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Employment Impacts of Globalization

(The Impact of Service Offshoring on Displaced Workers Post-displacement Outcomes)

Final Version
May 15, 2010

Department of Labor Solicitation # DOL089RP20567

(Order # DOLB089K27942; Requisition # 121-089K-45)

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I. Introduction

The employment effects of service trade is a topic of significant importance, especially in light of the recent rise in services offshore outsourcing to low-wage destinations such as India and China. In this paper, I study the impact of service trade, separating the effects of service imports (offshore outsourcing) from those of service exports, on the unemployment duration and the re-employment wages of workers dislocated from the service sector of the U.S. economy.[1,2] Investigating these outcomes provides implications for policies that deal with displaced workers' transitions from unemployment back to work. Further, analyzing jobless spell duration and re-

[1] Outsourcing is typically considered to be purchasing of (contracting out) services from an external (to the firm) provider, which can be, but does not have to be, located outside the U.S. Offshoring is considered to be purchasing of services from a supplier operating outside the U.S., but it can be from an external (to the firm) provider, or from within the firm (in the case of multinationals). Offshore outsourcing occurs when firms purchase services from an external (to the firm) supplier operating outside the U.S. Offshore outsourcing (international service transactions between unaffiliated parties) is the type of international trade I consider in this paper. I will use service imports (into the U.S.) and offshore outsourcing (of services by U.S. firms) synonymously in the rest of the paper.

[2] As I discuss later, the sample of displaced service workers I consider consists of individuals who are on average more educated, earn higher wages, and have slightly longer tenure on the lost job than the average worker displaced from the U.S. service industry. Note, however, that the sample is quite diverse, including workers with no high school education as well as workers with advanced degrees.

employment wages also sheds light on the issue of transferability of skills used by U.S. workers as they switch industries and occupations in the face of international trade shocks. In particular, recent work by Kandilov (2009), as well as Kambourov and Manovskii (2008a and 2008b), shows evidence that U.S. manufacturing workers possess industry and occupation specific human capital that is lost in the job transition from one to industry (occupation) to another.

The infant empirical literature on services offshore outsourcing includes work on measurement issues (Lipsey 2006, Houseman 2007), classification of service activities as tradable and at risk of offshoring (Jensen and Kletzer 2006, 2008), as well as evaluation of the impact of trade in services on labor markets in the U.S. (Liu and Trefler, 2008; Amiti and Wei, 2010). Liu and Trefler (2008) use Current Population Survey (CPS) data from 1996 to 2006 to examine the impacts of offshore outsourcing of services to China and India on occupational and industry switching, weeks unemployed as a share of weeks in the labor force, and earnings for workers in the U.S. service sector. Taking into account both imports and exports of services, they find a very small, positive impact of services trade on labor market outcomes. This paper complements the work by Liu and Trefler (2008) as well as Jensen and Kletzer (2006, 2008) and in the spirit of Kandilov (2009) employs data from the Displaced Workers Supplement (DWS) to the CPS to consider the impact of service offshore outsourcing on the labor market transition of dislocated service sector workers – a population that has been previously understudied.[3] The two

[3] Kandilov (2009) and Kletzer (2004a, 2006b) have examined displaced *manufacturing* workers, who may be eligible for Trade Adjustment Assistance, and the impact of trade on their labor market transitions. Liu and Trefler (2008) do not use the DWS, but rather use the regular March edition of the CPS. As such, they do not have information on dislocated workers post-

most important post-displacement outcomes for this population of workers are the unemployment duration and the re-employment wage. Identifying the effects of services offshore outsourcing on these two outcomes provides a much deeper understanding of how international trade shapes labor market transitions for service-sector workers in the U.S. This line of research may be also useful in formulating policies related to transitional unemployment of dislocated service sector workers.

In this paper, I employ data on displaced workers and U.S. trade in services from 1986 to 2007, which significantly extends the time span of many previous empirical analysis of the impact of service trade on U.S. workers – see, for example, Liu and Trefler (2008), who use CPS data from 1996 to 2006.[4] This is a significant advantage because, unlike previous work, my sample includes periods of very low services trade activity (late 1980's) and episodes of much higher services offshore outsourcing (2002-2005). The extended time dimension in my analysis helps significantly with the identification of the impacts of trade in services on labor market transition of U.S. service-sector workers.

While I cannot find any statistically significant impact of either service exports or imports on unemployment duration, the estimates indicate that total trade in services, as well as service trade with India and China, does affect post-displacement earnings. In particular, the

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displacement outcomes. To my knowledge, Jensen and Kletzer (2006, 2008) are the only other studies that have considered displaced service workers.

[4] The DWS, just as the CPS, does not provide panel data on displaced individuals. Rather, each respondent who has experienced job displacement 3 (or 5) years prior to the DWS interview is surveyed only once. Information on pre-displacement wages and unemployment duration is collected retrospectively at the time of the survey.

results suggest that service imports in the industry of displacement from India and China are associated with a decrease in re-employment wages. The results further suggest that the negative impact is also more pronounced for workers with lower levels of education.

II. Literature Review

This paper links the empirical literature on service offshoring with the empirical literature on displaced workers' post-displacement outcomes. The impact of service offshoring on the U.S. labor market is a topic of significant importance, especially in light of the recent rise in service offshoring to low-wage destinations such as India and China. The empirical literature on service offshore outsourcing includes work on measurement and classification of service activities as tradable and at risk of offshoring (Jensen and Kletzer, 2006 and 2008; Moncarz, Wolf, and Wright, 2008), as well as evaluation of the impact of trade in services on labor markets in the U.S. (Liu and Trefler, 2008; Crino, 2008; Amiti and Wei, 2010).[5] There also exists empirical literature on the impact of international trade on displaced *manufacturing* workers post-

[5] Other recent contributions to the service offshore outsourcing debate include Amiti and Wei (2004), Samuelson (2004), Bhagwati, Panagariya, and Srinivasan (2004), Brainard and Litan (2004), Blinder (2006, 2007), Mankiw and Swagel (2006), Lipsey (2006), and Houseman (2007). Antras and Helpman (2004) is a recent theoretical contribution. In the text above, I describe in more detail a number of recent empirical contributions that are most relevant for and closely related to the topic of this paper, which investigates the impact of offshoring on displaced workers post-displacement outcomes.

displacement outcomes. In particular, studies relating unemployment duration and re-employment wages of displaced manufacturing workers to industry of displacement import competition, overall and from low-wage, developing countries includes work by Addison et al. (1995), Kletzer (2001), Kletzer (2002), and Kandilov (2009). I first discuss the literature on measurement of service offshoring and its impact on U.S. labor markets.

Jensen and Kletzer (2006) contribute to both the literature on measurement of offshoring and its impacts on labor markets in the U.S. The authors develop an innovative approach to identifying manufacturing and service activities that are potentially tradable internationally (offshorable). To accomplish this, they classify activities based on a measure of their geographic concentration in the U.S. – a Gini coefficient of geographic concentration. Domestic geographic concentration reveals which activities are tradable domestically and therefore potentially tradable internationally. To compute the geographic Gini coefficient, Jensen and Kletzer use the 2000 Decennial Census of Population Public Use Micro Sample (PUMS) individual-level data. Employing their measure of offshorable activities (the geographic Gini coefficient), Jensen and Kletzer estimate that about 39 percent of all workers in the U.S. economy are employed in industries classified as tradable. They further compare demographic characteristics and job displacement outcomes of workers in tradable vs. nontradable activities, and also evaluate the differences in employment growth between tradable and nontradable industries. Using data on individual characteristics from the PUMS, they find that workers in tradable industries possess higher skills (education) and have about 7 percent higher wages. Tradable industries are shown to have lower employment growth rates, but these results are mostly driven by the manufacturing sector. Within services, tradable and non-tradable activities appear to have similar growth rates, except for tradable activities with very low-skill intensity, for which employment growth is

actually lower than the employment growth for non-tradable low-skill intensity activities. Finally, Jensen and Kletzer use the 2004 Displaced Worker Supplement (DWS) to the Current Population Survey (CPS), which supplies them with data on displaced workers from 2001 to 2003, to show that workers in industries that are potentially tradable internationally experienced about 7.7 percentage point higher rate of job loss.

Continuing the tradition of Jensen and Kletzer (2006), Jensen and Kletzer (2008) introduce another new measure of offshorability (exposure to international trade). They develop the measure of tradability because the old one based on U.S. geographic concentration of the activity may be problematic in some cases.[6] Their new approach provides additional information for classifying activities as tradable and it is based on measuring occupational tasks, activities and characteristics, such as high information content, remote from customer, internet-enabled, that are associated with offshorability. Using detailed information on the content and context of jobs from the publicly available O*Net database, a database of 450 occupations available from the U.S. Department of Labor, Jensen and Kletzer (2008) develop the job task content measure of tradablility. The authors find that there is substantial overlap between the two measures of offshorability – the geographic concentration measure they developed in their earlier work and the job task content measure. They compute that 43.8 percent of overall service sector employment is potentially tradable. Using data from 2001 to 2005 from DWS (2004, 2006), Jensen and Kletzer also show evidence that job displacement rates are higher for tradable service sector occupations, whose labor force is more educated and commands higher pre-displacement earnings. Re-employment rates are estimated to be higher for tradable, rather than for

[6] For example, if an activity is tradable but not characterized by increasing returns, it may not be geographically concentrated (see Jensen and Kletzer, 2008).

nontradable, services. Finally, Jensen and Kletzer (2008) also document that workers displaced from tradable service industries face larger earnings losses upon reemployment than workers displaced from nontradable service industries.

