RESEARCH BRIEF

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Why Wage Inflation Matters in Workers Compensation

INTRODUCTION

As we emerged from the COVID-19 pandemic, a labor shortage became apparent. To lure workers back to the workforce, wages needed to increase. As a result, all economic sectors have experienced wage growth, and lower-wage workers are seeing the fastest percentage growth among all workers.

Where did wage inflation occur, and how does it impact the workers compensation (WC) system?[1] And how does NCCI account for these changes in its ratemaking methodology?

KEY FINDINGS

- Wages grew fastest in recent years for low-paying jobs, and the growth was particularly strong in 2021
- Amid the Great Reshuffle, wage growth varies significantly by economic sector
- High-wage earners have a relatively lower share of injuries than low-wage earners
- Nonuniform wage inflation is more impactful in states with:
  - High minimum weekly indemnity benefits
  - Low maximum weekly indemnity benefits
- State Average Weekly Wage (SAWW) indices, which influence state indemnity benefit levels, may increase by a greater amount than normal in the near-term, reflecting the nonuniform wage inflation

[1] This analysis generally follows the structure of NCCI's ***AIS 2022*** presentation "Why Wage Inflation Matters in Workers Compensation." However, the data has been updated in certain exhibits.

BACKGROUND

Wages typically increase across the workforce a few percentage points each year, but wage growth may vary across economic sectors or by wage level. The overall WC premiums and benefit payments tend to move in concert, all else being constant. WC indemnity benefit payments are indexed to injured workers' wages and normally move in tandem with wages.

Spurred on by COVID-19, the Great Resignation is leading into the Great Reshuffle,[2] as workers laid off from or quitting their old jobs look for more rewarding new employment, enabled by vacancies across the board in different industries. Recent wage growth has been concentrated among low-wage workers. As wages increase, so does payroll and hence premium (assuming no premium rate change). Payroll as an exposure base keeps premiums and benefits in balance, especially in inflationary times.

TERMINOLOGY

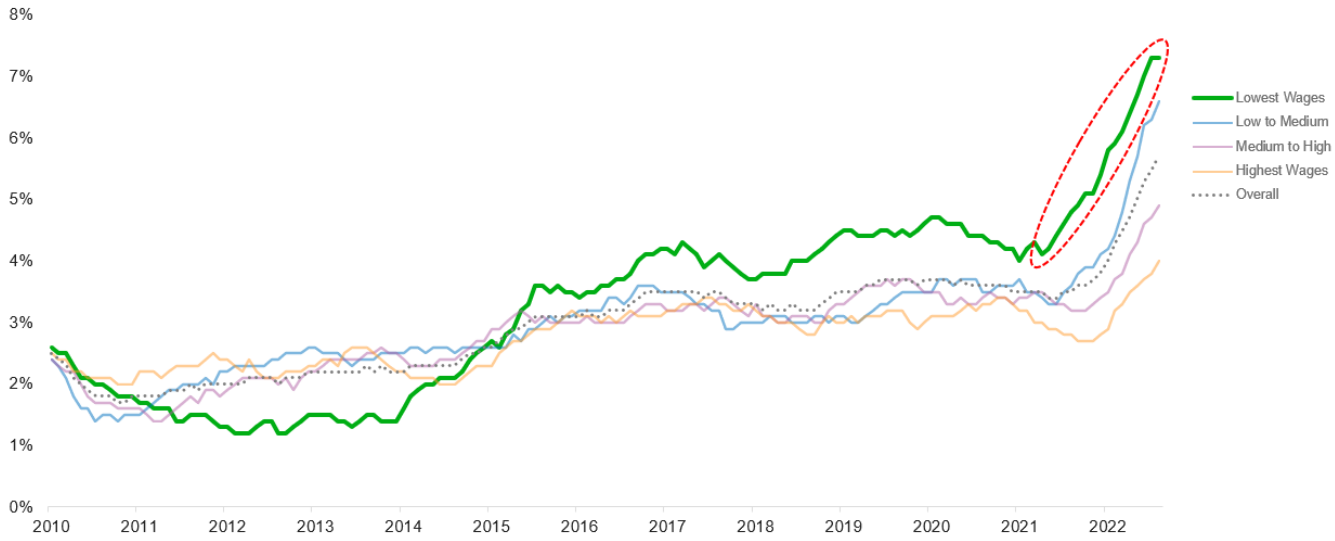
- **Average weekly wage (AWW):** The worker's average weekly pre-injury earnings as determined by a jurisdiction-specific formula. This AWW typically serves to establish the worker's weekly indemnity benefit compensation.
- **Statewide average weekly wage (SAWW):** The average weekly wage published annually by a state agency. The SAWW or some multiple thereof is often used to determine the maximum weekly indemnity compensation rates in a state.
- **Maximum compensable wage:** The weekly wage amount at which indemnity benefits are capped at the statutory maximum benefit. This is frequently 150% above a state's maximum weekly benefit.
- **Minimum compensable wage:** The effective weekly wage for the statutory minimum indemnity benefit.

[2] Leonard F. Herk, "Economic Outlook for Q3 2021," NCCI's Quarterly Economics Briefing—Q3 2021, www.ncci.com/Articles/Pages/Insights_Quarterly_Economics_Briefing-Q32021.aspx.

Wage Changes and the US Economy

Wage changes in the United States are not uniform by wage level, particularly for 2021. Figure 1 divides wages into four quartiles, ranging from the lowest 25% of average hourly wage earners (first quartile) to the highest 25% of average wage earners (fourth quartile). Tracking wage growth from the beginning of 2010 shows that low-wage workers experienced lower-than-average wage growth for several years. Since 2016, that trend was reversed and picked up steam in 2021 as the economy recovered from COVID-19.

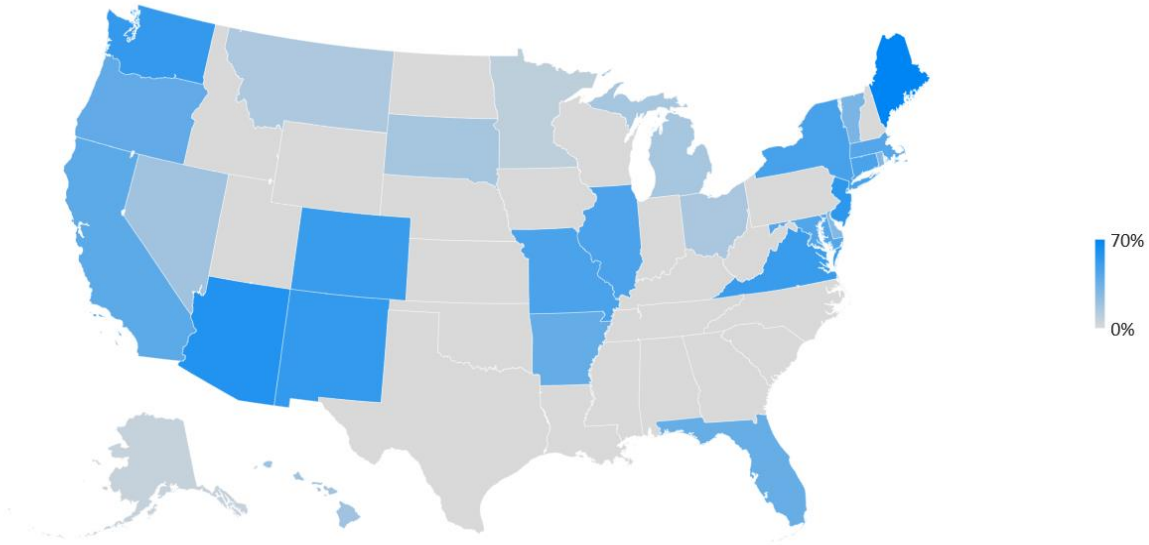
Figure 1: Wages Grew Fastest for Low-Paying Jobs
12-Month Moving Average



