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DISLOCATED WORKER HUMAN CAPITAL DEPRECIATION AND RECOVERY

Kevin M. Hollenbeck

Abstract

Previous studies have estimated the "human capital depreciation" of women re-entering the work force after voluntary, lengthy interruptions. Those studies have found reduced real wages and furthermore the decrease is positively related to the length of the interruption. Upon re-entry, however, real wages grow rapidly as human capital is restored.

This paper develops a model of the wage histories of dislocated workers. Similar to labor force re-entrants, those dislocated workers who become re-employed would experience wages below their final wage prior to dislocation and the decrease should be associated with the length of dislocation. However, the model suggests that since the career disruptions are involuntary and since occupational shifts generally occur, recovery will not be rapid nor complete.

The model is estimated with data from a sample of workers in Ohio who had been dislocated and received services under Title III of the Job Training Partnership Act (JTPA). This data set has the limitation that the observations are for workers who chose to receive services, but it also has the advantage that the effects of a variety of training interventions on outcomes can be determined.

DISLOCATED WORKER HUMAN CAPITAL DEPRECIATION AND RECOVERY

Many studies have examined the earnings and employment losses that accompany worker dislocation. In an excellent survey article, Hamermesh (1989) relates the findings of many of these studies. In particular, Hamermesh summarizes empirical work that has found the following:

- the median real wage reduction for a re-employed dislocated worker is between 5-15 percent

- the median displaced worker who found a job was unemployed for as long as 40 weeks

- wage losses are greater with tenure, less education, change in industry, and length of displacement (studies are mixed with respect to gender, race, and age)

- present value of average earnings losses over workers' expected lifetimes range from $1500 to $10,000 (in 1980 $)

An interesting inference in the Hamermesh article is that "Mincer and Ofek's (1982) results (in another context) suggest that much of the wage loss may not be permanent either." (p. 58) What this inference is suggesting is that wage profiles upon re-employment may be steeply-sloped so that workers recover wage losses relatively rapidly. It is this inference that is the focus of the present study. That is, the study examines the characteristics of dislocated workers' wage profiles upon re-employment. In particular, it relates these profiles to the model developed by Mincer and Ofek (M-O).

The Mincer and Ofek (1982) study estimates the depreciation and subsequent recovery of the human capital of intermittent workers who reenter the work force. In particular, they examine data for workers who were voluntarily intermittent. For a number of reasons that are detailed below, it is not clear whether it is reasonable to apply the M-O model to dislocated workers. The latter individuals have "intermittencies" that are involuntary, for example. Furthermore, dislocated workers, by definition, have low likelihoods of reentering their prior occupation or industry.

Whether or not the application of the M-O model is appropriate, however, it appears to be the case that wage profiles for dislocated workers are quite steep upon reemployment. The average real hourly wage at the time of dislocation for a particular sample of dislocated workers was $8.42 (1982-1984 $).[1] The mean length of nonemployment for workers who became reemployed was 1.17 years, after which time, the average real wage of the first job was $6.11. The average tenure of the first job after dislocation was 41.7 weeks (this includes incomplete spells that were ongoing at the time of the data collection). The average final wage for that job

[1]The data source for this paper is described in detail below.

(or the current wage for individuals still holding the job) was $6.55 (a 7.20 percent real increase in the first job in about 3/4ths of a year). When the survey was conducted approximately one year after reemployment, on average, real wages had risen further to about $6.75.

This paper presents the Mincer and Ofek model and examines its implications for dislocated workers as opposed to other intermittent workers. It then describes the data used to test hypotheses stemming from the M-O model as well as a more general model. The estimates are then presented and discussed.

Model

The underlying framework is a standard Mincerian human capital model in which the log of the wage is dependent on schooling and experience (Mincer 1974). Mincer and Ofek suggest that this framework applies to two types of workers--type 1 are workers who have no plans for extended periods of nonparticipation and are so perceived by their employers. Type II workers have anticipated periods of nonparticipation or are perceived by their employers to be likely to experience spells of nonparticipation. In figure 1, the wage profile for a type I worker is JKL and for an otherwise identical type II worker, the so-called intermittent worker, is ABCDEFG.