Moncarz, Wolf, and Wright's (2008) analysis uses the BLS offshoring scoring system to identify 160 service-providing occupations that are susceptible to offshoring. The BLS offshoring system identifies characteristics that make an occupation susceptible to being offshored and ranks occupations by level of susceptibility. These characteristics are quite diverse and do not depend only on geography (e.g. they incorporate the degree to which the work can be routinized or handled by following a script). The authors report that these occupations are heterogeneous in their job functions, average educational attainment, and wages.

Liu and Trefler (2008) estimate the impact of offshore outsourcing from low-wage trading partners (India and China) on labor market outcomes for workers in the service sector in the U.S. As their measure of outsourcing, the authors use Bureau of Economic Analysis (BEA) data on actual (realized) international transactions between U.S. firms and foreign unaffiliated parties between 1995 and 2005, and as such they do not consider offshoring within multinational firms. Liu and Trefler's approach is much different than that of Jensen and Kletzer, who do not use actual service trade flows as a measure of outsourcing, but rather construct one based on geographic concentration of occupations. Liu and Trefler (2008) estimate the impact of what they term "inshoring" – the sale of services produced in the U.S. to unaffiliated parties in low-wage countries (India and China). They consider four different labor market outcomes: (1) industry switching, (2) occupational switching, (3) annual changes in weeks spent unemployed as a share of total weeks in the labor force, (4) changes in earnings. Positive impacts of offshore outsourcing on the first two outcomes imply that offshore outsourcing increases job insecurity,

an important consideration, especially if workers possess industry specific or occupation specific human capital that is destroyed with changes in industry or occupation (Kambourov and Manovskii, 2008a, 2008b). Individual labor market data is obtained from the March Current Population Survey (CPS) from 1996 to 2006. The authors match workers' industry and occupation from the labor market data in the CPS to the offshore outsourcing BEA data via industry and occupation mapping as in van Welsum and Vickery (2005) and van Welsum and Reif (2006b). Liu and Trefler (2008) estimate that both inshoring and offshoring have had very modest impacts on all of the four labor market outcomes they consider. For example, workers in service industries with higher trade (both inshoring and offshoring) have experienced about 1.5 percent increase in wages between 1996 and 2005 years. They also find that the overall effect of trade in services is somewhat worse for those without a college degree, or those employed in a low-skill, white-collar job. The overarching theme of their analysis is that the net effect of inshoring and offshoring of services on labor markets in the U.S. is negligible.

Amiti and Wei (2010) estimate the impact of offshoring on employment in U.S. manufacturing industries between 1992 and 2000. Using disaggregate data (450 manufacturing industries), they find a small negative effect (less than half of a percent) of service offshoring on employment. This negative impact entirely disappears when more aggregated data (96 manufacturing industries) is used instead, implying that there really is no net job loss from service offshoring in the U.S.

Crino (2008) estimates the changes in labor demand in the U.S. between 1997 and 2002 in response to increased service offshoring. The author employs data on wages and employment for a panel of manufacturing industries (144 industries in total) and uses the BEA data on imported services (as a share of total non-energy input purchases) by industry as in Amiti and

Wei (2005).[7] He further uses the Occupational Employment Statistics (OES) of the Bureau of Labor Statistics (BLS) to consider the impact of offshoring along both the industry and occupation dimensions.[8] The results show that service offshoring is skill-biased as it raises the relative demand for high-skilled occupations in the U.S. Crino (2008) concludes then that service offshoring may, in fact, motivate human capital accumulation, as oppose to discourage.

Last, I briefly discuss the existing literature relating displaced *manufacturing* workers' post-displacement outcomes to international trade. Previous work in this area includes the studies by Addison et al. (1995), Kletzer (2001), Kletzer (2002), and Kandilov (2009). Addison et al. (1995) use descriptive statistics and sample correlations from the 1988 DWS to conclude that industry trade sensitivity, defined as the import penetration rate, is weakly associated with re-employment earnings but it does not affect the jobless spell duration. Kletzer (2001) uses data from nine DWS's (1979-1999) and defines import competition as a time-invariant indicator based on the industry change in import penetration over the period 1979-1994. She finds that workers displaced from manufacturing industries with high import competition face lower re-employment probabilities and somewhat lower re-employment wages, but the effects are economically small and statistically insignificant when worker characteristics are included in the regression.[9] Using the same data, Kletzer (2002) uses a time-varying measure of import

[7] He estimates the fraction of imported services for each industry by attributing a share of the economy-wade level of service imports. Note also that unlike Liu and Trefler (2008), Crino uses both affiliated and unaffiliated parties service import data.

[8] The data OES data is combined with the proxy for service offshoring at the industry level.

[9] Kletzer (2001) identifies high import competing industries as those ranking in the top quartile of the distribution of changes in import penetration over the period 1979-1994.

penetration and distinguishes between imports from developed and developing countries. She relates these two import competition measures to industry employment growth and job displacement rates. Her results indicate that rising import penetration, overall or from developing countries, is associated with higher displacement rates, but the coefficients are small and estimated imprecisely. Rising import penetration, on the other hand, is statistically significantly associated with employment decline, and the negative impact of imports from developing countries is estimated to be larger.

Kandilov (2009) also uses the individual-level data from the DWS and international trade flows to extend the previous work by Addison et al. (1995), Kletzer (2001), and Kletzer (2002). He broadens the empirical analysis by using an additional Displaced Worker Supplement, which provides him with data on displaced workers from 1979 to 2001, and by employing *within* industry variation in import penetration from *both* developed and developing countries to assess its impact on *both* unemployment duration and re-employment wages. Building upon Addison et al. (1995), Kletzer (2001), and Kletzer (2002), not only does Kandilov(2009) employ within industry variation in the import penetration, but he additionally includes industry, state, and personal characteristics specific (e.g. gender specific) time trends to control for any pre-existing trends. In contrast to much of the previous work, he uncovers economically and statistically significant effects of import penetration from low-wage countries on displaced workers' post-displacement outcomes. Last, Kandilov (2009) provides novel evidence that import penetration from low-wage, developing countries affects workers displaced from industries with shorter quality ladders much more adversely than it affects workers displaced from industries with

longer ladders.[10] This large degree of heterogeneity in the impact of imports from low-wage countries may explain why previous work ha found small and imprecisely estimated effects.

III. Data

To evaluate the impacts of increased services offshore outsourcing on displaced workers' unemployment duration and re-employment wages, I use two key datasets. The first dataset is the only large-scale and nationally representative survey of displaced workers – the Displaced Workers' Supplement (DWS), a biennial supplement to the January or February Current Population Survey (CPS), administered by the Census Bureau on behalf of the Bureau of Labor Statistics (BLS).[11] The first DWS was instituted in January of 1984, and I use all the surveys from 1986 through year 2008, which supplies data on displaced workers from 1986 to 2007. DWS is intended for all workers who have been displaced from their jobs at least once in the 3 (or 5) years prior to the survey. Some of the workers qualified to take the survey are still displaced at the time of the interview, although the majority (about 80 percent) have been re-employed. The DWS is intended for all workers who have been involuntarily displaced from their jobs in the 3 (or 5) years prior to the survey. Workers can be displaced due to 6 different reasons: (1) establishment closed, (2) insufficient work, (3) position abolished, (4) seasonal job ended, (5) self-employed business failed, and (6) other reasons. Prior to the 1994 DWS, information on old and new employment, including duration of unemployment, was collected

[10] An industry "quality ladder" is the industry's scope for product quality differentiation (see Khandelwal (2010), forthcoming).

[11] The Displaced Workers Supplements to the Current Population Survey are available on-line, among other places, on the NBER data page at *http://www.nber.org*.

from workers displaced for any of these six reasons. Many economists consider workers displaced for any of the six reasons to be involuntarily displaced (see Farber, 1998). Using data from debriefing of respondents to the 1996 DWS, Farber (1998) concludes that a little over 25 percent of workers displaced for "other reasons" can be classified as involuntarily displaced. Starting with the 1994 DWS, information on old and new employment, including duration of unemployment, was collected for workers displaced for reasons (1), (2), or (3), but not (4), (5), or (6). I consider all displaced workers involuntarily displaced, and note that less than 3 percent of workers in my sample are displaced for "other reasons".

While each CPS respondent (household) is surveyed 8 times in the span of 16 months, they can potentially participate in the DWS only once since the DWS is administered only once every two years. Information on the displacement episode (such as pre-displacement wage, industry, occupation, and unemployment duration) is collected retrospectively at the time of the survey. In addition to personal characteristics found in the regular monthly CPS, DWS collects information on both old and new employment for displaced workers – previous and current wages, hours, current industry, industry of displacement, reason for displacement, occupation, and duration of unemployment, among other things.[12]

Unemployment duration data in the 1992 DWS and earlier years were top-coded at 99 weeks. After 1992, duration was top-coded at 168 weeks, but this is not binding for the

[12] Note that the current wage may not necessarily be the re-employment wage that immediately followed the jobless spell. Some workers may have experienced other spells of unemployment between the one for which they report information and the date of the DWS interview. Workers are asked to report wage and duration information for only one previous displacement episode even if they experienced more than one.

subsample of service workers I use, as the longest reported duration is my subsample is 158 weeks (nearly 3 years), and the second longest is 132 weeks. Also, while the CPS does not track movers, the DWS includes a question asking the respondents if they have moved and if the move occurred to take a job elsewhere.

The second key data source is the Bureau of Economic Analysis (BEA), which supplies information on U.S. cross-border trade in services. Such international trade data for a number of private business services between unaffiliated parties is available from 1986 to 2007 for more than 30 partners, including both high- and low-income countries. BEA collects disaggregated trade data for a number of different types of services including Financial, Insurance, Telecommunication, Advertising, Research and Development, Management Consulting, Computer, Legal, and Construction services. Note that data is only available for these 10 service industries, so the estimates presented later apply to those industries alone.

