

Earnings Losses and Benefits for Injured Workers

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State of California
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Governor

Data on Earnings Losses is Critical for Evaluating Workers' Compensation Policy

- Employment and earnings are key indicators of worker well-being after workplace injury
- Patterns of earnings loss can tell us which workers need more attention from policymakers
- Earnings loss data are needed to evaluate benefit adequacy or return to work interventions
- Yet labor market outcomes are not reported to DIR, impeding monitoring, research, and evaluation

Since 2017, RAND Has Been Monitoring Earnings Losses of Injured Workers in CA

- Three interim reports documented trends in post-injury earnings for workers injured between 2005-2017 who received indemnity benefits
- Key findings from interim reports:
 - Post-injury labor market outcomes worsened in 2007-2008 (following the housing collapse and Great Recession) and have been slow to recover
 - Post-injury employment (at any employer) has recovered
 - Post-injury earnings had started to recover by 2017, but remain depressed
 - Employment at the employer where the injury took place remains much lower than in the past and shows little sign of recovery
 - Trends in earnings loss affected nearly all subgroups of California workers
- See RAND's 3rd interim report (Rennane, Dworsky, & Broten 2020) for details

Today's Briefing Explores Mechanisms Driving Earnings Losses and Implications for Benefit Adequacy

- Final report of RAND's wage loss monitoring study has several goals:
 - Explain patterns found in interim reports
 - Why have earnings been so slow to recover after Great Recession?
 - What explains regional disparities in earnings after cumulative trauma (CT) injuries?
 - Evaluate benefit adequacy, especially for workers with permanent disability

Outline

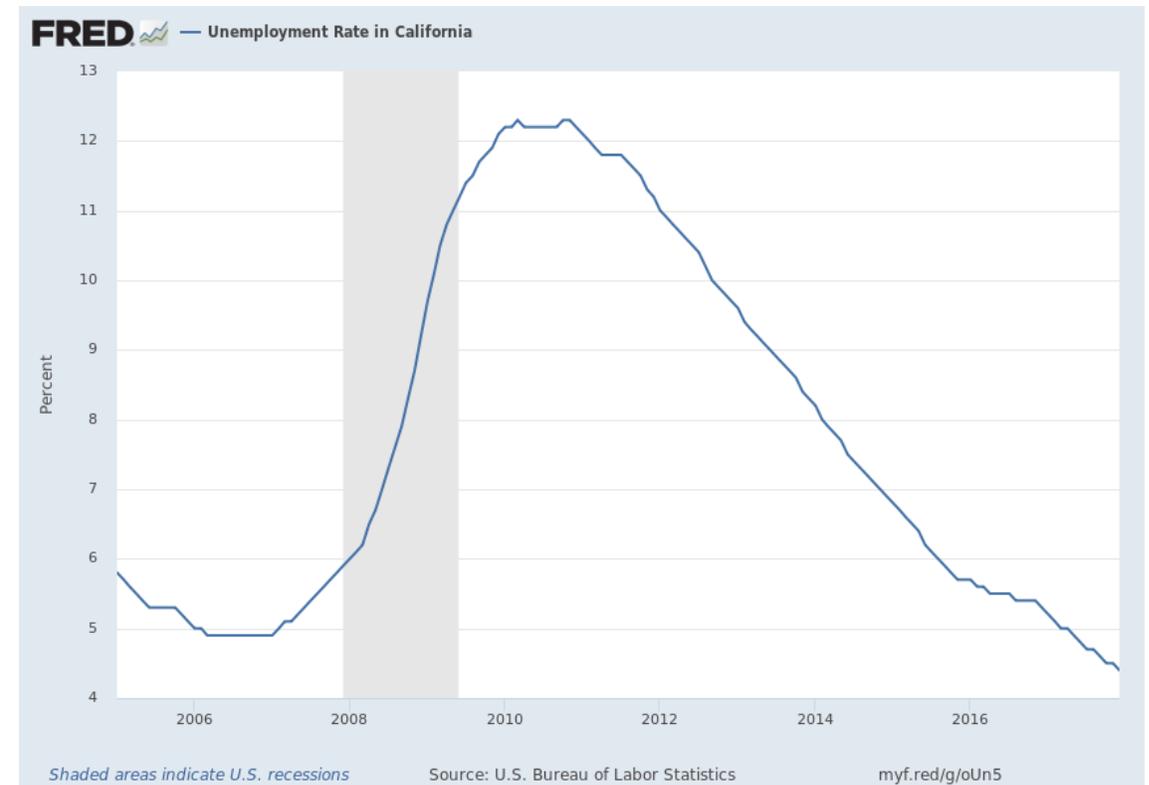
- Background and policy context
- Data and methods
- What explains recent trends in earnings loss?
- What are implications for benefit adequacy?