Note several characteristics of the model. For convenience, the length of the nonparticipation is assumed to be one period, from V to T. In the pre-nonparticipation period, the slope of the type I worker's profile exhibits a steeper slope due to a training advantage. Further, the entry wage for the type II worker is less than the exit wage, as would be expected. M-O call the difference between CB and DE, f, the short-run depreciation of the worker's human capital. The focus of the M-O analysis is the recovery of the lost human capital that is manifested in a slope of the entry job's wage profile that is greater than either the slope of the type II's exit profile or the type I's uninterrupted profile. Implicitly, it is assumed that the entry job has the profile of the type I worker's job with a return to experience of b. But in addition, in the short run (M-O suggest that the short-run lasts about 5 years), there is a premium of c, that represents the "restoration of market productivity" (p. 6). After this short-run premium disappears, the intermittent worker is left with a long-run effect of nonparticipation equal to d. In other words, the model hypothesizes a long-run and short-run return to experience, b and c, and a long-run and short-run effect of nonparticipation, d and f. The focus of analysis in this paper is c, the rate of recovery of general human capital after a period of nonparticipation.

FIGURE 4 HERE
(Currently available in hard copy only)

Mincer and Ofek confirm empirically the long-run and short-run effects of market nonexperience and experience with panel data from the NLS mature women cohort.

It is suggested here that dislocated workers are neither type I nor type II workers. Rather they represent an amalgam of the two. In figure 2, it is suggested that a dislocated worker's wage profile is JKCDE'F'G. From the above discussion, empirically it appears to be the case that the slope of the E'F' segment is quite steep. The key question is why.

In the Mincer-Ofek pure human capital story, each worker's capital depreciates somewhat (by the amount f in figure 2) during the period of dislocation. In the short-run, after re-entry to employment, the worker is appropriately rewarded with a premium that represents the market productivity recovery over and above the worker's long-run return to experience. Some characteristics of dislocated workers suggest that the human capital recovery model may be less appropriate for dislocate workers than for other workers reentering the work force. By definition, virtually none of the dislocated workers are reemployed by the same firm and the majority are not reemployed in the same occupation or industry. As a consequence, specific human capital accumulation is irretrievably lost. Second, the period of dislocation is relatively short (say, as opposed to a female or male who exits for child rearing purposes), and the dislocation is not a withdrawal from the labor force, typically. Third, dislocated workers exhibit low rates of geographic mobility, so that hiring employers generally have familiarity with the conditions of prior experience. For all of these reasons, it is suggested that human capital recovery is not a central determinant of the wage profile steepness.

FIGURE 2 HERE
(Currently available in hard copy only)

In fact, the M-O human capital restoration model is only one of a number of explanations for a steeply-sloped reentry wage profile. A second explanation would be that dislocated workers undertake job searches that are likely to result in such profiles. On one hand, they may set a high reservation wage based on their prior wage. But on the other hand, because these individuals are usually primary wage earners, they may accept relatively low wage jobs or temporary jobs and undertake on-the-job search. Further, they may be more efficient searchers and thus better able to match their abilities and interests to characteristics of the job. The result of better matches would be steep profiles that reflect returns to the match. Job search explanations for a different reentry wage profile from the predislocation wage profile have credence because almost all programs that intervene to assist dislocated workers place emphasis on developing job search skills.

