

Wage Insurance and Labor Market Trajectories

By BENJAMIN G. HYMAN, BRIAN K. KOVAK, ADAM LEIVE, AND THEODORE NAFF*

The consequences of job displacement are often severe, with many workers experiencing large earnings declines, protracted periods of unemployment, and other negative outcomes.¹ Since at least the late 1980s, researchers have proposed wage insurance systems to counteract these effects. In such systems, workers whose reemployment wages are lower than their pre-displacement wages receive a temporary subsidy covering a portion of the wage decline.² Proponents argue that wage insurance compensates workers facing wage reductions after job displacement, incentivizes job search, shortens unemployment durations, and supports workers for whom job training may be less effective.³

Since 2002, the U.S. Trade Adjustment Assistance (TAA) program has included a wage insurance program available to workers age 50 and over who were laid off in a trade-related displacement. This national program is the largest and longest-running wage insurance program in the world.⁴ Hyman, Kovak and Leive (2021) study the program using an age-eligibility regression discontinuity design with nationally representative data from the U.S. Census Bu-

reau’s Longitudinal Employer Household Dynamics (LEHD) dataset.

Here, we complement that work using administrative worker-level data from Virginia, providing details on program participation and benefit amounts received, linked to long-run earnings histories covering 2005-2018. While all TAA-certified workers had access to training and extended unemployment insurance payments, only those over age 50 had the additional option of receiving wage insurance. We therefore compare employment and earnings trajectories for workers exceeding this threshold against those for slightly younger workers. Because wage insurance increases workers’ effective wages, we expect shorter unemployment durations and lower earnings for eligible workers.⁵

We find that wage-insurance eligible workers are indeed more likely to be employed in the years just after displacement. Their quarterly earnings as a share of pre-displacement average earnings are also modestly higher during this period, but this difference is entirely accounted for by the higher probability of employment. In the longer run, the gap in employment probability closes, and wage insurance eligible workers’ normalized earnings equal or fall slightly below those of ineligible workers.

I. RTAA Wage Insurance Program

The TAA Program provides benefits to workers who experience job loss or reduced hours or wages “as a result of increased imports or shifts in production out of the United States.”⁶ The program’s primary benefits cover job training costs for up to three years and extended unemployment insurance (UI) payments during training.⁷ Worker eligibility for TAA is contingent upon the Department of Labor certifying that the displacement event was trade related.

In 2002, the TAA program introduced a pi-

* Hyman: FRBNY, 33 Liberty St, New York, NY 10045, ben.hyman@ny.frb.org. Kovak: CMU Heinz, 4800 Forbes Ave, Pittsburgh, PA 15213, bkovak@cmu.edu. Leive: UVA Batten, 235 McCormick Rd, Charlottesville, VA 22904, leive@virginia.edu. Naff: NBER, 1050 Massachusetts Ave, Cambridge, MA 02138, nafft@nber.org.

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¹Among many others, Jacobson, LaLonde and Sullivan (1993), Kletzer (1998), and Couch and Placzek (2010) study effects on earnings and unemployment, and Sullivan and Von Wachter (2009) analyze effects on mortality.

²See Lawrence and Litan (1986) on “earnings insurance.”

³e.g. Kletzer and Litan (2001).

⁴Bloom et al. (1999) evaluate a two-year wage insurance experiment run in 5 Canadian cities. A landmark Mathematica TAA evaluation provided suggestive evidence regarding wage insurance using a small sample (Schochet et al., 2012).

⁵These predictions follow from a standard partial-equilibrium McCall (1970) search model.

⁶Department of Labor, Employment and Training Administration. https://www.doleta.gov/tradeact/taa_wdp.cfm

⁷See Hyman (2018) for details on TAA.

lot wage insurance program for older workers. We study the permanent version of the program, Reemployment Trade Adjustment Assistance (RTAA), which started in 2009.⁸ RTAA-eligible workers who are reemployed at a wage below their pre-displacement wage may apply for a subsidy covering up to 50 percent of the gap between their pre- and post-displacement wages for up to two years. In order to be eligible for this wage insurance payment, the worker must be age 50 or over, a member of a TAA-certified group of displaced workers, reemployed full time or at least 20 hours per week if combined with TAA-approved training, and must not exceed income and benefit limits.⁹

II. Data and Empirical Approach

Given this eligibility structure, our analysis compares earnings and employment trajectories for workers who were more or less likely to be eligible for wage insurance, based on the worker's age at displacement. Specifically, workers who were age 50-54 at displacement were eligible for wage insurance immediately upon separation, while younger workers, age 45-49, were not.