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Labor Market Over Past Decade Was Defined by Aftermath of Great Recession

- Unemployment in California started rising late in 2006 as the housing bubble began to burst
- Statewide unemployment peaked at 12% in 2010
- Recovery from the Great Recession was very slow
- Unemployment reached pre-recession lows only in 2017



Policy Context: Major Reforms to WC Enacted in 2012 as Senate Bill (SB) 863

- SB 863 included major reforms to many parts of WC system
 - Overhaul of medical payment, dispute resolution
 - Increased PPD ratings, maximum weekly benefits (discussed below)
 - Created Return to Work Fund (now Return-to-Work Supplement Program)
- SB 863 changes rolled out during economic recovery
- Benefit adequacy findings reflect early impacts of SB 863 benefit changes, but earnings loss trends are not a report card for SB 863

More Recent Legislation and Regulation Has Continued to Change Medical Delivery, Pursue Additional Cost Savings

- Legislation in 2016 took steps to remove fraudulent and unlicensed medical providers from WC system
 - AB 1244 (suspends providers with convictions or other problems)
 - SB 1160 (prevent abuses of medical care liens)
- Implementation of prescription drug formulary (Effective Jan 1, 2018)
- Other enacted WC changes addressed narrower issues (e.g., presumptions for public safety workers)
- Data examined today end prior to COVID pandemic
 - Claims data extracted in February 2020
 - Labor market outcomes observed through end of 2019

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We Analyzed Claims Data Reported to DIR and Earnings Data Reported to EDD

- We use First, Subsequent Reports of Injury (FROI, SROI) from the Workers' Compensation Information System (WCIS)
- Extracted all claims with injury dates from 2005-2017
- We linked WC claims to quarterly records of wage and salary income collected by the Employment Development Department (EDD) on jobs covered by Unemployment Insurance (UI)
 - 8.7 million FROI
 - 6.5 million (75%) with usable WCIS data
 - 5.5 million (84%, 63% cumulative) matched to own wage history at EDD
 - 4.7 million (85%, 54% cumulative) matched to control workers

We Employ Methods Developed in Past RAND Studies to Estimate Earnings Losses

- Earnings loss is difference between
 - what a worker actually earns after injury
 - what they would have earned in absence of injury (*potential earnings*)
- Actual earnings can be observed in the data
- Potential earnings are inherently unobservable and have to be estimated
- **We compare injured workers to co-workers who were:**
 - at same employer
 - with same tenure on the job
 - with same trajectory of earnings before injury date
 - who did not file a workers' compensation claim

