

Workers' compensation and the business cycle

A worldwide recession has begun in the wake of the fall 2008 meltdown of financial markets. What is the likely impact of the recession on workers' compensation costs? Are claims likely to be more or less frequent? Are work-related injuries likely to be more severe? How is the length of time off work affected? What can we anticipate about claim frequency and severity when recovery occurs and economic growth resumes?

This policy brief explores findings from past research on workers' compensation and the business cycle. The Institute for Work & Health has contributed to this research, mainly through the work of Ann-Sylvia Brooker, John Frank and Valerie Tarasuk on claim rates for back pain and acute injuries.

Theoretical considerations

Claims and claim frequency

As employment falls in a recession, one would expect the absolute number of claims to fall, since there are fewer workers to make claims. However, premiums for workers' compensation insurance, which are usually based on payroll, would also fall. Workers' compensation benefit providers are more interested in the frequency of claims: claims per worker covered or — even better, but not always available in the data — claims per hour worked.

The research on this issue points to several factors likely to affect claim frequency, generally in the direction of fewer claims per hour worked during recessions, and increased claim frequency in expansions. Considerations include the following.

- Inexperienced workers, who tend to have higher injury rates, are typically laid off first during recessions, and there are fewer new hires, so employees are less likely to be new to the job. In boom times, the opposite occurs as less experienced workers become a larger part of the workforce. The work of IWH Scientists Curtis Breslin and Peter Smith shows that inexperienced workers have elevated claim rates. In particular, workers on the job for less than a month have over three times as many workers' compensation claims as those who have held their current job for more than a year. Shuford (2008), citing data from the U.S. Bureau of Labor Statistics, reports that workers with less than one year with their current employer have a 46 per cent higher claim rate than the average worker.

KEY MESSAGES

- There is a long-term trend in Canada, the United States and a number of other countries towards fewer workers' compensation claims per hour worked.
 - There is fairly strong evidence that, relative to this trend, the frequency of workers' compensation claims per hour worked tends to decline in recessions and increase in times of economic recovery. Some possible explanations are that during recessions:
 1. there are fewer inexperienced workers
 2. the least safe equipment is taken out of use
 3. the pace of work is slower
 4. workers fearing job loss may defer filing claims
 5. hazardous industries experience the largest decline in employment.
 - While it is also possible that workers facing layoff are more likely to file claims, the evidence indicates that this is outweighed by factors tending to reduce claims in recessions.
 - The evidence regarding costs per claim — both wage replacement and medical costs — is thinner and somewhat mixed. The available evidence suggests that it is unlikely that recessions would accelerate the growth of these costs.
 - In booms, older, less safe equipment may be brought back into use in order to meet growing production targets, and workers may be less familiar with the machinery if it has been out of use. In recessions, the least efficient — which often means least safe — equipment is taken out of use first.
 - Booms are associated with more overtime work and a faster pace of work, both of which lead to more fatigue and higher injury rates.
 - The cyclical swings in employment tend to be greater in industries that are more hazardous, such as construction. This means that, in recessions, employment falls more in the hazardous industries than in the rest of the economy, tending to reduce injury rates. The reverse happens in boom periods.
 - When unemployment is rising, workers may defer filing claims, especially if the injuries are relatively minor, out of fear of losing their jobs.
- The first three of these reasons for lower claim frequency in



times of reduced economic activity are cited in research as early as 1938. A paper that year by Kossoris in the *Monthly Labor Review* includes these statements:

“As the depression deepened, labor forces were curtailed, with those most recently added laid off first. This generally left employed workers with long years of service and, usually, those of the skilled or semiskilled types which management wanted to retain as a nucleus for subsequent expansion. Such workers generally were thoroughly familiar with job hazards and had developed safety habits which were carried from job to job.”

“In the early stages of depression, lay-offs tended to lag behind reductions in operation, with the result that the total number of man-hours worked exceeded those which would ordinarily have been required. Coupled with decreased numbers of injuries, attributable to a general slowing down of the operating tempo, the swollen man-hours total resulted in a lowering of the frequency rate...”

“As business conditions became worse, management shifted toward the use of the most efficient equipment, which generally meant the most modern equipment. Such equipment, as a general rule, was also the safest.”

On the other hand, it is possible that safety would become a lower priority during recessions, which would tend to increase injuries, leading to increased claims frequency. Also, some researchers have pointed out that workers facing layoff may have an increased incentive to file workers' compensation claims, since these benefits are generally more generous and last longer than unemployment insurance benefits. Employees who feared job loss no longer have reason to hold back on reporting injuries once they have a layoff notice, or if a layoff is clearly imminent. Similarly, if an insured employer declares bankruptcy, an increase in workers' compensation claims from that firm might be expected. Such behaviour would not necessarily mean false reporting; rather, it could be that workers have held back on reporting some injuries until layoff.