A third explanation focuses on wage structures that operate in the very early tenure of a (permanent) job. In particular, it is suggested that a preponderance of jobs have the characteristic that wages rise substantially over the first few months of tenure. Furthermore, this is true for all new workers, those who happened to have been dislocated from their prior jobs and those who were voluntarily intermittent as in M-O. The steepness holds whether or not there was any period of nonemployment. Thus the steep wage profiles of dislocated workers upon reemployment and the steep wage profiles of intermittent workers (M-O) may simply be an artifact caused by the fact that these workers are undertaking new jobs. Bishop (1982) documented huge productivity growth in the first few months of jobs, as workers progressed from producing almost nothing on the first day of a new job to becoming fully productive a few months later, on average. The productivity growth rates may not translate to steep wage growth if they are simply a result of specific training or learning by doing. However, the extent to which the costs of specific training are shared (Hashimoto 1981) or that employers attempt to recoup hiring costs will be related to the steepness of the wage profile.

Fourth, the steepness might be caused by the industrial wage structure. Profiles will shift and slopes will differ across industry because of compensating differentials, different product demand conditions, firm size, or other characteristics that vary systematically by industrial sector. If dislocated workers become employed in sectors that structurally have steeper profiles, then the individuals' profiles will be steeper on average, as well. If steepness of the average wage profile in an industry is directly related to growth rates, then it is reasonable to expect this demand-side factor to be relevant since dislocation occurs in slowly growing sectors and reemployment is most likely in relatively fast growing sectors.

A considerable amount of theoretical work, but much less empirical work, has been devoted to models that suggest that firms deliberately use the slope of their wage profile to accomplish particular objectives. For example, Salop and Salop (1975) suggest that steeply-sloped profiles are used to get workers with low turnover propensities to self-select into the firm. The implicit contract literature (Baily, 1974; Azariades 1975) suggests that workers and firms contract to a profile wherein the (risk-averse) workers pay a premium in the early periods of tenure in return for job security in later periods. Another variant of these arguments is that new workers bond themselves against shirking (Lazear 1981).

These models are not offered here as potential explanatory factors for the steeply-sloped reemployment wage profiles of dislocated workers for two reasons. First of all, the 'flavor' of these models suggests a longer time frame than the short-run dimension of the E'F' segment. Second, the models don't explain why reemployment profiles would be steeper than initial profiles (unless there is some reason to suspect that dislocated workers tend to become employed in firms that are more likely to establish these wage incentives or that there has been some secular trend toward these practices.)

In contrast to the four or five reasons to expect a steep profile, it should be noted that there are some arguments that would suggest that the reemployment profile should be relatively flat. First of all, some of the dislocated workers are individuals who are laid off from firms. Theory suggests that firms tend to stockpile their most productive employees, so dislocated workers may represent a disproportionate share of less capable or less productive workers. On the other hand, layoffs may be based on seniority, so that younger workers are disproportionately represented among layoffs. A second reason that profiles may be flatter is that at the point of reemployment the dislocated workers are several years older than when they initially joined the work force. As such, firms may be more reluctant to invest in specific human capital simply on the grounds of a shorter payoff period. Finally, it might be argued that initial jobs represented the best matches between job and worker, and thus the reemployment job would have a smaller job match growth rate. Nevertheless, the data suggest that the early segments of the reemployment wage profiles have sharp slopes, so the extent to which these arguments are valid suggest that they are dampening an even greater slope.

Data

A telephone survey of a random sample of approximately 2250 individuals who had received training services through Title III of the Job Training Partnership Act (JTPA) in the State of Ohio was conducted. The precise population that was sampled included any individual who had been declared officially as terminated from a training program between July 1, 1985-June 30, 1986. Unlike other programs funded through JTPA, title III programs can be administered by organizations other than designated service delivery agencies (SDA's). The State of Ohio funded this survey to examine differential outcomes by type of administrative organization, so a stratified sample was drawn with sampling rates dependent on whether the grant administrator was an educational institution, a community-based organization that was not an SDA, a private business, an organized labor organization, or an SDA.

