

Risk M A N A G E M E N T



Basics of Loss Development

Paul Hughes

•••

A necessary evil, loss development factors (LDFs) provide a “crystal ball” of sorts to allow one to forecast the ultimate net cost of a claim at a given point in time. Although these factors are used for many lines of insurance, we will focus on their use for workers’ compensation.

Unlike health insurance, where mostly all claims are known within the policy period, workers’ compensation contains a disability element that creates much more uncertainty. Most actuaries agree that the average payout pattern for a workers’ compensation claim can be from seven to 10 years. Because we cannot wait seven to 10 years to book liabilities on our respective balance sheets, a process is necessary to estimate ultimate net losses with the greatest amount of accuracy possible.

In any given policy period in which ultimate losses are being estimated, some claims have been settled, some claims are in the process of closing, and

still others have yet to be investigated. Still other losses should be contemplated in the calculation of ultimate net loss, yet are not included because they have yet to be reported (incurred but not reported (IBNR)). In short, loss development estimation is based on the assumption that future developments in a body of losses will behave in patterns that are reflective of the prior indicated experience of the same or similar risks.

In a perfect world, a risk or book of business has enough critical mass and data available to do what is known as a triangulation on itself. A triangulation is

the process of analyzing a book of business’ actual development over time, which is then used to estimate ultimate losses going forward. The results of this process are factors that can be multiplied by either paid or incurred losses to give a forecast of the ultimate net loss expected. For example, if at the end of 1995 a book of business’ incurred loss amount was \$1 million, and in the year 2005 it is \$1.5 million, then we can conclude with reasonable accuracy that losses from year 1 (1995) to year 10 (2005) develop at a rate of 1.5. Therefore, if our amount of incurred losses in the 2005 policy year is \$2 million, we can conclude that they will ultimately develop to \$3 million (\$2 million x 1.5 LDF) by the year 2015.

While this process of triangulation is common for all insurance companies

Incurred Losses through 12 months: \$1 million

State	Payroll	% of Payrolls	State Specific LDF
FL	\$3 million	34	2.199
GA	\$2 million	23	1.741
AL	\$1.5 million	18	2.150
SC	\$1.2 million	14	1.546
TN	\$1 million	12	1.685
\$8.7 million of total payroll			
State	% of Payrolls	State Specific LDF	Blended LDF
FL	34	2.199	.748
GA	23	1.741	.400
AL	18	2.150	.387
SC	14	1.546	.216
TN	12	1.685	.202
			1.953

and larger PEOs, most operators have to use industry average LDFs to attempt to project ultimate net losses. Many PEOs do not have enough critical mass for triangulations to give a credible idea of what future losses will develop into and therefore must go elsewhere for this data. Industry loss development factors are promulgated by actuarial bodies such as the National Council on Compensation Insurance (NCCI), and provide average factors based on all of the data available to them. These factors, because they are averages, fail to take into account PEO-specific variables such as the reserving practices of the claims payer, managed care networks used, PEO risk management efforts, and most important, geographic footprint. For example, the current NCCI LDF at 12 months for Florida on an incurred basis is 2.199. In contrast, the same factor for New York is a 3.087. If a PEO had \$1 million in incurred losses through year one in Florida, the expectation is that the ultimate losses would develop to be \$2.199 million, while if the same incurred loss amount were in New York, the ultimate losses would be \$3.087 million. In this example, the geographic footprint of the respective book of business creates a difference of almost \$900,000 on \$1 million in incurred claims. For PEOs in multiple states, there is what is known as a nationwide LDF. The current factor is a 1.75 and takes all of the data available in all jurisdictions to promulgate a nationwide LDF. Unfortunately, this

could create a skewed indication of ultimate losses because it does not take the actual state LDFs into play. The more accurate methodology of developing losses on a multi-state book of business is to use a weighted average based on payrolls by state to come up with a blended LDF. For example, let's assume we are trying to project losses on a multi-state account with the following exposures. Our first calculation is calculating the percentage of payrolls by state of the book of business, as shown in the top of the table.

We then multiply the percentage of payroll for each state by the applicable state specific LDF. Each of these LDFs are then added together to provide us with a blended LDF for the respective book of business, as shown in the bottom of the table.

Therefore, for the purposes of our exercise, we would use an LDF of 1.953. This loss development factor would be multiplied by the \$1 million in expected losses to get \$1.953 million in ultimate losses for this book of business.

Past development unfortunately does not take into account everything that needs to be contemplated in the future development of losses. Loss development factors assume that future experience will grow in the same fashion as it has historically, subject to some minor variation. Other factors exist though, which were not a part of the historical data and therefore need to be contemplated in addition to the development factors. For example, the following

factors can either positively or negatively impact the ultimate net cost of claims, and therefore need to be considered in order to be as accurate as possible in the projection of loss:

- Growth or reduction in covered exposures;
- Changes in operations or safety programs;
- Economic conditions;
- General inflation;
- Changes in law; and
- Changes in type, breadth, or limit of coverage.

For instance, the state of Florida passed significant legislation on October 1, 2003, that immediately decreased rates by 14.1 percent. As a result of these reforms, the expectation is that expected losses post-legislation will be less than pre-legislation. Unfortunately, because loss development factors do not take this into account due to only using historical data, the current LDFs for Florida would be considered artificially high without the use of a law trending (amendment) factor.

The use of loss development factors is the only way a PEO owner is able to properly predict to what number losses will ultimately develop. Unfortunately, the industry average LDFs that are used fall short of identifying factors within the PEO and its environment that will either positively or negatively impact ultimate loss amounts.

.....
Paul R. Hughes, CIC, is CEO of Risk Transfer Holdings, Orlando, Florida.