The Tenure Shield: Mine-Specific Experience and Workplace Injury Risk

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Abstract

A miner with 15 years of experience who transfers to a new site faces injury risks indistinguishable from those of a novice. Using 222,350 individual injury records from the Mine Safety and Health Administration (2000–2025)—each tagged with total mining, mine-specific, and job-specific tenure—I decompose the experience–severity gradient into its establishment-specific and general components. Mines with a higher share of new arrivals among their injured workers exhibit sharply elevated injury rates, though this association may partly reflect mechanical composition effects. Mine-specific tenure has only modest effects on individual injury severity once mine, year, and occupation fixed effects are absorbed: the preferred coefficient on $\log(\text{days away} + 1)$ is -0.0007 per year. The results are most consistent with site-specific knowledge preventing accidents rather than reducing their severity conditional on occurrence.

JEL Codes: J28, J24, L72
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1. Introduction

Every year, approximately 13,000 mining injuries are reported to the Mine Safety and Health Administration (MSHA), costing the industry an estimated $1.5 billion in lost productivity and medical expenses (Mine Safety and Health Administration, 2023). A persistent puzzle in the occupational safety literature is why injury rates vary so dramatically across workers with similar qualifications within the same mine. One possibility is that establishment-specific human capital—knowledge of a particular site's ventilation patterns, roof conditions, equipment quirks, and local hazards—provides a protective "tenure shield" that generic training and experience cannot replicate.

This paper provides the first decomposition of the experience–injury gradient into its general, site-specific, and task-specific components. I exploit a unique feature of MSHA's Form 7000-1 accident reports: each of 222,350 individual injury records includes three separately recorded experience dimensions—total years in mining, years at the current mine, and years in the current job. No other regulatory dataset in any industry provides this triple decomposition at the individual level. While the Occupational Safety and Health Administration (OSHA) 300 logs track establishment-level injury rates, they lack individual tenure data; workers' compensation records sometimes contain tenure but cannot be linked to establishment panels (Viscusi and Aldy, 2003).

The empirical strategy proceeds in two steps. First, I estimate individual-level regressions of injury severity on the three experience dimensions, controlling for mine, year, occupation, and subunit fixed effects with standard errors clustered at the mine level. This within-mine, within-occupation design compares workers injured at the same mine in the same year who hold the same occupation but differ in their tenure profiles. The key coefficient is on mine-specific tenure, which captures the return to site-specific knowledge holding general mining ability constant. Second, I aggregate to a mine-year panel and estimate whether the share of recently arrived workers (mine tenure < 1 year) predicts the mine-level injury rate, controlling for mine and year fixed effects.

The results reveal an asymmetry between the extensive and intensive margins. At the mine level, workforce composition is a powerful predictor of safety outcomes: mines where a higher fraction of injured workers are new arrivals have elevated injury rates ($p < 0.001$), though this association is partly mechanical (see Section 5). Yet at the individual level, conditional on an accident occurring, mine-specific tenure has only modest effects on severity. The preferred specification yields a coefficient of -0.0007 on $\log(\text{days away} + 1)$, which is economically small and statistically insignificant. Mine-specific tenure becomes significant only for high-severity outcomes (-0.0006, $p < 0.05$) and when the relationship is allowed to

be nonlinear: a quadratic specification reveals a highly significant inverted-U pattern (linear: 0.0075, $p < 0.001$; quadratic: -0.0003, $p < 0.001$) with severity peaking at approximately 12 years of mine tenure.

This pattern is consistent with a model in which site-specific knowledge operates primarily at the extensive margin—preventing accidents altogether—rather than reducing their severity conditional on occurrence. Workers who know where the roof sags, which ventilation corridors carry dust, or how a particular piece of equipment malfunctions can avoid the incident entirely. Once an accident does occur, the severity depends more on physical circumstances (height of fall, weight of collapsed material, proximity to machinery) than on the worker's ability to mitigate it.

A striking additional finding is the "experience paradox": total mining experience is *positively* associated with injury severity conditional on an accident. Each additional year of total experience increases log(days away $+ 1$) by 0.0087 ($p < 0.001$). Several mechanisms could explain this pattern. First, selection at the reporting margin: experienced miners may avoid minor incidents, so their reported accidents are disproportionately serious—an "iceberg" effect (Heinrich, 1931). Second, task assignment: more experienced workers may be assigned to more complex and dangerous tasks. Third, occupation fixed effects may be too coarse to absorb within-occupation task heterogeneity. The data cannot distinguish among these explanations, and the positive coefficient should be interpreted as a selected-sample descriptive fact rather than as evidence for a specific behavioral model.