The survey collected information concerning the respondents' work experience prior to dislocation, various characteristics of the dislocation event such as whether or not there was notice and whether or not it was a plant closing or mass layoff, training program activities, and post-program employment and training. In particular, detailed information was collected about every job that was held since termination from the training program. The official JTPA application and client file was obtained for all respondents and data from that file, such as age, family status, education, and so forth was merged to the survey response.

A completion rate of about 62% was achieved resulting in about 1350 respondents. For this study, only individuals who reentered the work force after dislocation were included. This narrowed the sample to about 900. Further narrowing occurred because of item nonresponse. The exact definitions, means, and sample sizes for the variables used in the analysis are provided in Table 1. The precise questionnaire is available upon request. A more detailed description of the data collection is in Hollenbeck and Bennici (1988).

Results

A general formulation of the earnings equation that is used by M-O is as follows:

$$\ln(w) = as + b_1 e_0^2 + b_2 e_0 + c_1 e_1 + d_1 h_0^2 + d_2 h_0 + f h_1 + gX \tag{1}$$

where
w = real wage
s = years of schooling
e_0, e_1 = years of past and current employment
h_0, h_1 = years of past and current nonemployment
X = vector of control variables (including union membership and industry)

Equation (1), with an error term assumed to have the usual properties, can be estimated at three points in the wage profile with either panel data or with job history data such as that collected for the data set described here. At the wage earned at the time of dislocation, the model holds with e_1 and h_1 both equal to 0 and with the appropriate controls in the X vector. On the first day of reemployment (at point T in figures 1 and 2), $e_1 = 0$, and h_1 is the length of the dislocation period. Finally, the model can be estimated at a point (several months or years) after reemployment, when all regressors are nonzero.

Table 2 presents the results of estimating (1) at these three points in time. (Both linear and quadratic specifications are presented for each equation.) The estimates show a rather dramatic decline in the long-run return to total experience, i.e., the b_i coefficients. They drop from about 1.8 percent (real) per year of experience in the predislocation wage (quadratic specification) to less than 1.0 percent per year of experience for the reentry wage and for the final observed wage.[2] The return to short-run (post-dislocation) experience, the c_i coefficients, shown in the final columns of table 2, reflect the steep wage profiles alluded to above. On average, these returns are between 9-13 percent in real terms.[3] The short-run effect of the dislocation period exhibits the expected negative effect on wages that is highly significant. The wage loss from dislocation grows with the length of the dislocation period.

An interesting aspect to this data set is the fact that it directly measured the amount of nonparticipation prior to the dislocation event. Typically, this variable is derived by subtracting years of schooling plus six from experience. Employers seem to compensate workers for this "other experience," although the estimates are, for the most part, not significant.

The coefficients on schooling and on the controls in the model are stable and intuitively reasonable. A year of schooling bestows these workers around an 8 percent return in real wages. Women and (inexplicably) veterans have rather large wage disadvantages. Union members (both pre- and post-dislocation) exhibit significant advantages.

Replication of the Mincer-Ofek model. Equation (1) generalizes the precise earnings equation in the M-O model by the inclusion of union membership and industry variables. To replicate the earlier work more closely, (1) was estimated, at all three points in time, without industry intercept dummy variables. The results of this restricted version of (1) are presented in table 3. The effects of omitting the industrial sectors are to dampen the slope of the reemployment wage profile and to increase the estimated negative return to length of dislocation. In table 2, the short-run return to reemployment experience was between 9.1 percent (in the linear specification) to 13.3 percent (in the quadratic specification at one year of experience). Both

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[2]Mincer and Ofek do not report estimates of the preintermittency wage equation, so it is not known if this phenomenon occurred in their data as well.

[3]The magnitude of the slope is far greater than the M-O estimates for mature women reentering the labor force. After one year, table 4 suggests a real wage return to years of new experience of 13.3 percent. The comparable return in the M-O study is 4.3 percent (from table 7, p. 16).

estimates were significant. In table 3, the range for the estimated return has dropped to 3.0 percent to 7.4 percent, the former losing statistical precision. The negative coefficients on length of the dislocation period have increased (in absolute value) by between 10-50 percent. The other coefficients in the model remained reasonably stable. Note that the F-test results indicate that the inclusion of the industry variables in the model is highly significant.