The overall claim rate could fall in recessions, even if there are flurries of claims associated with layoffs, as long as claim rates fall enough for those not laid off. Picot, Lin and Pyper (1997) note that permanent layoffs are less sensitive to economic cycles than temporary layoffs, quits and new hires: in a recession, employers are more likely to reduce employment through temporary layoffs, attrition and reduced hiring in an effort to reduce labour costs than they are to engage in permanent layoffs.

Wage replacement costs

Even if claims per hour worked were to fall during recessions, it is possible that wage replacement costs of workers' compensation claims, per hour worked, could rise. (These are sometimes referred to as indemnity costs.) One explanation is that return to work is likely to be more difficult in recessions, as recovering workers may find they have no job to return to, and employers

are less able to offer modified work for partially disabled workers. (Similar considerations could lead to an increase in vocational rehabilitation caseloads during recessions.) Another possibility is that chronic injuries that might have been concealed earlier may be revealed when workers face layoff.

These factors could lead to longer claim duration in recessions and therefore increased costs per claim and per hour worked. If this increase were large enough, it could outweigh any reduction in claim frequency.

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On the other hand, if employment in recessions falls most in industries associated with more severe injuries, average claim duration could fall. Moreover, recessions put downward pressure on wage growth, and this tends to dampen any increase in wage replacement costs per claim.

Medical costs

Medical costs *per claim* might rise in recessions if minor injuries are less likely to be reported, so that the mix of claims is weighted to more serious injuries. However, this would not predict higher medical costs *per hour worked*. The story in this case is one of reduced frequency of claims for minor injuries, not increased frequency of more serious injuries. Indeed, if claims frequency falls overall, without a rise in the rate of serious injuries, one would expect some reduction in (or dampening in the growth rate of) medical costs per hour worked.

What does the evidence say?

We have seen that there are a number of theoretical possibilities regarding changes in workers' compensation costs over the business cycle. What does the evidence say?

Claim frequency

One early study of workers' compensation claim frequency over the business cycle is by Kossoris (1938), mentioned above. He looks at injuries per hour worked (for which disability lasted beyond the date of injury) as reported to workers' compensation boards in 29 manufacturing industries in the United States from 1929 to 1935.

Kossoris finds that the change in claims frequency from year to year closely parallels employment. In particular, in the early years of the depression, 1929 to 1931, the frequency of claims fell sharply.

The data also showed that as the depression took hold, the percentage of reported injuries that were minor, with disability lasting one week or less, went down. This suggests that in times of economic downturn, workers are particularly reluctant to report minor injuries out of fear of jeopardizing their job. This may also reflect the fact that, at that time, few states offered wage replacement benefits for disabilities lasting less than a week.

Using data for manufacturing industries (as a whole) in the United States from 1948 to 1969, Smith (1972) finds that injury frequency is positively associated with the capacity utilization rate, which is used as an indicator of the state of the business cycle. (Other variables include a time trend and real hourly earnings.) In other words, claim frequency is greater in boom times, lower in recessions.

Several studies in the 1990s and more recently also look at the issue of claims frequency over the business cycle. Among these are two papers by IWH researchers (Brooker and Sullivan, 1994; Brooker, Frank and Tarasuk, 1997). These papers focus on lost-time claim frequency for back pain and for acute injuries such as lacerations and fractures in the manufacturing, construction, and retail and wholesale trade industries in Ontario over the period 1975 to 1993.

Controlling for the age and gender of the workforce, Brooker et al. (1997) find that a higher unemployment rate is associated with lower claim frequency for both back pain and acute injuries: lost-time claim rates increased in boom times, fell in recessions. The strongest association is for acute injuries, which are unlikely to be subject to change in claims reporting behaviour.

Hartwig et al. (1997), using data from 37 states in the U.S. over the period 1979 to 1993, also find that claim frequency is negatively and significantly associated with the unemployment rate, and that the overall level of employment is positively associated with claim frequency. (This research included variables to capture the effects of more active regulatory efforts to reduce injuries in the early '90s.) These findings confirm that the expected effect of an economic contraction is to reduce claim frequency. In a presentation to the American Association of State Compensation Insurance Funds in August 2008, Hartwig notes that workplace injuries per worker declined in the last four recessions in the U.S.

