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The Long-Run Effects of Workplace Injuries on Older Workers: Earnings, Income, Wealth, and Retirement

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Abstract:

Prior work has demonstrated that disability or work limitations experienced late in one's working life can impact retirement timing and preparedness (e.g., Johnson et al., 2006 Schimmel Hyde et al., 2022). One in four older workers newly experience a disability after the age of 55, and one-quarter of these work limitations originate at work. The impacts of work-related injuries may differ from the effects of health impairments arising outside of work because workers injured on the job have access to additional job protections and supports through the Workers' Compensation (WC) program. In this project, we will (1) provide new evidence on the effects of experiencing a workplace injury on retirement preparedness and timing and (2) document whether the long-run impacts of work-related injuries differ from those of other work-limiting health impairments. We will address these questions using two nationally representative, individual-level surveys, the Health and Retirement Study (HRS) and National Longitudinal Survey of Youth (NLSY79).

Budget period:

July 1, 2022 - June 30, 2023

Requested budget amount:

$74,401

Research Question and Significance

One-third of labor force participants in the United States are at least 50 years old (Current Population Survey). The majority of these workers have a job that requires physical effort at least some of the time (Benz et al., 2013), and one-quarter of them are expected to experience a new disability after age 55 (Schimmel Hyde et al., 2022). Prior work has shown how these late-in-life disabilities can affect retirement timing and preparedness (e.g., Johnson et al., 2006; Schimmel Hyde et al., 2022) but has not separately examined injuries that are work-related, even though a substantial fraction of work limitations result from workplace injuries. Work-related injuries may affect individuals differently than health impairments incurred outside of work because workers injured on the job have access to medical and wage replacement benefits from the Workers' Compensation (WC) insurance program and additional job protections. Yet existing research on the determinants of retirement or on the effects of workplace injuries and illnesses has relatively little to say about injuries that occur later in workers' careers, as they plan for and approach retirement, or about how injuries *earlier* in workers' careers affect their work capacity at older ages and their retirement preparedness.

In this work, we provide some of the first evidence on the longer-run impacts of workplace injuries and illnesses on older workers' financial wellbeing and retirement outcomes. Focusing on workers of all ages, prior research has demonstrated significant labor market consequences for workers who are injured (or become ill) on the job. Their earnings remain depressed even several years after the injury (e.g., Boden and Galizzi, 1999; Boden and Galizzi, 2003; Dong et al., 2016), and they accumulate less wealth than workers who were not injured at work (e.g., Galizzi and Zagorsky, 2009). The negative effects of a work-related injury on workers' financial situations may be even more severe for older workers if they tend to experience more serious injuries. Indeed, while overall rates of workplace injury are lower among older workers than their younger counterparts, older workers have the highest incidence rate of days-away-from-work cases (Bureau of Labor Statistics), suggesting they are more likely to incur injuries that reduce their ability to continue working.

Our empirical approach is similar to Charles (2003), Mok et al. (2008), and Meyer and Mok (2019) and estimates the longitudinal impacts of a work-related injury on workers' earnings, income, and wealth for several years after the injury. That is, we use an event study design to compare the effects of work-related injuries of different severity on workers' retirement preparedness, along with a fixed effects framework to estimate effects of workplace injuries on retirement expectations and timing. For example, whether workers who experience an injury at work will retire at younger ages than otherwise similar workers who did not experience an injury remains an open empirical question. A work-related injury/illness may make it physically difficult for an individual to continue to work, leading to earlier retirement. However, the injury may also cause reductions in income and wealth, leaving injured workers with less retirement security and prolonging their working years.

In short, our study attempts to shed light on how workplace injuries affect older workers and their retirements, asking two main questions:

- *Aim 1*: How do workplace injuries affect older workers' earnings, income, wealth, and retirement expectations/outcomes over time? And how do these effects depend on when in the career the injury occurred?
- *Aim 2*: To what extent are the long-run impacts of work-related injuries different from the impacts of work-limiting health impairments that occur outside of work, and what is the role of state WC programs in helping to mitigate harmful effects of work-related injuries?