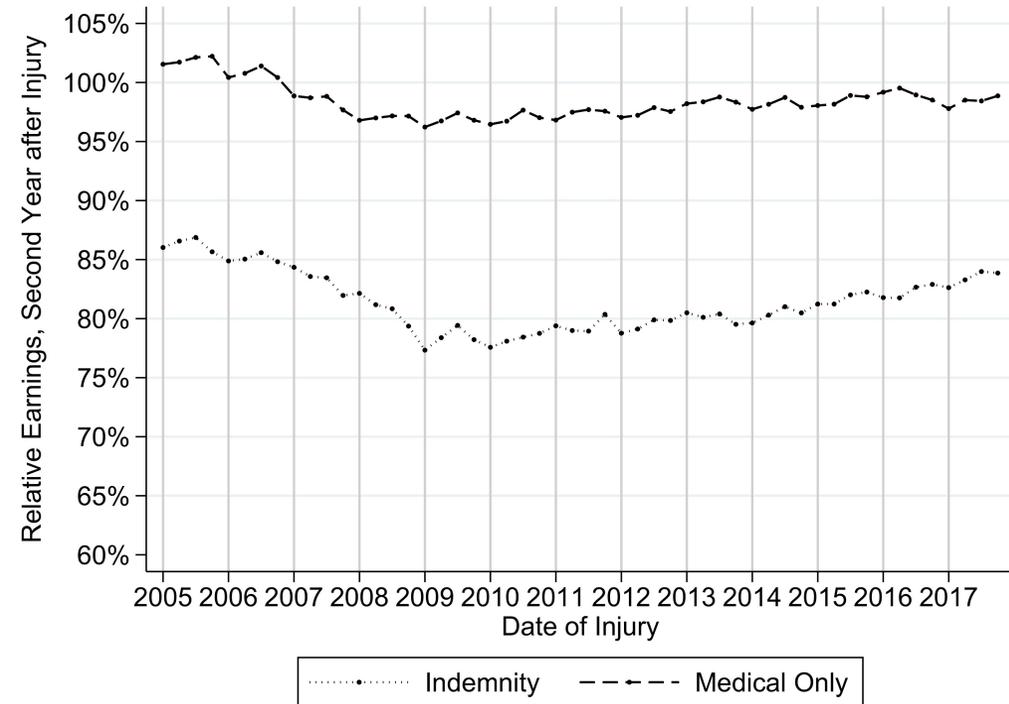
We Focus on Second Year Post-Injury as Our Primary Measure of Worker Outcomes

- Compare earnings in second year after injury to controls
- Control group necessary to isolate impact of injury
- Control worker earnings also drop after injury date
- This reflects factors other than injury
 - Unemployment?
 - Retirement?
 - Other labor force exit?



Earnings for Workers with Indemnity Benefits Still Have Not Recovered to Pre-Recession Levels

- We group injured workers into 5 cohorts based on date of injury
 - 2005-2007 (pre-recession)
 - 2008-2009 (recession)
 - 2010-2012 (recovery, pre-SB 863)
 - 2013-2015 (early post-SB 863)
 - 2016-2017 (recent post-SB 863)
- Focus on all indemnity injuries when describing overall trends
- Narrow focus to workers with permanent disability (PD) when analyzing benefit adequacy



Source: 2005-2017 WCIS-EDD data. Figure shows trend in second-year relative earnings for injured workers receiving indemnity benefits and workers with medical-only claims (no paid indemnity)

Post-Injury Employment Has Recovered in Recent Years; Earnings and Employment at the Employer At Injury Have Not

	Pre-Recession	Recession	Recovery, Pre-SB 863	Recovery, Post-SB 863	
Time Period	2005–2007 Injuries	2008–2009 Injuries	2010–2012 Injuries	2013–2015 Injuries	2016–2017 Injuries
Post-injury earnings (2019\$)	\$36,550	\$33,099	\$33,341	\$35,706	\$39,015
Post-injury potential earnings (2019\$)	\$43,018	\$41,513	\$42,200	\$44,217	\$47,109
Relative Earnings	85%	80%	79%	81%	83%
Relative Employment	90%	84%	84%	88%	91%
Relative At-Injury Employment	77%	73%	72%	72%	73%

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What Explains the Slow Recovery of Injured Workers' Earnings?

- We examined several factors that might contribute to recent trends in earnings loss
 - Did the composition of injured workers shift toward groups with worse earnings loss?
 - Were earnings losses greater in places hit harder by Great Recession?
- We also explored changes in return to work as a potential mechanism
 - Did workers become more likely to separate from employer at injury?