12-month moving averages of monthly median hourly wage growth, 1/1/2010 to 8/1/2022.
Sources: Current Population Survey, Bureau of Labor Statistics, and Federal Reserve Bank of Atlanta calculations.

Is the recent growth in low wages driven by gains in minimum wages? Figure 2 displays the cumulative changes[3] in minimum wage across states since 2016. Although some states are seeing significant percentage increases, minimum wage has not changed at all for 22 states over the last five years. Because wage inflation occurs in every state, minimum wage levels are not as impactful on employers as market-driven pressures are to increase wages to attract and retain employees.

Figure 2: Minimum Wage Increases Since 2016



Source: US Department of Labor.

Wage growth is not uniform across economic sectors. Wages grew fastest in sectors and jobs with the strongest demand recovery, especially during 2021 and so far in 2022. Figures 3 and 4 display hourly wage growth (excluding management) by economic sector. The Leisure and Hospitality sector has the lowest wage levels—well short of the total private industry. However, Leisure and Hospitality leads the sectors in wage growth over the 12-month period ending June 2022.

Leisure and Hospitality is the only major sector in which jobs remain well short of pre-COVID-19 levels, but many missing jobs may not be coming back. One reason is decreased labor force participation in the restaurant industry, especially for both young workers (16–24 years of age) and old workers (age 55 and over), as well as the reduction in immigrant workers. With fewer workers to draw upon, the restaurant industry has had to raise wages by double digits, surpassing wage increases in other sectors.[4]

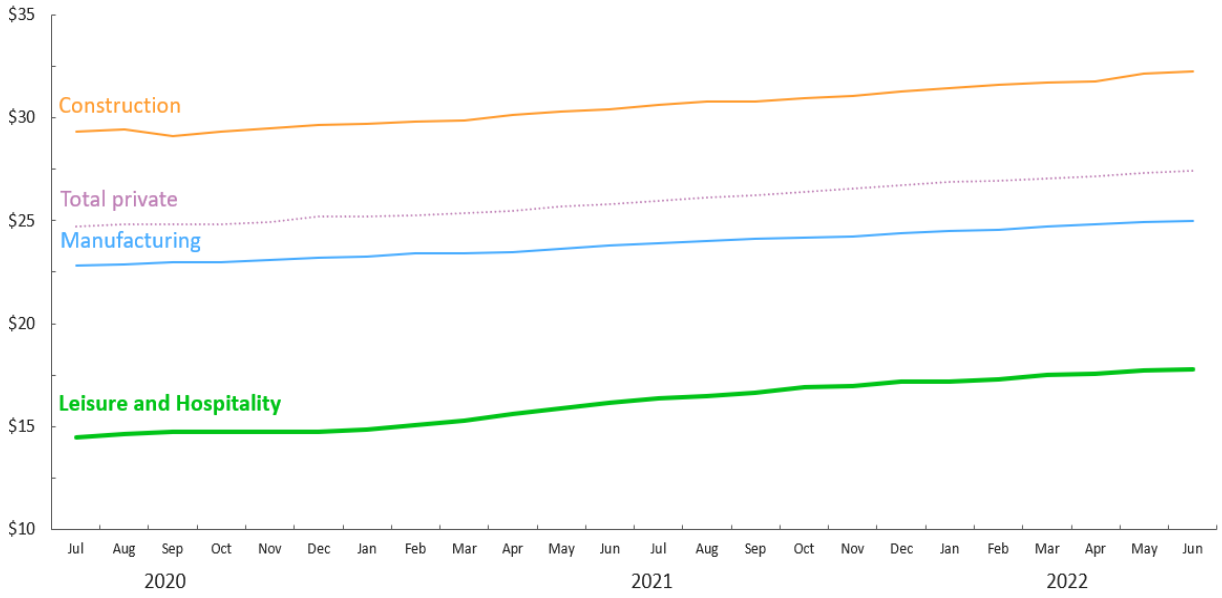
We also find that Leisure and Hospitality wages for injured workers only[5] (which includes management) grew more than the all-sector average in the first quarter of 2022 over the first quarter of 2021.

[3] Changes calculated based on published minimum wages as of April 20, 2022.

[4] Leonard F. Herk and Francesco Renna, "Economic Outlook for Q1 2022," NCCI's Quarterly Economics Briefing—Q1 2022, www.ncci.com/SecureDocuments/QEB/QEB-2022Q1_EconomicOutlook.html.

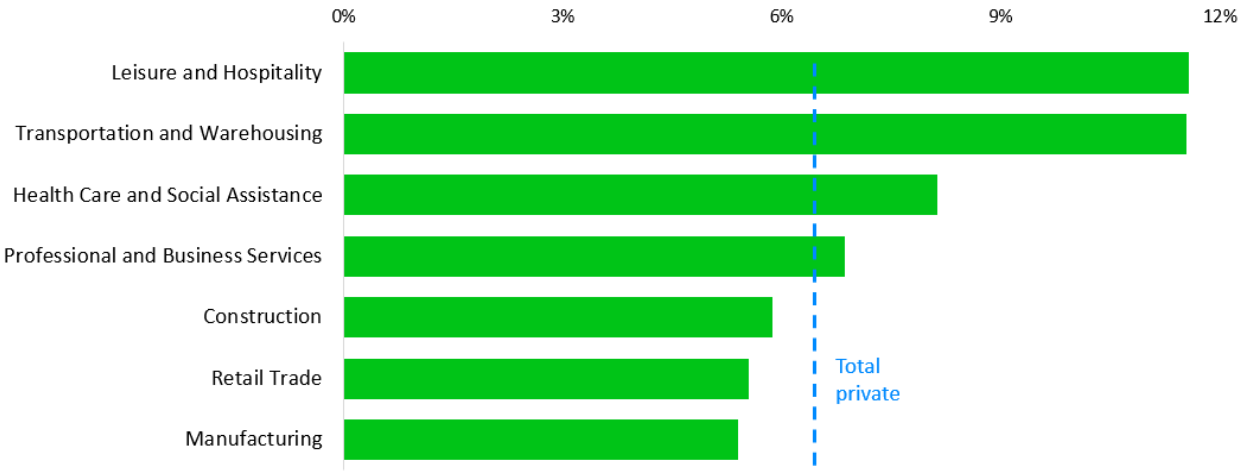
[5] Source: NCCI's Indemnity Data Call (IDC). Representative of Temporary Total Disability (TTD) claims only. Wages for injured workers in IDC include wages of supervisors and management.