Data Sources

We examine the longitudinal impacts of workplace injuries on workers' financial wellbeing and retirement expectations/outcomes (*Aim 1*) using samples of workers who experience work-related injuries and illnesses between waves of the Health and Retirement Study (HRS) and the National Longitudinal Survey of Youth - 1979 (NLSY79). The HRS, a panel survey of older adults, and the NLSY79, a longitudinal survey of the youngest baby boomers, are the only nationally representative data sets that provide information on earnings, income, wealth and retirement expectations and

decisions for workers nearing (or of) retirement age and also permit identification of work-related injuries and illnesses without conditioning on WC receipt.[1] Both surveys ask respondents directly whether they experienced a workplace injury or illness, even if they never reported the injury or filed a WC claim. We have significant experience working with both of these data sets (e.g., Bronchetti and McInerney, 2015; Bronchetti, 2012; McInerney et al., 2020). Table 1 describes the relevant samples in the HRS and NLSY79, including how a work-related injury or illness is defined, the ages at which we observe a work-related injury, the ages at which we observe retirement expectations and outcomes, and the financial and retirement outcomes we plan to measure.

Table 1: Studying Work Injuries Affecting Older Workers in the HRS and NLSY79

	HRS ($N > 20,000$)	NLSY79 ($N > 10,000$)[a]
Age when experience workplace injury	50 and older	25-44
Definition of workplace injury	Work-limiting impairment or health problem that was caused nature of respondent's work	Incident at work that resulted in injury or illness to you
Measures of financial well-being, before and after injury	Earnings Income Pension plan wealth Net wealth (including detailed information on sources of wealth)	Earnings Income Expected defined benefit monthly payment for respondent and spouse Net wealth
Age when answering retirement measures	50 and older	45-62
Retirement measures	Expected retirement age prior to injury Expected retirement age after injury Actual retirement age Reasons for retirement	Whether expect to work for pay when age 62, 65, 67 Expected retirement age Whether would like to leave work but need the money (2018 only)
Number of workplace injuries	3,196	3,292
Number of work-limiting healthimpairments *not* caused by work	9,837	—

[a]The NLSY79 only asks respondents about workplace injuries during survey years 1988-2000 and only asks about retirement expectations beginning in 2006.

[1] The Survey of Income and Program Participation (SIPP) also permits identifying workplace injuries without conditioning on WC receipt, but work-related injuries in the SIPP must be narrowly defined as health impairments that were caused by accidents at work. Work-related illnesses or impairments caused by the nature of a worker's job, rather than a specific incident/accident, would not be included.

The HRS began in 1992 and is a biennial longitudinal survey of workers nearing retirement age; the vast majority of respondents are at least 50 years old. Along with extensive information on demographics, employment, health, sources of income, and program participation, the HRS includes questions that identify workers who have a work-limiting health impairment that was caused by the nature of their work or by an accident that occurred at work. There are 3,196 workers in the HRS who became injured or ill due to their work between 1992 and 2016. Each survey wave provides detailed information on their earnings, income, wealth, and retirement expectations, as well as whether the health impairment continues to limit their ability to work.

We complement our analysis of older workers experiencing work-related injuries in the HRS, using the NLSY79 data to assess the long-run impacts of a work-related injury that occurs during a worker's prime working years. The NLSY79 is a longitudinal survey of the youngest baby boomers. As in the HRS, we observe injured workers' earnings, income, and wealth each survey wave before and after injury onset. With the NLSY79, we will examine how workplace injuries experienced between the ages of 25-44 impact wealth, earnings, income, and retirement expectations when respondents are ages 45-62. Of these respondents, 3,292 report experiencing at least one workplace injury between ages 25-44.