Recent Cohorts of Injured Workers Differ From Earlier Cohorts in Many Ways

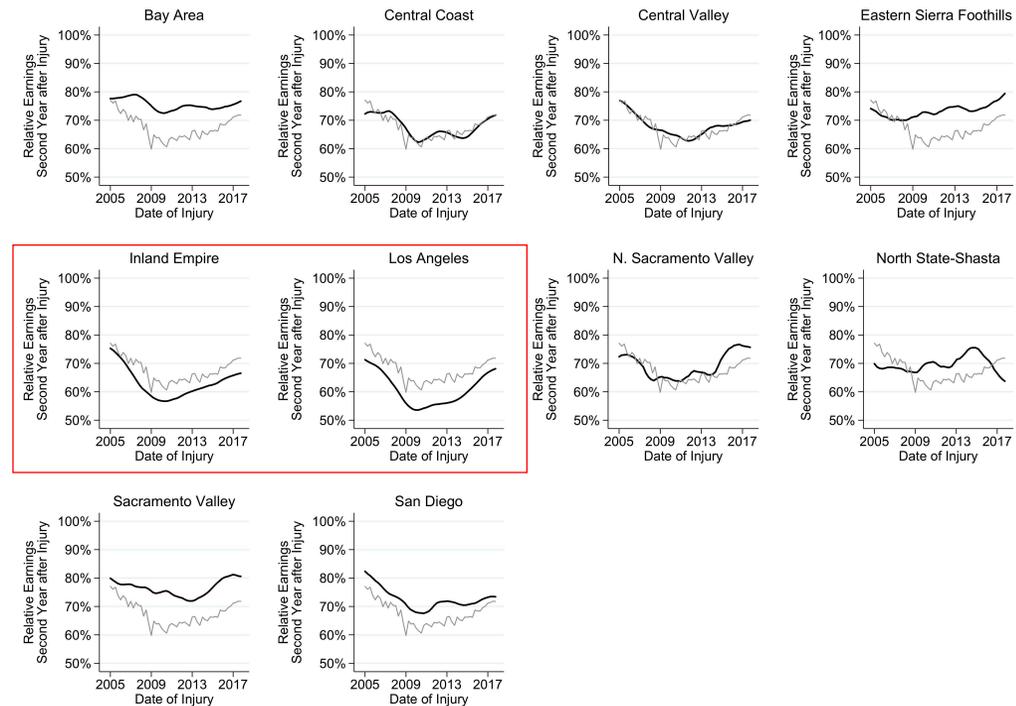
- Compared to workers injured in 2005-2007, workers injured 2016-2017
 - Had lower real wages at injury
 - Were older at injury
 - Had fewer cumulative trauma injuries
 - Were less likely to receive PD benefits within 3 years of injury
 - Changes in industry distribution
- We modeled earnings loss as a function of worker characteristics, county-level employment rates, and individual return to work
- We calculated what earnings losses would have been if factors were as observed in 2016-2017 in all time periods

Case-Mix and Worsening Return to Work Contributed to Earnings Loss; Local Conditions Were Less Important

	2005–2007 Injuries	2008–2009 Injuries	2010–2012 Injuries	2013 - 2015 Injuries	2016-2017 Injuries
Relative Earnings, Unadjusted	85.0%	79.7%	79.0%	80.7%	82.8%
Adjusted for Case Mix	84.1%	79.6%	79.2%	80.9%	82.8%
Adjusted for Case Mix and Market Conditions	84.1%	79.7%	79.3%	80.9%	82.8%
Adjusted for Case Mix, Market Conditions, and Return to Work	83.7%	79.4%	78.4%	80.2%	82.8%

What Explains Regional Differences in Earnings after Cumulative Trauma Injury?