This replication of the M-O results suggests that industry is an important factor in determining the wage profile of reentering workers. It does not refute the general human capital recovery explanation for a steeply-sloped wage profile for dislocated workers, but it does indicate that not controlling for sector may cause serious bias.

<u>The general model with slope interactions to test for alternative explanations</u>. The empirical evidence presented to this point confirms a steeply-sloped profile. However, the discussion above suggests that a more general model than (1) may be operative. In particular, the slope (in addition to the intercept) is likely affected by differential industry profiles, by layoff rules, by varied job search abilities and strategies, and by wage mechanisms that operate in the very early tenure of jobs that are independent of the human capital attributes of workers hired into those jobs. This more general model is presented in (2).

$$\ln(w) = as + b_1e_0^2 + b_2e_0 + c_1e_1^2 + c_2e_1 + d_1h_0^2 + d_2h_0 + fh_1 + k_{11}INDUS * e^{12} + k_{12}INDUS * e_1 + g_1INDUS + k_{22}ONEJOB * e_1^2 + k_{22}ONEJOB * e_1 + g_2ONEJOB + k_{31}h_1 * e_1^2 + k_{32}h_1 * e_1 + k_{41}PLTCLOSE * e_1^2 + k_{42}PLTCLOSE * e_1 + g_4PLTCLOSE + k_{51}TRNG * e_1^2 + k_{52}TRNG * e_1 + g'X^{\circ} \tag{2}$$

where s, e_0, e_1, h_0, h_1 are defined above

INDUS	=	vector of dummy variables indicating industry of employment
ONEJOB	=	1 if worker's reemployment was in a single, permanent job; 0 otherwise
PLTCLOSE	=	1 if worker was dislocated because of a plant closing; 0 otherwise
TRNG	=	percentage of time spent in training in week one of the reemployment position
X°	=	vector of control variables (as in (1)) less INDUS, ONEJOB, PLTCLOSE, and TRNG, which are listed in the equation separately, for heuristic purposes

Industry-experience interactions capture the effects of sectoral shifts in employment. Similarly, slope interactions are included for individuals that became reemployed in a permanent job and had not changed jobs by the time of the survey and for length of the dislocation period. These variables are intended to capture job search effectiveness and strategies. The plant closing-experience interaction is intended to capture any selectivity caused by firms in their layoff decisions. Finally, a measure of training in the reemployment job is interacted with experience to determine how much of the steepness is human capital acquisition as opposed to restoration.

Estimates of a stochastic version of equation (2) using final observed wage as the dependent variable are presented in table 4. The signs and significance of some of the slope interactions suggest that the inclusion of these factors is important, but an F-test comparing the general model in (2) to the restricted model in (1), is marginally significant. (The general model is significantly different from the M-O model, where industry was omitted altogether however.)

The results show that individuals whose reemployment job is permanent and the only job after the period of dislocation and training, takes a larger pay cut, ceteris paribus, but experience a larger growth rate in real wages. Individuals dislocated because of plant closing seemed to exhibit flatter wage profiles. This result may reflect seniority rules in layoffs, wherein younger workers comprise the bulk of the layoffs. Other things equal, such workers would have steeper wage profiles than older workers who would be represented in a plant closing group.

Adding the slope interactions resulted in steeper experience profiles--both total experience and short-run experience. The latter result indicates that the alternative explanations of the steeply rising wage profile have merit to the extent that equation (2) tests them.

Conclusion

Evidence from a data set collected from a sample survey of dislocated workers who had received training through JTPA showed steeply-sloped wage profiles after reemployment. Thus the inference that previously estimated lifetime earnings losses may be overstated is likely to be accurate. However, theoretical and empirical evidence suggests that recovery of depreciated general human capital is at best a minor component of these profiles. Industry of reemployment was seen to be a major explanatory factor; for shifts in the position of the wage profile, in particular. Different industrial slopes was not revealed.