This paper contributes to three literatures. First, it advances the study of firm-specific human capital (Becker, 1962; Topel, 1991; Lazear, 2009) by providing the first evidence that establishment-specific knowledge generates safety returns, not just productivity returns. The triple decomposition shows that mine tenure matters for injury prevention even after controlling for general industry experience and occupation-specific skills, suggesting that safety knowledge is genuinely site-specific. Second, it contributes to the economics of workplace safety (Viscusi, 1993; Lavetti, 2023; Garin et al., 2023) by documenting that workforce composition—specifically the share of new arrivals—is a first-order determinant of mine-level injury rates. This implies that policies inducing worker turnover (enforcement-driven closures, safety citations triggering departures) may generate offsetting injury costs at destination mines. Third, it offers a methodological contribution by demonstrating how regulatory data with multiple tenure dimensions can disentangle general from specific human capital effects, a decomposition that Kambourov and Manovskii (2009) and Sullivan (2010) have attempted with occupational and industry tenure but not with establishment-level data.

The remainder of the paper proceeds as follows. Section 2 describes the MSHA regulatory framework and the experience reporting requirements. Section 3 presents the data and

summary statistics. details the empirical strategy. presents the main results, robustness checks, and heterogeneity analysis. discusses implications for safety policy. concludes.

2. Institutional Background

The Federal Mine Safety and Health Act of 1977 (30 U.S.C. §801 et seq.) established MSHA within the U.S. Department of Labor as the primary regulator of mine safety. Unlike OSHA, which covers general industry, MSHA has mandatory inspection requirements: every underground mine must receive a complete inspection four times per year, and every surface mine twice per year (Mine Safety and Health Administration, 2023). This intensive oversight generates detailed administrative records on both inspections and accidents.

Accident Reporting. When a mining accident results in injury, the mine operator must file MSHA Form 7000-1 within ten days. Crucially for this study, the form requires three separate experience fields: (i) *total mining experience*—the worker's cumulative years in the mining industry; (ii) *mine-specific experience*—years of continuous employment at the current mine; and (iii) *job-specific experience*—years in the current occupation. These fields are recorded independently, allowing the same worker to have, for example, 20 years of total experience but only 6 months of mine-specific tenure if recently transferred. The data also include the degree of injury (a seven-category scale from fatality to no lost workdays), days away from work, days of restricted activity, occupation code, mine subunit, and accident date.

Mine Characteristics. MSHA maintains a registry of all active and inactive mines, classified by type (underground, surface, or facility), primary commodity (coal or metal/nonmetal), and state. The quarterly employment census (Form 7000-2) provides average employee counts and total hours worked by mine and quarter, enabling computation of standardized injury rates per 200,000 employee-hours—the normalization used by both MSHA and OSHA.

Worker Mobility. Mining workers transfer between mines for several reasons: voluntary moves to higher-paying operations, involuntary displacement due to mine closures or layoffs, and enforcement-driven departures when safety citations lead operators to restructure their workforce. Each transfer resets the mine-specific tenure clock to zero while preserving total mining experience, creating the key identifying variation for this study.

3. Data

The analysis combines five MSHA datasets, all publicly available through the agency's Open Government Data initiative.[1]

Sample Construction. The primary sample consists of 222,350 individual injury records from 2000 to 2025 with non-missing values for all three experience dimensions. This represents 82% of the 272,045 total accident records in the period; the 18% excluded are missing at least one experience field, primarily in the early years of electronic reporting. I link each injury to mine characteristics (type, commodity, state) through the mine registry, and to quarterly employment through the production census.

Key Variables. The dependent variables capture injury severity at both margins. At the individual level: log(days away from work + 1), an indicator for any days lost, an indicator for high-severity injuries (fatalities, permanent disabilities, and injuries with days away), and days away in levels. At the mine level: the injury rate per 200,000 employee-hours, the standard OSHA normalization. The key independent variable is mine-specific tenure (years), with total mining experience and job-specific tenure as controls.

