.<sup>xxiv</sup> This suggests

that unsupervised training choices during periods of high workloads do not deteriorate labor market outcomes.<sup>xxv</sup> This could be an indication that in-depth worker assessment and counseling is not crucial in improving participants' outcomes. There is some support for this where (Koppel & Hoffman, 1996) pointed out that training vouchers - which essentially leaves decision making to workers - are more efficient. While our analysis does not make any comparison between training and potential alternatives, our results could support the idea of a training voucher by showing that hands-on case management is not superior in terms of outcomes and inferior in terms of cost efficiency.

Another noticeable change in service delivery during high unemployment growth periods is the increase in the duration of training and participation. One way that participation duration might influence labor market outcomes is that participants can wait out the unfavorable labor market situation by participating in the TAA program for a longer period by enrolling in occupational skills training. The analysis of this hypothesis is presented in Table 7.

[ Table 7 about here ]

When local unemployment change is not controlled, the impact of participation duration on reemployment rate or wage replacement is negative<sup>xxvi</sup>, but negligible. One more week of participation reduces the reemployment rate by 0.03 percentage points and the wage replacement rate by 0.02 percentage points. To have an effect of a 1 percentage point reduction requires 33 more weeks of participation for the reemployment rate and 50 weeks for the wage replacement rate. For workers who participate during periods of increasing local unemployment, longer duration is beneficial, but again this is negligible. A 5% increase of local unemployment reduces wage replacement rates by 2.3 percentage points and one more week of participation offsets this by only 0.003 percentage points. According to Table 5, a 5-10% increase in unemployment for

the local area raises the participation duration by 13.43 weeks. 13.43 weeks more of participation would raise the wage replacement rate by only 0.04 percentage points.

### V.3. Robustness

In order to confirm that our results are not specific to our sample, we estimate the same specifications using variations of our sample - two time subsamples and different geographic disaggregation level. The first time subset excludes participants who entered the program in 2001 and 2002. Table 3 shows that the unemployment growth at both the MSA and county-level were unusually high during these years (around 20%) compared to one-digit positive or negative values in the rest of the sample years. The second subset investigated is the sample of workers who participated after the 2002 Reform Act. As noted earlier, the 2002 Reform Act changed the restriction on timing of training enrollment which could affect the incentive to participate and enroll in training fundamentally.

Table 8 shows the estimation results for the two time-subsamples on service delivery among our MSA sample. Excluding 2001 and 2002 does not seem to change our main finding with the MSA sample including all years: large increases in training enrollment and completion with the impact concentrated on smaller increases in local unemployment.

[ Table 8 about here ]

The results are qualitatively similar for the post-reform sample, but the magnitude is much larger. Local unemployment increases of 5-10% raises occupational skills training enrollment and the training completion rate by 26.2 and 22.9 percentage points, respectively compared to local unemployment decreases of 0-5%. This is compared to 13.75 and 17.9 percentage points in the main estimation presented in Table 5. A further increase in local

unemployment raises the occupational skills training enrollment even higher.<sup>xxvii</sup> As discussed earlier, the Reform Act of 2002 tightened the deadline for training enrollment to either 8 weeks from certification or 16 weeks from separation. If a participant fails to find a job by this deadline, he/she is incentivized to enroll in a training program in order to avoid losing the other benefits. Finding a job soon after separation (or certification) is more difficult with higher local unemployment growth; more participants are put into a situation where he/she needs to make a quick training decision. The large and negative coefficient on matching with 15-25% unemployment growth is the evidence that sub-optimal decisions were made due to a tight deadline and extra difficulty of finding a job. Since the choices of training occupation as well as the decision to enroll in a training program are made hastily, the match between the occupations of training and reemployment is harder to achieve.

We find a similar pattern for duration variables. The results on the sample without 2001 and 2002 are similar to the main results. The magnitude of the results on the post-reform sample is larger. A 5-10% increase in unemployment lengthens participation duration by 17.65 weeks. A large increase of local unemployment by 15-25% increases participation duration by 22.4 weeks.

Table 9 shows the estimation results of these two subsamples for the rates of wage replacement and reemployment. These results are qualitatively the same as the main results discussed previously with stronger magnitudes. Wage replacement rates are much more negative but enrolling in occupational skills training reduces all of this adverse effect. For the sample excluding 2001 and 2002 participants, occupation skills training offset all of the adverse effect on wage replacement rates. For the post-reform sample, occupation skills training offset 83.5% of the adverse effect. Reemployment rates are not significantly changed when we consider the two time subsamples. Increases in local unemployment are still damaging to reemployment and



while enrolling in occupation skills training increases the reemployment rate, enrolling during increases in unemployment is not statistically better.

[ Table 9 about here ]

We repeat the same analysis using information at the county-level rather than MSA-level in Tables 10 and 11. This expands the size of the estimation sample by 25-32%. Table 10 shows the link between the local unemployment increases and the delivery of the TAA services. The results are similar to our main sample. The impacts on enrollment in any training are more subdued for moderate growth; they do not consistently take the big jump with increases of 5-10%. Training duration and completion rates also increase with similar magnitudes to those discussed in the MSA sample. Table 11 shows the impacts of such changes in service delivery on post-participation outcomes. Again, we have the same qualitative results on both reemployment rates and wage replacement rates with slight changes to the magnitude and the levels of significance.<sup>xxviii</sup>

[ Table 10 about here ]

[ Table 11 about here ]

## **VI. Conclusion**

In this paper, we investigate how services promised to Trade Adjustment Assistance (TAA) program participants change as workloads at the point of service delivery increase and the impacts of such changes on post-participation labor market outcomes. TAA services are accessible at the American Job Centers (AJCs) which serve most large federal employment and training programs such as Unemployment Insurance, Employment Services and TAA under the

Workforce Investment Act. They provide services such as disseminating information on the local labor market and provide one-on-one case management services such as worker assessment, counseling and career planning. Since these AJCs service a wide range of people who seek federal assistance in training and reemployment, a general increase in local unemployment raises the workloads at these centers and could potentially alter the nature of service delivery to participants of various programs administered at AJCs including the focus this study: the TAA program.

We measure changes in workloads at AJCs as the increase in the number of unemployed workers in the metropolitan statistical areas (MSA) level. We argue that an increase in local unemployment at the time of participation captures the stress that may be put on the AJC staff better than other labor market statistics. For instance, the unemployment rate is better at capturing the general hardship of finding a job as participants exit the program. Furthermore, we know that TAA funds are allocated to each state based on the number of participants in the previous year.

We use data from the Trade Act Participants Report (TAPR) and Local Area Unemployment Statistics (LAUS). LAUS is used to construct various measures for the local labor market at MSA and county level. We acquired TAPR data from the U.S. Department of Labor through the Freedom of Information Act. The TAPR covers workers who entered the TAA program between 1998 and 2007. The geographic location of participants is proxied by the location of their previous employers obtained by linking the TAPR data to the TAA petition data.

We find that the demand for various services rises drastically. This is most prominent for training provisions. For example, the likelihood of enrolling in any type of training increases by 13.43 percentage points for eligible workers when displaced during a time when a MSA

experiences a 5-10% increase in unemployment compared to an eligible worker displaced in an MSA with a 0-5% decrease in unemployment. Most of these changes are driven by the change in enrollment for occupational skills training (13.75 percentage points for a 5-10% increase in unemployment). Other noticeable changes are training completion rates (17.94 percentage point increase for a 5-10% increase in unemployment). This rise in occupational skills training enrollment and training completion naturally lengthens the duration of training (additional 9.3 weeks for a 5-10% increase in unemployment) and participation (additional 13.4 weeks for a 5-10% increase in unemployment).

We find that enrolling in occupational skills training during periods of high unemployment growth is particularly beneficial by offsetting the adverse effect of a bad labor market on wage replacement rates. Previous research (GAO, 2004; GAO, 2007; Mack, 2009) suggests that the TAA program may be less effective at times when local unemployment surges. We do not find support for this. High local unemployment growth generates a uniformly negative effect on two key post-participation labor market outcomes: the reemployment rate and the wage replacement rate. An increase in local unemployment reduces the wage replacement rate but receiving occupational skills training offsets at least 46% of this negative effect. This finding is robust across various samples. We explore two time subsamples for the MSA sample one excluding workers who participated in 2001 and 2002 and one with workers who participated after the 2002 Reform Act. We also explore the whole sample and two time subsamples at the county level. The results are qualitatively the same with larger magnitudes for the post-reform sample on all training-related specifications and on the benefits of enrolling in occupational skills training. The impact of occupational skills training on reemployment rate is also positive, but weaker and statistically insignificant.

It should still be noted that high local unemployment growth at the time of participation hurts the labor market outcomes for participants greatly. While occupational skills training can serve as a means to soften the blow through the acquisition of more marketable skills in poor labor market situations, the TAA program does not perfectly insure the participants from this negative outcome. Perhaps the services more directly dealing with job search - e.g. matching of local vacancies and participants' skill sets - combined with a training provision could enhance the benefits of occupational skills training in harsh labor market situations.

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## APPENDIX

### A1. Labor Market Outcomes Using Dummy Interactions

In this section of the appendix, we provide an alternative to Equation (2) using the dummy variables from Equation (1). Similar to the rationale for using dummies in Equation (1), we want to provide the results for a less strict functional form on wage replacement rates and reemployment rates. We estimate the effects of increasing unemployment and the impact on receiving occupational training on labor market outcomes using the following equation:

$$Y_i = \alpha_0 + \beta D_{\Delta Unemp,i} + \beta_2 Occ_i * D_{\Delta Unemp,i} + \gamma Train_i + \delta M_i + \eta \hat{Z}_i + \lambda ST_i + \zeta IN_i + \varepsilon_i \quad (3)$$

$Occ_i$  is an indicator function on whether the displaced worker receives occupational training and this is interacted with  $D_{\Delta Unemp,i}$ , which is the same set of variables from Equation (1).

Otherwise, the variables are the same variables used in Equation (2).

The results are shown in Table A1. Increases in local unemployment at the time of displacement are harmful to wage replacement rates where this harm is increasing at a decreasing rate. Workers displaced with a 5-10% increase in local unemployment see wage replacement rates drop 6.2 percentage points compared to workers displaced with a 0-5% decrease in local unemployment. This harm rises to a drop of 10.5 percentage points in the wage replacement rate for worker displaced with large increases in local unemployment (25% or more). Obtaining occupational training during these times offsets this damage by 48.2-68.2% resulting in a 3.4%<sup>xxix</sup> average increase in wage replacement rates.

### A2. Data Limitations of Local Area Unemployment Statistics (LAUS)

LAUS publishes four variables: the size of labor force, employment, unemployment, and the unemployment rate, for various levels of geographic units in the U.S. ranging from states to

townships. LAUS data are estimated from multiple data sources rather than collected directly through a survey. The data sources used in estimation include Current Population Survey (CPS), Current Employment Statistics (CES), and Unemployment Insurance (UI) system.

LAUS adopts the methodology of Smoothed Seasonally Adjusted (SSA) estimates to deal with seasonal adjustment and reduce the spurious monthly volatilities in the estimates. Initially SSA estimation was used for state-level variables, but this extended to the following seven large MSAs: (1) Chicago - Naperville – Joliet, (2) Cleveland – Elyria – Mentor, (3) Detroit – Warren – Livonia, (4) New York City, (5) Miami – Miami Beach – Kendall, (6) Seattle – Everett – Bellevue, (7) Los Angeles – Long Beach – Glendale. There are total of 374 MSAs in the U.S.