Figure 3: Worker Earnings Are Picking Up, Especially in Leisure and Hospitality
Average Hourly Earnings (excluding management)



Production and nonsupervisory workers.
Sources: US Bureau of Labor Statistics and NCCI.

Figure 4: Wage Growth Picked Up
2Q 2022 vs. 2Q 2021 (excluding management)



Change in average hourly earnings for production and nonsupervisory workers for April through June 2022 compared to the same period in 2021.
Sources: US Bureau of Labor Statistics and NCCI.

Wage Distributions

Wages vary widely for workers. Wages can differ between workers with different skills in the same industry or between workers with comparable skills in different industries or localities. Wage distributions are statistical measures of how many workers are at various wage levels. By looking at wages relative to the average, distributions may be constructed to measure the spread of wages earned for all workers and for injured workers.

Historically, wage distributions differ significantly between the total worker population[6] and injured workers. Figure 5 illustrates this difference for full-time workers.[7] A higher proportion of injured workers earn lower wages compared to all workers from the general population.[8] For full-time workers, the mean wage of injured workers is $863, almost 30% lower than the mean wage of $1,230 for all workers.

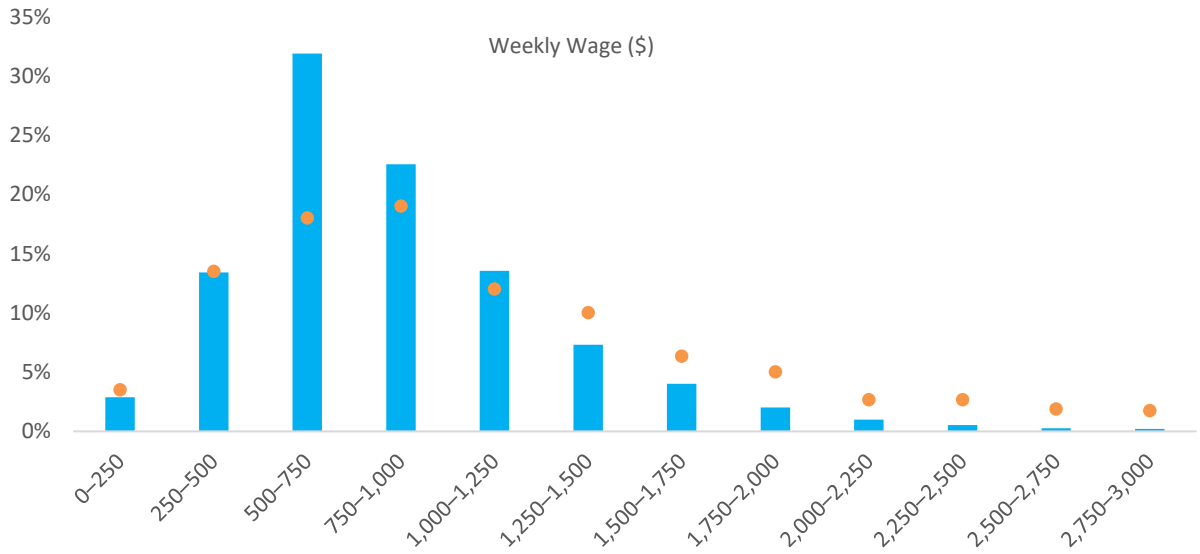
Why is the wage distribution for all workers different from that of injured workers? The reason is that workers at different wage levels have different probabilities of getting injured on the job.

Figures 5 and 6 confirm that lower-wage earners have a higher share of injuries and higher-wage earners have a lower share of injuries. This pattern persists to varying degrees within all economic sectors and may be explained by two factors:

- Experienced workers (doing the same job) typically earn more wages and probably have a lower propensity for workplace injuries[9]
- High-wage earners often work in less hazardous workplaces, such as office settings, and are commonly in management roles that are less prone to injury

Figure 5: Wage Distribution for All Workers vs. Injured Workers

Full-Time Workers Only



Wages truncated at $3,000 for Figure 5. Only 3.7% of workers in the general population earn a weekly wage beyond $3,000; and this share is smaller at 0.3% for injured workers.

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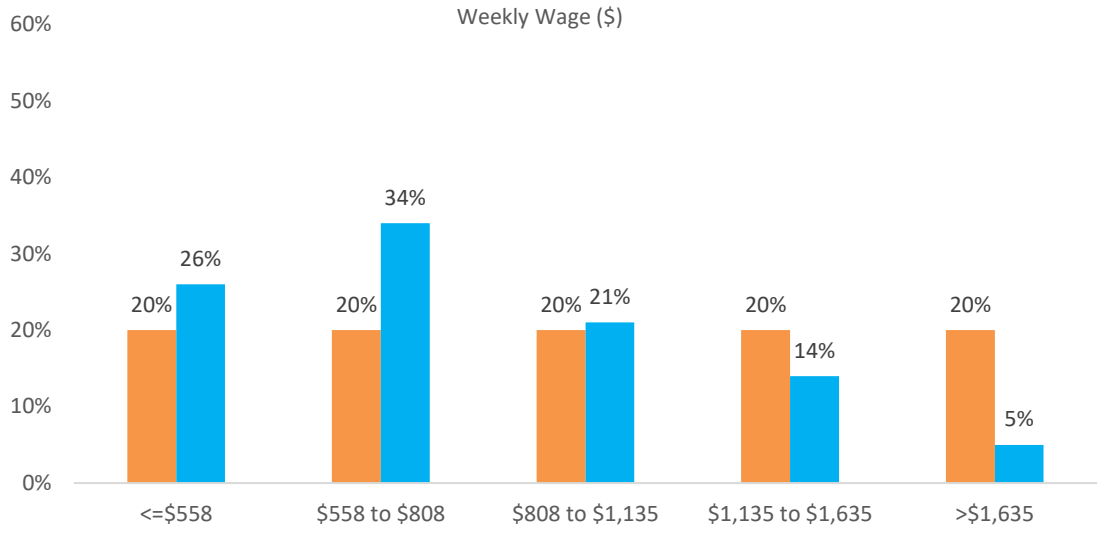
[6] "All workers" in this study includes both injured workers and non-injured workers in the economy.

[7] Wage distribution is based on full-time workers only. Including part-time workers would skew the wage distribution to the left. Although many part-time workers work in high-frequency classifications, working limited hours reduces their chance of getting hurt on the job.