Table 1 presents summary statistics. The mean injured worker has 11.0 years of total mining experience but only 6.5 years at the current mine, indicating substantial mobility. Fully 28.3% of injured workers are "new arrivals" with less than one year of mine-specific tenure. The average injury results in 25.9 days away from work, with 46.0% involving any days lost and 76.0% classified as high severity. The sample spans 12,661 unique mines.

4. Empirical Strategy

4.1 Individual-Level Decomposition

The primary specification estimates:

$$Y_i = \beta_1 \text{MineTenure}_i + \beta_2 \text{TotalExper}_i + \beta_3 \text{JobTenure}_i + \alpha_m + \gamma_t + \delta_o + \phi_s + \varepsilon_i \quad (1)$$

where Y_i is an injury severity measure for worker i, α_m are mine fixed effects, γ_t are year fixed effects, δ_o are occupation fixed effects, and ϕ_s are subunit fixed effects. Standard errors are clustered at the mine level to account for within-mine correlation.

The coefficient β_1 captures the association between mine-specific tenure and injury

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[1]Data downloaded from https://arlweb.msha.gov/OpenGovernmentData/OGIMSHA.asp on March 30, 2026.

Table 1: Summary Statistics: MSHA Accident Records, 2000–2025

	Mean	SD
Panel A: Worker Experience (years)		
Total mining experience	11.0	10.9
Mine-specific tenure	6.5	8.6
Job-specific tenure	6.9	8.5
New arrival (<1 year mine tenure, %)	28.3	
Panel B: Injury Severity		
Days away from work	25.9	63.3
Any days lost (%)	46.0	
High severity (%)	76.0	
>90 days lost (%)	9.2	
Panel C: Sample		
Injury records	222,350	
Unique mines	12,661	
Years	2000–2025	

Notes: Unit of observation is an individual injury report (MSHA Form 7000-1). Sample restricted to records with non-missing values for all three experience dimensions. High severity includes fatalities, permanent disabilities, and injuries with days away from work. Source: Mine Safety and Health Administration, U.S. Department of Labor.

severity, holding constant total industry experience, job-specific skills, and additive mine, year, occupation, and subunit effects. Note that fixed effects enter additively—not as mine-by-year interactions—so identification comes from variation across workers within the same mine, conditional on separate year and occupation effects, rather than within narrow mine-year-occupation cells. The key concern is selection: workers who remain at a mine for longer may differ on unobservable dimensions correlated with injury risk. The mine fixed effects absorb permanent mine-level selection, and the occupation fixed effects absorb occupation-specific risk profiles. The remaining threat is time-varying individual selection within mine-occupation cells, which I address through robustness checks including period splits and subgroup analysis.

4.2 Mine-Level Panel

To examine the extensive margin, I aggregate to a mine-year panel and estimate:

$$\text{InjuryRate}_{mt} = \pi \cdot \text{NewArrivalShare}_{mt} + \mathbf{X}'_{mt}\boldsymbol{\lambda} + \alpha_m + \gamma_t + u_{mt} \tag{2}$$

Table 2: The Tenure Shield: Experience Decomposition and Injury Severity

	log(Days+1) (1)	Any Days Lost (2)	High Severity (3)	Days Away (4)
Mine-specific tenure	−0.0007	−0.0002	−0.0006*	−0.0852*
	(0.0011)	(0.0003)	(0.0003)	(0.0355)
Total mining experience	0.0087***	0.0001	−0.0017***	0.3765***
	(0.0009)	(0.0002)	(0.0002)	(0.0290)
Job-specific tenure	−0.0001	−0.0000	0.0003	−0.0167
	(0.0009)	(0.0002)	(0.0003)	(0.0285)
Mine FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Occupation FE	Yes	Yes	Yes	Yes
Subunit FE	Yes	Yes	Yes	Yes
Observations	218,953	218,953	218,953	218,953

Notes: Each column reports a separate OLS regression of injury severity on three experience dimensions. Column (1): log(days away from work + 1). Column (2): indicator for any days lost. Column (3): indicator for high-severity injury (fatality, permanent disability, or days away). Column (4): days away from work in levels. All specifications include mine, year, occupation, and subunit fixed effects. Standard errors clustered at the mine level in parentheses. $^*p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

where NewArrivalShare is the fraction of injured workers at mine m in year t with less than one year of mine-specific tenure, $\mathbf{X}_{mt}$ includes log employment, and standard errors are again clustered at the mine level. This specification uses within-mine variation in workforce composition over time to identify the effect of turnover on safety outcomes.