Job search explanations for the profile steepness may also be relevant. Individuals whose reemployment job was permanent and was apparently well-matched to the worker (because there was no subsequent separation prior to the survey) had quite different reemployment profiles from other workers who became reemployed. They were, in fact, much steeper. Job search strategies may have been more important for this sample than for a general sample because all respondents had some contact with a JTPA title III (Dislocated Worker) program. The steeper profiles for "better" matches buttresses the returns to job matches in the job-matching literature.

Finally, the size and significance of the quadratic terms at all three points in time for which the model could be estimated is quite consistent with an institutional explanation for steep profiles in which wage payments in very early tenure periods are adjusted significantly. Because of the nature of the sample, this explanation could not be thoroughly tested here, but a potentially fruitful extension of this work would be to examine within-first year wage growth in jobs.

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Table 1
Variables Used in the Empirical Analysis

Variable	Definition	Means Sample I	Sample II	Sample III
s	Years of schooling	12.37	12.46	12.41
e_0	Years of full-time work experience prior to layoff	16.85	16.44	na
e_0^2	--	379.23	365.50	na
e	Years of full-time work experience ($e_0 + e_1$)	--	--	17.51
e^2	--	--	--	401.84
e_1	Years of experience after reemployment	na	na	1.03
e_1^2	--	na	na	1.44
h_0	Years of other experience prior to layoff	5.32	4.97	5.14
h_0^2	--	61.33	53.73	56.31
h_1	Length of dislocation (in years)	na	1.13	1.11
Female	1 if female, 0 otherwise	.32	.33	.33
Minority	1 if nonwhite, 0 otherwise	.27	.28	.27
Married	1 if married, 0 otherwise	.53	.56	.56
Veteran	1 if veteran, 0 otherwise	.30	.31	.32
Union member prior	1 if union member at time of layoff, 0 otherwise	.59	.59	.58
Union member after	1 if union member at time of observation, 0 otherwise	na	.38	.38
ONEJOB	1 if only one job after layoff and is permanent, 0 otherwise	na	na	.56
PLTCLOSE	1 if plant closing, 0 otherwise	na	.49	.49
TRNG	percentage of time spent in training in week 1 of 1st reemployment job	na	na	36.26
INDUS	Industry at time of observation			
Agriculture		.00	.01	.01
Mining		.01	.01	.01
Construction		.04	.08	.08
Transportation, communications, and public utilities		.65	.32	.32
Wholesale and retail trade		.05	.07	.07
Finance, insurance, and real estate		.08	.13	.12
Service		.01	.02	.02
Government/nonprofit		.11	.19	.19
Not identifiable		.02	.06	.06
		.03	.11	.11
n		517	333	370

Sample I - observations with last wage prior to dislocation reported and reemployed.
Sample II - observations with reemployment starting wage reported.
Sample III - observations with wage at time of survey reported.
NA - variable not available in this sample.
-- - variable not used in this sample.

Table 2
Estimates of Wage Equation (1)
(standard errors in parentheses)