[8] Injured workers source: NCCI's Indemnity Data Call (IDC).
All workers from the general population source: Integrated Public Use Microdata Series, Current Population Survey (IPUMS-CPS).

[9] "Study finds persistence of higher injury risk for new workers": www.iwh.on.ca/newsletters/at-work/69/study-finds-persistence-of-higher-injury-risk-for-new-workers.
"35% of Workplace Injuries Occur During First Year: Travelers": www.insurancejournal.com/news/national/2022/05/03/665793.htm.

Figure 6: Higher Wage Workers Have a Lower Share of Injuries
Full-Time Workers Only



In Figure 6, full-time workers[10] from the general population are distributed across quintiles—from the lowest 20% of workers to the highest 20%. Shares of injuries corresponding to these wage percentiles are shown in blue.

Figure 7 shows the wage values used to define the quintiles in Figure 6. For example, from the general population, 20% of full-time workers earn no more than $558 on a weekly basis.

Figure 7: Weekly Wage to Define Quintiles for IPUMS[11] Full-Time Workers

	20th Percentile	40th Percentile	60th Percentile	80th Percentile
Weekly Wage*	$558	$808	$1,135	$1,635

*Wages truncated at $5,000.

[10] We need all workers to have a similar exposure in number of hours for a proper comparison; a part-time worker has less chance of getting injured than a full-time worker on the same job.
[11] Integrated Public Use Microdata Series (IPUMS).

A Closer Look at Economic Sectors

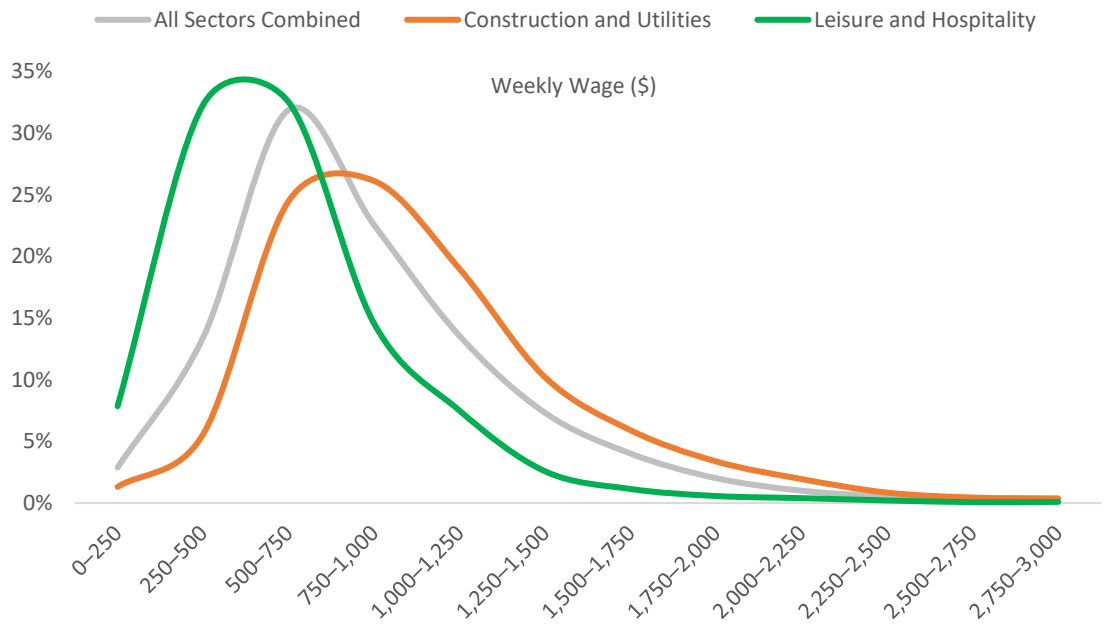
A sector is an area of the economy in which businesses share the same or related business activity, product, or service. The sector mapping methodology used in this study is detailed in Section B of the Appendix.

When it comes to wage distributions and workplace injuries, we observe differences by sector, as illustrated in Figure 8:

- In a lower-paid sector, such as Leisure and Hospitality, a higher proportion of injured workers earns lower wages
- In a higher-paid sector, such as Construction and Utilities, a higher proportion of injured workers earns higher wages

Figure 8: Injured Worker Wage Distributions by Sector

Full-Time Workers Only



Wages truncated at $3,000 for Figure 8. Only 0.3% of injured workers (all sectors combined) earn a weekly wage beyond $3,000. This share is 0.2% for Leisure and Hospitality injured workers and 0.4% for Construction and Utilities injured workers.

Figures 9 and 10 illustrate the share of injuries[12] for Leisure and Hospitality (Figure 9) and Construction and Utilities (Figure 10) using the same overall wage quintiles as in Figure 7.

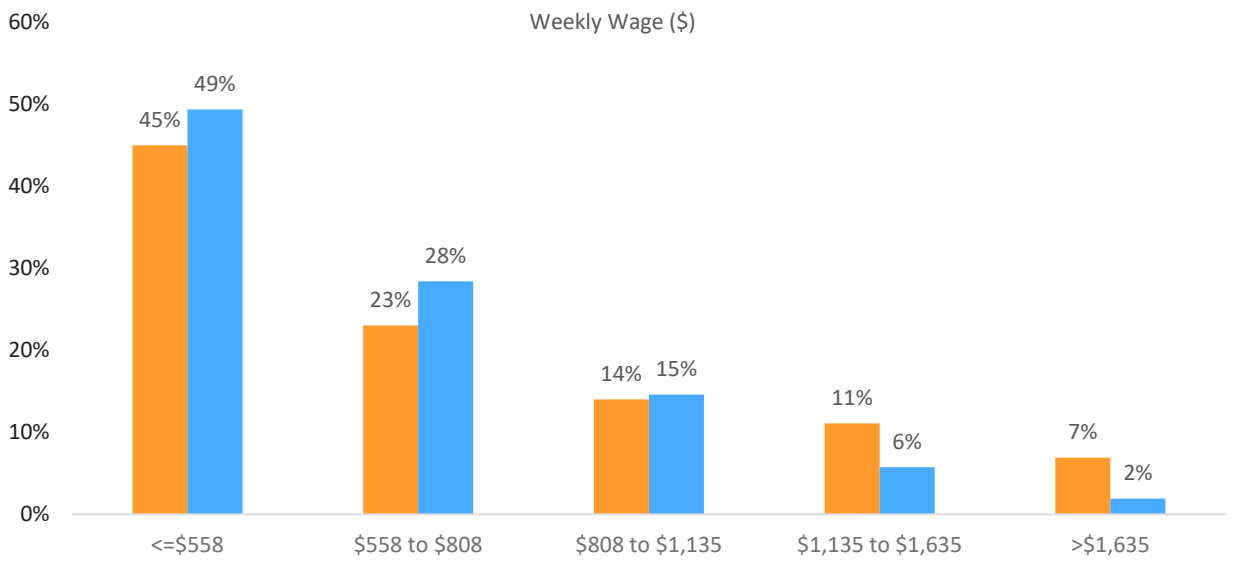
Among all economic sectors, Leisure and Hospitality has the highest share of full-time workers[13] earning less than $558 on a weekly basis (45%), and this cohort of workers generates nearly half of the sector's share of injuries (49%).