To implement this comparison, we must identify TAA-certified displacement episodes and observe associated workers' age, employment status, and earnings over time. We do so using administrative data from the Virginia Employment Commission. The database contains worker-level information on all TAA-eligible individuals in Virginia who received services under a Department of Labor (DOL) program, including those receiving training and income support under the standard TAA program and those receiving wage insurance under RTAA.¹⁰ These records were then merged with quarterly UI-covered earnings from 2005 to 2018. We

therefore observe the evolution of workers' earnings and employment status at the quarterly level for several years both preceding and following a TAA-eligible displacement.

The main limitation of these data is that they omit workers who were eligible for TAA but did not receive services from TAA or other DOL programs.¹¹ These omitted workers likely include those who quickly found favorable reemployment and thus did not pursue TAA training or RTAA wage insurance payments. If these missing workers had systematic differences in outcomes from observed workers, and the probability of being omitted differed by age, then comparisons between the two age groups would be confounded. However, it appears that this concern is unlikely to be quantitatively important in this context. The distribution of age at separation is continuous at age 50 (Appendix Figure A1), and workers' observable features, including pre-displacement earnings, are balanced between the two age groups (Table 1). Thus, we do not expect this issue to substantially affect our empirical findings.

Our sample covers TAA-certified workers whose petitions were filed on or after May 18, 2009 and who were displaced by the end of 2017. These restrictions ensure that workers were eligible for RTAA, while also allowing us to observe earnings and employment for at least one year following separation. We include workers age 45 to 54 at the date of separation and restrict attention to those with high labor force attachment, defined as earning at least \$3,000 in each quarter from 8 to 5 quarters prior to separation. We impose this condition two years before separation to avoid endogenous sample selection from any anticipatory changes in earnings in the year before displacement.

Our two main outcomes are quarterly earnings and employment.¹² A worker is categorized as employed if they have nonzero earnings in a given quarter. To mitigate the effects of unobserved worker heterogeneity on our earnings

⁸The pilot program, Alternative TAA, had restrictive eligibility rules and low takeup. RTAA relaxed these requirements, and takeup increased substantially.

⁹In 2009-2010, eligible workers had to be age 50 or over upon reemployment. From 2011 onward, workers could obtain reemployment earlier, but only receive benefits after turning 50. Estimated annual reemployment earnings could not exceed \$55,000 in 2009-2010 and \$50,000 thereafter. The 2-year benefit eligibility window begins at the earlier of reemployment or the exhaustion of UI payments, and the maximum benefit was \$12,000 in 2009-2010, and \$10,000 thereafter.

¹⁰Appendix Table A1 compares TAA participants between Virginia and other states, and shows most observable characteristics are similar.

¹¹15 percent of our sample neither received training nor income support payments from traditional TAA or wage insurance. Instead, they received benefits from other DOL programs such as WIA/WIOA services. See Appendix Figure A2 for program takeup by age group.

¹²We deflate earnings to 2018Q1, and to reduce noise, drop observations in the top 1 percent of earnings within each separation quarter. Earnings do not include RTAA payments.

TABLE 1—DESCRIPTIVE STATISTICS AND PRE-DISPLACEMENT BALANCE

	Separation Age: 45-49			Separation Age: 50-54			(50-54) - (45-49)	
	Mean (1)	SD (2)	# Workers (3)	Mean (4)	SD (5)	# Workers (6)	Δ (7)	SE (8)
Age at Separation	47.5	[1.44]	1,027	52.0	[1.15]	1,003	4.44	(0.058)
Wage Insurance Takeup	0.049	[0.22]	1,027	0.30	[0.46]	1,003	0.25	(0.016)
Employer Tenure (Years)	13.3	[8.45]	836	18.7	[10.9]	841	5.46	(0.48)
Year of Separation	2010.6	[1.97]	1,027	2010.8	[1.95]	1,003	0.19	(0.087)
Earnings, Quarters -8 to -5	12,645	[6,971]	1,027	12,542	[6,619]	1,003	-103	(301)
Less than High School	0.093	[0.29]	839	0.099	[0.30]	840	0.0058	(0.014)
High School	0.59	[0.49]	839	0.60	[0.49]	840	0.0088	(0.024)
Some Postsecondary	0.24	[0.43]	839	0.24	[0.43]	840	0.0045	(0.021)
College or Higher	0.081	[0.27]	839	0.062	[0.24]	840	-0.019	(0.013)
Female	0.38	[0.49]	839	0.36	[0.48]	841	-0.020	(0.024)
Black	0.28	[0.45]	810	0.28	[0.45]	822	0.0045	(0.022)
White	0.66	[0.47]	810	0.67	[0.47]	822	0.011	(0.023)