Ussif (2004) looks at lost-time injuries in Canada, Finland, France, the U.S. and Sweden over the period 1970 to 1999. Ussif notes a downward trend in the number of injuries over most of this period, which may reflect a better-educated workforce, better safety measures, better technology and legislative reforms. Injuries per worker relative to the trend line are found to be positively related to the employment/population ratio in each country, again suggesting that injury frequency tends to decline in recessions, increase in expansions.

Similarly, Shuford (2008) and Shuford and Wolf (2006) note a long-term tendency towards lower claim frequency in the U.S., plus a cyclical pattern around that trend: downward pressure on claim frequency in recessions, the opposite in times of rapid

growth. When the frequency of manufacturing injuries is plotted as a deviation from the time trend, a strong relationship appears between injury rate and the business cycle: an injury rate higher in expansions, lower in recessions.

Shuford notes that, since the 1990s, claim frequency has fallen even in expansions, arguably because of the influence of global competition. The latter leads to pressure to improve productivity, and thereby safety.

Some studies that have focused on other factors affecting claims frequency have included a measure of general economic activity in their analyses. For example, Campolieti, Hyatt and Thomason (2006), in a study of the effects of experience rating on workers' compensation claims (at the firm level) in British Columbia over the period 1983 to 1992, find that the industry unemployment rate is negatively associated with the claims rate, consistent with the findings reported above.

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There is at least one dissenting voice about the impact of recessions on the frequency of workers' compensation claims. Anderson (2002), looking at data for the state of Minnesota from 1992 to 2000, finds evidence that claims per hour worked rose in the month after a fall in employment, apparently because of an increased propensity to fill claims in those circumstances. However, Anderson notes that preliminary data suggested that the claim rate per hour worked fell in the 2001 recession.

The evidence is fairly clear that claim frequency falls in recessions, and rises, relative to the long-term trend of injury rate decline, in boom times.

Wage replacement costs

Despite the drop in claim rates during recessions, it is possible that wage replacement costs of workers' compensation claims per hour worked could rise if the duration of claims increases.

In their study of U.S. workers' compensation claims in 37 states from 1979 to 1993, which was cited above, Hartwig et al. find that the average "indemnity" or wage replacement cost of a claim fell during the recessions in the early '80s and early '90s.

Similarly, Fortin, Lanoie and Laporte (1996), in a study of factors affecting the duration of workers' compensation claims in the construction industry in Quebec between 1976 and 1986, find that the regional unemployment rate has a negative association with claim duration.

However, a more recent analysis published by the Insurance Information Institute in the U.S., using data from the National

Council on Compensation Insurance (NCCI), shows that indemnity costs per claim continued to grow during the 2001 recession at about the same rate as the previous three years, although the rate of growth slowed over the next several years. Shuford's analysis (2008) suggests that the rapid growth in average indemnity costs per claim from 1996 to 2001 was partly the result of real wage growth during those years, but mostly because of increased duration of claims. While the 2001 recession did not appear to immediately slow that trend, it also did not accelerate it.

Overall, the research on average wage replacement costs per claim is thin compared to that on claim frequency. What we have suggests that such costs are unlikely to accelerate during recessions. Combined with the finding that the frequency of claims per hour worked is likely to fall, we can expect that recessions would tend to reduce, or at least slow the growth of, wage replacement costs per hour worked. This dampening effect will be stronger to the extent that recessions dampen the growth in real wage rates.

Medical costs

Hartwig et al. find that, over the period 1979 to 1993 in the U.S., medical costs per workers' compensation claim increased in all years examined except 1984 and 1992. This occurred even after adjusting for inflation using the medical component of the Consumer Price Index (CPI), which increased more than overall CPI. Hartwig's 2008 presentation indicates that medical costs per lost-time claim have been rising much faster than the rate of inflation on medical expenses throughout the period

1995-2007. He also shows that the medical share of workers' compensation costs has been rising steadily. Similarly, Shuford (2008) notes that the number of medical treatments per workers' compensation claim has been increasing.

The statistical analysis of Hartwig et al. (based on 1979-1993 data) indicates that recessions are likely to dampen the growth in medical costs per claim. However, Shuford indicates that medical claim costs have continued to grow in recent recessions with no sign of dampening.

Conclusion

There is fairly strong evidence that the frequency of workers' compensation claims per hour worked tends to decline in recessions and increase in times of economic recovery. The evidence regarding costs per claim (both wage replacement and medical) is thinner and somewhat mixed. The available evidence suggests that is unlikely that recessions would accelerate the growth of these costs, so that overall, taking into account the findings on frequency, recessions are likely to dampen the rate of growth of total workers' compensation claims costs per hour worked.

To be more confident about our expectations regarding workers' compensation costs over the business cycle, we need more research on the determinants of costs per claim — research that includes variables capturing macroeconomic conditions.

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