[12] Source: NCCI's Indemnity Data Call (IDC). Representative of Temporary Total Disability claims only. Reflects accidents occurring in Accident Year 2021.
[13] Share of workers based on wage distribution within each economic sector.

Figure 9: Leisure and Hospitality

Full-Time Workers Only

Share of Sector Workers vs. Share of Sector Injured Workers

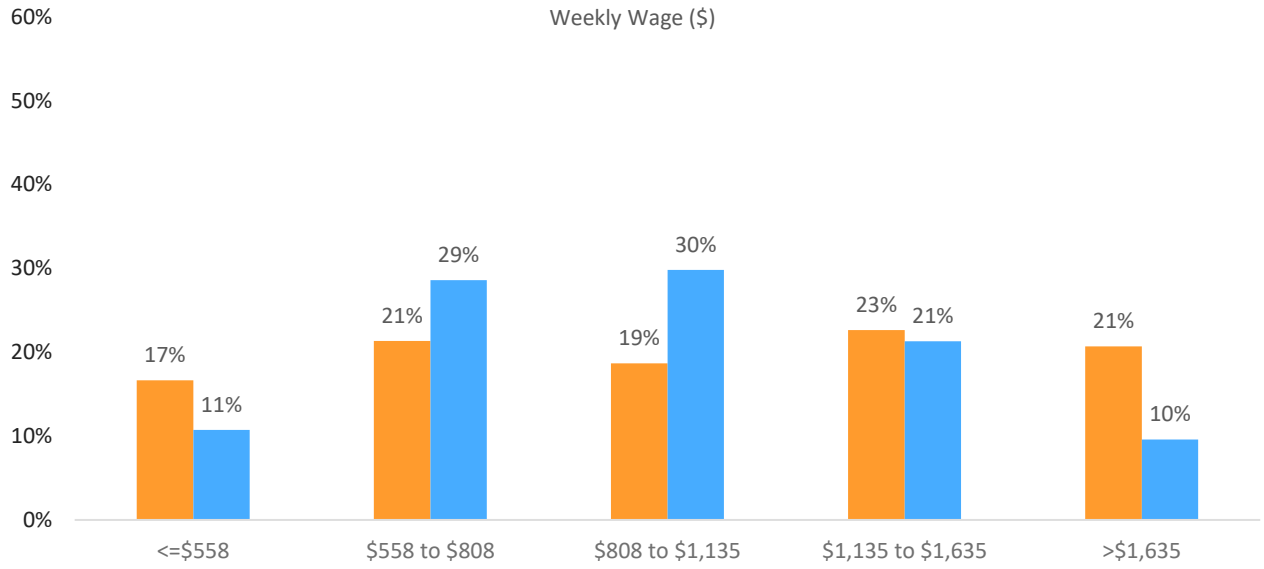


Construction and Utilities workers' average wages are higher than those of all sectors combined. For full-time workers, the injury share is evenly spread among those earning between $558 and $1,135 on a weekly basis. The injury share is lower for workers at both ends of the wage distribution.

Figure 10: Construction and Utilities

Full-Time Workers Only

Share of Sector Workers vs. Share of Sector Injured Workers



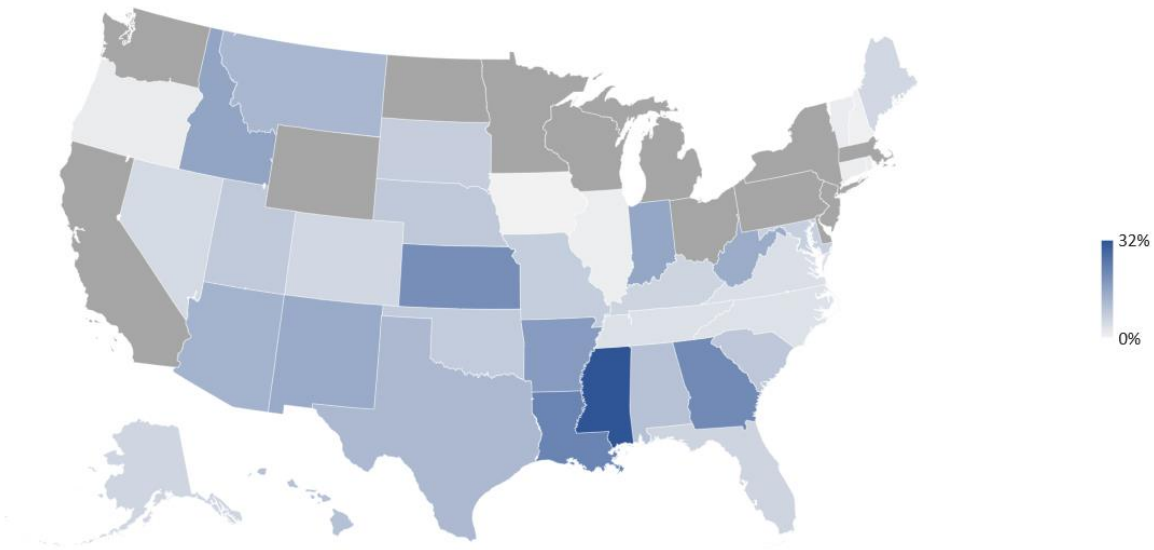
How Does Wage Inflation Impact Workers Compensation?

Payroll as an exposure base is inflation-sensitive. All else equal, when wages go up, payrolls go up, and so do WC premiums. This is while higher wages are pushing benefits up. Therefore, *payroll keeps premiums and benefits in balance.*

Indemnity benefits correlate with wages. In most jurisdictions, the typical compensation rate for indemnity benefits is two-thirds of a worker's pre-injury weekly wage, subject to statutory minimum and maximum weekly benefits. Medical benefits also correlate to wages.[14]

Figures 11A and 11B illustrate the injured workers' share[15] with weekly wages above the maximum compensable wage (Figure 11A) and below the minimum compensable wage (Figure 11B).

Figure 11A: Injured Workers' Share With Weekly Wages Above the Maximum



Maximum is based on the maximum compensable wage figure, typically 150% above a state's maximum weekly benefit.
Source: NCCI Indemnity Data Call (IDC).

The injured workers' share with weekly wages above the maximum compensable wage ranges from nearly 0% to over 30%.