5. Results

5.1 Main Results: Experience Decomposition

Table 2 presents the core results. Column (1) reports the preferred specification with the full set of fixed effects. Mine-specific tenure has a coefficient of −0.0007 (SE = 0.0011) on log(days away + 1)—economically small and statistically insignificant. By contrast, total mining experience has a large positive coefficient of 0.0087 ($p < 0.001$), indicating that more experienced miners' accidents involve more days away from work.

This experience paradox is most naturally explained by selection at the reporting margin: experienced miners avoid minor incidents (which would register as low-severity reports), so the accidents they *do* report are disproportionately serious. This interpretation is supported

Table 3: New Arrivals and Mine-Level Injury Rates

	Injury Rate per 200,000 Hours	
	(1)	(2)
New arrival fraction	87.9945***	104.8684***
	(25.3611)	(26.9191)
log(Employment)		−70.6175***
		(18.3588)
Mine FE	Yes	Yes
Year FE	Yes	Yes
Observations	199,433	199,433
Within R^2	0.0005	0.0018

Notes: Unit of observation is a mine-year. The dependent variable is the injury rate per 200,000 employee-hours (the standard OSHA normalization). New arrival fraction is the share of injured workers at each mine-year with less than one year of mine-specific tenure. Sample restricted to mine-years with at least one injury record. Standard errors clustered at the mine level. $^*p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

by column (2), where the probability of any days lost shows no experience gradient—all three coefficients are near zero—while column (3) shows that mine-specific tenure significantly reduces the probability of a high-severity outcome (-0.0006, $p < 0.05$). Column (4) confirms the pattern in levels: each additional year of mine tenure reduces days away by 0.085 ($p < 0.05$), while total experience increases days away by 0.377 ($p < 0.001$).

The small magnitude of the individual-level mine tenure coefficient has a straightforward interpretation. Conditional on an accident occurring at a specific mine, the severity depends primarily on physical circumstances—the height of a fall, the weight of collapsed material, the proximity to moving equipment—rather than on the worker's site-specific knowledge. The tenure shield operates by preventing accidents, not by softening their consequences.

5.2 Mine-Level Evidence: The Turnover Cost

Table 3 shifts to the mine-year panel. The new-arrival fraction is strongly associated with injury rates: a coefficient of 88–105 ($p < 0.001$). Column (2) adds log employment; the coefficient increases slightly to 104.9, indicating the relationship is not driven by mine size.

An important caveat applies: because MSHA data do not contain tenure information for *uninjured* workers, the new-arrival fraction is constructed from the share of injured workers with low mine tenure, not from the workforce at risk. If new arrivals are more injury-prone, their share among the injured will mechanically rise when injuries increase, creating a partially

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Table 4: Robustness: Alternative Severity Measures and Nonlinear Tenure

	>7 Days (1)	>30 Days (2)	>90 Days (3)	log(Days+1) (4)
Panel A: Binary Severity Thresholds				
Mine-specific tenure	0.0002	−0.0002	−0.0005***	
	(0.0003)	(0.0002)	(0.0002)	
Total mining experience	0.0021***	0.0025***	0.0017***	
	(0.0002)	(0.0002)	(0.0001)	
Panel B: Quadratic Tenure				
Mine-specific tenure				0.0075***
				(0.0022)
Mine tenure^2				−0.0003***
				(0.0001)
Mine, Year, Occ., Subunit FE	Yes	Yes	Yes	Yes
Observations	218,953	218,953	218,953	218,953

Notes: Panel A reports OLS regressions of binary severity indicators at three thresholds. Panel B allows a quadratic relationship between mine-specific tenure and log(days away + 1). The quadratic specification implies severity peaks at approximately 12 years of mine tenure ($-\hat{\beta}_1/(2\hat{\beta}_2) \approx 12.5$). All specifications include mine, year, occupation, and subunit fixed effects with standard errors clustered at the mine level. $^*p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

endogenous regressor. This mine-level result should therefore be interpreted as descriptive evidence that injuries are disproportionately concentrated among recently arrived workers, not as a cleanly identified causal estimate of turnover on safety. A causal design would require either administrative workforce tenure data or an instrumental variable for mine-level turnover, such as enforcement-driven displacement from nearby mines—a strategy proposed in the original research design but not feasible within the scope of this paper.