Combining the two dataset outlined above – the Displaced Worker Survey and the BEA data on cross-border trade in services between unaffiliated parties – enables me to assess the impact of service imports (offshore outsourcing) and service exports (inshoring) in the worker's industry of displacement on the unemployment duration and the re-employment earnings. Because the BEA data on service trade starts from 1986, and the DWS data ends in 2007, the effective time period for my investigation is the 22 years from 1986 to 2007. Merging the two data sets is not trivial, as they use different industry and occupation classifications. The DWS data, for example, classifies workers' industries either according to the Standard Industrial Classification (SIC) (before 2002), or according to the North American Industrial Classification System (after 2002), while the BEA data does not strictly use those classifications. This, however, is not a major hurdle as a number of authors have already developed reliable

concordances for these classifications (see, for example, Liu and Trefler 2008, van Welsum and Reif 2006*a*, 2006*b*, 2006*c*, 2006*d*, van Welsum and Vickery 2005). Based on these classifications (in particular, Table A.2 in Liu and Trefler 2008), I connect the BEA's data on international trade in services to specific industries (or occupations) in the DWS. Subsequently, I investigate how the changes (over time and within industry (or occupation)) in service offshoring affect displaced service workers' unemployment duration and their re-employment wages.

IV. Econometric Strategy

IV.1 Unemployment Duration

Not all of the displaced workers have completed their jobless spells at the time of the survey, and so about one fifth of the jobless spells are right-censored.[13] To deal with the right-censored unemployment duration observations in the DWS data, I employ maximum likelihood (ML). Because the probability of finding a job (i.e. the hazard of leaving the unemployment pool) generally declines with the jobless spell duration, I specify a Weibull model for the data on unemployment spells.[14] More formally, I estimate a Weibull model maximizing the following log-likelihood function:

[13] Another source of right-censoring in the data for which I accommodate by using maximum likelihood is the top-coding of durations in the 1992 DWS and earlier years at 99 weeks.

[14] Typically, the probability of finding employment (the hazard of leaving the unemployment pool) on the first day of the jobless spell is higher than the probability of finding employment on the 100th day of the spell. The Weibull model accommodates for that by allowing the hazard to change (decline) monotonically over the course of the unemployment spell.

$$\log L = \sum_{i=1}^{N} \{d_i \log[f(t_i \mid \boldsymbol{Z_i}, \boldsymbol{\eta})] + (1 - d_i) \log[1 - F(t_i \mid \boldsymbol{Z_i}, \boldsymbol{\eta})]\} \qquad (1),$$

where the Weibull distribution has the following conditional density

$$f(t_i \mid \boldsymbol{Z_i}, \boldsymbol{\eta}) = \exp(\boldsymbol{Z_i}, \boldsymbol{\eta}) \varphi t_i^{\varphi - 1} \exp[-\exp(\boldsymbol{Z_i}, \boldsymbol{\eta}) t_i^{\varphi}] \qquad (2),$$

and d_i is a censoring indicator equal to unity if the unemployment duration of displaced worker i is uncensored, and N is the number of displaced workers included in the analysis. The vector of parameters to be estimated is $\boldsymbol{\eta}$, and $\boldsymbol{Z}_i$ is a matrix of covariates. The Weibull hazard (of leaving the unemployment pool) at time, or unemployment duration, t, is given by

$$\phi(t, \boldsymbol{Z_i}, \boldsymbol{\eta}) = \exp(\boldsymbol{Z_i}, \boldsymbol{\eta}) \varphi t^{\varphi - 1} \qquad (3).$$

It captures a monotonically increasing or monotonically decreasing (in unemployment duration) hazard – if $\varphi > 1$, the hazard exhibits positive duration dependence, and if $\varphi < 1$, it exhibits negative duration dependence. This specification accommodates for the negative duration dependence visually found in the data. When presenting the results, I employ the accelerated failure time (AFT) representation, which allows the interpretation of the estimated coefficients as semi-elasticities of the expected unemployment duration with respect to a given covariate in $\boldsymbol{Z}_i$.[15]

The matrix of covariates, $\boldsymbol{Z}_i$, can be written as

$$\boldsymbol{Z_i} = [\boldsymbol{X}_{ikjst} \mid Tenure_{ikjts} \mid ln(w_{ikjst}^{pre\text{-}displacement}) \mid U_{st}^{RATE} \mid ServiceImports_{jt} \mid ServiceExports_{jt} \mid \delta_k \mid \lambda_j \mid \sigma_s \mid o_i \mid \tau_t] \qquad (4),$$

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[15] When I present one of the robustness checks in the Appendix, I also employ the hazard rate representation of the Weibull model.

which includes $\boldsymbol{X}_{ikjst}$ – a vector of personal characteristics for individual *i*, surveyed in year *k* (*k* = 1986, 1986, …, 2008) displaced from sector *j* in year *t* (*t* = 1986, 1980, …, 2007) and residing in state *s*. Personal characteristics included are education, current age, current age squared, and dummies for race, gender, marital status, metropolitan area residence status, and Hispanic origin. I use six education categories – no high school, high-school dropout, high-school graduate, some college, college graduate, and advanced degree. The omitted category is high-school graduate. I also include the worker's lost job tenure, $Tenure_{ikjts}$, and the logarithm of the pre-displacement wage, $ln(w_{ikjst}^{pre\text{-}displacement})$, as additional covariates. The state (of residence) unemployment rate at the time of displacement, U_{st}^{RATE}, is included as a proxy for the local labor market condition, which affects the likelihood of re-employment. To control for time-invariant state of residence characteristics, $\boldsymbol{Z}_i$ includes state of residence dummies, σ_s. Year of displacement and year of the survey dummies, τ_t and δ_k, are added to absorb annual economy-wide shocks in the year of displacement and year of the survey. I include two trade measures – imports, $ServiceImports_{jt}$, and exports, $ServiceExports_{jt}$, in industry *j* and year *t*. In many of the specifications, I additionally include service imports, $ServiceImports_{jt}^{India+China}$, and exports, $ServiceImports_{jt}^{India+China}$, from China and India specifically. Finally, $\boldsymbol{Z}_i$ also includes dummies for industry of displacement, λ_j, and pre-displacement occupation, o_i.

To check for robustness, I also estimate the Weibull model including industry-specific education dummies or industry-specific time trends. Further, to relax the Weibull hazard assumption, I estimate a model with a very flexible hazard specification. To this end, I specify a piecewise-constant proportional hazard, i.e. we allow for period-specific (for each two-week

period during a spell of unemployment) baseline hazard rate (for details see Wooldridge, 2002, pp. 706-710). For inference, I calculate robust standard errors clustered by industry of displacement.[16]

Unlike the re-employment wage, the jobless spell duration is observed for all displaced workers, those re-employed and those still looking for a job at the date of the interview. For the latter group, I only observe interrupted (right-censored) spells, which were accommodated in the likelihood function. Hence, problems associated with selection based on worker's re-employment status do not arise in the analysis of unemployment duration.

IV.2 Re-employment Wage

Equation (5) below estimates the impact of service trade in the industry of displacement on the worker's post-displacement wage:

$$ln(w_{ikjst}^{re-employment}) = \boldsymbol{X}_{ikjst}\boldsymbol{\beta}_1' + \beta_2 Tenure_{ikjts} + \beta_3 ln(w_{ikjst}^{pre\text{-}displacement}) + \beta_4 U_{st}^{RATE} + \beta_5 ServiceImports_{jt}^{\text{Overall}} +$$

$$+ \beta_6 ServiceExports_{jt}^{\text{Overall}} + \delta_k + \lambda_j + \sigma_s + o_i + \tau_t + \varepsilon_{ikjst} \qquad (5),$$

where $ln(w_{ikjst}^{re-employment})$ is the logarithm of the weekly re-employment wage for an individual i surveyed in year k, displaced from a service industry j in year t, and residing in state s; $\boldsymbol{X}_{ikjst}$ is a vector of personal characteristics, which, as before, includes education, current age and current age squared included to proxy for experience, and dummies for race, gender, marital status, metropolitan area residence status, and Hispanic origin. Also, as in the unemployment duration model, I include the worker's lost job tenure, $Tenure_{ikjts}$, the logarithm of the pre-

[16] Note that this can accommodate any pattern of serial correlation within industry over time.

displacement wage, $ln(w_{ikjst}^{pre\text{-}displacement})$, and state (of residence) unemployment rate in the year of displacement, U_{st}^{RATE}, as additional covariates in the re-employment regression equation (5). Trade measures include both imports, $ServiceImports_{jt}$, and exports, $ServiceExports_{jt}$, in industry j and year t. Further, regression equation (5) includes fixed effects for industry of displacement, λ_j, state of residence, σ_s, and pre-displacement occupation, o_i, fixed effects. This implies that identification of the effects of trade on the re-employment wage comes from within-industry variation in trade. Year of displacement and year of the survey dummies, τ_t and δ_k, absorb annual economy-wide shocks in the year of displacement and year of the survey. Finally, to investigate if service imports and exports from India and China specifically have had any impact on the unemployment duration and the re-employment wage, I use two additional measures of trade in services, $ServiceImports_{jt}^{India+China}$ and $ServiceExports_{jt}^{India+China}$, which only incorporate imports and exports from India and China.