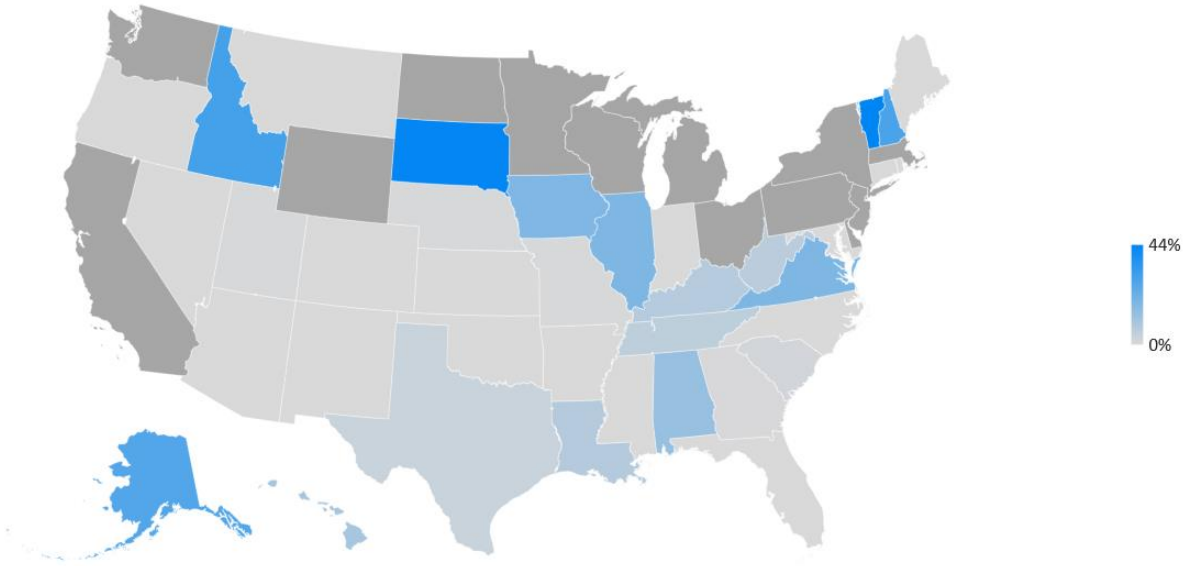
In states with high maximum thresholds, a very small share of injured workers would receive maximum benefits. For example, in one state, the maximum benefit for Temporary Total Disability (TTD) is $133\frac{1}{3}$% of the SAWW. To receive the maximum benefit, an injured worker's wage would have to be greater than twice the SAWW. This applies to 0.9% of injured workers in that state.

In states with low maximum thresholds, a relatively large share of injured workers would receive maximum benefits. For example, to receive the maximum benefit (two-thirds of SAWW) in another state, an injured worker's wage would only need to be greater than the SAWW. This applies to 32% of injured workers in that state.

The SAWW is published by a state agency anywhere from 6 to 23 months after the beginning of the measurement period. When the SAWW goes up, indemnity benefits go up, and this can be quite impactful in states where a large share of injured workers receives maximum benefits.

[14] Delano Brown and Natasha Moore, "The Performance of Total Payroll as the Exposure Base for Workers Compensation—An Updated Analysis," NCCI Research Brief, January 2007, p. 5, ncci.com/Articles/Pages/II_Research-performance-payrollUpdated.pdf.
[15] Refer to Section C of the Appendix for share of individual states.

Figure 11B: Injured Workers' Share With Weekly Wages Below the Minimum



Minimum is based on the minimum compensable wage figure.
Source: NCCI Indemnity Data Call (IDC).

The injured workers' share with weekly wages below the minimum compensable wage ranges from nearly 0% to over 40%.

In some states with high minimum benefits, a large share of injured workers would receive minimum benefits. For example, to receive the minimum benefit (50% of SAWW) in a state, an injured worker's wage needs to be no more than 75% of SAWW. In that state, 44% of injured workers would be affected by the minimum benefit.

More strikingly, this share is less than 1% in 22 states. Some states have virtually no minimums.

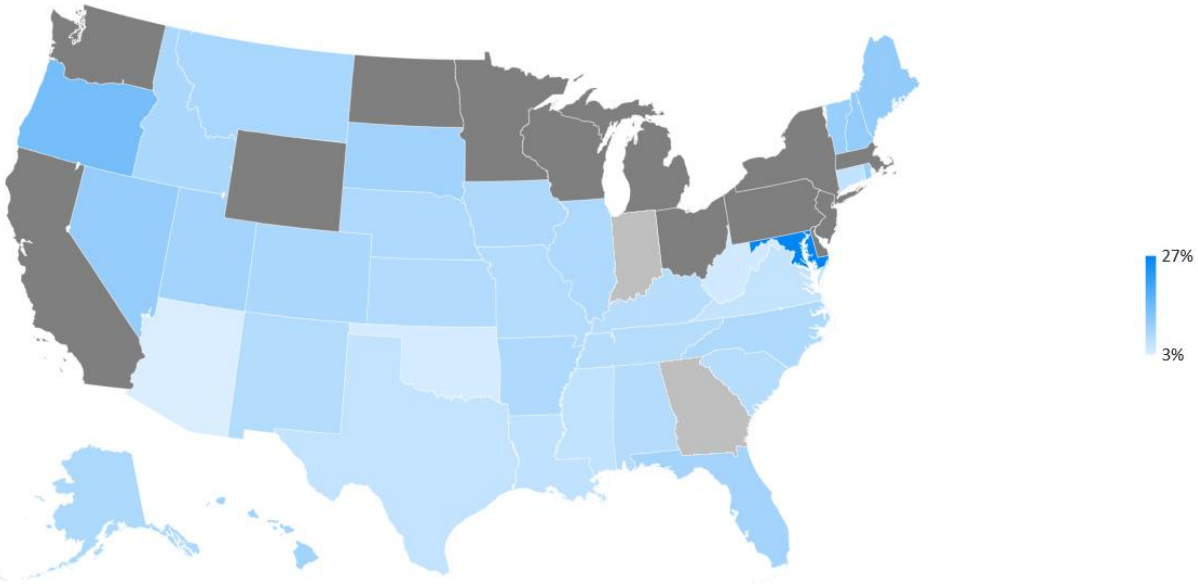
The indexing of maximum and minimum benefits helps to immunize indemnity benefits from erosion by inflation.

Impact of the Great Reshuffle on Benefits

Statutory minimum and maximum weekly benefits are frequently indexed to the SAWW. Because wages increase modestly in normal times, the lag between wage inflation and changes in the SAWW isn't consequential, and minimum and maximum benefits typically do not change much annually.

Figure 12 illustrates the most recent changes in the SAWWs[16] by jurisdiction. The changes are less than 10% in 30 NCCI states, and some states have double-digit increases—well in excess of normal wage inflation.

Figure 12: Latest SAWW Changes



Arizona is based on change in state average monthly wage.
Georgia and Indiana: No SAWW.
Sources: Various state agencies.