Researchers have been concerned that the SSA estimation methodology might be eliminating not only the spurious volatilities from estimation errors but also meaningful fluctuations in the data. Phillips and Wang (2013) find that the smoothing method<sup>xxx</sup> used by BLS in LAUS estimation over-reduces the monthly volatility so that the national data calculated by summing the state estimates display a much smoother pattern than the directly estimated national data.

In order to make sure that our results are not biased due to this over-smoothing, we carry out the same estimations performed using the MSA samples excluding the seven large MSAs that are affected by the SSA methodology. Table A2 presents the impact of local unemployment changes on TAA service delivery and Table A3 presents the impacts on the reemployment rate and the wage replacement rate. A comparison between Table A2 with Tables 5 and 8 and a comparison between Table A3 with Tables 6 and 9 show that our main results are robust. For the post-reform sample, all coefficients are larger with the non-smoothed MSA samples.



Table 1. Summary Statistics: Participant Characteristics and Services Delivered

	TAPR sample used				Dolfin & Berk (2010) Table 1		
	All Sample <sup>(a)</sup>		MSA Sample <sup>(b)</sup>		Survey Sample <sup>(e)</sup>	Manufacturing Unemployed	All Unemployed
	All <sup>(c)</sup>	Post-Reform <sup>(d)</sup>	All	Post-Reform			
<b>Number of Participants</b>	355,295	205,440	82,857	50,549	2,860	2,865,519	
<b>A. PERSONAL CHARACTERISTICS</b>							
<i>Gender</i> ( % Male)	48.95 <sup>(f)</sup>	52.92 <sup>(f)</sup>	54.43 <sup>(f)</sup>	56.90 <sup>(f)</sup>	54.5	63.0	58.5
<i>Age</i>							
16-40	36.74	31.86	35.73	31.86	33.0	42.3	49.8
41-50	33.69	33.53	34.51	33.80	31.5	30.0	26.7
51-60	24.25	27.91	24.84	28.21	27.2	22.1	17.6
61-70	5.32	6.70	4.92	6.14	8.2	6.2	5.9
Mean Age	44.06	45.32	44.23	45.40	45.6	42.7	40.7
<i>Education</i>							
Less than HS	15.55	14.48	14.45	12.75	16.8		19.3
HS grad or eqv	59.51	60.63	58.53	59.45	58.0		34.3
Some College	19.5	18.85	20.85	21.05	17.3		26.5
College grad or beyond	5.45	6.04	4.91	5.44	7.9		19.9
<i>Limited English Proficiency</i>	6.43	4.39	6.26	4.39			
<b>B. SERVICE DELIVERY</b>							
<i>Training</i>							
Received any type of training	72.68	61.26	69.52	58.59			
Occupational Skills training <sup>(g)</sup>	67.08	56.18	65.00	54.17			
OJT <sup>(g)</sup>	2.29	1.55	1.65	0.99			
Customized training <sup>(g)</sup>	0.49	0.74	0.28	0.45			
Remedial training <sup>(g)</sup>	12.45	12.86	11.39	10.91			
<i>Training Duration in weeks</i>	56.61	54.11	54.80	54.01			
<i>Training Requirement Waiver</i>							
Received Training Requirement Waiver	83.69	74.55	85.63	78.06			
<i>Among recipients</i>							
later received any training	69.18	51.53	66.59	50.61			
later received OCC skills training	64.35	47.86	62.66	47.29			

(a) All observations in TAPR

(b) All TAPR observations with their MSA identified

(c) Participated between 1998 and 2007

(d) Participated between 2003 and 2007

(e) Data on TAA eligible workers (some did not participate) collected through a survey of these samples span from third quarter of 2003 and 2009.

(f) The gender composition is the participant characteristic that shows a substantial difference between the samples. However, these numbers are not statistically significantly different.

(g) As a percentage of all participants

Table 2. Summary Statistics: Post-participation Outcomes<sup>(a)</sup>

	Reemployment rate (%)	Wage replacement rate (%)	Post-participation quarterly earning (\$)	Pre-participation quarterly earning (\$)
All	76.36	84.95	6,441	8,067
<b>Age</b>				
16-30	83.85	95.08	5,798	6,112
31-40	83.12	89.28	6,303	7,293
41-50	80.46	82.98	6,477	8,206
51-60	69.56	77.11	6,291	8,795
61-70	36.40	71.15	5,540	8,097
<b>Education</b>				
Less than HS	67.91	87.85	4,992	5,985
HS grad or eqv	77.95	83.89	6,153	7,888
Some College	80.38	83.51	7,144	9,264
Bachelor	77.10	83.07	9,639	12,680
Grad School	76.76	85.49	11,495	14,830
<b>Pre-participation quarterly Earnings<sup>(b)</sup></b>				
2,000-5,000 <sup>(c)</sup>	73.07	107.59	4,472	
5,000-10,000	78.75	83.49	6,106	
10,000-20,000	79.84	67.71	8,687	
20,000-30,000	75.44	58.98	12,527	
30,000-40,000	69.43	57.43	16,063	
40,000-50,000	68.22	53.46	15,186	
<b>Training</b>				
No Training	70.79	85.79	7,462	9,246
Any training	78.44	84.65	6,098	7,609
Occupational skills training	78.86	84.27	6,144	7,714
OJT	77.82	87.56	5,892	6,910
Customized training	81.95	84.61	6,635	8,214
Remedial training	74.04	88.70	5,099	5,995

(a) These statistics are calculated using the entire sample from the Trade Act Participant Report.

(b) Trade Act Participant Report (TAPR) reports the quarterly earnings for three quarters immediately prior to participation rather than three quarters prior to the qualifying layoff. For this reason, it is not rare to have zeros or substantially smaller earnings figures in later quarters. In order to pick up the earnings from the previous employment that participants are certified for the TAA benefits, we chose the maximum value among the reported earnings.

(c) We discard the earnings information if the maximum quarterly earnings among the reported value is less than \$2,000. \$2,000 represents the approximate level of quarterly earnings if a worker is employed full time at minimum wage. Earnings below \$2,000 could be temporary employment between the qualifying layoff and participation.

Table 3. Local Area unemployment Statistics: MSA and County-level

Years	Average Local Employment (in thousands) <sup>(a)</sup>	Unemployment Rate	Unemployment Change (%)	MSA-level Unemployment Change						
				Less than -25%	Between -25 and -15	Between -15 and -5	Between -5 and 5	Between 5 and 15	Between 15 and 25	More than 25%
<b>MSAs</b>										
1998	4,078	5.84	-7.01	3.31	17.17	40.06	29.52	7.23	2.11	0.6
1999	4,142	5.49	-4.63	1.2	13.55	37.65	32.53	10.54	3.31	1.2
2000	4,187	5.1	1.67	6.33	13.25	18.98	21.39	18.67	9.64	11.75
2001	4,199	5.98	21.15	0	0	3.61	11.75	26.2	22.89	35.54
2002	4,197	7.07	20.93	0	0	0	5.42	24.7	39.46	30.42
2003	4,215	7.33	4.94	0	0.3	7.83	44.28	39.16	7.53	0.9
2004	4,271	6.87	-5	0	4.82	50.6	35.54	8.13	0.9	0
2005	4,348	6.46	-4.13	1.2	6.93	44.88	34.64	9.34	1.81	1.2
2006	4,429	5.89	-7.72	3.31	8.13	55.42	30.12	3.01	0	0
2007	4,474	5.83	0.31	0.6	1.81	28.31	45.78	16.87	3.61	3.01
ALL	4,254	6.19	2.05	1.6	6.6	28.73	29.1	16.39	9.13	8.46
Excl. 2001-02	4,268	6.1	-2.7	2	8.25	35.47	34.22	14.12	3.61	2.33
<b>Counties and Eqv.</b>										
1998	1,016	6.24	-6.36	6.81	16.72	36.08	24.96	9.00	3.78	2.65
1999	1,031	5.93	-3.81	4.01	14.15	32.83	28.90	12.03	4.92	3.18
2000	1,033	5.36	-0.44	12.48	14.45	17.32	20.12	15.2	8.62	11.8
2001	1,033	6.25	19.94	0.08	1.13	4.54	13.31	28.21	19.14	33.59
2002	1,028	7.35	19.97	0.23	0.53	1.82	8.40	26.32	30.48	32.22
2003	1,029	7.65	5.22	0.08	1.13	10.74	39.64	36.31	9.15	2.95
2004	1,039	7.18	-5.23	1.59	9.38	41.53	36.23	9.98	1.13	0.15
2005	1,047	6.75	-5.11	2.87	9.68	42.44	30.48	10.06	3.18	1.29
2006	1,068	6.15	-7.85	4.39	10.89	49.55	29.12	4.69	0.83	0.15
2007	1,084	6.11	-0.06	0.23	3.78	28.52	40.24	19.67	5.30	1.89
ALL	1,041	6.50	1.63	3.28	8.19	26.56	27.16	17.16	8.66	8.99
Excl. 2001-02	1,043	6.42	-2.96	4.06	10.03	32.41	31.24	14.63	4.62	3.01

(a) This is the mean size of total employment of each geographical unit (MSA or county) calculated using Local Area Unemployment Statistics (LAUS) data. Each geographic unit is counted as one observation in calculation of these statistics.

Table 4. Local Unemployment Change and TAA Service Delivery and Outcomes

	MSA-level Unemployment Change							ALL
	less than -25%	between -25 and -15	between -15 and -5	between -5 and 5	between 5 and 15	between 15 and 25	more than 25%	
<b>ALL</b>								
Observations	861	2,711	19,384	27,701	16,620	8,684	6,896	82,857
% of sample	1.04	3.27	23.39	33.43	20.06	10.48	8.32	
<b>Post-Reform Sample</b>								
Observations	113	1,718	16,041	21,827	10,467	382	1	50,549
% of sample	0.22	3.4	31.73	43.18	20.71	0.76	0	
<b>Excluding 2001 and 2002</b>								
Observations	861	2,711	19,266	27,325	11,714	1,019	302	63,198
% of sample	1.36	4.29	30.49	43.24	18.54	1.61	0.48	
<b>A SERVICE DELIVERY</b>								
<i>Training</i>								
Any Training	97.68	76.21	60.01	58.83	80.23	85.63	86.98	69.52
Occ skills training	97.21	72.96	55	54.25	75.9	83.2	80	65
OJT	0.12	0.7	1.66	1.73	1.02	0.6	4.63	1.65
customized	0	0.22	0.36	0.36	0.31	0.03	0.06	0.28
remedial	33.91	14.16	13.16	8.65	15.83	6.68	8.83	11.4
<b>Training Completion Rate</b>								
Any training	70.87	66.55	72.15	67.03	72.37	74.49	68.71	70.48
Occ skills training	70.97	67.34	73.62	68.2	72.87	74.49	67.74	71.18
<b>Participation Duration in weeks</b>								
All	53.45	64.21	58.57	53.91	62.34	61.19	75.24	59.55
No training	31.31	44.95	41.18	36.09	54.18	49.96	76.31	42.34
Any training	53.97	70.22	70.15	66.37	64.34	63.07	75.08	67.1
Skill training	53.64	71.22	71	67.18	63.91	62.83	75.08	67.33
<b>Training Requirement Waiver</b>								
Received waiver	98.72	74.95	80.27	84.69	85.26	95.2	95.87	85.63
Later enrolled training	97.76	75.44	54.64	53.53	77.89	84.99	87.08	66.59
Later enrolled in skill training	97.41	72.79	50.28	49.44	74.87	82.74	79.87	62.66
<b>B. OUTCOMES</b>								
<b>Reemployment Rate</b>								
All	72.13	76.06	79.48	78.93	78.11	78.03	78.15	78.57
Any training	72.29	75.75	82.17	81.1	78.83	78.86	79.16	79.98
Skill Training	72.4	76.14	82.45	81.44	79.16	79.17	80.03	80.32
<b>Wage Replacement Rate</b>								
All	82.56	86.87	85.12	81.35	84.02	81.99	76.38	82.63
Any training	82.83	85.19	85.68	82.46	84.06	82.46	76.36	82.96
Skill Training	82.96	84.77	85.09	81.4	83.78	82.32	76.79	82.5
<b>Post-participation earnings</b>								
All	4,919	6,597	6,917	7,144	6,377	5,510	6,270	6,661
Any training	4,751	6,095	6,514	6,550	5,969	5,440	6,159	6,195
Skill Training	4,753	6,106	6,555	6,621	6,009	5,454	6,200	6,231