Some displaced workers are still unemployed at the date of the survey, and consequently, I do not have information on their re-employment wage. As a result, I estimate the re-employment wage equation (5) for those who are employed at the time of the interview, but I also show that the censoring and the potential selection problem do not affect the results much. Note that I include both year of the survey and year of displacement dummies in the re-employment wage equation (5). Because they control for the length of time between the date of the survey and the date of displacement, which is intrinsically associated with the re-employment censoring mechanism, these dummies alleviate selection concerns.[17] In addition to estimating

[17] The difference between the year of the survey and the year of displacement is the length of the period (in years) since displacement, which is associated with the censoring mechanism as those

equation (5) by Ordinary Least Squares (OLS), in the Appendix, I also employ the Heckman (two-step) correction procedure (Heckman, 1979) that delivers consistent estimates in the presence of selection. To satisfy the exclusion restriction requirement in the Heckman procedure, I follow Addison and Portugal (1989) and drop the year of displacement dummies from the re-employment wage equation, but use them in the probit equation to predict the likelihood of re-employment by the date of the survey. Additionally, I include dummies for reasons for displacement as explanatory variables in the first stage probit equation, but I exclude them from the second stage (the re-employment wage equation)[18]. Given the difficulty of finding a good exclusion restriction, however, the Heckman model estimates should be interpreted with caution. Nonetheless, the results from this correction procedure are similar to the results from equation (5) using displaced workers who are employed at the date of the survey.

In another check for robustness, I also estimate regression equation (5) additionally including industry-specific education dummies or industry-specific time trends. In the first case,

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who were more recently displaced would have had less time to locate a job by the time of the DWS interview.

[18] I have also estimated the Heckman model using year of displacement dummies in both the probit and the re-employment wage equation, with only "reasons for displacement" dummies used as additional explanatory variables (exclusion restriction) in the first stage probit equation. Reasons for displacement may plausibly affect the probability of re-employment at the time of the interview, but they should not affect the re-employment wage rate. The results with this alternative Heckman specification are nearly identical to the Heckman model results reported in the Appendix.

this allows returns to education to vary across service industries for which trade data is available. In the latter case, identification of the impact of trade on the re-employment wage comes from within industry deviations in trade from the industry-specific time trend. Finally, I also estimate a restricted version of regression equation (5), in which I impose the restriction $\beta_3 = 1$. I then collect the wage terms on the left-hand side and the dependent variable becomes $ln(w_{ikjst}^{re-employment} / w_{ikjst}^{pre-displacement})$. All other terms on the right-hand side are the same as in equation (5).

V. Results

Before I discuss the results from the econometric specifications, consider the raw data on service trade and the summary statistics of the workers displaced from the service industries in the sample. Panels A and B of Table 1 report the temporal evolution of service export and imports in the industries with available trade data over the last 20 years. The statistics reveal that total service exports from the U.S. have increase five fold over the last 20 years. Similarly, the numbers suggest that the U.S. imports of services have risen about 4.5 times their original levels in 1986. Note that up to date, the U.S. has always been a net exporter of services.

Another striking statistic evident from Panel A of Table 1 is the increase in both exports and imports of services to China and India – the numbers imply that both trade flows have increased more than 30 times over the last 20 years. In comparison, U.S. trade with G-8 nations has increased about 10 times in the same period. Panel B presents the temporal evolution of U.S. service trade by industry – it shows that while there is some heterogeneity across industries, the growth in overall service trade and service trade with China and India is quite robust. In

particular, note that the largest increase in service trade between the U.S. and China and India is in Computer and data processing services.

Panels A and B of Table 2 detail the DWS (1988-2008) summary statistics for workers displaced from all service industries, those displaced from the service industries with available trade data, and workers in service industries with trade data for whom information on unemployment duration and re-employment wages is provided. I consider workers between the ages of 21 and 65 at displaced, who were displaced from a full-time job from a service industry between 1986 and 2007. For each of the three subsamples of displaced workers, I report the mean and the standard deviations for workers who are re-employment (and for whom re-employment wages are observed) and for the whole subsample, which includes those who are still unemployed at the date of the DWS interview. First, focus on Panel A of Table 2. The two subsamples of displaced workers in this panel (all services workers vs. those in industries with available trade data) differ in important ways. Workers in the subsample with available trade data earn more than the average service worker, both in terms of their displacement and re-employment wages ($1,003.86 vs. $725.44 and $820.18 vs. $618.83, respectively). Also, workers in industries with available trade data are more highly educated – for example, about 45 percent of workers in that subsample have a college education, whereas only about 29 percent do in the overall service industry subsample. Workers in the former sample are also more likely to be female, live in a metropolitan area, and have longer lost job tenure (by about 0.3 years). This is not surprising, given that industries for which trade data is available tend to be more high-skill intensive such as Legal, Financial, and Insurance services. Note that in both subsamples in Panel A of Table 2 about 80 percent of all displaced workers are re-employed at the time of the survey.

Panel B of Table 2 reports the summary statistics for the two subsamples used in the unemployment duration model and in the re-employment wage regression – these are workers displaced form the service industries with available trade data for whom information on unemployment duration and re-employment wages are reported. Naturally, some of the displaced workers are still unemployed at the date of the survey and re-employment wage data for them is not available, which is why the number of observations in the jobless spell duration model is larger than the number of observations in the re-employment wage regression. The characteristics of two subsamples in Panel B of Table 2 are not very different at all and they are also quite similar to the characteristics of subsample of all workers in the service industries for which trade data is available presented in Panel A of Table 2.

Table 3 reports the sample correlations among all of the trade measures employed in our analysis. Not surprisingly, they are strongly positively correlated. For example, the correlation between overall service imports and those from G8 countries is 0.94, while the correlation between overall imports and those coming from China and India is only 0.64.

Next, we turn to the results from equation (5), which estimates the impacts of overall service trade (both exports and imports), and the impacts of trade with China and India on post-displacement wages. The results are presented in Table 4. While the estimates imply that overall trade volumes in the industry of displacement have not had a significant impact on post-displacement wages, once we control for both overall as well as trade with India and China, the results are quite a bit different. The estimates in the second column of Table 4 reveal that higher exports to China and India in the industry of displacement lead to a higher re-employment wage, while higher imports from China and India lead to a lower re-employment wage. The impact of imports is statistically significant at the conventional 5 percent level, while the impact of exports

is not.[19] Also, the coefficient on overall imports in the second column of Table 4 is both economically and statistically significant, implying that higher overall imports in the industry of displacement lead to a higher re-employment wage. Interestingly, in this specification, the effect of overall exports is negative, unlike the effect estimated in column (1). Adding the two effects (that of overall exports and overall imports) yields a small, positive impact of overall trade on re-employment wages, both in column (1) and column (2) of Table 4. On the other hand, the model estimates a small, negative combined impact of trade with China and India.

Because the dependent variable (re-employment wage) and the trade flows are in the logarithmic scale (see equation (1)), the estimated coefficients can be interpreted as elasticities. While the estimated elasticities appear small, -0.07 for service imports from China and India, note that these imports have risen about 30 times over the last 20 years. On average, service imports from India and China have risen about 20 percent annually, which suggests that re-employment wages may have been driven down by 1.4 percent (1.4 percent = -0.07*20 percent) annually as a result of service imports from China and India. Further, the good news is that service exports to China and India have the opposite (positive) impact of re-employment wages. In particular, the estimated elasticity of exports to China and India implies that the re-employment wages were likely driven up about 1.0 percent annually as a result of the increase in exports to these nations.[20] The net annual effect from trade with China and India on re-employment wages is then about -0.4 percent. Also, as I already discussed, note that the impact

[19] The p-value on the coefficient of exports to China and India term is 0.18.

[20] The growth of service exports to China and India is also about 20 percent annually (see Panel A of Table 1).

of overall imports is positive and statistically significant and it outweighs the negative and insignificant impact of overall exports. The effects of all other covariates are as expected.

To check if trade with low-skilled nations such as China and India has had a larger negative impact on less-skilled service workers in the U.S. (this would be an implication of the basic Heckscher-Ohlin model of trade, assuming that the U.S. is abundant in skilled labor, and China and India are abundant in unskilled labor), I re-estimate the re-employment wage equation (5) with two separate subsamples of workers. The first subsample consists only of workers with less than high school education, while the second subsample includes college graduates and advanced degree holders. The estimates in columns 3 and 4 of Table 4 confirm my expectations. Service imports from China and India are associated with a larger decline in re-employment wages for less-skilled workers (high-school education or less) – the respective elasticities are -0.12 for less-skilled workers and -0.08 for college graduates. Both coefficients are statistically significant at the conventional 5 percent level. Further, higher exports to China and India are associated with a higher re-employment wage for service workers with college education, but they have virtually no impact on re-employment wages for workers with less than high-school education. The overall impact of trade with China and India on re-employment wages for more educated workers, assuming 20 percent annual growth in both service exports and imports, is positive at 1.4 percent annually, while the overall impact on displaced workers with less than high-school education is negative at -2.8 percent. These estimates are larger than the impacts estimated by Liu and Trefler (2008), but are consistent with their findings that inshoring and offshoring have more adverse impacts on less educated workers.

Because not all displaced workers are re-employed at the time of the interview, I do not observe a post-displacement wage for everyone in the sample. As I discussed in the section on

the Econometric Strategy, I also estimate a Heckman selection correction model, which is presented in Table A1 of the Appendix. The re-employment wage equation results from the Heckman model are qualitatively similar to those presented in Table 4, although the trade effects are less pronounced. While they support the baseline estimates in Table 4, the Heckman model estimates should be interpreted with caution due to difficulties with finding plausible exclusions restrictions.