Notes: Sample is restricted to high labor force attachment as defined in the text. Columns (7-8) presents results from a two-sided t-test with heteroskedastic-robust standard errors. Observation counts vary due to incomplete demographic data (treated as missing in regressions with controls).

measure, we calculate the earnings replacement rate as earnings in a given quarter divided by average quarterly earnings 8 to 5 quarters prior to separation.¹³

Table 1 presents summary statistics and balance tests for our sample of 2,030 displaced workers meeting the criteria described above. By design, the average ages differ across the two age-at-displacement groups, and the older workers are 25 percentage points more likely to receive wage insurance payments. Average displacement timing and average earnings are very similar across the two groups. The older workers have about 5 more years of average tenure with their pre-displacement employer, consistent with the age difference between the groups. Overall, nearly 70 percent of the workers had a high school degree or less, and average pre-displacement tenure was more than 16 years. Both of these characteristics are associated with large and enduring losses from displacement.¹⁴

III. Employment and Earnings Trajectories

Panels (a) and (b) of Figure 1 plot employment shares and earnings replacement rates by quarter relative to separation for younger and older displaced workers. The pre-separation profiles for both outcomes are roughly constant and are similar across the two age groups.

Our highly-attached restriction constrains the employment profiles to equal one in quarters -8 to -5 relative to separation. Reassuringly, outcomes in the preceding and following years remain roughly constant even though they are unconstrained. These similarities in pre-displacement outcomes across the two age groups reinforce the balance in Table 1.

Following displacement, workers in our sample exhibit large declines in employment shares and earnings replacement rates. The employment share falls by roughly 60 percent before recovering, while earnings fall by nearly 80 percent from baseline. Note that the mean earnings replacement rate includes zeros for non-employed individuals, so the earnings decline in Panel (b) captures both the decline in the probability of employment in Panel (a) and the decline in earnings conditional on employment (shown in Appendix Figure A3, Panel (b)).

Panel (a) shows that during the three years following displacement, workers over age 50 are more likely to be employed than younger workers. This difference is consistent with the differences in program participation between the two groups (Appendix Figure A2): many older workers quickly find reemployment to take advantage of the RTAA wage insurance subsidies, while most younger workers without access to wage insurance pursue TAA training.¹⁵ For

¹³Earnings levels are also similar (Appendix Figure A3).

¹⁴See Kletzer (1998) and White (2010).