Table 5. Impacts on the Delivery of TAA Services

	Any Training	OCC Skills training	OJT	Customized Training	Remedial Training	Training completion	Training Waiver	Match	Training Duration	Participation Duration
<b>ΔUnemployment</b>										
increase 25% or more	0.1458*** (0.0035)	0.1477*** (0.0046)	0.0114*** (0.0022)	-0.0007 (0.0017)	-0.0099*** (0.0034)	0.1661*** (0.0085)	0.1099*** (0.0028)	-0.1359*** (0.0310)	9.7677*** (0.5897)	15.2545*** (0.6457)
increase 15-25%	0.121*** (0.0041)	0.1557*** (0.0046)	-0.0002 (0.0007)	-0.0008 (0.0019)	-0.0411*** (0.0020)	0.1762*** (0.0077)	0.0856*** (0.0039)	0.0134 (0.0272)	6.1605*** (0.5256)	7.5317*** (0.5756)
increase 10-15%	0.1366*** (0.0037)	0.155*** (0.0046)	0.0054*** (0.0016)	0.0006 (0.0014)	-0.0029 (0.0040)	0.181*** (0.0085)	0.0237*** (0.0062)	-0.024 (0.0382)	8.0123*** (0.5974)	8.9104*** (0.6542)
increase 5-10%	0.1296*** (0.0039)	0.1375*** (0.0048)	0.0012 (0.0008)	0.0002 (0.0005)	-0.0039 (0.0033)	0.1794*** (0.0079)	-0.0599*** (0.0071)	-0.0303 (0.0346)	9.2969*** (0.5442)	13.4281*** (0.5959)
increase 0-5%	0.0759*** (0.0045)	0.0927*** (0.0052)	-0.0014*** (0.0004)	0.0002 (0.0006)	-0.0069** (0.0035)	0.0723*** (0.0082)	-0.0025 (0.0055)	0.0928*** (0.0260)	5.9475*** (0.5220)	7.6256*** (0.5717)
decrease 5-10%	0.0059 (0.0057)	0.0403*** (0.0060)	-0.0013*** (0.0004)	-0.0001 (0.0003)	-0.0083** (0.0033)	0.021** (0.0084)	0.0063 (0.0050)	0.0225 (0.0288)	2.7619*** (0.5218)	2.8617*** (0.5714)
decrease 10-15%	-0.0291*** (0.0069)	-0.042** (0.0076)	0.0078*** (0.0016)	-0.0003 (0.0008)	0.013** (0.0041)	-0.0178** (0.0090)	0.0042 (0.0056)	-0.0109 (0.0264)	-3.6665*** (0.5625)	-2.0868** (0.6160)
decrease 15-25%	-0.0197 (0.0140)	0.0284** (0.0118)	-0.002*** (0.0005)	-0.0006*** (0.0015)	-0.0018 (0.0050)	0.0557*** (0.0136)	-0.0131 (0.0090)	0.04 (0.0307)	1.0937 (0.8746)	3.7834*** (0.9578)
decrease 25% or more	0.154*** (0.0045)	0.2034*** (0.0043)	-0.0023** (0.0010)		0.0163* (0.0083)	0.0968*** (0.0204)	0.0876*** (0.0083)	0.2751*** (0.0736)	5.8366*** (1.3365)	0.0067 (1.4636)
Unemployment Rate	0.0039*** (0.0013)	0.0121*** (0.0014)	-0.0017*** (0.0002)	-0.0004 (0.0009)	0.0022*** (0.0006)	0.0039** (0.0016)	-0.0289*** (0.0011)	0.0087* (0.0052)	-0.0348 (0.0976)	-0.4913*** (0.1069)
Male	-0.0435*** (0.0036)	-0.0409*** (0.0039)	0.0007** (0.0003)	-0.0001 (0.0002)	-0.0164*** (0.0019)	-0.0462*** (0.0047)	0.0056* (0.0032)	-0.0167 (0.0145)	-6.78*** (0.2904)	-6.6034*** (0.3181)
Limited English	0.078*** (0.0062)	0.0389*** (0.0078)	-0.0013** (0.0006)	0.0004 (0.0010)	0.1255*** (0.0068)	-0.0022 (0.0101)	-0.019*** (0.0068)	-0.0148 (0.0402)	5.7396*** (0.6066)	3.7813*** (0.6642)
Age at Participation	-0.0047*** (0.0002)	-0.0052*** (0.0002)	-0.0001 (0.0000)	0*** (0.0001)	0.0005 (0.0001)	-0.0047 (0.0002)	0.0012 (0.0002)	-0.0031 (0.0134)	-0.4383*** (0.0134)	-0.3405*** (0.0147)
Edu: High School	0.0227*** (0.0055)	0.1293*** (0.0060)	-0.0003 (0.0005)	-0.0003 (0.0006)	-0.09*** (0.0032)	0.0794*** (0.0072)	-0.0013 (0.0047)	-0.0121 (0.0299)	1.1969*** (0.4343)	0.9687** (0.4756)
Ed: Some College	0.0525*** (0.0055)	0.1508*** (0.0049)	-0.0007 (0.0005)	-0.0005 (0.0012)	-0.0678*** (0.0019)	0.1351*** (0.0080)	-0.0322*** (0.0061)	-0.0262 (0.0318)	9.6766*** (0.5101)	9.759*** (0.5586)
Edu: Bachelor's deg	-0.0089 (0.0091)	0.0925*** (0.0071)	-0.0019*** (0.0004)	-0.0006 (0.0013)	-0.0508*** (0.0015)	0.0621*** (0.0119)	0.0072 (0.0080)	-0.0692* (0.0414)	2.0903*** (0.7507)	2.6189*** (0.8221)
Edu: Grad School	-0.0381** (0.0163)	0.0651*** (0.0130)	-0.001 (0.0011)	-0.0006*** (0.0014)	-0.0472 (0.0016)	0.0411 (0.0205)	0.0006 (0.0147)	0.0313 (0.0649)	-1.8062 (1.2809)	-3.4337** (1.4027)
Constant									30.6877*** (9.1591)	41.0423*** (10.0300)
State control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Ethnicity control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Obs	54443	58699	51945	24553	57805	58699	47881	6804	Obs	58702
Pseudo R2	0.3056	0.2828	0.4274	0.2895	0.3528	0.1372	0.2044	0.2717	R-sq	0.2172
Marginal Effects	0.8419	0.7921	0.0028	0.0006	0.0489	0.5502	0.8858	0.6003	Adj R-sq	0.1676

Table 6. Altered Service Changes and the Outcomes – Occupational Skills Training

	Reemployment Rate			Wage Replacement Rate		
	I	II	III	I	II	III
Unemp Increase		-0.0016*** (0.0003)	-0.0022*** (0.0008)		-0.0029*** (0.0003)	-0.0046*** (0.0008)
Unemp Increase SQ		0.000011* (0.0000)	0.000016 (0.00001)		0.000026*** (4.83E-06)	0.000038*** (0.000014)
Unemp Dec		-0.002* (0.0008)	-0.0037* (0.0019)		-0.0032*** (0.0008)	0.0003 (0.0020)
Unemp Dec SQ		-0.000130*** (0.00003)	-0.000295* (0.00012)		-0.000169*** (3.23E-05)	0.0000779 (0.000129)
OCCtrain x Unemplnc			0.0009 (0.0008)			0.0021* (0.0008)
OCCtrain x UnemplncSQ			-7.02E-06 (0.00002)			-0.0000142 (0.000015)
OCCtrain x UnempDec			0.0016 (0.0022)			-0.0036 (0.0022)
OCCtrain x UnempDecSQ			0.000169 (0.00013)			-0.0002513* (0.00013)
OCC train	0.0281*** (0.0047)	0.0354*** (0.0048)	0.03*** (0.0083)	-0.0352*** (0.0043)	-0.0246*** (0.0043)	-0.0389*** (0.0077)
OJT	0.0476*** (0.0119)	0.0626*** (0.0113)	0.066*** (0.0117)	0.0041 (0.0130)	0.0246* (0.0131)	0.0328* (0.0135)
Remedial training	-0.0064 (0.0065)	-0.0078 (0.0065)	-0.0071 (0.0065)	-0.0139* (0.0062)	-0.0166*** (0.0062)	-0.0154* (0.0062)
Customized training	0.0402 (0.0282)	0.0326 (0.0291)	0.0292 (0.0297)	0.0063 (0.0307)	-0.0028 (0.0306)	-0.0098 (0.0307)
log Pre-participation Earnings	0.0399*** (0.0041)	0.0388*** (0.0041)	0.0389*** (0.0041)	-0.4041*** (0.0042)	-0.4055*** (0.0042)	-0.4056*** (0.0042)
MSA Total Unemployment	-0.007*** (0.0022)	-0.0061*** (0.0022)	-0.0061*** (0.0022)	0.0112*** (0.0020)	0.0129*** (0.0020)	0.013*** (0.0020)
Exit Year Unemployment Rate	-0.0038*** (0.0013)	-0.0016 (0.0014)	-0.0016 (0.0014)	-0.0109*** (0.0013)	-0.0069*** (0.0013)	-0.0068*** (0.0013)
Age at Exit	-0.0074*** (0.0002)	-0.0074*** (0.0002)	-0.0074*** (0.0002)	-0.0036*** (0.0002)	-0.0037*** (0.0002)	-0.0037*** (0.0002)
Male	-0.0081* (0.0039)	-0.0076* (0.0039)	-0.0077* (0.0039)	0.1006*** (0.0037)	0.1007*** (0.0037)	0.1007*** (0.0037)
Limited English	-0.0028 (0.0079)	-0.0036 (0.0079)	-0.0036 (0.0079)	-0.0139* (0.0078)	-0.0149* (0.0078)	-0.0142* (0.0078)
Edu_High School	0.0297*** (0.0057)	0.0293*** (0.0057)	0.0295*** (0.0057)	0.0303*** (0.0057)	0.0293*** (0.0057)	0.0299*** (0.0057)
Edu_Some College	0.0281*** (0.0063)	0.0274*** (0.0064)	0.0276*** (0.0064)	0.0674*** (0.0066)	0.0658*** (0.0066)	0.0665*** (0.0066)
Edu_Bachelor's Deg	0.003 (0.0097)	0.0015 (0.0097)	0.0016 (0.0097)	0.1629*** (0.0096)	0.1598*** (0.0096)	0.1604*** (0.0096)
Edu_Grad School	0.0233 (0.0155)	0.0231 (0.0155)	0.023 (0.0155)	0.2044*** (0.0160)	0.2049*** (0.0159)	0.2051*** (0.0159)
Constant				4.7449*** (0.1191)	4.7037*** (0.1191)	4.7088*** (0.1192)
State Control	YES	YES	YES	YES	YES	YES
Industry Control	YES	YES	YES	YES	YES	YES
Ethnicity Control	YES	YES	YES	YES	YES	YES
Obs	52,738	52,738	52,738	Obs	36,157	36,157
Pseudo R2	0.0602	0.0617	0.0618	R-sq	0.2647	0.2689
Marginal Effects	0.8074	0.8078	0.8078	Adj R-sq	0.2631	0.2673