Further, to check for robustness of the results, I re-estimate the re-employment regression equation (5) but additionally include industry-specific education terms. This allows returns to education to vary across service industries for which trade data is available. These results are presented in the first two columns of Appendix Table A2. The estimated coefficients on the 4 international trade terms are nearly identical to those in the first two columns of Table 4. Another robustness check I perform involves augmenting specification (5) with industry-specific time trends. In this case, identification of the impact of trade on the re-employment wage comes from within industry deviation (in trade) from the industry-specific time trend. These results are in columns 3 and 4 of the Appendix Table A2. The estimated coefficients on the trade variables are again no too different from the estimated effects in our baseline specification shown in the first two columns of Table 4. Finally, I estimate the restricted version of the re-employment wage specification (5), imposing $\beta_3 = 1$ and using $ln(w_{ikjst}^{re-employment} / w_{ikjst}^{pre\text{-}displacement})$ as a dependent variable. The results, which are presented in Appendix A3, show that the estimated effects of

trade on the change (growth) in wages from before displacement to after re-employment are quite similar to those implied from the estimates in the baseline specification (5) in Table 4.[21]

I next discuss the unemployment duration results, which are presented in Table 5. First, note that the duration dependence parameter φ in the Weibull hazard specification is estimated at 0.96 with a standard error of 0.01, showing that there is negative duration dependence in the data. The estimates in Table 5 reflect the accelerated failure time representation of the Weibull model, and as such the estimated coefficients can be interpreted as either semi-elasticities or elasticities (if the right-hand side variable is also in the logarithmic scale). The results in columns 1 and 2 of Table 5 imply that only overall exports have a small economic impact on unemployment duration. The estimates imply that an increase in overall exports leads to an increase in unemployment duration, with elasticity of 0.12, but this impact is not statistically significant at the conventional 5 percent level. The overall level of imports appears to have no effect on jobless spell duration, and neither do exports or imports from China and India. Allowing for industry-specific education dummies, see the first two columns of Appendix Table A4, produces similar results to those reported in the first two columns of Table 5. On the other hand, allowing for industry-specific time trends (Appendix Table A4) reduces the magnitude of the estimated effects of trade, especially the impact of overall exports, and it also changes the sign of the coefficient on overall exports to a negative one. Note, however, that none of the effects of trade in the two augmented models are statistically significantly different from 0.

Estimating the impacts of trade separately for workers with less education and more education (columns 3 and 4 of Table 5) reveals that service trade with China and India has little

[21] The estimates in Table 4 show that $\hat{\beta}_3 = 0.55$ with a standard error of 0.03. This implies that the restriction $\beta_3 = 1$ is really not reasonable.

impact on unemployment duration for either type of workers. The estimates suggest that overall exports have a large positive impact on duration (elasticity of 0.43) for less educated workers, and also that overall imports have a large negative impact on duration (elasticity of -0.30) for the same group. Taken together, these results imply that total trade (overall exports and overall imports) has a small positive impact on unemployment duration (i.e. trade prolongs unemployment duration) for less educated workers. While only overall exports have a small positive impact on duration for more educated workers, the small positive (prolonging duration) total effect of trade (overall exports and overall imports) for this group is quite similar to the total effect of trade for less educated workers. Note, however, that none of the estimated effects of trade for more educated workers is statistically significant at the 5 percent level.

As I discussed earlier, I also estimate a very flexible hazard specification instead of imposing the Weibull hazard assumption – I specify a piecewise-constant proportional hazard, i.e. I allow for period-specific (for each two-week period during a spell of unemployment) baseline hazard rate (for details see Wooldridge, 2002, pp. 706-710). The estimates from this flexible specification are presented in Table A5 of the Appendix. The first two columns of Appendix Table A5 show the hazard rate representation of the Weibull model (equations (1)-(4), but not the accelerated failure time representation as in Table 5), and the last two columns show the results from the more flexible specification. Overall, the results are quite similar. Neither of the models produces statistically significant impacts of trade in services on the hazard rate (probability) of leaving unemployment. Hence, one can conclude that, on average, there are likely negligible effects of service trade on displaced workers' duration of unemployment.

Finally, note that recall bias may potentially affect the estimates both in the jobless spell duration regressions and in the re-employment wage regressions. If erroneous recall is assumed

to behave as a classical measurement error, in the context of the linear re-employment wage regression, the effects of such a bias would be toward zero, which implies that the magnitudes of the coefficients in the re-employment wage model may be biased downward and the true effects may be even more pronounced than the estimates indicate.[22]

VI. Conclusion

I use data from the Displaced Workers Supplement to the Current Population Survey and information on foreign trade between unaffiliated parties from the Bureau of Economic Analysis

[22] The DWS also collects information on geographic relocation after the job displacement for each respondent. Survey takers are additionally asked if the reason for the relocation is to take a job elsewhere. However, a large fraction of the respondents in the sample I use (more than 80 percent) do not provide the latter information. One could argue that movers are more aggressive in their search and willingness to accept a job, and they are also less tied to their community, all of which may affect unemployment duration and earnings potential. When an explanatory dummy variable (*Mover*) indicating if the respondent moved after displacement is included in the duration and the re-employment models (equations (1)-(4) and (5), respectively), all of the remaining coefficients change trivially. The coefficient on *Mover* in the duration model is 0.03 (with a standard error of 0.06) indicating that respondents who moved experienced a slightly longer spell; the coefficient in the re-employment wage regression is 0.03 (with a standard error of 0.04), also indicating that moving is associated with higher re-employment earnings. Note, however, that geographic relocation (for a job or otherwise) is a choice and including *Mover* as an explanatory variable raises endogeneity concerns, which is why I have chosen to keep it out of the baseline specification.

for 10 service industries from 1986 to 2007 to investigate the impact of trade in services (offshoring and inshoring) on displaced workers re-employment wages and jobless spell duration. Consistent with previous work by Liu and Trefler (2008), I cannot find any economically and statistically significant impacts of either service exports (inshoring) or imports (offshoring) form China and India on unemployment duration.[23] However, the estimates indicate that service trade with India and China, does affect service workers' post-displacement earnings. In particular, the results reveal that higher exports (inshoring) to China and India in the industry of displacement lead to a higher re-employment wage, while higher imports (offshoring) from China and India lead to a lower re-employment wage. Combining the two effects yields a small, negative effect (-0.4 percent annually) of service trade with China and India on re-employment wages.

Further, service imports from China and India are associated with a larger decline in re-employment wages for less-skilled workers (less than high-school education). I also find that higher exports to China and India lead to a higher re-employment wage for service workers with college education, but they have virtually no impact on the re-employment wage for workers with less than high-school education. The overall impact of trade (both exports and imports) with China and India on re-employment wages for more educated workers, assuming the prevailing in the last 20 years 20 percent annual growth in both service exports and imports from China and India, is positive at 1.4 percent annually, while the overall impact on displaced

[23] The estimates imply that overall trade tends to increase unemployment duration (by about 2.6 percent annually) for both less and more educated service workers, but the effect is statistically significant only for the former type of workers.

workers with less than high-school education is negative at -2.8 percent.[24] These estimates are larger than the impacts estimated by Liu and Trefler (2008), but are consistent with their findings that inshoring and offshoring have more adverse impacts on less educated workers.

The results from this study imply that service trade (inshoring and offshoring) does have some impact on re-employment wages, perhaps somewhat larger than previously thought. Consistent with the U.S. comparative advantage, highly educated workers tend to benefit from service trade more than do workers with less education. Displaced workers with less than high school education tend to experience lower wages upon re-employment perhaps as a result of a loss of industry- or occupation-specific human capital. Hence, unemployment programs that help low-skilled workers displaced from service industries facing increasing international trade pressures with job training and skill (education) acquisition may be beneficial. Such programs that focus on job training and skill upgrading already exist – the Trade Adjustment Assistance (TAA) program has been in place since the mid 1970s, but it has been mostly utilized by manufacturing workers, likely because it was the rising trade in manufacturing and not services that affected U.S. workers throughout the 1980s and the 1990s.

There is clear need for more research on the impacts of international trade on employment transitions of (displaced) service workers. An interesting extension of the work here would be to examine the path of wage growth of (trade) displaced workers after re-employment and assess if they ever catch up with their non-displaced peers. To address these issues, one has to employ a long-run panel data on individuals, which unfortunately is not the

[24] Note, however, that while not statistically significant, the impact of overall trade on re-employment wages for less educated workers is estimated to be positive at 1.6 percent annually.

type of data supplied by the DWS. Such research would better inform policy-makers on issues that concern the impact of trade in services on U.S. labor markets.

TABLES

Table 1. U.S. Service Exports and Imports (Millions of 2007 U.S. dollars), 1986-2007.

Panel A: Total Services (Includes Advertising; Computer and data processing; Construction, engineering, and architecture; Financial; Industrial Engineering; Insurance; Legal; Management consulting; Research and development; Telecommunications).