- Interim reports showed earnings worsened dramatically for workers with CT injuries
- Outcomes in ‘Southern California’ (counties of LA, Orange, Riverside, San Bernardino, Imperial) diverged from patterns in rest of state



We Repeated Case-Mix Analysis, But With Additional Variables on Claim Process

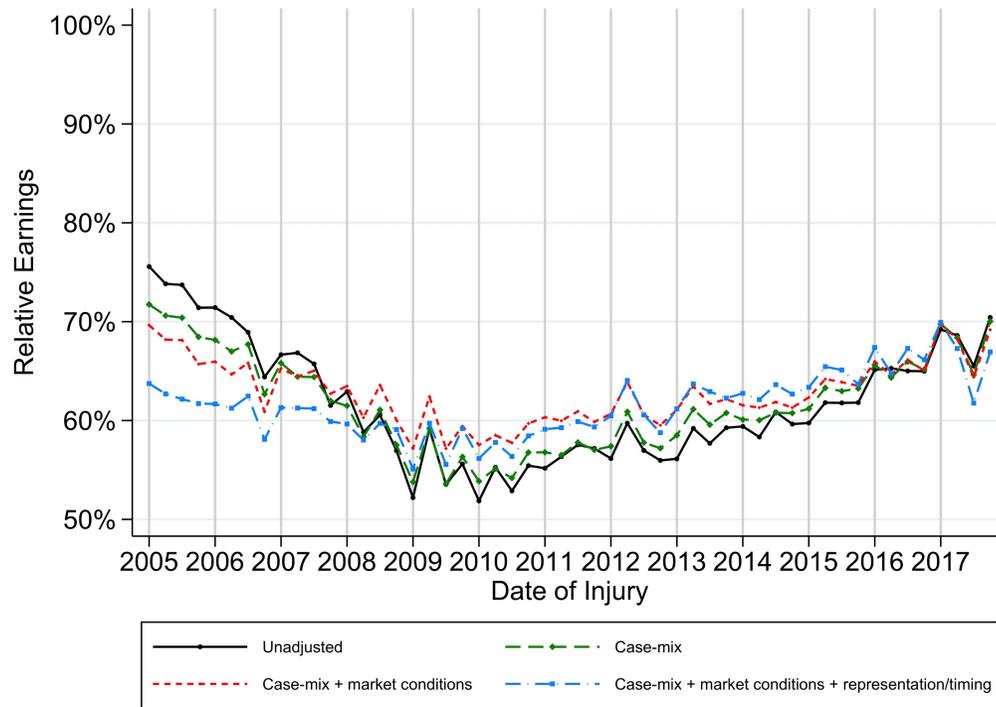
- Also adjusted for *claim process factors*, including
 - Presence of lien on claim
 - Presence of attorney
 - Whether a claim was filed after separation from the at-injury employer
- Analyze role of these factors separately in Southern California vs. rest of state
- Caveat: correlation does not imply causation
 - Post-separation claims and attorney involvement are likely symptoms of injury severity, case complexity
 - Estimates shown here do not imply that differences in labor market outcomes are the consequence of these claim status variables