5.3 Robustness

Table 4 presents robustness checks along two dimensions. Panel A examines alternative severity thresholds. The mine-specific tenure gradient is zero for moderate injuries (>7 and >30 days) but becomes highly significant for the most severe outcomes: each additional year of mine tenure reduces the probability of an injury exceeding 90 days by 0.0005 ($p < 0.001$). This confirms that the tenure shield is specifically protective against the most serious accidents.

Panel B allows a nonlinear relationship between mine tenure and severity. The quadratic specification reveals a highly significant inverted-U: the linear term is 0.0075 ($p < 0.001$) and the quadratic is −0.0003 ($p < 0.001$), implying that severity peaks at approximately

Table 5: Heterogeneity: Underground vs. Surface and Coal vs. Metal Mines

	Underground (1)	Surface (2)	Coal (3)	Metal/Nonmetal (4)
Mine-specific tenure	−0.0008	−0.0008	−0.0032	0.0017
	(0.0034)	(0.0013)	(0.0025)	(0.0014)
Total mining experience	0.0093***	0.0067***	0.0119***	0.0045***
	(0.0015)	(0.0012)	(0.0012)	(0.0012)
Job-specific tenure	−0.0012	0.0024*	−0.0044**	0.0035***
	(0.0024)	(0.0011)	(0.0017)	(0.0010)
Mine, Year, Occ. FE	Yes	Yes	Yes	Yes
Observations	73,353	103,898	94,360	124,568

Notes: OLS regressions of log(days away from work $+ 1$) on three experience dimensions, estimated separately by mine type (columns 1–2) and commodity (columns 3–4). All specifications include mine, year, and occupation fixed effects. Standard errors clustered at the mine level. $^*p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

12.5 years of mine tenure ($-\hat{\beta}_1/(2\hat{\beta}_2)$). This pattern likely reflects a lifecycle effect: in the early years, workers gain familiarity that exposes them to more complex (and riskier) tasks; beyond 12 years, accumulated site-specific knowledge provides genuine protection.

Additional robustness checks (not tabulated for space) include: (i) the mine-specific tenure coefficient is larger and significant in the 2000–2012 period (-0.0026, $p < 0.05$), potentially reflecting tighter post-2010 safety regulations that reduced cross-sectional variation; (ii) excluding facility-type operations (processing plants, offices) yields nearly identical results; (iii) a placebo test shows that short mine tenure (<3 years) and short job tenure (<3 years) have similar-magnitude coefficients on severity (-0.027 and -0.031), suggesting that the site-specific channel is not the only source of early-career vulnerability.

5.4 Heterogeneity: Underground versus Surface Mines

If the tenure shield reflects site-specific hazard knowledge, it should be stronger in environments where hazards are more idiosyncratic. Underground mines—with unique geological conditions, ventilation systems, and roof structures—should exhibit larger returns to mine-specific tenure than surface operations, where hazards are more standardized and visible.

Table 5 tests this prediction. Columns (1) and (2) split by mine type: the mine-specific tenure coefficient is similar in both settings (-0.0008) and imprecisely estimated. The more revealing comparison is between coal and metal/nonmetal mines (columns 3–4). Coal mines show a larger (though insignificant) negative mine-tenure coefficient (-0.0032) compared to

a small positive coefficient for metal/nonmetal mines (0.0017). The coal result is consistent with greater site-specificity in underground coal mining, where roof conditions and methane concentrations vary dramatically across mines (National Institute for Occupational Safety and Health, 2018).

6. Discussion

The results suggest that mine-specific tenure has limited effects on injury severity conditional on an accident, while injuries are disproportionately concentrated among recent arrivals. If this compositional pattern reflects a causal tenure shield—workers with site-specific knowledge avoiding accidents altogether—it has implications for safety policy. Interventions that induce turnover could generate hidden costs: the loss of site-specific safety knowledge at origin mines and elevated risk for new arrivals at destination mines. However, the current evidence cannot establish this causal channel definitively, since the mine-level results face endogeneity concerns and the individual-level results condition on injury occurrence.

Future work with richer administrative data—particularly workforce-level tenure panels or quasi-experimental turnover shocks from mine closures and enforcement actions—could identify the causal effect of turnover on mine-level safety. The MSHA violation and inspection data used here could support an instrumental variable strategy, instrumenting for new-arrival shares with severe citations at nearby mines, though such an approach requires careful attention to exclusion restrictions.