Year	Overall Exports	Exports to G-8	Exports to China and India	Overall Imports	Imports from G-8	Imports from China and India
1986	17,279	6,355	195	14,913	6,364	289
1996	31,515	11,848	1,527	26,419	9,641	1,427
2007	87,173	58,105	5,996	66,259	47,614	9,679

Panel B: Services By Industry

Service Industry	Year	Overall Exports	Exports to G-8	Exports to China and India	Overall Imports	Imports from G-8	Imports from China and India
Advertising	1986	178	87	0	146	74	0
Advertising	1996	718	412	48	1,283	883	32
Advertising	2007	1,198	1,510	47	1,335	1,272	93
Computer and data processing services	1986	1,863	272	17	61	44	0
Computer and data processing services	1996	2,137	1,061	63	365	163	11
Computer and data processing services	2007	4,022	3,742	304	2,942	6,128	4,652
Construction, engineering, and architecture	1986	1,436	204	26	569	344	26
Construction, engineering, and architecture	1996	4,695	492	262	614	180	4
Construction, engineering, and architecture	2007	5,078	1,957	668	1,107	787	63
Financial Services	1986	6,245	2,525	0	3,347	2,934	0
Financial Services	1996	10,875	4,361	441	3,842	2,236	119
Financial Services	2007	46,922	23,548	2,713	11,447	11,420	1,315
Industrial engineering	1986	185	59	2	142	38	0
Industrial engineering	1996	1,150	173	79	260	61	5
Industrial engineering	2007	3,189	1,499	271	997	1,183	113
Insurance	1986	2,619	1,957	0	4,162	1,657	79
Insurance	1996	2,182	1,323	27	7,129	3,436	38
Insurance	2007	10,184	5,624	198	41,666	8,430	26
Legal Services	1986	184	72	6	76	30	0
Legal Services	1996	2,568	1,685	132	813	488	52
Legal Services	2007	6,278	3,609	433	1,385	889	88
Management, consulting, and public relations	1986	579	170	13	114	79	2
Management, consulting, and public relations	1996	1,929	581	63	657	325	16
Management, consulting, and public relations	2007	3,091	9,666	898	2,439	9,407	1,683
Research, development, and testing services	1986	533	178	0	144	62	0
Research, development, and testing services	1996	900	436	12	501	213	7
Research, development, and testing services	2007	2,160	4,295	82	2,941	5,979	964
Telecommunications	1986	3,456	831	131	6,154	1,101	182
Telecommunications	1996	4,362	1,323	399	10,955	1,657	1,144
Telecommunications	2007	5,051	2,655	382	-	2,119	682

Source. – Author's calculations with data from the Bureau of Economic Analysis.

Table 2. Summary Statistics for U.S. Workers Displaced from All Service Industries and from Service Industries with Available Trade Data, 1986-2007.

Panel A

Variable	All Service Industries				Service Industries with Available Trade Data			
	Displaced and Re-employed		Displaced		Displaced and Re-employed		Displaced	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Fraction re-employed at date of survey	1.00	0.00	0.80	0.40	1.00	0.00	0.81	0.39
Current weekly wage (constant 2003 dollars)	618.83	452.16	618.83	452.16	820.18	590.42	820.18	590.42
Lost weekly wage (constant 2003 dollars)	725.44	503.10	708.45	499.19	1,003.86	647.91	999.25	648.32
Unemployment duration (two-week intervals)	7.65	9.87	8.54	10.56	7.31	9.06	8.08	9.62
No high school	0.02	0.14	0.02	0.15	0.00	0.05	0.00	0.07
High school dropout	0.06	0.24	0.07	0.26	0.01	0.11	0.01	0.12
High school graduate	0.31	0.46	0.33	0.47	0.20	0.40	0.21	0.41
Some college	0.31	0.46	0.30	0.46	0.32	0.47	0.32	0.47
College graduates	0.20	0.40	0.19	0.39	0.33	0.47	0.32	0.47
Advanced degree	0.09	0.29	0.09	0.28	0.14	0.35	0.13	0.34
Age (years)	38.76	10.45	38.82	10.60	39.30	10.04	39.54	10.21
Lost job tenure (years)	4.61	5.77	4.52	5.77	4.92	6.19	4.93	6.23
Female	0.45	0.50	0.45	0.50	0.49	0.50	0.49	0.50
Non-white	0.13	0.33	0.14	0.35	0.13	0.34	0.14	0.35
Married	0.60	0.49	0.58	0.49	0.60	0.49	0.59	0.49
Metropolitan area	0.78	0.41	0.78	0.41	0.91	0.28	0.91	0.29
Non-white Female	0.06	0.24	0.07	0.26	0.07	0.26	0.08	0.27
Married Female	0.23	0.42	0.22	0.42	0.25	0.43	0.25	0.43
Hispanic Origin	0.07	0.25	0.07	0.26	0.06	0.23	0.06	0.24
U_{st}^{RATE}	0.06	0.02	0.06	0.02	0.05	0.02	0.06	0.02
Log Overall Exports	-	-	-	-	8.16	1.11	8.16	1.12
Log Exports to China and India	-	-	-	-	4.58	1.44	4.58	1.45
Log Overall Imports	-	-	-	-	7.55	1.46	7.54	1.48
Log Imports from China and India	-	-	-	-	3.96	1.83	3.98	1.84
No. Obs.	21,250		26,672		3,796		4,631	

Source. – Author's calculations with data from Displaced Workers Supplement (1988-2008) and the Bureau of Economic Analysis.

Note. – Workers displaced from a full-time job in the U.S. service sector between 1986 and 2007, ages 21 to 65 at displacement. All figures are fractions unless oth
specified.

Table 2 (Cont'd.). Summary Statistics for U.S. Workers Displaced from Service Industries with Available Trade Data used in the Empirical Analysis, 1986-2007.

Panel B

Variable	Service Industries with Available Trade Data and Information on Unemployment Duration and Re-employment Wages			
	Displaced and Re-employed		Displaced	
	Mean	St. Dev.	Mean	St. Dev.
Fraction re-employed at date of survey	1.00	0.00	0.80	0.40
Current weekly wage (constant 2003 dollars)	838.62	594.62	846.08	599.84
Lost weekly wage (constant 2003 dollars)	999.18	646.04	1,005.20	651.26
Unemployment duration (two-week intervals)	7.27	8.97	8.07	9.63
No high school	0.00	0.06	0.00	0.07
High school dropout	0.01	0.10	0.01	0.12
High school graduate	0.20	0.40	0.22	0.41
Some college	0.32	0.47	0.32	0.47
College graduates	0.33	0.47	0.32	0.46
Advanced degree	0.13	0.34	0.13	0.33
Age (years)	39.17	10.06	39.46	10.18
Lost job tenure (years)	4.89	6.24	4.90	6.27
Female	0.50	0.50	0.49	0.50
Non-white	0.13	0.34	0.14	0.35
Married	0.59	0.49	0.59	0.49
Metropolitan area	0.91	0.29	0.90	0.29
Non-white Female	0.07	0.26	0.08	0.27
Married Female	0.26	0.44	0.26	0.44
Hispanic Origin	0.06	0.23	0.06	0.24
U_{st}^{RATE}	0.05	0.02	0.05	0.02
Log Overall Exports	8.19	1.08	8.19	1.11
Log Exports to China and India	4.63	1.41	4.62	1.46
Log Overall Imports	7.60	1.44	7.58	1.46
Log Imports from China and India	4.01	1.82	4.04	1.84
No. Obs.	2,665		3,162	

Source. – Author's calculations with data from Displaced Workers Supplement (1988-2008) and the Bureau of Economic Analysis.

Note. – Workers displaced from a full-time job in the U.S. service sector between 1986 and 2007, ages 21 to 65 at displacement. All figures are fractions unless oth
specified.

Table 3. Correlations among trade measures, 1986-2007.

Trade Variable	(1)	(2)	(3)	(4)	(5)	(6)
(1) Overall Exports	1.00					
(2) Exports to G-8	0.92	1.00				
(3) Exports to China and India	0.90	0.79	1.00			
(4) Overall Imports	0.67	0.72	0.59	1.00		
(5) Imports from G-8	0.70	0.79	0.58	0.94	1.00	
(6) Imports from China and India	0.63	0.66	0.69	0.64	0.66	1.00

Source. – Author's calculations with data from the Bureau of Economic Analysis, and Displaced Workers Supplement (1988-2008).
Note. – Correlations are across workers in the Displaced Workers Supplement data based on industry trade data matched to worker's industry of displacement.

Table 4. The Impact of Trade in Services on Displaced Workers Re-employment Wage.

Variable	$ln(w^{\text{re-employment}})$			
	All workers	All workers	Less than High-school	College and more
No High School	-0.20	-0.17	0.10	-
	(0.20)	(0.20)	(0.54)	
High-school Drop-out	-0.22***	-0.23***	-0.07	-
	(0.06)	(0.06)	(0.11)	
Some College	0.06	0.06	-	-
	(0.05)	(0.05)		
College Graduate	0.15**	0.15**	-	-0.12
	(0.06)	(0.06)		(0.08)
Advanced Degree	0.26***	0.26***	-	-
	(0.05)	(0.05)		
Age	0.03***	0.03***	0.02	0.03
	(0.01)	(0.01)	(0.02)	(0.02)
Age Squared	-0.0005***	-0.0005***	-0.0002	-0.0005**
	(0.0001)	(0.0001)	(0.0002)	(0.0002)
Lost Job Tenure	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.01)
Log Lost Job Weekly Wage	0.55***	0.55***	0.51***	0.58***
	(0.03)	(0.03)	(0.11)	(0.07)
Female	-0.08*	-0.08*	-0.21*	-0.10
	(0.04)	(0.04)	(0.11)	(0.06)
Nonwhite	-0.11	-0.11	-0.34	-0.03
	(0.07)	(0.07)	(0.46)	(0.06)
Married	0.09*	0.09*	0.01	0.07
	(0.04)	(0.04)	(0.10)	(0.06)
Metropolitan Area	0.17**	0.16**	0.01	0.29
	(0.07)	(0.06)	(0.09)	(0.20)
U_{st}^{RATE}	-1.25	-1.14	-8.63*	-2.75
	(2.61)	(2.56)	(4.54)	(3.01)
Female × Nonwhite	0.01	0.02	0.30	-0.00
	(0.10)	(0.10)	(0.50)	(0.09)
Female × Married	-0.20***	-0.20***	-0.02	-0.34***
	(0.05)	(0.05)	(0.16)	(0.08)
Hispanic	-0.03	-0.02	-0.29**	0.21*
	(0.05)	(0.05)	(0.11)	(0.10)
Log Overall Exports	**0.08**	**-0.06**	**-0.06**	**-0.23**
	(0.06)	**(0.07)**	**(0.17)**	**(0.14)**
Log Exports to China and India	-	**0.05**	**-0.02**	**0.15****
		(0.03)	**(0.08)**	**(0.05)**
Log Overall Imports	**0.00**	**0.09****	**0.14**	**0.12****
	(0.03)	**(0.03)**	**(0.13)**	**(0.05)**
Log Imports from China and India	-	**-0.07*****	**-0.12****	**-0.08****
		(0.02)	**(0.05)**	**(0.03)**
No. Obs.	2,665	2,665	543	1,265
R^2	0.34	0.34	0.40	0.31

Note. – Robust standard errors clustered by industry of displacement are reported in parentheses. ***Indicates significance at 1 percent, ** at 5 percent, and * at 10 percent.