Table 7. Altered Service Changes and the Outcomes – Participation Duration

	Reemployment Rate			Wage Replacement Rate		
	I	II	III	I	II	III
Unemp Increase		-0.0015*** (0.0003)	-0.0038*** (0.0006)		-0.0028*** (0.0003)	-0.0048*** (0.0005)
Unemp Increase SQ		0.0000106* (0.00000)	0.000032*** (0.00001)		0.000026*** (4.38E-05)	0.000038*** (7.01E-06)
Unemp Dec		-0.0019* (0.0008)	-0.0029* (0.0015)		-0.0031*** (0.0008)	-0.0052*** (0.0014)
Unemp Dec SQ		0.000129*** (0.00003)	0.000166*** (0.00006)		0.000168*** (0.000032)	-0.00025*** (0.000057)
ParticipDuration x Unemplnc			0.000035*** (0.00001)			0.000030*** (7.01E-06)
ParticipDuration x UnemplncSQ			-3.4E-07*** (0.0000)			-2.10E-07* (9.71E-08)
ParticipDuration x UnempDec			0.000022 (0.00002)			0.000043* (0.000020)
ParticipDuration x UnempDecSQ			8.00E-07 (0.0000)			1.59E-06* (8.81E-07)
Participation Duration (wks)	-0.0003*** (0.0001)	-0.0003*** (0.0001)	-0.0005*** (0.0001)	-0.0002*** (0.0000)	-0.0001* (0.0000)	-0.0003*** (0.0001)
OCC train	0.0354*** (0.0048)	0.0418*** (0.0049)	0.0466*** (0.0050)	-0.0315*** (0.0044)	-0.0225*** (0.0045)	-0.0175*** (0.0045)
OJT	0.0485*** (0.0118)	0.0624*** (0.0113)	0.0624*** (0.0113)	0.0048 (0.0130)	0.0247* (0.0131)	0.0246* (0.0131)
Remedial training	-0.0016 (0.0064)	-0.0031 (0.0065)	-0.0027 (0.0065)	-0.0117 (0.0062)	-0.0153 (0.0062)	-0.0143* (0.0062)
Customized training	0.0454 (0.0276)	0.0378 (0.0285)	0.0396 (0.0283)	0.0091 (0.0307)	-0.001 (0.0306)	0.0009 (0.0306)
log Pre-participation Earnings	0.0392*** (0.0041)	0.0382*** (0.0041)	0.0372*** (0.0041)	-0.4045*** (0.0042)	-0.4057*** (0.0042)	-0.407*** (0.0042)
MSA Total Unemployment	-0.007*** (0.0022)	-0.0063*** (0.0022)	-0.0064*** (0.0022)	0.0111*** (0.0020)	0.0128*** (0.0020)	0.0129*** (0.0020)
Exit Year Unemployment Rate	-0.0041*** (0.0013)	-0.002 (0.0014)	-0.0025* (0.0014)	-0.011*** (0.0013)	-0.007*** (0.0013)	-0.0076*** (0.0013)
Age at Exit	-0.0074*** (0.0002)	-0.0074*** (0.0002)	-0.0074*** (0.0002)	-0.0036*** (0.0002)	-0.0037*** (0.0002)	-0.0037*** (0.0002)
Male	-0.0099* (0.0039)	-0.0093* (0.0039)	-0.0089* (0.0039)	0.0996*** (0.0037)	0.1002*** (0.0037)	0.1005*** (0.0037)
Limited English	-0.0034 (0.0079)	-0.004 (0.0079)	-0.0027 (0.0079)	-0.0142* (0.0078)	-0.015* (0.0078)	-0.0144* (0.0078)
Edu_High School	0.0303*** (0.0057)	0.0299*** (0.0057)	0.0298*** (0.0057)	0.0308*** (0.0057)	0.0296*** (0.0057)	0.0296*** (0.0057)
Edu_Some College	0.0313*** (0.0063)	0.0305*** (0.0063)	0.0304*** (0.0063)	0.0692*** (0.0066)	0.0669*** (0.0066)	0.067*** (0.0066)
Edu_Bachelor's Deg	0.0043 (0.0096)	0.0029 (0.0097)	0.0029 (0.0097)	0.1636*** (0.0096)	0.1603*** (0.0096)	0.1605*** (0.0096)
Edu_Grad School	0.0226 (0.0155)	0.0226 (0.0155)	0.0227 (0.0155)	0.2048*** (0.0160)	0.2051*** (0.0159)	0.2054*** (0.0159)
Constant				4.7509*** (0.1191)	4.7084*** (0.1191)	4.7176*** (0.1192)
State Control	YES	YES	YES	YES	YES	YES
Industry Control	YES	YES	YES	YES	YES	YES
Ethnicity Control	YES	YES	YES	YES	YES	YES
Obs	52738	52738	52738	Obs	36157	36157
Pseudo R2	0.0611	0.0624	0.0632	R-sq	0.2649	0.269
Marginal Effects	0.8075982	0.8079261	0.8081507	Adj R-sq	0.2633	0.2673

Table 8. Service Delivery – MSA Time Subsamples

	Excluding 2001 & 2002				Post 2002 Reform				Participation Duration (wks)		
	Any Training	OCC skills Training	Training Completion	Match	Any Training	OCC skills Training	Training Completion	Match	Excl. 2001 & 2002	Post 2002 Reform	
<b>ΔUnemployment</b>											
increase 25% or more	0.2356*** (0.0050)	0.2757*** (0.0067)	0.1587*** (0.0323)	-0.0505 (0.1301)					6.9596*** (2.3347)	-6.037 (33.7770)	
increase 15-25%	0.1633*** (0.0100)	0.1935*** (0.0113)	0.1797*** (0.0207)	-0.1113* (0.0640)	0.3676*** (0.0044)	0.3853*** (0.0051)	0.2547*** (0.0365)	-0.2054*** (0.0766)	8.2714*** (1.4573)	22.448*** (2.4478)	
increase 10-15%	0.1826*** (0.0061)	0.1899*** (0.0074)	0.1427*** (0.0125)	-0.0377 (0.0466)	0.2961*** (0.0083)	0.2879*** (0.0092)	0.1842*** (0.0151)	-0.0955* (0.0545)	7.8338*** (0.8916)	9.3266*** (1.0143)	
increase 5-10%	0.1747*** (0.0060)	0.1769*** (0.0066)	0.1893*** (0.0092)	-0.0172 (0.0375)	0.2756*** (0.0085)	0.2621*** (0.0086)	0.229*** (0.0104)	0.0442 (0.0394)	13.988*** (0.6530)	17.6513*** (0.6924)	
increase 0-5%	0.1041*** (0.0065)	0.1237*** (0.0069)	0.0847*** (0.0086)	0.0803*** (0.0284)	0.1215*** (0.0100)	0.1215*** (0.0099)	0.0839*** (0.0104)	0.0631** (0.0320)	7.5121*** (0.5846)	6.7603*** (0.6623)	
decrease 5-10%	-0.0028 (0.0078)	0.0421*** (0.0076)	0.0179*** (0.0087)	0.0023 (0.0311)	0.0053 (0.0103)	0.0074 (0.0101)	0.0073 (0.0101)	-0.0064 (0.0335)	3.2219*** (0.5863)	1.6518** (0.6397)	
decrease 10-15%	-0.044*** (0.0089)	-0.0489*** (0.0089)	-0.0248*** (0.0092)	-0.0217 (0.0277)	0.0043 (0.0111)	-0.0081 (0.0107)	0.0129 (0.0105)	0.0225 (0.0306)	-2.1848*** (0.6266)	2.878*** (0.6743)	
decrease 15-25%	-0.0368** (0.0183)	0.0154 (0.0155)	0.0312*** (0.0147)	0.0353 (0.0319)	-0.1806*** (0.0338)	-0.0659*** (0.0237)	0.0384* (0.0196)	0.0461 (0.0323)	3.7156*** (1.0031)	2.7447** (1.2467)	
decrease 25% or more	0.2397*** (0.0060)	0.2899*** (0.0049)	0.1198*** (0.0219)	0.3271*** (0.0654)	0.0473 (0.1152)	0.1672** (0.0815)	0.202*** (0.0579)	0.3403*** (0.0954)	0.7468 (1.5207)	0.6783 (4.1001)	
Unemployment Rate	0.0112*** (0.0019)	0.0231*** (0.0019)	0.0058*** (0.0019)	0.0043 (0.0059)	0.0473*** (0.0033)	0.0422*** (0.0029)	0.0296*** (0.0027)	0.0086 (0.0069)	-0.7348*** (0.1272)	1.5244*** (0.1763)	
Male	-0.0559*** (0.0051)	-0.0479*** (0.0052)	-0.0513*** (0.0055)	-0.0176 (0.0168)	-0.0635*** (0.0068)	-0.0572*** (0.0066)	-0.0523*** (0.0063)	-0.0161 (0.0179)	-6.8617*** (0.3722)	-7.6277*** (0.4069)	
Limited English	0.0989*** (0.0101)	0.0523*** (0.0112)	0.0379*** (0.0126)	-0.0203 (0.0466)	0.1092*** (0.0165)	0.011 (0.0161)	0.0675*** (0.0161)	0.0000 (0.0533)	7.759*** (0.8403)	3.3314*** (1.0063)	
Age at Participation	-0.0066*** (0.0002)	-0.0067*** (0.0003)	-0.0056*** (0.0003)	-0.0029 (0.0008)	-0.0084*** (0.0003)	-0.0079*** (0.0003)	-0.0063*** (0.0003)	-0.0022** (0.0009)	-0.354*** (0.0174)	-0.2925*** (0.0192)	
Edu: High School	0.0355*** (0.0079)	0.1678*** (0.0080)	0.0819*** (0.0085)	-0.0223 (0.0345)	0.0448*** (0.0109)	0.1939*** (0.0101)	0.0828*** (0.0100)	-0.0046 (0.0382)	2.3241*** (0.5645)	4.1369*** (0.6314)	
Ed: Some College	0.0737*** (0.0081)	0.1998*** (0.0069)	0.1424*** (0.0097)	-0.05 (0.0370)	0.0949*** (0.0119)	0.2404*** (0.0096)	0.1457*** (0.0117)	-0.0279 (0.0405)	10.3374*** (0.6601)	11.1813*** (0.7387)	
Edu: Bachelor's deg	-0.0107 (0.0129)	0.1224*** (0.0101)	0.0564*** (0.0142)	-0.0805* (0.0473)	-0.0113 (0.0175)	0.1482*** (0.0140)	0.0542*** (0.0166)	-0.0571 (0.0509)	3.3002*** (0.9584)	5.9292*** (1.0401)	
Edu: Grad School	-0.0682*** (0.0235)	0.0744*** (0.0191)	0.0018 (0.0248)	0.0542 (0.0746)	-0.0967*** (0.0306)	0.0744*** (0.0266)	-0.0097 (0.0285)	0.0747 (0.0778)	-4.6956*** (1.6565)	-4.0883** (1.7900)	
Constant									37.963*** (10.477)	62.269*** (10.509)	
State control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Industry control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Ethnicity control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Obs	38,429	41,928	41,928	4,925	26,872	30,053	31,068	4319	Obs	41,928	31,280
Pseudo R2	0.265	0.254	0.120	0.222	0.221	0.223	0.128	0.2443	R-sq	0.163	0.201
Marginal Effects after probit	0.758	0.710	0.484	0.578	0.634	0.610	0.442	0.5972	Adj R-sq	0.162	0.199