Average weekly earnings increased sharply in 2020 due to relatively lower-wage workers being laid off. Rather than actual wage increases for workers, this was primarily a mix effect because the dramatic number of pandemic-related layoffs were concentrated in low-wage sectors and low-wage jobs within sectors (such as restaurant workers in the Leisure and Hospitality sector and retail sales associates in the Retail Trade sector). In other words, wage changes were primarily due to the changing composition of the workforce.[17]

For example, suppose there are three workers in the economy:

- Worker A earns $300 a week in a low-wage sector
- Worker B earns $600 a week in a medium-wage sector
- Worker C earns $900 a week in a high-wage sector

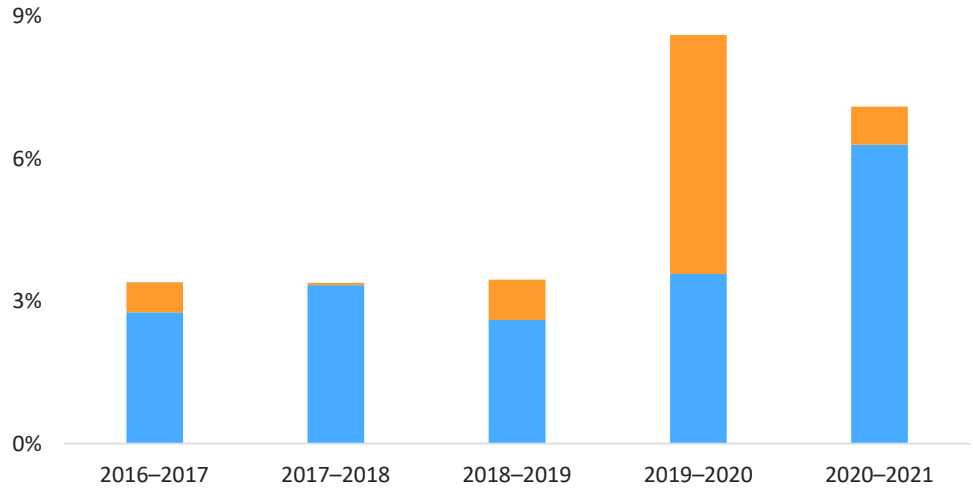
The average weekly wage across all three workers is $600. What happens if worker A leaves the workforce? The average weekly wage increases from $600 to $750 for the remaining two workers, even though neither of the remaining workers' wages changed. Shifts in employment can distort the SAWW in the short-term, which has ramifications for WC indemnity benefit payments.

[16] Changes calculated based on published SAWWs as of April 20, 2022.
[17] Patrick Coate, "Average Wages During the Coronavirus Pandemic," NCCI's Quarterly Economics Briefing—Q3 2020, www.ncci.com/SecureDocuments/QEB/II_2020-Q3_Wages_PEC.html.

How big is this distortion? Usually, it is not that significant. However, in 2020, sector mix dominated, as seen in Figure 13.

Figure 13: Year-to-Year Change in Average Weekly Wage (AWW)

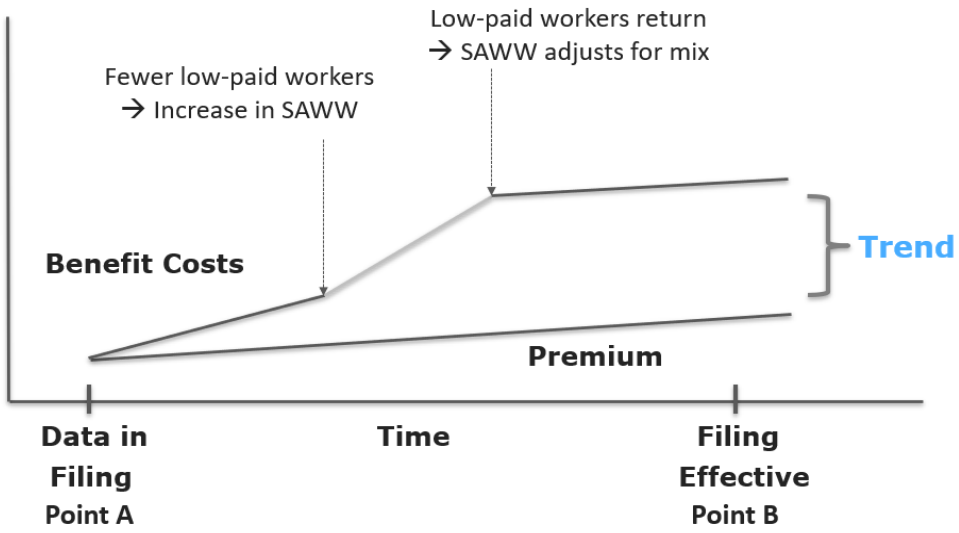
Change Due to Sector Mix vs. Workers Within Same Jobs



Sources: Quarterly Census of Employment and Wages, US Bureau of Labor Statistics, and NCCI (2016–2020); and US Bureau of Economic Analysis, US Bureau of Labor Statistics, and NCCI (2020–2021).

When low-paid workers leave the workforce, the SAWW increases, causing benefit costs to accelerate in relation to actual wages. Conversely, when low-paid workers return to the workforce, SAWW adjusts for the change in mix, causing benefit costs to decelerate. Because WC premium is based on payroll, the difference in growth of total benefit and growth in total premium in the filing effective period is incorporated into trend to ensure rate adequacy. This is illustrated in Figure 14.

Figure 14: Trend Addresses the Impact Beyond Wage Inflation



In some NCCI loss cost filings, the observed change in the 2019-to-2020 average weekly wage (AWW) was impacted by COVID-19-related shifts in employment across industry sectors. While a change in industry sector mix occurs to a small degree each year, its impact on the 2020 AWW change was unusually large, due to pandemic-related job losses in relatively low-wage industries. Therefore, the 2020 AWW values[18] were adjusted to exclude the estimated impact of the pandemic-related, industry sector mix change. The selected trend factors reflected this adjustment.

CONCLUSION

In periods of uniform wage increases, the premium and benefit changes automatically stay in balance in NCCI's ratemaking process. In recent years, wages increased nonuniformly across economic sectors, with lower-wage earners having experienced larger percentage wage increases relative to higher-wage earners. As the US economy recovers post-pandemic, wage inflation and mix changes by sector are important to monitor and understand. NCCI accounts for these changes in its ratemaking methodology.

The combination of payroll as an exposure base and the prevalence of maximum and minimum benefits being automatically tied to the SAWW means that while inflation is impactful on WC, its impact is generally benign.