Table 5. The Impact of Trade in Services on Displaced Workers Unemployment Duration.

Variable	*ln*(Unemployment Duration)			
	All workers	All workers	Less than High-school	College and more
No High School	0.67**	0.67**	0.98**	-
	(0.29)	(0.29)	(0.41)	
High-school Drop-out	0.17	0.18	0.19	-
	(0.27)	(0.27)	(0.37)	
Some College	-0.04	-0.04	-	-
	(0.05)	(0.05)		
College Graduate	-0.14***	-0.13***	-	0.08*
	(0.05)	(0.05)		(0.04)
Advanced Degree	-0.23***	-0.23***	-	-
	(0.06)	(0.06)		
Age	0.03	0.03	0.06*	0.02
	(0.02)	(0.02)	(0.03)	(0.04)
Age Squared	-0.0001	-0.0001	-0.0005	0.0002
	(0.0002)	(0.0002)	(0.0003)	(0.0005)
Lost Job Tenure	0.00	0.00	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Log Lost Job Weekly Wage	0.15***	0.15***	0.11	0.15*
	(0.04)	(0.04)	(0.15)	(0.08)
Female	-0.06	-0.06	0.28	-0.24
	(0.13)	(0.13)	(0.25)	(0.14)
Nonwhite	-0.02	-0.02	0.07	0.02
	(0.09)	(0.09)	(0.20)	(0.12)
Married	-0.25***	-0.25***	0.00	-0.25**
	(0.05)	(0.05)	(0.19)	(0.12)
Metropolitan Area	-0.24***	-0.24***	-0.16	-0.37***
	(0.05)	(0.05)	(0.19)	(0.08)
U_{st}^{RATE}	3.66	3.65	5.61	3.42
	(4.04)	(4.05)	(7.27)	(3.85)
Female × Nonwhite	0.30**	0.30**	0.04	0.30**
	(0.13)	(0.13)	(0.20)	(0.12)
Female × Married	0.24**	0.24**	-0.21	0.37**
	(0.12)	(0.12)	(0.24)	(0.15)
Hispanic	0.12	0.12	0.06	-0.23
	(0.14)	(0.14)	(0.11)	(0.19)
Log Overall Exports	**0.12**	**0.10**	**0.43****	**0.13**
	(0.08)	**(0.09)**	**(0.18)**	**(0.19)**
Log Exports to China and India	-	**0.03**	**0.05**	**-0.08**
		(0.07)	**(0.10)**	**(0.08)**
Log Overall Imports	**-0.00**	**-0.02**	**-0.30***	**0.03**
	(0.07)	**(0.04)**	**(0.18)**	**(0.09)**
Log Imports from China and India	-	**0.01**	**0.01**	**0.02**
		(0.04)	**(0.08)**	**(0.05)**
No. Obs.	3,162	3,162	712	1,439
Log Likelihood	-4,656.09	-4,655.89	-951.36	-2,085.45

Note. – Robust standard errors clustered by industry of displacement are reported in parentheses. *** Indicates significance at 1 percent, ** at 5 percent, and * at 10 percent.

Appendix

Table A1. The Impact of Trade in Services on Displaced Workers Re-employment Wage, Heckman Selection Model.

Variable	All workers			
	$ln(w^{\text{re-employment}})$	Re-employed	$ln(w^{\text{re-employment}})$	Re-employed
No High School	-0.11	-0.78*	-0.09	-0.79*
	(0.32)	(0.45)	(0.32)	(0.46)
High-school Drop-out	-0.19	-0.16	-0.20	-0.15
	(0.14)	(0.23)	(0.14)	(0.23)
Some College	0.05	0.17**	0.05	0.16*
	(0.04)	(0.08)	(0.04)	(0.08)
College Graduate	0.12**	0.29***	0.12***	0.29***
	(0.05)	(0.09)	(0.05)	(0.09)
Advanced Degree	0.23***	0.39***	0.23***	0.39***
	(0.06)	(0.12)	(0.06)	(0.12)
Age	0.04***	-0.03	0.04***	-0.03
	(0.01)	(0.02)	(0.01)	(0.02)
Age Squared	-0.0005***	0.0001	-0.0005***	0.0001
	(0.0001)	(0.0003)	(0.0001)	(0.0003)
Lost Job Tenure	-0.00	0.00	-0.00	0.00
	(0.00)	(0.01)	(0.00)	(0.01)
Log Lost Job Weekly Wage	0.54***	0.03	0.54***	0.03
	(0.03)	(0.06)	(0.03)	(0.06)
Female	-0.12**	0.24**	-0.12**	0.24**
	(0.05)	(0.10)	(0.05)	(0.10)
Nonwhite	-0.10	0.01	-0.11	0.01
	(0.07)	(0.13)	(0.07)	(0.13)
Married	0.06	0.30***	0.06	0.30***
	(0.05)	(0.09)	(0.05)	(0.09)
Metropolitan Area	0.15***	0.15	0.15***	0.15
	(0.06)	(0.11)	(0.06)	(0.11)
U_{st}^{RATE}	-0.98	-5.51	-1.05	-5.63
	(1.73)	(3.98)	(1.72)	(3.99)
Female × Nonwhite	0.07	-0.57***	0.07	-0.57***
	(0.09)	(0.17)	(0.09)	(0.17)
Female × Married	-0.16***	-0.27**	-0.16***	-0.27**
	(0.06)	(0.12)	(0.06)	(0.12)
Hispanic	-0.01	-0.13	-0.01	-0.13
	(0.07)	(0.12)	(0.07)	(0.12)
Log Overall Exports	**0.11***	**-0.02**	**0.01**	**0.12**
	(0.06)	**(0.12)**	**(0.08)**	**(0.16)**
Log Exports to China and India	-	-	**0.05**	**-0.09**
			(0.04)	**(0.08)**
Log Overall Imports	**0.01**	**0.05**	**0.05**	**0.01**
	(0.03)	**(0.07)**	**(0.05)**	**(0.09)**
Log Imports from China and India	-	-	**-0.04**	**0.03**
			(0.02)	**(0.05)**
Mills Ratio	-0.35***	-	-0.33***	-
	(0.07)		(0.08)	
No. Obs./No. Uncensored Obs.	3,300/2,665		3,300/2,665	
χ^2	9,282.68		3,133.24	

Note. – Robust standard errors clustered by industry of displacement are reported in parentheses.
*** Indicates significance at 1 percent, ** at 5 percent, and * at 10 percent.

Table A2. The Impact of Trade in Services on Displaced Workers Re-employment Wage, Robustness Checks.

Variable	All workers $ln(w^{\text{re-employment}})$			
No High School	-	-	-0.20	-0.17
			(0.20)	(0.21)
High-school Drop-out	-	-	-0.24***	-0.24***
			(0.06)	(0.06)
Some College	-	-	0.06	0.06
			(0.05)	(0.05)
College Graduate	-	-	0.15**	0.15**
			(0.06)	(0.06)
Advanced Degree	-	-	0.26***	0.26***
			(0.05)	(0.05)
Age	0.04***	0.04***	0.04***	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)
Age Squared	-0.0005***	-0.0005***	-0.0005***	-0.0005***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Lost Job Tenure	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Log Lost Job Weekly Wage	0.54***	0.54***	0.54***	0.54***
	(0.03)	(0.03)	(0.03)	(0.03)
Female	-0.09*	-0.09*	-0.09*	-0.09*
	(0.04)	(0.04)	(0.04)	(0.04)
Nonwhite	-0.09	-0.09	-0.11	-0.11
	(0.07)	(0.07)	(0.07)	(0.07)
Married	0.08*	0.08*	0.09*	0.10*
	(0.04)	(0.04)	(0.04)	(0.04)
Metropolitan Area	0.17**	0.16**	0.17**	0.16**
	(0.07)	(0.06)	(0.07)	(0.06)
U_{st}^{RATE}	-1.41	-1.32	-1.19	-1.07
	(2.68)	(2.64)	(2.56)	(2.54)
Female × Nonwhite	-0.01	-0.00	0.02	0.02
	(0.10)	(0.10)	(0.10)	(0.10)
Female × Married	-0.19***	-0.19***	-0.19***	-0.20***
	(0.05)	(0.05)	(0.05)	(0.05)
Hispanic	-0.03	-0.03	-0.03	-0.03
	(0.05)	(0.05)	(0.05)	(0.05)
Log Overall Exports	**0.07**	**-0.05**	**-0.04**	**-0.10**
	(0.06)	**(0.07)**	**(0.12)**	**(0.12)**
Log Exports to China and India	-	**0.05**	-	**0.05***
		(0.03)		**(0.03)**
Log Overall Imports	**0.01**	**0.08****	**0.09**	**0.14****
	(0.03)	**(0.03)**	**(0.05)**	**(0.06)**
Log Imports from China and India	-	**-0.06****	-	**-0.05***
		(0.02)		**(0.02)**
Educ. Dummies x Ind. Dummies	Yes	Yes	-	-
Ind. Specific Time Trends	-	-	Yes	Yes
No. Obs.	2,665	2,665	2,665	2,665
R^2	0.35	0.35	0.34	0.34

Note. – Robust standard errors clustered by industry of displacement are reported in parentheses.
*** Indicates significance at 1 percent, ** at 5 percent, and * at 10 percent.