¹⁵Disability insurance eligibility becomes more lenient at

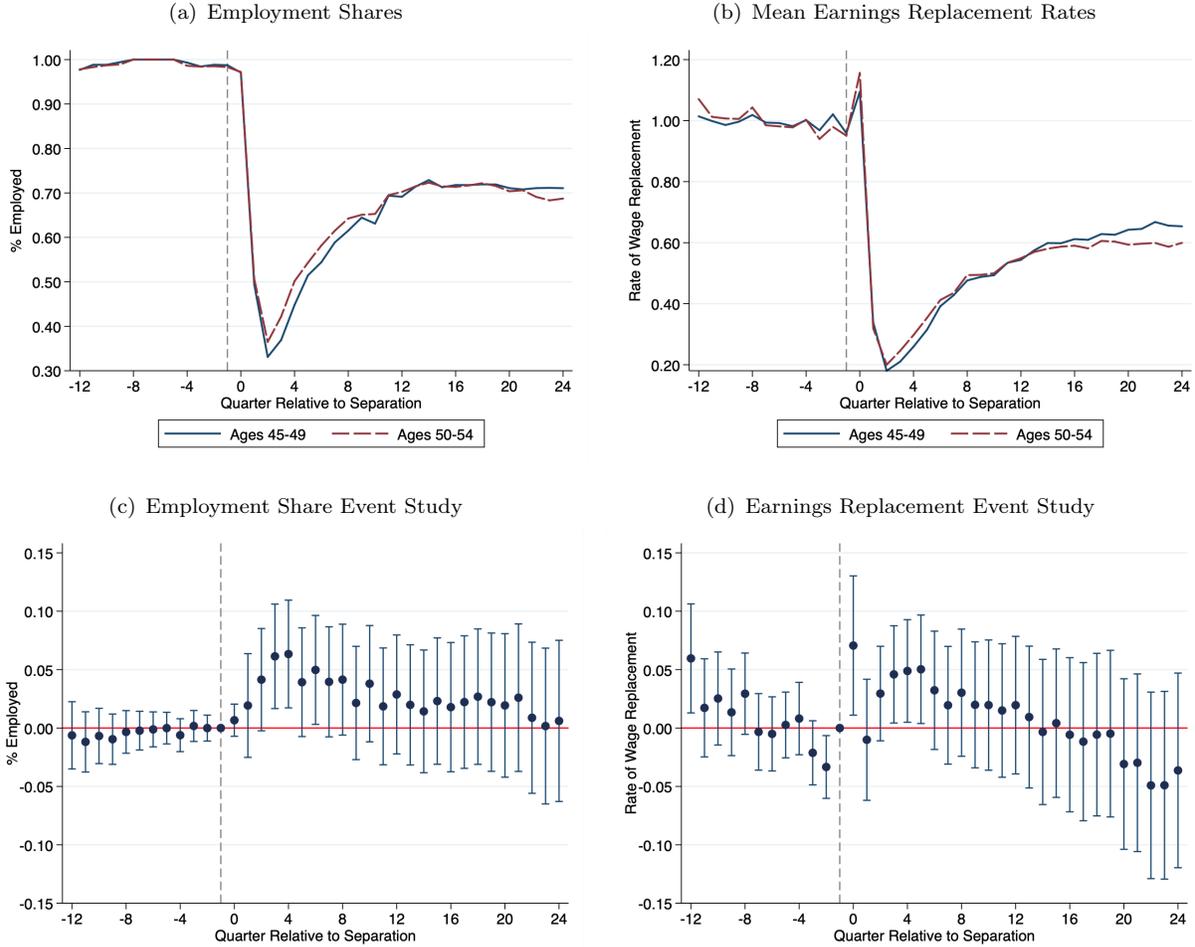


FIGURE 1. EMPLOYMENT AND EARNINGS TRAJECTORIES

Notes: Panels (a) and (b) plot raw means for employment and earnings replacement rates. Panels (c) and (d) plot β_τ estimates from Equation 1. Sample is restricted to high labor force attachment in second year prior to displacement (see text for details).

nearly all workers, the period of wage insurance or training eligibility ends within three years following separation. From that point on, the two groups' employment shares are equal or are slightly lower for older workers.

Panel (c) presents an event study estimating

$$(1) Y_{it} = \alpha D_i + \sum_{\tau \neq -1} [\delta_\tau * \mathbb{1}\{t - s_i = \tau\} + \beta_\tau * \mathbb{1}\{t - s_i = \tau\} * D_i] + \mathbf{X}'_{it} \gamma + \varepsilon_{it}$$

where Y_{it} is an outcome for worker i in quarter t ; s_i is worker i 's separation quarter; D_i is an indicator for being at least age 50 at dis-

age 50 (Chen and van der Klaauw, 2008), which would lead our analysis to *understate* employment effects.

placement; \mathbf{X}_{it} is a vector of controls consisting of quarter of separation fixed effects, race, gender, education, pre-displacement tenure, and a quadratic in calendar age; and ε_{it} is an error term.¹⁶ Older workers are more likely to be employed during the three-year period of potential benefit eligibility and exhibit smaller differences thereafter. Wage insurance eligibility thus appears to encourage reemployment and shorten unemployment durations relative to eligibility for standard TAA, while both programs yield similar long-term employment trajectories.

In Panels (b) and (d), older workers' earnings replacement rates are a bit higher than those of younger workers shortly after displacement,

¹⁶Standard errors are clustered by individual.

but this pattern is driven almost entirely by the differences in employment shares.¹⁷ After the three-year period of potential benefit eligibility, older workers' earnings replacement rates consistently fall below those of younger workers.¹⁸

IV. Discussion

Although we find similar long-run outcomes for workers who were and were not eligible for wage insurance, this does not imply that wage insurance had no impact. All workers in our sample were eligible for TAA training, and the vast majority of workers under 50 took up these services (Appendix Figure A2). Finding similar employment and earnings trajectories for the two age-at-separation groups suggests that wage insurance and TAA training may yield similar effects, even though TAA training substantially increases participants' long-run earnings (Hyman, 2018). While wage insurance does not appear to provide a bridge to higher wage jobs as some proponents advocate, it may facilitate income smoothing benefits which training programs cannot.

Future research should confirm whether standard TAA and wage insurance indeed have similar effects on workers' outcomes. If so, which of the two programs achieves these favorable outcomes at a lower social cost? Although additional evidence is needed before deciding to apply wage insurance more broadly, our findings suggest that wage insurance should be considered alongside other proposals seeking to reduce inequality through increased earnings and employment.

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- ¹⁷The short-run differences disappear when restricting to employed workers (Appendix Figure A3). The small earnings spike in the displacement quarter reflects lump-sum severance payouts and is commonly observed in prior work (see Couch and Placzek 2010).
- ¹⁸Appendix Tables A2 and A3 present difference-in-difference regressions summarizing these event study results. Appendix Figure A4 shows these models are powered to detect small effect sizes.
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