Methodology and Approach to be Used

To address *Aim 1*, we begin by measuring the changes over time in economic outcomes associated with work-related injury, using the following fixed effects model:

$$y_{it} = \alpha_i + \delta_t + \Gamma X_{it} + \sum_j \sum_k \gamma_j^k A_{kit}^j + \epsilon_{it} \quad (1)$$

where y_{it} is the outcome of interest (the natural logs of earnings, income, and wealth) for person i in year t, α_i is an individual fixed effect, δ_t is a set of year fixed effects, X_{it} is a set of controls that vary over time, and A_{kit}^j is a dummy variable that equals 1 if the individual belongs to work-injury group j in year t, and he is k years away from injury onset. Work-injury groups are defined based on measures of the severity of injury or extent of work limitation. Including the group of

healthy individuals without work limitations improves the precision of the estimated coefficients on the included controls. The key parameters of interest are the coefficients, γ_j^k, which measure the change in the dependent variable k years from onset of injury, for injured workers in group j, relative to their pre-injury value.

To examine the effects of workplace injuries on one-time outcomes like actual (or expected) retirement age, we estimate a straightforward model, treating the incidence of a workplace injury as random and comparing outcomes for workers who experienced a workplace injury to those for similar workers who did not.

$$y_{it} = \beta_0 + \beta_1 Injured_At_Work + \Gamma X_{ist} + \lambda_s + \lambda_t + \epsilon_{ist} \tag{2}$$

Comparing our findings from the HRS with those from the NLSY79, we provide evidence as to how the long-run effects of workplace injuries on workers approaching retirement may differ based on whether the injury occurred earlier or later in the worker's career. Similar to above, we also test for heterogeneity in the impacts of injury for workers with different injury severities.

To address *Aim 2*, we focus solely on HRS respondents with work-limiting health impairments and compare the outcomes for those whose work limitation originated from a workplace injury with those whose limitation *did not stem from work.*[2] The empirical approach is identical to that in Equation (1), except that the sample now includes all respondents with a work-limiting health problem, and the injury groups (based on severity of the impairment) are now interacted with an indicator for whether the health impairment was related to work, in order to quantify how the effects of a limitation arising from work differ. To understand the degree to which WC helps to mitigate the negative effects of a workplace injury, we also compare the trajectory of outcomes for workers who received WC following their injuries with similar workers who were injured outside of work or who were injured at work but did not receive WC.

[2] HRS respondents are first asked whether they have a health impairment that limits the amount or kind of work that they can do and are then asked whether this originated at work. In contrast, though the NLSY79 asks respondents about the presence of work-limiting conditions, it does not ask respondents whether they originated in the workplace. The work injury questions in the NLSY79 are separate from those regarding work limitations, leaving us unable to conduct this analysis in the NLSY79.

Summary

Our proposed work fills an important gap in the literature on workplace safety, providing some of the first evidence on the long-run effects of experiencing a work-related injury or illness on workers' financial situations and retirement expectations and outcomes. Workers who experience injuries or illnesses at work may be even more economically vulnerable at retirement age than their counterparts who did not experience such an injury. By focusing on shorter-term outcomes for injured workers, prior research may have dramatically underestimated the economic consequences of these injuries. More broadly, we view this research as a starting point, with multiple promising directions for future work, including, e.g., an analysis of the extent to which injured workers rely on other forms of support (e.g., Social Security disability insurance, Supplemental Security Income) as they transition to retirement.

Proposed Budget

Item	Amount	Descriptive Notes
PI Salary Support (Swarthmore)		
2 months of summer salary 2022	\$30,404	2.25 summer months of salary for E.
0.25 months of summer salary 2023	\$3,875	Bronchetti.
FICA	\$2,326	7.65 percent of salary items. Swarthmore College to pay remaining FICA and benefits.
Co-I Salary Support (Tufts)		
1.24 months of summer salary	\$24,364	1.24 summer months of salary for M. McInerney.
Fringe benefits	\$4,118	16.9 percent of salary items.
Graduate student RA (Tufts)	\$5,000	Tufts University M.S. Economics student RA
Indirect costs	\$4,018	12 percent for Tufts University only
TOTAL	\$74,401	

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