Table A3. The Impact of Trade in Services on Displaced Workers Re-employment Wage.

Variable	$ln(w^{\text{re-employment}}/w^{\text{displacement}})$			
	All workers	All workers	Less than High-school	College and more
No High School	0.04	0.08	0.29	0.00
	(0.19)	(0.20)	(0.59)	(0.00)
High-school Drop-out	-0.16*	-0.17*	-0.01	0.00
	(0.09)	(0.08)	(0.12)	(0.00)
Some College	0.05	0.05	0.00	0.00
	(0.05)	(0.05)	(0.00)	(0.00)
College Graduate	0.05	0.05	0.00	-0.06
	(0.07)	(0.07)	(0.00)	(0.07)
Advanced Degree	0.10	0.10	0.00	0.00
	(0.06)	(0.06)	(0.00)	(0.00)
Age	0.01	0.01	0.01	-0.01
	(0.01)	(0.01)	(0.02)	(0.02)
Age Squared	-0.0002	-0.0002	-0.0001	-0.0001
	(0.0001)	(0.0001)	(0.0002)	(0.0002)
Lost Job Tenure	-0.01**	-0.01**	-0.01*	-0.00
	(0.00)	(0.00)	(0.00)	(0.01)
Log Lost Job Weekly Wage	-	-	-	-
Female	-0.04	-0.04	-0.16	-0.08
	(0.05)	(0.05)	(0.14)	(0.06)
Nonwhite	-0.06	-0.06	-0.23	0.02
	(0.06)	(0.06)	(0.45)	(0.06)
Married	0.04	0.04	-0.08	0.02
	(0.04)	(0.04)	(0.09)	(0.06)
Metropolitan Area	0.10	0.10	-0.10	0.22
	(0.08)	(0.08)	(0.10)	(0.21)
U_{st}^{RATE}	-1.92	-1.81	-8.58	-2.93
	(2.94)	(2.90)	(4.89)	(3.00)
Female × Nonwhite	0.00	0.01	0.24	0.02
	(0.09)	(0.09)	(0.50)	(0.09)
Female × Married	-0.15**	-0.15**	0.09	-0.30***
	(0.06)	(0.06)	(0.16)	(0.08)
Hispanic	0.04	0.04	-0.20	0.28**
	(0.05)	(0.05)	(0.18)	(0.11)
Log Overall Exports	**0.09**	**-0.05**	**0.02**	**-0.24**
	(0.06)	**(0.07)**	**(0.19)**	**(0.14)**
Log Exports to China and India	-	**0.05**	**-0.06**	**0.17****
		(0.03)	**(0.07)**	**(0.06)**
Log Overall Imports	**-0.01**	**0.07***	**0.14**	**0.10***
	(0.03)	**(0.03)**	**(0.15)**	**(0.05)**
Log Imports from China and India	-	**-0.07*****	**-0.11***	**-0.07****
		(0.02)	**(0.05)**	**(0.03)**
No. Obs.	2,665	2,665	543	1,265
R^2	0.13	0.13	0.30	0.19

Note. – Robust standard errors clustered by industry of displacement are reported in parentheses.
***Indicates significance at 1 percent, ** at 5 percent, and * at 10 percent.

Table A4. The Impact of Trade in Services on the Hazard of Leaving Unemployment, Robustness Check.

Variable	Hazard of Leaving Unemployment			
	All workers			
No High School	-0.66*	-0.66**	-0.33*	-0.43**
	(0.34)	(0.34)	(0.19)	(0.21)
High-school Drop-out	-0.17	-0.17	-0.12	-0.13
	(0.22)	(0.22)	(0.16)	(0.19)
Some College	0.04	0.04	0.02	0.01
	(0.05)	(0.06)	(0.04)	(0.04)
College Graduate	0.13**	0.13**	0.12**	0.09**
	(0.06)	(0.06)	(0.06)	(0.04)
Advanced Degree	0.23***	0.23***	0.18**	0.22***
	(0.05)	(0.05)	(0.08)	(0.05)
Age	-0.03	-0.03	-0.03***	-0.03***
	(0.02)	(0.02)	(0.01)	(0.01)
Age Squared	0.0001	0.0001	0.0001	0.0002
	(0.0002)	(0.0002)	(0.0001)	(0.0001)
Lost Job Tenure	-0.00	-0.00	-0.01	-0.00
	(0.00)	(0.00)	(0.01)	(0.00)
Log Lost Job Weekly Wage	-0.15***	-0.15***	-0.13***	-0.12***
	(0.05)	(0.05)	(0.02)	(0.03)
Female	0.06	0.06	0.06	0.05
	(0.08)	(0.08)	(0.08)	(0.09)
Nonwhite	0.02	0.02	0.01	-0.00
	(0.09)	(0.09)	(0.08)	(0.08)
Married	0.24***	0.24***	0.19***	0.22***
	(0.05)	(0.05)	(0.03)	(0.04)
Metropolitan Area	0.24***	0.24***	0.11***	0.14***
	(0.08)	(0.08)	(0.04)	(0.05)
U_{st}^{RATE}	-3.59	-3.59	-7.02**	-7.16**
	(3.78)	(3.77)	(2.80)	(2.87)
Female × Nonwhite	-0.29**	-0.29**	-0.23*	-0.23*
	(0.12)	(0.12)	(0.13)	(0.13)
Female × Married	-0.23**	-0.23**	-0.24***	-0.25***
	(0.10)	(0.10)	(0.07)	(0.09)
Hispanic	-0.12	-0.12	-0.05	-0.12
	(0.12)	(0.12)	(0.08)	(0.12)
Log Overall Exports	**-0.12**	**-0.10**	**-0.02**	**-0.04**
	(0.09)	**(0.10)**	**(0.04)**	**(0.08)**
Log Exports to China and India	-	**-0.03**	-	**-0.03**
		(0.06)		**(0.05)**
Log Overall Imports	**0.00**	**0.02**	**-0.02**	**-0.01**
	(0.07)	**(0.06)**	**(0.05)**	**(0.05)**
Log Imports from China and India	-	**-0.01**	-	**0.00**
		(0.03)		**(0.03)**
No. Obs.	3,162	3,162	3,162	3,162
Log Likelihood	-4,656.09	-4,655.89	-10,653.08	-8,637.82

Note. – Robust standard errors clustered by industry of displacement are reported in parentheses.
***Indicates significance at 1 percent, ** at 5 percent, and * at 10 percent.

Table A5. The Impact of Trade in Services on Displaced Workers Unemployment Duration, Robustness Checks.

Variable	All workers			
	ln(Unemployment Duration)			
No High School	-	-	0.73***	0.73***
			(0.28)	(0.28)
High-school Drop-out	-	-	0.16	0.16
			(0.27)	(0.27)
Some College	-	-	-0.04	-0.04
			(0.05)	(0.05)
College Graduate	-	-	-0.14***	-0.13***
			(0.05)	(0.05)
Advanced Degree	-	-	-0.22***	-0.22***
			(0.06)	(0.06)
Age	0.02	0.02	0.03*	0.03*
	(0.02)	(0.02)	(0.02)	(0.02)
Age Squared	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Lost Job Tenure	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Log Lost Job Weekly Wage	0.15***	0.16***	0.15***	0.16***
	(0.04)	(0.04)	(0.04)	(0.04)
Female	-0.06	-0.06	-0.07	-0.07
	(0.13)	(0.13)	(0.13)	(0.13)
Nonwhite	-0.04	-0.03	-0.03	-0.02
	(0.09)	(0.09)	(0.09)	(0.09)
Married	-0.23***	-0.23***	-0.25***	-0.25***
	(0.06)	(0.06)	(0.05)	(0.06)
Metropolitan Area	-0.22***	-0.22***	-0.26***	-0.25***
	(0.05)	(0.05)	(0.05)	(0.05)
U_{st}^{RATE}	3.99	3.98	3.57	3.53
	(4.22)	(4.21)	(3.89)	(3.91)
Female × Nonwhite	0.32**	0.32**	0.29**	0.29**
	(0.13)	(0.13)	(0.14)	(0.13)
Female × Married	0.22*	0.22*	0.24**	0.25**
	(0.12)	(0.12)	(0.12)	(0.12)
Hispanic	0.09	0.09	0.12	0.12
	(0.15)	(0.15)	(0.14)	(0.14)
Log Overall Exports	0.12	0.06	-0.04	-0.05
	(0.08)	(0.08)	(0.10)	(0.08)
Log Exports to China and India	-	0.05	-	0.03
		(0.07)		(0.07)
Log Overall Imports	-0.00	-0.01	-0.02	-0.06
	(0.07)	(0.04)	(0.12)	(0.10)
Log Imports from China and India	-	0.00	-	0.05
		(0.04)		(0.04)
Educ. Dummies x Ind. Dummies	Yes	Yes	-	-
Ind. Specific Time Trends	-	-	Yes	Yes
No. Obs.	3,162	3,162	3,162	3,162
Log Likelihood	-4,621.33	-4,620.98	-4,648.66	-4,647.81

Note. – Robust standard errors clustered by industry of displacement are reported in parentheses.
***Indicates significance at 1 percent, ** at 5 percent, and * at 10 percent.

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