ACKNOWLEDGMENTS

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APPENDIX

A: Data Sources

The data used for this study is derived from multiple sources, including:

- The US Bureau of Labor Statistics (BLS)
- NCCI's Indemnity Data Call (IDC)
- NCCI's Policy Data
- Publicly available data from the University of Minnesota's Integrated Public Use Microdata Series, Current Population Survey (IPUMS-CPS)

IDC Data Source

- Temporary Total Disability (TTD) claims information and the pre-injury average weekly wage field
- Data is from commercial insureds and excludes self-insureds
- COVID-19 claims are excluded from the analysis
- Thirty-eight jurisdictions: AK, AL, AR, AZ, CO, CT, DC, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MD, ME, MO, MS, MT, NC, NE, NH, NM, NV, OK, OR, RI, SC, SD, TN, TX, UT, VA, VT, and WV

NCCI began collecting the IDC for lost-time claims active as of 4/1/2020. This study uses claims with accident dates of 4/1/2020 through 3/31/2022.

Integrated Public Use Microdata Series, Current Population Survey (IPUMS-CPS)

- This is an integrated set of data from the Current Population Survey (CPS) from 1962 and forward. The CPS is administered monthly by the US Bureau of the Census to more than 65,000 households. The data itself is microdata and provides information about individual persons and households.
- This study leverages IPUMS-CPS data where sample statistics utilize a complex sampling design. Data extracts include weights to produce representative statistics, and the resulting density plot is smoothed for comparison.
- Due to the complex sampling design for the CPS, users of IPUMS-CPS data must make use of weights to produce representative statistics. The choice of weight depends on the sample being analyzed. More technical details on sampling can be found at cps.ipums.org/cps/sample_weights.shtml.

[18] Source: The Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW).

- This study uses Calendar Year 2020 and 2021 data.
- Jurisdictions that this study uses match IDC jurisdictions.

B: Sector Mapping

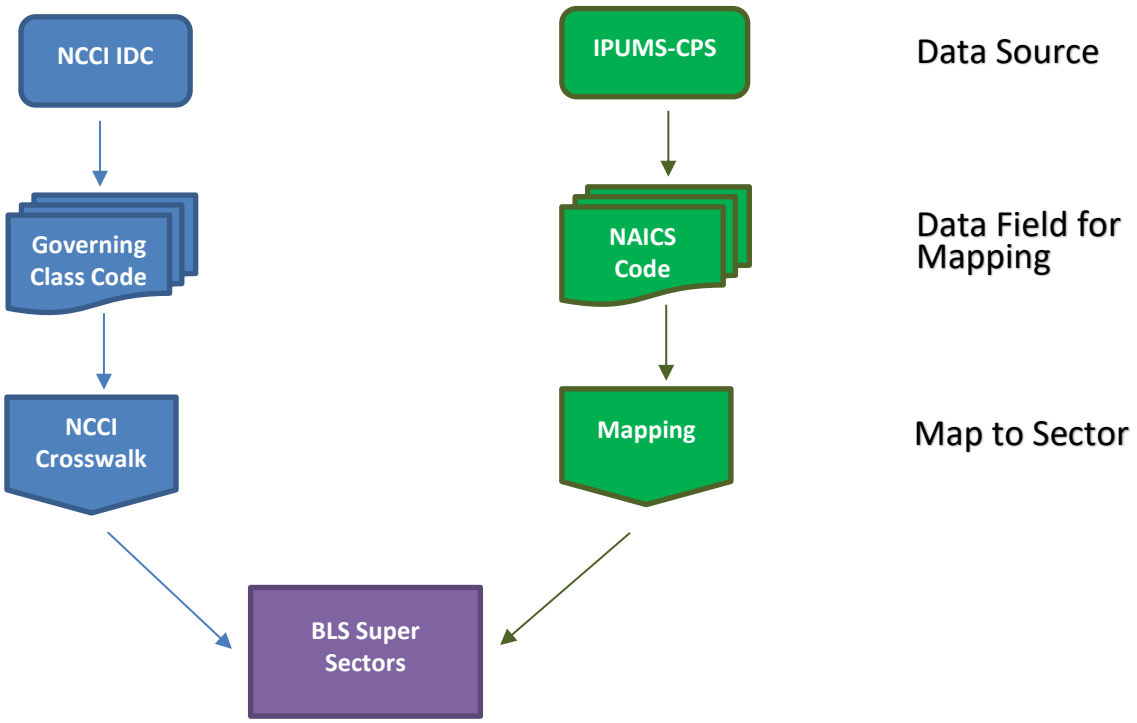
The highest levels of aggregation in the North American Industry Classification System (NAICS) are NAICS sectors. The BLS further aggregates data into super sectors.

For workers from the general population, one can map the three-digit NAICS codes in the IPUMS-CPS dataset to their corresponding BLS super sector.

For injured workers' data from NCCI's IDC, there is no "Sector" field. However, by linking IDC to Policy Data, one obtains the governing class code[19] for a given policy, which can be used as a proxy for determining the BLS super sector.

Once IPUMS-CPS and NCCI IDC datasets are mapped to project sectors (based on BLS super sectors), we can compare information for all workers versus injured workers. Note that the sector mapping is a proxy and may not always reflect an actual profession (for either a worker from the general population or an injured worker).

IPUMS-CPS and NCCI IDC Sector Mapping Diagram



[19] The governing class code, as defined in NCCI's ***Basic Manual for Workers Compensation and Employers Liability Insurance (Basic Manual)***, is the basic classification at a specific job or location (other than a standard exception code) that produces the greatest amount of payroll.

C: Injured Workers' Share With Weekly Wage Above the Maximum Compensable Wage and Below the Minimum Compensable Wage

ST_ABBR	Injured Workers' Share With Weekly Wage …	
	Above the Maximum Compensable Wage	Below the Minimum Compensable Wage
AK	5.7%	27.0%
AL	9.7%	13.2%
AR	17.5%	0.1%
AZ	12.7%	0.0%
CO	5.4%	0.0%
CT	1.1%	0.0%
DC	2.5%	0.0%
FL	5.8%	0.1%
GA	20.8%	0.3%
HI	10.0%	10.0%
IA	0.0%	18.0%
ID	15.7%	29.9%
IL	0.9%	18.2%
IN	15.3%	0.2%
KS	20.3%	0.3%
KY	6.0%	7.2%
LA	22.1%	7.3%
MD	7.0%	0.2%
ME	5.4%	0.0%
MO	7.3%	0.3%
MS	31.8%	0.1%
MT	11.9%	0.0%
NC	3.3%	0.1%
NE	8.3%	0.4%
NH	0.4%	28.8%
NM	14.4%	0.1%
NV	4.7%	0.0%
OK	7.8%	0.0%
OR	1.3%	0.2%
RI	1.0%	0.0%
SC	8.5%	1.5%
SD	7.3%	43.3%
TN	3.5%	5.4%
TX	11.5%	3.3%
UT	8.1%	0.3%
VA	3.9%	18.3%
VT	1.2%	44.1%
WV	14.1%	6.2%

Source: NCCI Indemnity Data Call (IDC).
Representative of Temporary Total Disability claims only; reflects accidents occurring between 4/1/2020 and 3/31/2022.