Table 9. Occupational Skills Training and the Outcomes – MSA Time Subsamples

	Reemployment Rate				Wage Replacement Rate			
	Exc. 2001 & 2002		Post-Reform		Exc. 2001 & 2002		Post-Reform	
	II	III	II	III	II	III	II	III
Unemp Increase	-0.0008 (0.0008)	-0.0025 (0.0020)	-0.0043** (0.0021)	-0.0083** (0.0038)	-0.000257 (0.000835)	-0.0044** (0.0019)	-0.0049** (0.0022)	-0.0097** (0.0042)
Unemp Increase SQ	-3.46E-07 (0.00002)	0.000122 (0.00009)	0.00019 (0.00015)	0.00072** (0.00033)	0.000047** (0.000022)	-4.74E-06 (0.000077)	0.0002 (0.0002)	0.000224 (0.00036)
Unemp Dec	-0.0014 (0.0009)	-0.0025 (0.0020)	-0.0017 (0.0016)	0.0013 (0.0026)	-0.0035*** (0.0009)	0.0013 (0.0022)	0.0018 (0.0017)	0.0126*** (0.0030)
Unemp Dec SQ	-0.00011*** (0.00003)	-0.00021* (0.00012)	0.000137 (0.0009)	0.000015 (0.00018)	-0.00017*** (0.000034)	0.00013 (0.00014)	0.0002** (0.0001)	0.00093*** (0.00020)
OCCtrain x Unemp_Inc		0.0016 (0.0022)		0.0049 (0.0045)		0.0058*** (0.0020)		0.0081* (0.0048)
OCCtrain x Unemp_Inc <sup>2</sup>		-0.000129 (0.00009)		-0.00063* (0.00037)		-0.000068 (0.00008)		-0.000134 (0.00040)
OCCtrain x Unemp_Dec		0.0012 (0.0023)		-0.0053 (0.0032)		-0.0060** (0.0024)		-0.0155*** (0.0035)
OCCtrain x Unemp_Dec <sup>2</sup>		0.000106 (0.00013)		-0.000244 (0.0002)		-0.00033** (0.00014)		-0.00097*** (0.00023)
OCC train	0.0367*** (0.0052)	0.0372*** (0.0098)	0.0442*** (0.0055)	0.0329*** (0.0118)	-0.0282*** (0.0048)	-0.0519*** (0.0093)	-0.0297*** (0.0054)	-0.0712*** (0.0120)
OJT	0.0723*** (0.0123)	0.0718*** (0.0123)	0.1144*** (0.0121)	0.1151*** (0.0120)	0.026* (0.0150)	0.0256* (0.0150)	0.0392** (0.0196)	0.0422** (0.0197)
Remedial training	-0.013* (0.0077)	-0.0128* (0.0078)	-0.0104 (0.0088)	-0.0121 (0.0089)	-0.0173** (0.0073)	-0.0163** (0.0074)	-0.0115 (0.0086)	-0.0107 (0.0086)
Customized training	0.0408 (0.0285)	0.0415 (0.0284)	-0.013 (0.0348)	-0.0164 (0.0352)	0.0038 (0.0316)	0.0054 (0.0316)	-0.0149 (0.0325)	-0.0154 (0.0325)
log Pre-participation Earnings	0.0358*** (0.0046)	0.0359*** (0.0046)	0.0268*** (0.0050)	0.0264*** (0.0050)	-0.4037*** (0.0049)	-0.4035*** (0.0049)	-0.4053*** (0.0055)	-0.4053*** (0.0055)
MSA Total Unemployment	-0.0081*** (0.0025)	-0.0081*** (0.0025)	-0.0058** (0.0028)	-0.0056** (0.0028)	0.0145*** (0.0024)	0.0143*** (0.0024)	0.0153*** (0.0027)	0.0148*** (0.0027)
Exit Year Unemployment Rate	0.0001 (0.0017)	0.0001 (0.0017)	-0.0033 (0.0022)	-0.0028 (0.0022)	-0.0058*** (0.0016)	-0.0056*** (0.0016)	-0.0126*** (0.0021)	-0.0122*** (0.0021)
Age at Exit	-0.0074*** (0.0002)	-0.0074*** (0.0002)	0.0076*** (0.0002)	-0.0076*** (0.0002)	-0.0036*** (0.0002)	-0.0036*** (0.0002)	-0.0037*** (0.0002)	-0.0037*** (0.0002)
Male	0.0008 (0.0045)	0.0008 (0.0045)	0.0021 (0.0050)	0.0021 (0.0050)	0.1078*** (0.0043)	0.1078*** (0.0043)	0.1115*** (0.0049)	0.1115*** (0.0049)
Limited English	0.006 (0.0097)	0.0058 (0.0097)	0.0173 (0.0113)	0.0177 (0.0113)	-0.0276*** (0.0099)	-0.027*** (0.0099)	-0.0267** (0.0120)	-0.0258** (0.0120)
Edu_High School	0.0314*** (0.0067)	0.0315*** (0.0067)	0.0304*** (0.0075)	0.0301*** (0.0075)	0.0287*** (0.0068)	0.0292*** (0.0068)	0.0349*** (0.0079)	0.0361*** (0.0079)
Edu_Some College	0.0301*** (0.0074)	0.0303*** (0.0074)	0.0315*** (0.0081)	0.0313*** (0.0081)	0.0673*** (0.0079)	0.0678*** (0.0079)	0.0749*** (0.0091)	0.076*** (0.0091)
Edu_Bachelor's Deg	-0.0055 (0.0113)	-0.0054 (0.0113)	0.0059 (0.0119)	0.0058 (0.0119)	0.1667*** (0.0113)	0.1673*** (0.0113)	0.1794*** (0.0129)	0.1809*** (0.0129)
Edu_Grad School	0.0152 (0.0183)	0.0153 (0.0183)	0.0237 (0.0188)	0.0237 (0.0188)	0.2355*** (0.0193)	0.2363*** (0.0193)	0.2525*** (0.0218)	0.2533*** (0.0218)
Constant					4.6922*** (0.1385)	4.7073*** (0.1387)	4.536*** (0.1927)	4.5667*** (0.1927)
State control	YES	YES	YES	YES	YES	YES	YES	YES
Industry control	YES	YES	YES	YES	YES	YES	YES	YES
Ethnicity control	YES	YES	YES	YES	YES	YES	YES	YES
Obs	37,305	37,305	27,987	27,987	Obs	25,837	25,837	19,915
Pseudo R2	0.0661	0.0662	0.073	0.074	R-sq	0.2696	0.2701	0.2685
Marginal Effects	0.8160	0.8160	0.835	0.835	Adj R-sq	0.2674	0.2678	0.2656

Table 10. Robustness: Service Delivery – County Sample

	Training Variables									Duration in weeks			
	All Years			Excluding 2001 & 2002			Post Reform			All Years	Excl. 2001-2	Post reform	
	Any Training	Occ skills training	Training complete	Any Training	Occ skills training	Training complete	Any Training	Occ skills training	Training complete	Particip Duration	Particip Duration	Particip Duration	
$\Delta$ Unemployment													
increase 25% or more	0.11*** (0.003)	0.116*** (0.005)	0.13*** (0.007)	0.123*** (0.006)	0.094*** (0.010)	0.128*** (0.012)	0.148*** (0.009)	0.155*** (0.012)	0.162*** (0.016)	9.847*** (0.537)	13.88*** (0.864)	15.995*** (1.111)	
increase 15-25%	0.131*** (0.003)	0.197*** (0.004)	0.12*** (0.008)	0.16*** (0.004)	0.216*** (0.007)	0.118*** (0.012)	0.211*** (0.006)	0.261*** (0.008)	0.17*** (0.015)	6.573*** (0.572)	6.159*** (0.873)	5.71*** (1.031)	
increase 10-15%	0.112*** (0.003)	0.167*** (0.005)	0.154*** (0.008)	0.133*** (0.005)	0.174*** (0.007)	0.149*** (0.010)	0.19*** (0.006)	0.228*** (0.008)	0.202*** (0.012)	9.49*** (0.602)	9.404*** (0.725)	8.763*** (0.835)	
increase 5-10%	0.063*** (0.004)	0.084*** (0.005)	0.077*** (0.008)	0.069*** (0.005)	0.073*** (0.007)	0.063*** (0.008)	0.087*** (0.007)	0.089*** (0.009)	0.079*** (0.010)	4.282*** (0.544)	4.319*** (0.587)	3.283*** (0.641)	
increase 0-5%	0.027*** (0.004)	0.046*** (0.006)	0.01 (0.008)	0.026*** (0.006)	0.037*** (0.007)	0.016*** (0.008)	0.037*** (0.008)	0.059*** (0.009)	0.036*** (0.009)	-2.198*** (0.538)	-2.226*** (0.553)	-2.265*** (0.620)	
decrease 5-10%	-0.037*** (0.006)	-0.042*** (0.007)	-0.034*** (0.008)	-0.052*** (0.007)	-0.054*** (0.008)	-0.026*** (0.008)	-0.048*** (0.008)	-0.048*** (0.009)	-0.030*** (0.009)	-4.48*** (0.542)	-3.591*** (0.550)	-5.294*** (0.597)	
decrease 10-15%	0.004 (0.005)	0.004 (0.007)	-0.002 (0.008)	-0.01 (0.007)	-0.012 (0.008)	-0.004 (0.008)	-0.026*** (0.009)	-0.031*** (0.010)	-0.005 (0.010)	-0.64 (0.571)	-0.434 (0.580)	-1.331*** (0.652)	
decrease 15-25%	-0.007 (0.007)	0.019*** (0.008)	0.025*** (0.009)	-0.012 (0.009)	0.005 (0.009)	0.018 (0.010)	-0.073*** (0.014)	-0.039*** (0.013)	0.001 (0.012)	-0.929 (0.663)	-1.02 (0.674)	-4.392*** (0.833)	
decrease 25% or more	0.09*** (0.007)	-0.059*** (0.018)	0.102*** (0.019)	0.124*** (0.009)	-0.099*** (0.021)	0.105*** (0.020)	0.092*** (0.044)	0.106*** (0.052)	0.138*** (0.054)	-5.03*** (1.383)	-4.313*** (1.398)	-4.05 (3.896)	
Unemployment Rate	-0.002*** (0.001)	0.002* (0.001)	-0.009*** (0.001)	0.000 (0.001)	0.004*** (0.001)	-0.008*** (0.001)	0.019*** (0.002)	0.022*** (0.002)	0.008*** (0.002)	-0.178** (0.071)	-0.115 (0.082)	0.664*** (0.117)	
Male	-0.038*** (0.003)	-0.045*** (0.004)	-0.056*** (0.004)	-0.043*** (0.004)	-0.047*** (0.005)	-0.058*** (0.005)	-0.048*** (0.005)	-0.054*** (0.005)	-0.061*** (0.005)	-8.061*** (0.293)	-8.266*** (0.335)	-8.984*** (0.369)	
Limited English	0.062*** (0.005)	0.026*** (0.009)	-0.036*** (0.011)	0.038*** (0.009)	-0.059*** (0.013)	0.000 (0.013)	0.038*** (0.013)	-0.08*** (0.015)	-0.006 (0.015)	0.639 (0.778)	6.841*** (0.943)	4.614*** (1.039)	
Age at Participation	-0.005*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)	-0.006*** (0.000)	-0.007*** (0.000)	-0.006*** (0.000)	-0.007*** (0.000)	-0.007*** (0.000)	-0.007*** (0.000)	-0.365*** (0.013)	-0.393*** (0.015)	-0.314*** (0.017)	
Edu: High School	0.043*** (0.004)	0.181*** (0.006)		0.049*** (0.006)	0.198*** (0.007)	0.103*** (0.007)	0.049*** (0.008)	0.202*** (0.008)	0.094*** (0.008)	3.827*** (0.439)	3.411*** (0.492)	3.841*** (0.554)	
Ed: Some College	0.061*** (0.004)	0.185*** (0.004)		0.073*** (0.006)	0.214*** (0.006)	0.17*** (0.008)	0.077*** (0.008)	0.224*** (0.007)	0.155*** (0.010)	12.551*** (0.516)	11.553*** (0.585)	10.903*** (0.664)	
Edu: Bachelor's deg	0.008 (0.007)	0.12*** (0.006)		0.006 (0.009)	0.137*** (0.008)	0.081*** (0.012)	-0.003 (0.013)	0.143*** (0.011)	0.066*** (0.014)	4.386*** (0.771)	3.696*** (0.866)	4.607*** (0.947)	
Edu: Grad School	-0.007 (0.012)	0.092*** (0.012)		-0.028* (0.017)	0.088*** (0.016)	0.025 (0.022)	-0.07*** (0.023)	0.07*** (0.021)	0 (0.024)	-1.495 (1.347)	-2.411 (1.494)	-2.044 (1.637)	
Constant										67.623*** (4.179)	70.207*** (4.239)	46.464*** (4.921)	
State control	(a)	(a)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Industry control	(a)	(a)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Ethnicity control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Obs	71,955	73,824	73,816	55,384	56,658	56,650	41,309	42,177	42,177	Obs	73,828	56,662	42,386
Pseudo R2	0.3017	0.2524	0.1232	0.2754	0.2330	0.1147	0.2495	0.2242	0.1196	R-sq	0.1518	0.1545	0.1718
Marginal effect	0.8647	0.7636	0.5099	0.8106	0.7026	0.4723	0.7362	0.6500	0.4403	AdjR-sq	0.1508	0.1532	0.1701