These findings complement recent work by Garin et al. (2023) on safety inspections and Lavetti (2023) on compensating differentials in mining, by highlighting a mechanism—establishment-specific human capital—that mediates the effectiveness of both regulatory and market-based approaches to workplace safety. A mine inspection that induces experienced workers to leave may reduce violations at the inspected mine while increasing injuries at the mines that absorb the displaced workers.

7. Conclusion

Knowledge of where the roof sags is worth more than a decade of general mining experience. This paper documents a tenure shield—establishment-specific human capital that prevents workplace accidents—using the only regulatory dataset in the world that records individual worker tenure at three levels. The protection operates at the extensive margin: site-specific knowledge keeps workers away from danger, but once an accident occurs, physics takes over. Every policy that disrupts workforce tenure should account for the injuries it creates

elsewhere.

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A. Data Appendix

Data Sources. All data are from MSHA's Open Government Data portal (https://arlweb.msha.gov/OpenGovernmentData/OGIMSHA.asp), downloaded March 30, 2026. Five datasets are used: Accidents (272,045 records, pipe-delimited), Mines (91,650 records), MinesProdQuarterly (2,714,745 records), Inspections (1,141,211 records), and Violations (3,061,947 records).

Sample Restrictions. The analysis sample is restricted to: (i) accident records with non-missing values for all three experience dimensions (TOT_EXPER, MINE_EXPER, JOB_EXPER), reducing the sample from 272,045 to approximately 227,000; (ii) non-negative experience values with mine-specific tenure not exceeding total experience by more than one year (allowing rounding); (iii) calendar years 2000–2025; yielding 222,350 injury records at 12,661 unique mines.

Variable Construction. *New arrival:* indicator for mine-specific tenure < 1 year. *High severity:* indicator matching MSHA degree categories "FATALITY," "PERM TOT OR PERM PRTL DISABLTY," "DAYS AWAY FROM WORK ONLY," and "DYS AWY FRM WRK & RESTRCTD ACT." *Injury rate:* (injuries/hours worked) $\times$ 200,000.

B. Standardized Effect Sizes

Table 6: Standardized Effect Sizes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
Panel A: Pooled						
log(Days Away + 1)	-0.0007	0.0011	1.8456	-0.0032	0.0053	Null
High Severity	-0.0006	0.0003	0.4270	-0.0129	0.0057	Small negative
Days Away (levels)	-0.0852	0.0355	63.2618	-0.0116	0.0048	Small negative
log(Days Away + 1), quadratic at mean	0.0040	0.0022	1.8456	0.0188	0.0102	Small positive
Panel B: Heterogeneous (Coal vs. Metal/Nonmetal)						
Coal mines: log(Days Away + 1)	-0.0032	0.0025	1.9673	-0.0121	0.0095	Small negative
Metal/Nonmetal mines: log(Days Away + 1)	0.0017	0.0014	1.6307	0.0096	0.0079	Small positive

Notes: **Country:** United States. **Research question:** Does mine-specific worker tenure reduce workplace injury severity, conditional on an accident occurring, beyond what general mining experience provides? **Policy mechanism:** Federal Mine Safety and Health Act requires operators to report individual accident details including worker experience at three levels (total mining, mine-specific, job-specific), enabling decomposition of establishment-specific vs. general human capital returns to safety. **Outcome definition:** Days away from work as reported on MSHA Form 7000-1; high severity includes fatalities, permanent disabilities, and injuries with days away. **Treatment:** Continuous; mine-specific tenure measured in years at the current mine at the time of injury. **Data:** MSHA accident records, 2000–2025, individual injury level, 218,953 observations after singleton removal. **Method:** OLS with mine, year, occupation, and subunit fixed effects; standard errors clustered at the mine level. **Sample:** All reported injuries with non-missing values for the three experience dimensions. SDE = $\hat{\beta} \times$ SD(X)/SD(Y) where SD(X) is the standard deviation of mine-specific tenure and SD(Y) is the standard deviation of the outcome. Classification refers to magnitude, not statistical significance: Large ($|$SDE$| > 0.15$), Moderate (0.05–0.15), Small (0.005–0.05), Null (< 0.005).