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Wage Insurance and Labor Market Trajectories[†]

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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 predisplacement 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 (e.g., Kletzer and Litan 2001).

Since 2002, the US 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.[3] Hyman, Kovak, and Leive (2021) study the program using an age-eligibility regression discontinuity design with nationally representative data from the Census Bureau'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 (UI) 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.[4]

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 predisplacement 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

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[1]Among 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.

[2]See Lawrence and Litan (1986) on "earnings insurance."

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

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

shifts in production out of the United States."[5] The program's primary benefits cover job training costs for up to three years and extend UI payments during training.[6] Worker eligibility for TAA is contingent upon the Department of Labor (DOL) certifying that the displacement event was trade related.

In 2002, the TAA program introduced a pilot wage insurance program for older workers. We study the permanent version of the program, Reemployment Trade Adjustment Assistance (RTAA), which started in 2009.[7] RTAA-eligible workers who are reemployed at a wage below their predisplacement wage may apply for a subsidy covering up to 50 percent of the gap between their pre- and postdisplacement wages for up to 2 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 not exceed income and benefit limits.[8]

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 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 DOL program, including those receiving training and income support under the standard TAA program and those receiving wage insurance under RTAA.[9] 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.[10] 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 (online Appendix Figure A1), and workers' observable features, including predisplacement 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 45–54 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 eight to five quarters prior to separation. We impose this condition two years

[5] See Hyman (2018).

[6] See Hyman (2018) for details on TAA.

[7] The pilot program, Alternative TAA, had restrictive eligibility rules and low take-up. RTAA relaxed these requirements, and take-up increased substantially.

[8] In 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 two-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.

[9] Online Appendix Table A1 compares TAA participants between Virginia and other states and shows most observable characteristics are similar.

[10] 15 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 Workforce Investment Act/Workforce Innovation and Opportunity Act services. See online Appendix Figure A2 for program take-up by age group.

Table 1—Descriptive Statistics and Predisplacement 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 take-up	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 present 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).

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.[11] Workers are categorized as employed if they have nonzero earnings in a given quarter. To mitigate the effects of unobserved worker heterogeneity on our earnings measure, we calculate the earnings replacement rate as earnings in a given quarter divided by average quarterly earnings eight to five quarters prior to separation.[12]

Table 1 presents summary statistics and balance tests for our sample of 2,030 displaced workers meeting the criteria described previously. 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 five more years of average tenure with their predisplacement 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 predisplacement tenure was more than 16 years. Both of these characteristics are associated with large and enduring losses from displacement.[13]

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 similar across the two age groups. Our highly attached restriction constrains the employment profiles to equal 1 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 predisplacement 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 nonemployed 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 online Appendix Figure A3, panel B).

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

[12] Earnings levels are also similar (online Appendix Figure A3).

[13] See Kletzer (1998) and White (2010).

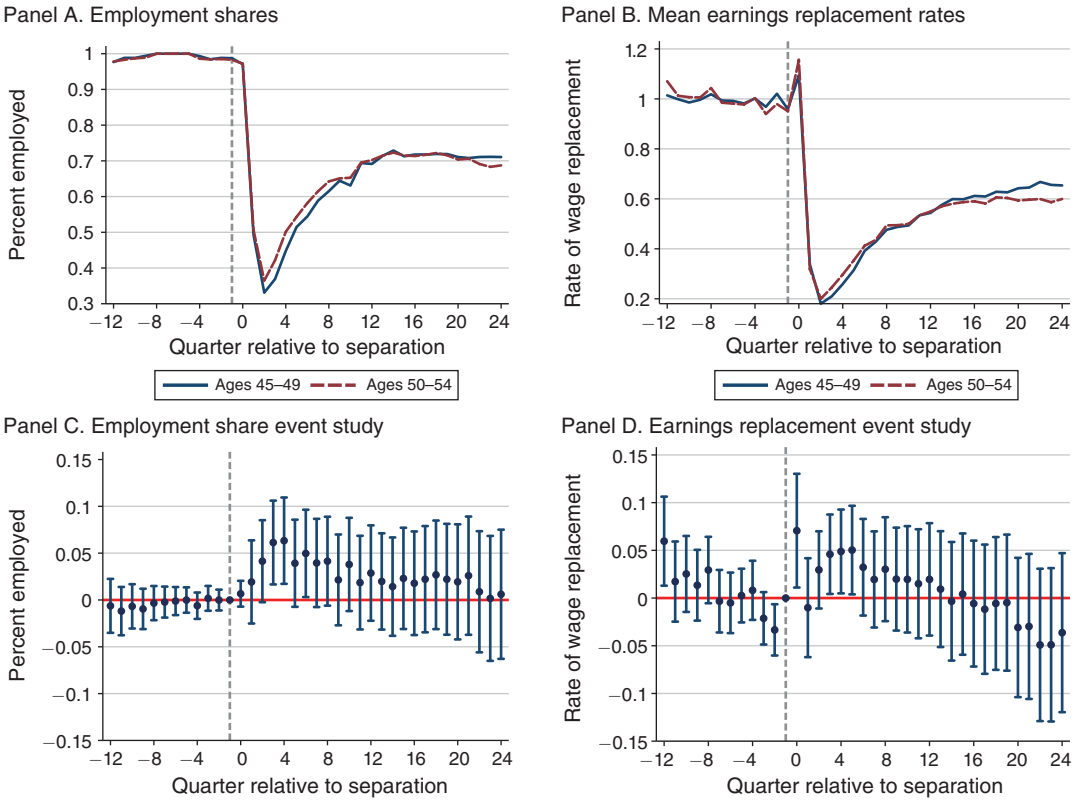

FIGURE 1. EMPLOYMENT AND EARNINGS TRAJECTORIES

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).

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 (online 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.[14] For 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 slightly lower for older workers.

Panel C presents an event study estimating

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

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 displacement; $\mathbf{X}_{it}$ is a vector of controls consisting of quarter-of-separation fixed effects, race, gender, education, predisplacement tenure, and a quadratic in calendar age; and ε_{it} is an error term.[15] Older workers are more likely to be employed during the three-year period of potential benefit

[14] Disability insurance eligibility becomes more lenient at age 50 (Chen and van der Klaauw 2008), which would lead our analysis to *understate* employment effects.

[15] Standard errors are clustered by individual.

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, but this pattern is driven almost entirely by the differences in employment shares.[16] After the three-year period of potential benefit eligibility, older workers' earnings replacement rates consistently fall below those of younger workers.[17]

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 (online 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 that 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.

[16] The short-run differences disappear when restricting to employed workers (online 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).

[17] Online Appendix Tables A2 and A3 present difference-in-difference regressions summarizing these event study results. Online Appendix Figure A4 shows these models are powered to detect small effect sizes.

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