(a) The state and 2-digit SIC industry controls are omitted due to estimation convergence issue.

Table 11. Robustness: Occupational skills training and Outcomes – County Sample

	Reemployment Rate			Wage Replacement Rate		
	All Years	Excl.2001-2	post-reform	All Years	Excl.2001-2	post-reform
Unemp Increase	-0.0015*** (0.0004)	-0.0002 (0.0005)	-0.0004 (0.0013)	-0.0019*** (0.0007)	-0.0006 (0.0009)	-0.0075*** (0.0014)
Unemp Increase SQ	4.93E-06 (1E-05)	-2.97E-06 (1E-05)	-2.2E-5 (4E-05)	1.84E-05 (1E-05)	3.32E-05 (2.1E-05)	0.0002*** (0.0000)
Unemp Dec	-0.0008 (0.0010)	0.0004 (0.0010)	0.0014 (0.0018)	-0.0012 (0.0011)	-0.0011 (0.0011)	0.0058*** (0.0019)
Unemp Dec SQ	-6.71E-05 (4E-05)	-3.4E-05 (4E-05)	-4.23E-06 (9E-05)	-9.1E-05** (3.86E-05)	-7E-05 (3.98E-05)	0.0003*** (0.0001)
OCCtrain x Unemplnc	-0.0006 (0.0005)	-0.0016** (0.0007)	0.0008 (0.0017)	0.0008 (0.0007)	0.0016 (0.0010)	0.0064*** (0.0018)
OCCtrain x UnemplncSQ	1.51E-05** (1E-05)	9.59E-06 (1E-05)	-5.5E-05 (5E-05)	-9.87E-06 (1.19E-05)	-3.7E-05 (2.14E-05)	-0.0002*** (0.0001)
OCCtrain x UnempDec	0.0006 (0.0013)	0.0004 (0.0014)	-0.0034 (0.0023)	0.0003 (0.0013)	-0.0003 (0.0014)	-0.0068*** (0.0024)
OCCtrain x UnempDecSQ	-3.85E-06 (5E-05)	-8.68E-06 (5E-05)	-1.1E-04 (1.2E-04)	6.84E-05 (5.11E-05)	4.45E-05 (5.25E-05)	-0.0002* (0.0001)
OCC train	0.0463*** (0.0070)	0.0507*** (0.0074)	0.0399*** (0.0098)	-0.0442*** (0.0066)	-0.0431*** (0.0072)	-0.0663*** (0.0093)
OJT	0.0696*** (0.0090)	0.0769*** (0.0095)	0.1153*** (0.0099)	-0.0035 (0.0107)	-0.0071 (0.0117)	0.0003 (0.0152)
Remedial training	-0.0007 (0.0061)	0.0044 (0.0066)	-0.0091 (0.0075)	-0.0193*** (0.0059)	-0.0114* (0.0064)	-0.0212*** (0.0072)
Customized training	0.0578*** (0.0187)	0.045** (0.0213)	0.0023 (0.0260)	0.0615*** (0.0211)	0.0379* (0.0228)	0.0499** (0.0242)
log Pre-participation Earnings	0.036*** (0.0037)	0.033*** (0.0040)	0.0343*** (0.0043)	-0.4139*** (0.0038)	-0.4112*** (0.0042)	-0.4059*** (0.0047)
County total unemployment	-0.0095*** (0.0019)	-0.006*** (0.0021)	-0.005** (0.0024)	0.0172*** (0.0018)	0.0209*** (0.0020)	0.0161*** (0.0024)
Exit Year Unemployment Rate	-0.0038*** (0.0009)	-0.0026** (0.0011)	-0.0013 (0.0014)	-0.0019** (0.0009)	-0.001 (0.0011)	-0.0022 (0.0014)
Age at Exit	-0.0077*** (0.0002)	-0.0078*** (0.0002)	-0.0082*** (0.0002)	-0.0036*** (0.0002)	-0.0038*** (0.0002)	-0.0038*** (0.0002)
Male	-0.013*** (0.0036)	-0.0085** (0.0040)	-0.0079* (0.0044)	0.1129*** (0.0034)	0.1182*** (0.0038)	0.118*** (0.0043)
Limited English	-0.0503*** (0.0100)	-0.0339*** (0.0120)	-0.0308** (0.0129)	-0.0218** (0.0092)	-0.023** (0.0112)	-0.0324*** (0.0123)
Edu_High School	0.0505*** (0.0053)	0.051*** (0.0058)	0.0415*** (0.0064)	0.0406*** (0.0054)	0.04*** (0.0060)	0.0347*** (0.0068)
Edu_Some College	0.044*** (0.0056)	0.0449*** (0.0063)	0.0412*** (0.0069)	0.0746*** (0.0062)	0.0792*** (0.0070)	0.0816*** (0.0080)
Edu_Bachelor's Deg	0.0183** (0.0086)	0.0156 (0.0096)	0.0105 (0.0104)	0.1592*** (0.0090)	0.1648*** (0.0101)	0.1636*** (0.0112)
Edu_Grad School	-0.0035 (0.0155)	-0.0084 (0.0171)	-0.0102 (0.0186)	0.2431*** (0.0157)	0.2485*** (0.0173)	0.2444*** (0.0191)
Constant				4.6837*** (0.0576)	4.6065*** (0.0611)	4.6935*** (0.0748)
State control	YES	YES	YES	YES	YES	YES
Industry control	YES	YES	YES	YES	YES	YES
Ethnicity control	YES	YES	YES	YES	YES	YES
Obs	66,679	50,926	38,235	Obs	45,013	34,759
Pseudo R2	0.0696	0.0704	0.0802	R-sq	0.2673	0.2750
Marginal effect	0.7946	0.8035	0.8218	Adj R-sq	0.2658	0.2731

Table A1. Occupational skills training and Outcomes – Dummy Specification

	Reemployment Rate			Wage Replacement Rate		
	I	II	III	I	II	III
ΔUnemp: (+) 25% or more		-0.0523*** (0.0088)	-0.0775*** (0.0168)		-0.0638*** (0.0073)	-0.1048*** (0.0147)
ΔUnemp: (+) 15-25%		-0.0489*** (0.0078)	-0.0488*** (0.0148)		-0.0488*** (0.0066)	-0.0782*** (0.0138)
ΔUnemp: (+) 10-15%		-0.0536*** (0.0087)	-0.0429** (0.0181)		-0.0428*** (0.0074)	-0.039** (0.0167)
ΔUnemp: (+) 5-10%		-0.0197*** (0.0075)	-0.02 (0.0128)		-0.0306*** (0.0067)	-0.062*** (0.0124)
ΔUnemp: (+) 0-5%		-0.0365*** (0.0075)	-0.0263** (0.0112)		0.0017 (0.0064)	0.012 (0.0105)
ΔUnemp: (-) 5-10%		-0.0111 (0.0070)	0.0029 (0.0096)		0.0009 (0.0063)	0.0063 (0.0095)
ΔUnemp: (-) 10-15%		0.0034 (0.0076)	0.0054 (0.0104)		0.0158** (0.0069)	0.0131 (0.0099)
ΔUnemp: (-) 15-25%		-0.0596*** (0.0133)	-0.0656*** (0.0259)		0.0238** (0.0113)	0.0643*** (0.0221)
ΔUnemp: (-) 25% or more		-0.0725*** (0.0193)	-0.2328 (0.1770)		-0.0801*** (0.0168)	-0.1022 (0.1810)
Train x ΔUnemp: (+) 25% or more			0.0243 (0.0156)			0.0524*** (0.0166)
Train x ΔUnemp: (+) 15-25%			-0.0028 (0.0159)			0.0377** (0.0156)
Train x ΔUnemp: (+) 10-15%			-0.0142 (0.0193)			-0.001 (0.0185)
Train x ΔUnemp: (+) 5-10%			-0.0023 (0.0148)			0.0423*** (0.0142)
Train x ΔUnemp: (+) 0-5%			-0.0165 (0.0144)			-0.0133 (0.0131)
Train x ΔUnemp: (-) 5-10%			-0.0276* (0.0145)			-0.0082 (0.0126)
Train x ΔUnemp: (-) 10-15%			-0.0054 (0.0150)			0.0045 (0.0132)
Train x ΔUnemp: (-) 15-25%			0.0042 (0.0254)			-0.051** (0.0255)
Train x ΔUnemp: (-) 25% or more			0.0964 (0.0792)			0.0267 (0.1818)
OCC train	0.0281*** (0.0047)	0.0376*** (0.0048)	0.0442*** (0.0095)	-0.0352*** (0.0043)	-0.0244*** (0.0044)	-0.0317*** (0.0083)
OJT	0.0476*** (0.0119)	0.0578*** (0.0115)	0.0631*** (0.0115)	0.0041 (0.0130)	0.0215 (0.0131)	0.028** (0.0133)
Remedial training	-0.0064 (0.0065)	-0.0092 (0.0065)	-0.0087 (0.0066)	-0.0139** (0.0062)	-0.0166*** (0.0062)	-0.0147** (0.0062)
Customized training	0.0402 (0.0282)	0.0369 (0.0286)	0.0313 (0.0294)	0.0063 (0.0307)	-0.0002 (0.0306)	-0.0076 (0.0307)
log Pre-participation Earnings	0.0399*** (0.0041)	0.0389*** (0.0041)	0.039*** (0.0041)	-0.4041*** (0.0042)	-0.4063*** (0.0043)	-0.4065*** (0.0043)
MSA Total Unemployment	-0.007*** (0.0022)	-0.0059** (0.0022)	-0.0059*** (0.0022)	0.0112*** (0.0020)	0.0132*** (0.0020)	0.0131*** (0.0020)
Exit Year Unemployment Rate	-0.0038*** (0.0013)	-0.0016 (0.0014)	-0.0018 (0.0014)	-0.0109*** (0.0013)	-0.0064*** (0.0013)	-0.0064*** (0.0013)
Age at Exit	-0.0074*** (0.0002)	-0.0074*** (0.0002)	-0.0074*** (0.0002)	-0.0036*** (0.0002)	-0.0037*** (0.0002)	-0.0037*** (0.0002)
Male	-0.0081** (0.0039)	-0.0074* (0.0039)	-0.0073* (0.0039)	0.1006*** (0.0037)	0.1013*** (0.0037)	0.1015*** (0.0037)
Limited English	-0.0028 (0.0079)	-0.0047 (0.0080)	-0.0037 (0.0080)	-0.0139* (0.0078)	-0.0138* (0.0078)	-0.0133* (0.0078)
Constant				4.7449*** (0.1191)	4.6962*** (0.1192)	4.697*** (0.1193)
State Control	YES	YES	YES	YES	YES	YES
Industry Control	YES	YES	YES	YES	YES	YES
Education Control	YES	YES	YES	YES	YES	YES
Ethnicity Control	YES	YES	YES	YES	YES	YES
Obs	52,738	52,738	52,738	Obs 36,157	36,157	36,157
Pseudo R2	0.0602	0.0624	0.0626	R-sq 0.2647	0.2688	0.2696
Marginal effects	0.8074	0.8079	0.8080	Adj R-sq 0.2631	0.2671	0.2677