Post-Separation, Liens, and Attorney Involvement Vary Widely Across Regions

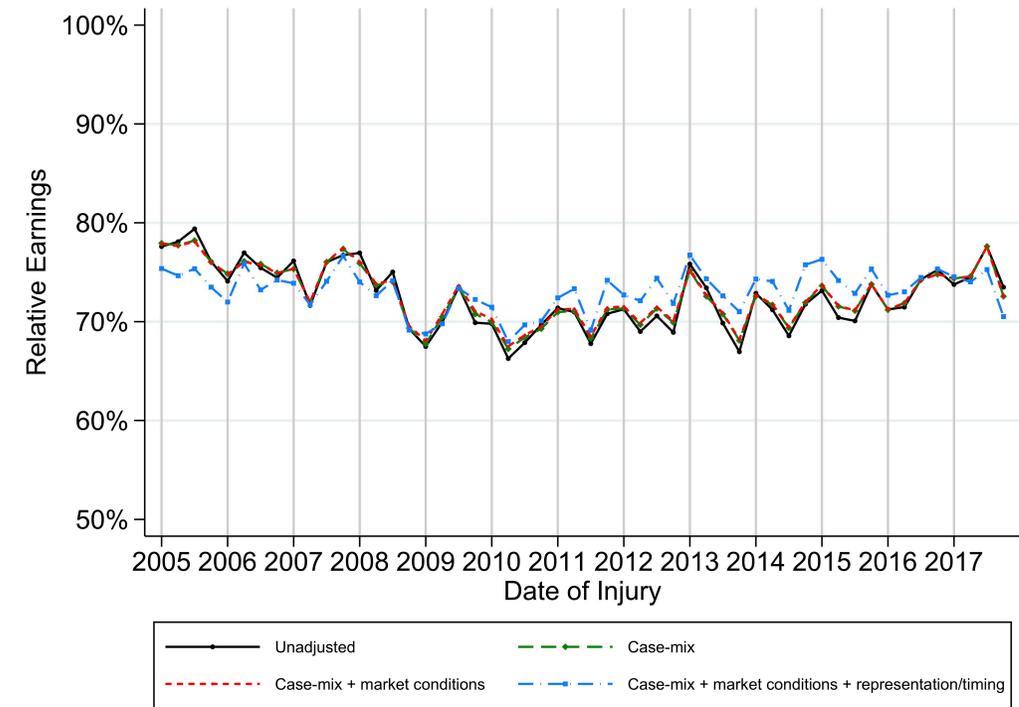
Year of Injury	2005–2007 Injuries	2008–2009 Injuries	2010–2012 Injuries	2013 - 2015 Injuries	2016-2017 Injuries
Southern California					
Reported after Separation	12%	19%	22%	26%	20%
Lien	39%	47%	51%	49%	41%
Attorney Present	44%	51%	57%	61%	63%
Rest of California					
Reported after Separation	6%	7%	10%	11%	8%
Lien	22%	24%	25%	23%	17%
Attorney Present	32%	36%	42%	46%	44%

Claim Process Variables Strongly Associated with Claim Outcomes for CT Injuries in Southern California

Southern California



Rest of California



Note: “representation/timing” = claim process variables, including indicators for attorney involvement, presence of lien, and claim filing after separation from at-injury employer

Regional Divergence of CT Outcomes Largely Explained by Case-Mix, Economic Conditions, and Claim Status Factors

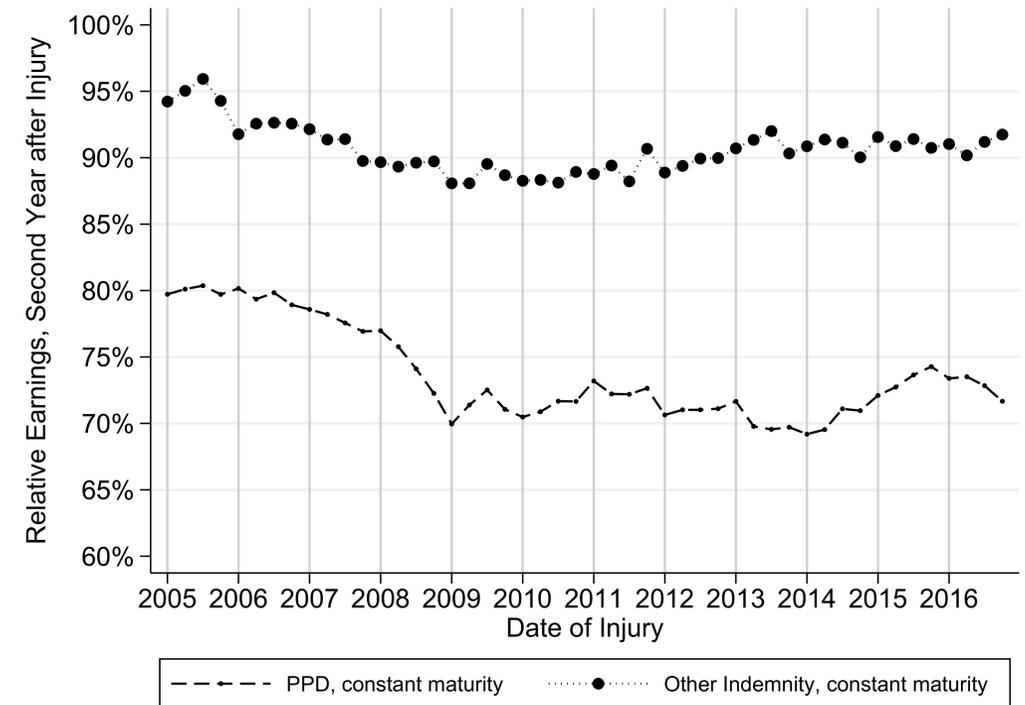
Year of Injury	2005–2007 Injuries	2008–2009 Injuries	2010–2012 Injuries	2013 - 2015 Injuries	2016-2017 Injuries
Southern California					
Relative Earnings, Unadjusted	70%	57%	56%	60%	67%
Adjusted for Case Mix	67%	58%	57%	61%	67%
+ Market Conditions	66%	60%	60%	62%	67%
+ Legal and Claim Status	62%	58%	59%	63%	67%
Rest of California					
Relative Earnings, Unadjusted	76%	72%	70%	72%	74%
Adjusted for Case Mix	76%	72%	70%	72%	74%
+ Market Conditions	76%	72%	70%	72%	74%
+ Legal and Claim Status	74%	72%	72%	74%	74%