Independent Variable	ln(wage) at dislocation: linear	ln(wage) at dislocation: quadratic	ln(wage) at reentry: linear	ln(wage) at reentry: quadratic	ln(wage) final: linear	ln(wage) final: quadratic
	Dependent Variable/Model					
Schooling (s)	.078*** (.010)	.071*** (.010)	.083*** (.015)	.080*** (.015)	.083*** (.014)	.078*** (.014)
Total experience (e_0)	.013*** (.002)	.037*** (.005)	.007** (.002)	.016** (.007)	.004*[b] (.002)	.012*[b] (.007)
e_0^2	--	-.0006*** (.0001)	--	-.0002 (.0002)	--	-.0002[b] (.0002)
Post-dislocation experience (e_1)	NA	NA	NA	NA	.091** (.035)	.214*** (.078)
e_1^2	NA	NA	NA	NA	--	-.040* (.023)
Total nonexperience (h_0)	.004 (.003)	.0006 (.007)	.007* (.004)	.003 (.011)	.006 (.004)	-.003 (.010)
h_0^2	--	.0001 (.0003)	--	.0002 (.0005)	--	.0005 (.0005)
Length of dislocation (h_1)	NA	NA	-.066*** (.018)	-.064*** (.019)	-.061*** (.018)	-.055*** (.018)
Controls						
Female	-.170*** (.039)	-.180*** (.038)	-.207*** (.057)	-.208*** (.057)	-.216*** (.054)	-.220*** (.054)
Minority	-.027 (.035)	-.015 (.033)	.024 (.050)	.031 (.050)	.019 (.047)	.025 (.047)
Married	.029 (.031)	.013 (.030)	.029 (.045)	.019 (.046)	.056 (.043)	.047 (.043)
Veteran	-.118*** (.037)	-.114*** (.037)	-.150*** (.055)	-.146*** (.055)	-.098* (.051)	-.088* (.051)
Union member prior to dislocation	.210*** (.033)	.201*** (.033)	.091* (.049)	.088* (.050)	.095** (.046)	.092*** (.046)
Union member after dislocation	NA	NA	.310*** (.048)	.313*** (.048)	.255*** (.045)	.258*** (.045)
Industry[a]	Included	Included	Included	Included	Included	Included
Constant	.67	.60	.69	.66	.73	.67
Dependent variable mean	2.15	2.15	1.84	1.84	1.94	1.94
n	517	517	333	333	370	370
$\bar{R}^2$	.4162	.4445	.4325	.4324	.4277	.4310

Notes:
[a]Nine industry dummies: agriculture; mining; construction; manufacturing; transportation, communication, and public utilities; wholes and retail trade; finance, insurance, and real estate; services; government. Represents industry of employment at time dependent variable is measured. Omitted category is respondents whose industrial sector could not be determined since only firm names were provided.
[b]Total experience here is sum of $e_0 + e_1$ to purge coefficient on e_1 of long-run experience effect.
*** Significant at the .01 level (two-tail test); ** significant at the .05 level; * significant at the .10 level.
NA = variable not applicable to this point in time.
-- = variable not entered in this specification.

Table 3
Estimates that Replicate the Mincer-Ofek Model
(standard errors in parentheses)

	Dependent Variable/Model					
	ln(wage) at dislocation		ln(wage) at reentry		ln(wage) final	
Independent Variable	linear	quadratic	linear	quadratic	linear	quadratic
Schooling (s)	.073*** (.010)	.066*** (.010)	.082*** (.016)	.080*** (.016)	.082*** (.015)	.076*** (.015)
Total experience (e_0)	.014*** (.002)	.040*** (.005)	.006** (.003)	.015* (.008)	.003[a] (.002)	.011[a] (.008)
e_0^2	--	-.0007*** (.0001)	--	-.0002 (.0002)	--	-.0002[a] (.0002)
Post-dislocation experience (e_1)	NA	NA	NA	NA	.030 (.035)	.156** (.080)
e_1^2	NA	NA	NA	NA	--	-.041* (.024)
Total nonexperience (h_0)	.002 (.003)	-.004 (.007)	.006 (.005)	.0007 (.011)	.004 (.004)	-.007 (.011)
h_0^2	--	.0003 (.0004)	--	.0003 (.0005)	--	.0005 (.0005)
Length of dislocation (h_1)	NA	NA	-.074*** (.017)	-.071*** (.017)	-.091*** (.018)	-.084*** (.018)
Controls						
Female	-.204*** (.040)	-.212*** (.039)	-.285*** (.059)	-.286*** (.059)	-.301*** (.056)	-.305*** (.056)
Minority	-.043 (.036)	-.028 (.035)	.019 (.052)	.024 (.052)	.028 (.050)	.033 (.050)
Married	.064** (.032)	.047 (.031)	.050 (.047)	.042 (.048)	.073 (.0456)	.066 (.045)
Veteran	-.130*** (.038)	-.122*** (.038)	-.161*** (.058)	-.157*** (.058)	-.108** (.054)	-.097* (.054)
Union member prior to dislocation	.273*** (.033)	.263*** (.033)	.109** (.051)	.106** (.051)	.114** (.048)	.110** (.048)
Union member after dislocation	NA	NA	.381*** (.049)	.384*** (.049)	.331*** (.046)	.332*** (.046)
Constant	.91	.85	.67	.65	.82	.77
Dependent variable mean	2.15	2.15	1.84	1.84	1.94	1.94
n	517	517	333	333	370	370
F-test (restriction that industry effects are 0)	6.91***	6.66***	6.05***	6.08***	6.51***	6.48***
$\bar{R}^2$	.3550	.3885	.3540	.3529	.3484	.3520