Table A2. Delivery of TAA Services – MSA sample excluding seven large MSAs with long-run smoothing

	All Years			Excluding 2001 & 2002			Post 2002 Reform			All years Particip Duration	Exc. 01&02 Particip Duration	Post reform Particip Duration	
	Any Training	OCC Skills training	Training Completion	Any Training	OCC Skills training	Training Completion	Any Training	OCC Skills training	Training Completion				
<b>ΔUnemployment</b>													
increase 25% or more	0.1358*** (0.0044)	0.1674*** (0.0051)	0.1573*** (0.0106)		0.2070*** (0.0647)	-0.0745 (0.0654)				15.4339*** (0.7840)	-7.1493 (4.5710)		
increase 15-25%	0.1085*** (0.0052)	0.1528*** (0.0055)	0.1484*** (0.0092)	-0.0179 (0.0292)	0.0083 (0.0305)	0.1398*** (0.0318)			0.3543*** (0.0510)	4.6281*** (0.6556)	7.0314*** (1.9841)	34.5644*** (3.9085)	
increase 10-15%	0.1455*** (0.0043)	0.1695*** (0.0051)	0.1735*** (0.0099)	0.2298*** (0.0071)	0.2445*** (0.0080)	0.1611*** (0.0151)	0.3547*** (0.0087)	0.3496*** (0.0091)	0.2068*** (0.0170)	6.9192*** (0.7380)	5.4528*** (1.0612)	5.5552*** (1.1427)	
increase 5-10%	0.1329*** (0.0049)	0.1543*** (0.0055)	0.1903*** (0.0095)	0.1952*** (0.0082)	0.1876*** (0.0089)	0.1994*** (0.0115)	0.2972*** (0.0102)	0.287*** (0.0100)	0.2427*** (0.0119)	8.6513*** (0.7100)	9.8576*** (0.8050)	19.8692*** (0.7922)	
increase 0-5%	0.0681*** (0.0058)	0.0947*** (0.0064)	0.0585*** (0.0102)	0.12*** (0.0089)	0.153*** (0.0090)	0.0935*** (0.0111)	0.1312*** (0.0120)	0.1334*** (0.0118)	0.0872*** (0.0126)	7.8552*** (0.6901)	9.6019*** (0.7340)	7.6796*** (0.7933)	
decrease 5-10%	0.0004 (0.0069)	0.0417*** (0.0071)	0.0258** (0.0101)	-0.0037 (0.0098)	0.0258** (0.0096)	0.047*** (0.0107)	0.0235** (0.0118)	0.0248** (0.0116)	0.0397*** (0.0116)	1.8348*** (0.6668)	1.6786** (0.6961)	2.6562*** (0.7292)	
decrease 10-15%	-0.0202** (0.0079)	-0.0298*** (0.0087)	-0.0227** (0.0106)	-0.0499*** (0.0110)	-0.0506*** (0.0108)	-0.0455*** (0.0110)	-0.0005 (0.0130)	-0.0094 (0.0123)	0.0127 (0.0119)	-2.8141*** (0.7048)	-3.6494*** (0.7287)	2.974*** (0.7612)	
decrease 15-25%	-0.0688*** (0.0194)	0.0076 (0.0151)	0.0031 (0.0168)	-0.1108*** (0.0249)	-0.0204 (0.0206)	-0.0305 (0.0193)	-0.2286*** (0.0406)	-0.1021*** (0.0284)	-0.0135 (0.0237)	-1.2259 (1.1298)	-0.4336 (1.2757)	0.1416 (1.5378)	
decrease 25% or more	0.1641*** (0.0039)	0.2107*** (0.0040)	0.0737*** (0.0226)	0.2867*** (0.0075)	0.3256*** (0.0060)	0.0404 (0.0263)				-2.0299 (1.5460)	0.0659 (1.7080)		
Unemployment Rate	0.006*** (0.0019)	0.0152*** (0.0019)	0.0048** (0.0021)	0.0061** (0.0029)	0.0292*** (0.0028)	-0.0008 (0.0026)	0.0553*** (0.0045)	0.0534*** (0.0040)	0.0406*** (0.0036)	-0.1392 (0.1361)	-0.1578 (0.1722)	1.9777*** (0.2295)	
Male	-0.0491*** (0.0042)	-0.0438*** (0.0047)	-0.0489*** (0.0055)	-0.0604*** (0.0064)	-0.0481*** (0.0065)	-0.0458*** (0.0066)	-0.0614*** (0.0078)	-0.0562*** (0.0075)	-0.0423*** (0.0072)	-6.2777*** (0.3637)	-6.7943*** (0.4335)	-7.6067*** (0.4587)	
Limited English	0.1018*** (0.0067)	0.0532*** (0.0086)	-0.012 (0.0111)	0.148*** (0.0124)	0.0599*** (0.0137)	0.0262* (0.0143)	0.1373*** (0.0191)	0.0125 (0.0181)	0.0715*** (0.0177)	3.7477*** (0.7031)	6.3657*** (0.9099)	3.7702*** (1.0873)	
Age at Participation	-0.0046 (0.0002)	-0.005*** (0.0002)	-0.0048*** (0.0003)	-0.0068** (0.0003)	-0.0068** (0.0003)	-0.0057*** (0.0003)	-0.0082*** (0.0004)	-0.0077*** (0.0004)	-0.0061*** (0.0004)	-0.2901*** (0.0168)	-0.3005*** (0.0204)	-0.2881*** (0.0219)	
Edu: High School	0.0262*** (0.0063)	0.1241*** (0.0069)	0.0879*** (0.0082)	0.0431*** (0.0098)	0.1681*** (0.0097)	0.0909*** (0.0099)	0.0541*** (0.0124)	0.1936*** (0.0114)	0.0891*** (0.0112)	0.0909 (0.5219)	1.4121*** (0.6328)	2.9684*** (0.7017)	
Ed: Some College	0.0556*** (0.0063)	0.1492*** (0.0057)	0.1383*** (0.0091)	0.0838*** (0.0103)	0.2093*** (0.0087)	0.1457*** (0.0114)	0.1051*** (0.0136)	0.2479*** (0.0112)	0.15*** (0.0132)	8.2715*** (0.6237)	8.2566*** (0.7523)	10.0948*** (0.8262)	
Edu: Bachelor's deg	0.0007 (0.0105)	0.0946*** (0.0083)	0.0762*** (0.0138)	-0.0072 (0.0165)	0.1247 (0.0133)	0.0697*** (0.0172)	0.0097 (0.0198)	0.1625*** (0.0162)	0.0778*** (0.0189)	1.0014 (0.9397)	1.0309 (1.1302)	4.9399*** (1.1749)	
Edu: Grad School	-0.0385 (0.0198)	0.0589*** (0.0162)	0.0294 (0.0247)	-0.098** (0.0303)	0.0541** (0.0257)	-0.0207 (0.0301)	-0.102*** (0.0346)	0.0616 (0.0315)	-0.0251 (0.0326)	-6.1404*** (1.6397)	-7.0239*** (1.9391)	-5.6807*** (2.0274)	
Constant										74.566 (351,813.8)	31.620 (10.726)	25.841 (23.861)	
State control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Industry control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Ethnicity control	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Obs	39,362	42,453	42,905	26,257	28,846	28,962	21,370	23,818	24,118	Obs	42,906	28,964	24,196
Pseudo R2	0.3161	0.2981	0.1428	0.2456	0.2456	0.1257	0.2053	0.2196	0.1307	R-sq	0.1685	0.1572	0.1933
Marginal Effects	0.8411	0.7919	0.5583	0.7207	0.6787	0.4870	0.5960	0.5840	0.4301	Adj R-sq	0.1673	0.1553	0.1912

Table A3. Outcomes - MSA sample excluding seven large MSAs with long-run smoothing