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Workers with Permanent Disability Have Poor Outcomes and Were Dramatically Affected by the Great Recession

- Identify workers with PD as those with paid or settled PD benefits within 3 years of injury date (*constant-maturity* PD workers)
- This definition precludes us for studying 2017 PD injuries
- Some signs of recovery in 2015-2016, but earnings remain far lower than before recession



Source: 2005-2017 WCIS-EDD data. Figure shows trend in second-year relative earnings for injured workers receiving PD benefits within 3 years of injury and workers with indemnity benefits, but no PD benefits.

We Estimate After-Tax Wage Replacement Rates and Compare Across Injury Cohorts

- *Wage replacement rate* is defined as the ratio of benefits to after-tax earnings losses over a specified window of time after the injury
- We calculate wage replacement rates over five years post-injury for workers injured in 2014 and earlier years
 - Paid and settled benefits observed directly in WCIS; payments reported after 5 years post-injury are adjusted to match 5-year window by straight-line interpolation based on payment start/end dates.
 - Five-year earnings losses extrapolated from first and second-year losses using data on year-by-year earnings losses for workers injured in 2005-2008.
- WC benefits are tax-exempt, so we impute after-tax earnings (and earnings losses) using tax liability estimates from the Current Population Survey (CPS)
- Real benefits and earnings loss amounts converted to present value using 2.3% discount rate
- All dollar amounts adjusted for inflation and reported in 2019\$

For Injuries Through 2014, Paid PD Benefits Did Not Increase Substantially

Year of injury	Temporary Disability		Permanent Disability		Fatality	Medical	Un-specified	RTWSP	Total
	Benefits Paid	Settlements Paid	Benefits Paid	Settlements Paid	Benefits + Settlements Paid	Settlements Paid	Settlements Paid	RTWSP	
2005-2007	\$10,343	\$125	\$9,556	\$1,025	\$64	\$1,641	\$2,616	\$0	\$25,369
2008-2010	\$12,261	\$229	\$11,245	\$1,561	\$54	\$3,056	\$2,952	\$0	\$31,358
2011-2012	\$12,439	\$259	\$10,679	\$2,045	\$40	\$4,170	\$2,902	\$1	\$32,535
2013	\$12,866	\$271	\$10,072	\$2,519	\$39	\$4,679	\$2,915	\$363	\$33,722
2014	\$13,077	\$251	\$10,762	\$2,945	\$38	\$5,184	\$3,018	\$518	\$35,792

Authors' calculations, 2005-2014 WCIS. Table reports nominal paid benefits and settlement amounts as of 5 years (60 months) after date of injury. Sample includes all workers with paid or settled PD within 3 years (36 months) after date of injury.