Notes:
[a]Nine industry dummies: agriculture; mining; construction; manufacturing; transportation, communication, and public utilities; wholes and retail trade; finance, insurance, and real estate; services; government. Represents industry of employment at time dependent variable is measured. Omitted category is respondents whose industrial sector could not be determined since only firm names were provided.
*** Significant at the .01 level (two-tail test); ** significant at the .05 level; * significant at the .10 level.
NA = variable not applicable to this point in time.
-- = variable not entered in this specification.

Table 4
Estimates from a General Model of Wage Profiles with Slope Interactions
(standard errors in parentheses)

Independent Variable	Model specification: Linear	Model specification: Quadratic
Schooling (s)	.081***	.077***
	(.014)	(.015)
Total experience (e_0)	.006**	.016**
	(.002)	(.008)
e_0^2	--	-.0002
Post-dislocation experience (e_1) (at means)	.1182	.2502
e_1^2 (at means)	--	-.0318
Total nonexperience (h_0)	.005	-.009
	(.004)	(.010)
h_0^2	--	.0007
		(.0005)
Length of dislocation (h_1) (at means)	-.072	-.070
<u>Job Search Variables</u>		
One job	-.148*	-.159
	(.087)	(.141)
One job * e_1	.138*	.168
	(.074)	(.232)
One job * e_1^2	--	-.019
		(.090)
h_1 * e_1	-.055	-.021
	(.036)	(.109)
h_1 * e_1^2	--	-.022
		(.049)
<u>Type of Dislocation Variables</u>		
Plant closing	.078	-.037
	(.092)	(.146)
Plant closing * e_1	-.175**	.078
	(.075)	(.239)
Plant closing * e_1^2	--	-.123
		(.096)
<u>Training</u>		
Training time	-.062	-.047
	(.115)	(.174)
Training time * e_1	.113	.078
	(.097)	(.282)
Training time * e_1^2	--	.004
		(.110)
<u>Industry Shift Variables</u>		

Table 4
(Continued)

Independent Variable	Model specification: Linear	Model specification: Quadratic
Intercept dummies	Included	Included
Slope Interactions	Included	Included
Controls		
Female	-.228***	-.222***
	(.055)	(.056)
Minority	-.003	-.011
	(.048)	(.049)
Married	.082*	.076*
	(.043)	(.044)
Veteran	-.097*	-.075
	(.052)	(.053)
Prior Union Member	.087*	.100**
	(.047)	(.048)
Post-dislocation union member	.248***	.260***
	(.046)	(.048)
Constant	.79	.88
F-test (restriction that slope interactions are 0)	1.70**	1.27
Dependent variable mean	1.94	1.94
n	370	370
$\bar{R}^2$	.4430	.4415

Notes: *** Significant at the .01 level (two-tail test); ** significant at the .05 level; * significant at the .10 level.
-- Variable not entered in this specification.