	Reemployment Rate			Wage Replacement Rate		
	All Years	Excl. 2001-2	Post Reform	All Years	Excl. 2001-2	Post Reform
Unemp Increase	-0.0027** (0.0012)	0.0031 (0.0029)	-0.0142*** (0.0052)	-0.0034*** (0.0009)	0.004 (0.0030)	-0.0133** (0.0055)
Unemp Increase SQ	0.0000 (0.0000)	-0.0002 (0.0001)	0.0013** (0.0005)	0.0000 (0.0000)	-0.0003** (0.0001)	0.0005 (0.0005)
Unemp Dec	-0.0049** (0.0023)	-0.0043* (0.0025)	0.0035 (0.0035)	-0.0012 (0.0023)	-0.0031 (0.0026)	0.0171*** (0.0037)
Unemp Dec SQ	-0.0003** (0.0001)	-0.0003* (0.0002)	0.0001 (0.0003)	0.0000 (0.0001)	-0.0001 (0.0002)	0.0013*** (0.0003)
OCCtrain x Unemplnc	0.0013 (0.0013)	-0.004 (0.0033)	0.0077 (0.0061)	0.0006 (0.0010)	0.0003 (0.0033)	0.0111* (0.0063)
OCCtrain x UnemplncSQ	0.0000 (0.0000)	0.0002 (0.0002)	-0.001* (0.0006)	0.0000 (0.0000)	0.0002 (0.0002)	-0.0004 (0.0006)
OCCtrain x UnempDec	0.0041 (0.0026)	0.0029 (0.0028)	-0.0092* (0.0048)	-0.0014 (0.0026)	-0.0036 (0.0029)	-0.0185*** (0.0047)
OCCtrain x UnempDecSQ	0.0003* (0.0002)	0.0002 (0.0002)	-0.0005 (0.0003)	-0.0001 (0.0002)	-0.0002 (0.0002)	-0.0011*** (0.0003)
OCC train	0.036*** (0.0104)	0.0487*** (0.0125)	0.0246* (0.0143)	-0.0382*** (0.0093)	-0.0518*** (0.0117)	-0.0842*** (0.0144)
OJT	0.086*** (0.0131)	0.0878*** (0.0135)	0.1154*** (0.0135)	0.0223 (0.0156)	0.0163 (0.0171)	0.029 (0.0217)
Remedial training	-0.0089 (0.0075)	-0.0166* (0.0093)	-0.0189* (0.0103)	-0.0171** (0.0070)	-0.0177** (0.0086)	-0.009 (0.0098)
Customized training	0.0153 (0.0384)	0.0247 (0.0375)	-0.0324 (0.0453)	0.0246 (0.0376)	0.0364 (0.0389)	0.0176 (0.0403)
log Pre-participation Earnings	0.0392*** (0.0050)	0.0394*** (0.0057)	0.0304*** (0.0057)	-0.409*** (0.0050)	-0.408*** (0.0059)	-0.4026*** (0.0064)
MSA Total Unemployment	-0.0017 (0.0033)	-0.0053 (0.0040)	-0.0046 (0.0036)	0.0239*** (0.0030)	0.028*** (0.0037)	0.0242*** (0.0035)
Exit Year Unemployment Rate	-0.0011 (0.0018)	0.003 (0.0024)	-0.0025 (0.0029)	-0.0057*** (0.0017)	-0.001 (0.0022)	-0.0081*** (0.0029)
Age at Exit	-0.0077*** (0.0002)	-0.0075*** (0.0003)	-0.0077*** (0.0003)	-0.0035*** (0.0002)	-0.0034*** (0.0003)	-0.0034*** (0.0003)
Male	-0.0082* (0.0047)	0.0047 (0.0055)	0.0033 (0.0056)	0.0945*** (0.0043)	0.0997*** (0.0052)	0.1065*** (0.0056)
Limited English	-0.0089 (0.0088)	-0.0011 (0.0112)	0.0232* (0.0120)	-0.0118 (0.0084)	-0.0163 (0.0110)	-0.0139 (0.0131)
Edu_High School	0.0355*** (0.0065)	0.0398*** (0.0078)	0.0352*** (0.0083)	0.0205*** (0.0064)	0.0204** (0.0079)	0.0339*** (0.0088)
Edu_Some College	0.0338*** (0.0073)	0.0379*** (0.0087)	0.0357*** (0.0090)	0.0618*** (0.0075)	0.0633*** (0.0092)	0.0737*** (0.0103)
Edu_Bachelor's Deg	0.0075 (0.0114)	-0.0028 (0.0137)	0.0098 (0.0133)	0.1612*** (0.0112)	0.1594*** (0.0137)	0.1713*** (0.0145)
Edu_Grad School	0.032* (0.0184)	0.0329 (0.0214)	0.0428** (0.0198)	0.2155*** (0.0188)	0.2524*** (0.0226)	0.2462*** (0.0243)
Constant				4.5462*** (0.0706)	4.4204*** (0.1451)	4.4978*** (0.1023)
State control	YES	YES	YES	YES	YES	YES
Industry control	YES	YES	YES	YES	YES	YES
Ethnicity control	YES	YES	YES	YES	YES	YES
Obs	38,573	25,908	21,780	Obs 26,185	17,795	15,467
Pseudo R2	0.0649	0.0733	0.0778	R-sq 0.2687	0.2715	0.2620
Marginal Effects	0.8006	0.8089	0.8340	Adj R-sq 0.2668	0.2686	0.2587

## NOTES:

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<sup>i</sup> Current Employment Statistics, BLS

<sup>ii</sup> These were previously called the One Stop Career Centers.

<sup>iii</sup> WIA replaced the Job Training and Partnership Act in 1998. In 2014, the workforce Innovations and Opportunities Act replaced the WIA.

<sup>iv</sup> See more details on this in the section on estimation.

<sup>v</sup> As layoffs occur, a petition may be filed with the U.S. DOL by the firm, a group of workers, a union, a state, or a local unemployment agency. The DOL carries out an investigation and certifies the petition if the layoffs are caused by import competition. Once certified, all workers displaced between the certification date or the first day the layoffs began, whichever is earlier, and two years from the certification date are eligible for the TAA benefits. Eligible workers are individually notified by their state. Once a state receives a certification notice from the DOL about a plant, the state receives a list of eligible workers and informs them individually.

<sup>vi</sup> HITC are added to the TAA benefits by the Trade Adjustment Assistance Reform Act of 2002 (2002 Reform Act). An eligible TAA participant can receive an income tax credit of up to 65% of a payment for qualifying health insurance coverage during participation beginning in December 2002. The 2002 Reform Act also added Reemployment TAA (RTAA, formerly known as the Alternative TAA), a wage insurance program for workers of age 50 or above. For more details on HITC and RTAA, see Baicker and Rehavi (2004).

<sup>vii</sup> The current rules about available services and delivery procedures are laid out by the 2002 Reform Act. The American Recovery and Reinvestment Act of 2009 extended some of the benefits provided under the TAA.

<sup>viii</sup> WIA was replaced by the Workforce Innovation and Opportunity Act of 2014.

<sup>ix</sup> Possible reasons for issuance are expectation of recall by the previous employer, having marketable skills, having health issues, or the unavailability of training programs at the moment.

<sup>x</sup> You will find in the robustness section that our results are not driven by the 2002 Reform Act. The results are qualitatively the same when we perform our analysis on data after 2002.

<sup>xi</sup> Due to missing and invalid entries for some variables reported, the sample size varies across estimation specifications.

<sup>xii</sup> The Dolfin and Berk (2010) sample includes all workers who were eligible for TAA regardless of their actual participation status. We do not have access to the necessary information of the sample of all unemployed.

<sup>xiii</sup> DOL's goal for 2010 was to achieve 64.9% reemployment, 87.3% retention, and a \$13,319 6-month earning. The measured results were 58.2%, 79.7%, and \$14,487, respectively. Prior to 2007, the wage replacement goal was 80%, and the result was 89% in 2006 and 76% in 2005.

<sup>xiv</sup> We use MSAs as a unit of local labor market in the benchmark sample rather than counties due to the frequency of crossing county borders to work. MSAs generally represent a commutable area. Limiting the analysis to county-level could be too restrictive. Another reason is that the size of counties varies greatly while MSAs are reasonably

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uniform. We do present the results using the county sample as a robustness check in section V.3. We have 82,857 observations identified with a MSA, 114,525 identified with a county, and 34,418 identified with both.

<sup>xv</sup> Researchers have been concerned by the long-run trend smoothing methodology employed in the estimation of LAUS data. The concern is that it overly reduces the monthly volatilities in the estimates. In order to make sure our main results are not biased due to this over-smoothing, we carry out the same analysis using the MSA samples excluding the seven large MSAs estimated using the long-run smoothing methodology. The coefficients are very similar to those estimated using all MSA samples implying that our main finding is robust across long-run smoothing methodologies. More details on the limitations of LAUS data estimation and the results using the non-smoothed samples are presented in the appendix.

<sup>xvi</sup> All estimations will be carried out with the sample excluding the workers who participated in 2001 and 2002 to show these two years do not drive our main findings. See the section on robustness for more details.

<sup>xvii</sup> For instance, consider two MSAs, A and B, whose AJC receive an average of 100 workers. MSA A has 500,000 workers in the labor force and MSA B has 50,000. An additional 20 displaced workers will increase AJC workload by 20% in both places, and the staff at both A and B will face similar difficulties. However, these additional 20 displacement workers have different implications in terms of the unemployment rate.

<sup>xviii</sup> Multicollinearity between unemployment measures is minimal. The correlation of the change in the number of unemployed workers at participation and the unemployment rate at exit is only 0.0246. (The average participation duration for our MSA sample is 59.55 weeks. This is longer for trainees at 67 weeks.) The correlation between participation year and the exit year unemployment rates is 0.1674. The correlation between the number of unemployed workers and the change of this number over time is also only 0.0307.

<sup>xix</sup> We also carried out the analysis of service delivery changes using a quadratic model that is similar to Equation (2). The results are qualitatively the same. The results of these estimations are provided in the appendix.

<sup>xx</sup> *Some college* includes people with an associate degree or those who entered a 4-year college but have not completed it.

<sup>xxi</sup> The quarterly earnings are recorded for three quarters following the exit of the program. These earnings figures are simply total earnings during the calendar quarter. In the case of unemployment, it is reported as zero. In more problematic cases of partial employment or part-time employment, total earnings for the participant during the quarter are reported. Prior to participation, it is possible that the participant was already displaced and found a temporary position with lower pay between displacement and participation. In this case, the earnings reported do not represent the earnings at the job that was certified for TAA benefits; wage replacement calculated with these figures would be misleading. In order to reduce the measurement error caused by this, we take two steps. First, we drop any earnings figures below \$2,000 or above \$50,000. The \$2,000 cutoff is roughly the quarterly earnings from full time employment at minimum wage of \$5.15. (The federal minimum wage was \$5.15 from September 1st 1997 to July 23, 2007; \$5.85 from Jul 24, 2007 to Jul 23, 2008; \$6.55 from Jul 24, 2008 to Jul 23, 2009; and \$7.25 since Jul 24, 2009 to present. Our sample period including three quarters of observations before and after participation is from 1997Q2 to 2009Q1.) \$50,000 is an arbitrary cut-off used to reduce errors caused by misreported figures. Most TAA eligible workers are low-skilled manufacturing workers. Annual earnings of \$200,000 are not only unlikely, but also not of our interest since these cases are certainly outliers even if they are not misreported figures. Second, we use the maximum value of the (up to three) available and valid (between \$2,000 and \$50,000) quarterly earnings to capture the legitimate employment both prior to participation and after the exit.



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<sup>xxii</sup> We focus on the occupational skills training for two reasons. First, training is the most important benefit of the TAA program and approximately 90% of trainees choose occupational skills training. Second, occupational skills training show the most drastic change during the period of high unemployment growth.

<sup>xxiii</sup> Using the dummy specification on estimations for wage replacement shows bigger drops in wages with smaller increases of local unemployment. Wage replacement drops with increases in unemployment growth. Decreases in unemployment are mostly insignificant. These results are in the appendix.

<sup>xxiv</sup> Again, the dummy specification for these results is in the appendix.

<sup>xxv</sup> This positive impact of occupational skills training during the period of rising unemployment is not driven by the rise in the quality of trainees. Previous earnings, ethnicity, sex and education are virtually identical in the sample that receives training when local unemployment increases by 5% or more compared to the other trainees.

<sup>xxvi</sup> The negative sign could be the same selection issue as in the case of occupational skills training. Participants who are likely to have a harder time finding employment enroll in training and thus stay in the program for a longer period.

<sup>xxvii</sup> 10-15% and 15-25% increases in unemployment raises the occupational skills training enrollment by 28.8 and 38.5 percentage points, respectively. The main sample showed 15.5 and 15.6 percentage point increases in Table 5.

<sup>xxviii</sup> We lose a lot of significance because some counties are incredibly small. We reran these estimates with counties no smaller than our smallest MSA and the results are essentially the same as the main results from the MSA sample.

<sup>xxix</sup> Authors' calculation considering a dummy for unemployment increases beyond 5% interacted with obtaining occupational training in these cases.

<sup>xxx</sup> LAUS uses Henderson 13 filter for longitudinal smoothing.