Five-Year Wage Replacement Rates Were Flat Through 2014 Injury Dates, When SB 863 Changes Were Fully Implemented

Year of injury	After-Tax Earnings Loss (5 Years Post-Injury)	Excluding Medical Settlements		Including Medical Settlements	
		Total Benefits (5 Years Post-Injury)	5-Year Wage Replacement Rate	Total Benefits (5 Years Post-Injury)	5-Year Wage Replacement Rate
2005-2007	\$42,702	\$28,716	67.2%	\$30,660	71.8%
2008-2010	\$51,686	\$32,332	62.6%	\$35,758	69.2%
2011-2012	\$52,691	\$30,992	58.8%	\$35,494	67.4%
2013	\$54,359	\$31,150	57.3%	\$36,121	66.4%
2014	\$56,932	\$32,480	57.0%	\$37,914	66.6%

Authors' calculations, 2005-2014 WCIS. After-tax earnings losses and benefit amounts are real (2019\$) present values calculated assuming a 2.3% discount rate. Wage replacement rate = (present value of benefits) / (present value of after-tax earnings loss). Sample includes all workers with paid or settled PD within 3 years (36 months) after date of injury.

Why Haven't Benefits Risen More?

- Other analyses have noted lower indemnity benefits than anticipated since SB 863, in part due to lower disability (TD) duration (WCIRB, 2019)
- PD ratings from WCIRB (USR 3rd report) suggest ratings have not increased since SB 863, but DEU (ratings at 36-39 months post-injury) data show an increase. (WCIRB, 2018)
- Settlements more common and earlier after injury, but replacement rate trends look similar for workers with vs. without settlements.
- Payments to injured workers from DIR-administered funds have grown substantially, but are not fully accounted for in analysis
 - RTWSP (\$5,000 one-time payment) is accounted for and helps improve benefit adequacy
 - Payments from the Subsequent Injury Benefit Trust Fund (SIBTF) have also increased sharply in recent years, but SIBTF claims were not analyzed in this study
- Possible that apportionment of PD applied more widely, but we were unable to verify this with WCIS data.

Limitations and Caveats

- Most severe cases take longer to develop and might be excluded from constant-maturity sample of cases
- Replacement rates measured using paid-to-date benefits, not incurred benefits, limiting comparability to actuarial estimates (WCIS data contain paid-to-date amounts, not incurred amounts)
- Higher-quality data on PD ratings needed to fully evaluate implications of SB 863 for PD rating system fairness
- Limited impact of local conditions does not mean recession didn't matter, only that harder-hit areas didn't see dramatically worse outcomes for injured workers.

Policy Implications

- Declining return to work at employer-at-injury appears to be a continuing drag on earnings of injured workers
- Recent improvement in earnings for Southern California workers with CT injuries coincided with economic recovery, but also with sharp reductions in post-termination claims, presence of liens
 - Lien changes may reflect impacts of SB 1160, but further study needed to know if lien/anti-fraud measures improved worker outcomes
- Benefit increases anticipated under SB 863 not fully reflected in paid PD amounts for injury dates examined here
 - For PD injuries through 2014, wage replacement rates remained flat

References

- Rennane, Stephanie, Nicholas Broten, and Michael Dworsky, *Wage Loss Monitoring for Injured Workers in California's Workers' Compensation System: 2016–2017 Injury Year Findings (Third Interim Report)*, California Department of Industrial Relations, RR-4209-DIR, 2020. Retrieved from: https://www.rand.org/pubs/research_reports/RR4209.html
- WCIRB. (2018). WCIRB Actuarial Committee Agenda - December 5, 2018. Oakland, CA. Retrieved from <https://www.wcirb.com/document/26286>
- WCIRB Actuarial Services Team. (2019). *SB 863 Cost Monitoring Update*. Oakland, CA. Retrieved from <https://www.wcirb.com/document/31111>