



# Large Claims Cost in Workers' Compensation

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### Abstract

This paper summarises the results of a high level analysis of the frequency of large claims and the size distribution of those claims, for WorkSafe Victoria. This includes presenting evidence of a reducing trend in past costs and claims rate.

To our knowledge there is little data in the public domain about the large claims experience of Australian workers' compensation schemes. We hope that this paper inspires publication of some more research in this area, in particular extend our analysis to other jurisdictions

We believe the paper will be of interest to a range of participants in the industry:

- **Self-insurers** - Each self-insurer is required to purchase excess of loss cover to provide protection from the potential large claim or event (multiple claims from one event). The analysis in this paper may help self-insurers by providing information to assist with a comparison of a notional cost of large claims with the excess of loss premiums charged in the market. This sort of comparison may provide an indication of the level of implied profit/expenses being charged in the private insurance market to meet the risk.
- **Actuaries advising self-insurers** – One of the more difficult aspects of reserving for small portfolios is establishing an appropriate allowance for large claims. This analysis will provide actuaries with additional information on the scheme experience which may help inform their self-insurer valuations.
- **WorkSafe** - The premiums charged by WorkSafe provide unlimited claims cover to all premium paying employers. The past history of large claims cost and trends gives a hindsight view of the cost and distribution of claims above various limits.
- **Other Underwriters** - The analysis will assist underwriters by providing information on the large claim distribution for a large monopoly workers' compensation underwriter. This may assist with their own pricing, reserving or benchmarking.

*Keywords: large claims, workers' compensation, WorkSafe Victoria*

## Large Claims Cost in Workers' Compensation

### Context: the Victorian scheme:

The following is included to provide some wider scheme context for the large claims experience which is the focus of the paper. More detailed information is available on the WorkSafe website and in the Safe Work Australia scheme comparison publication<sup>1</sup>.

The scheme provides no-fault benefits. There is also potential for common law (for economic loss and pain & suffering damages) in cases of serious injury.

Claims management and premium collection is outsourced to five private sector organisations (Allianz, CGU, QBE, Xchanging, and Gallagher Bassett), but the underwriting risk is retained by the scheme.

In terms of scheme size:

- the scheme currently receives around 28,000 standard claims<sup>2</sup> per annum
- at June 2013, the net outstanding claims provision, including claims handling expenses and risk margin, was \$10.2 billion, and the scheme funding ratio was 108%
- the total premium collection is over \$1.8 billion, net of GST
- the breakeven premium (BEP) from the latest valuation (30 June 2013) is 1.266% of remuneration (net of GST)
- the average premium rate charged for 2013/14 is 1.298% (net of GST), so includes a small buffer above the estimated breakeven premium
- there are currently 38 authorised self-insurers representing around 8% of the scheme (by wage roll), and a number of companies operating in Victoria that are self-insurers under the Comcare scheme

### The Analysis

For the analysis used within this paper we have focussed on claims reported in the eight year period from 2000/01 to 2007/2008. A brief summary of the data is included in Appendix B.

This claims period was chosen for the following reasons:

- eight years: It is desirable that there be a reasonably long period of time covered given the volatility inherent when we are talking of low frequency/high cost injuries.
- several years minimum development time: The cost of individual large claims becomes clearer with the passage of time. In the case of the Victorian scheme, considerations include the timing of common law activity, and the capacity test which applies when the injured worker reaches 130 weeks of income benefit. These are key milestones from a large claim cost perspective.

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<sup>1</sup> *Comparison of Workers' Compensation Arrangements in Australia and New Zealand*. This is a publication of Safe Work Australia. The latest edition is from June 2013.

<sup>2</sup> A standard claim is a claim where liability is accepted and the employer excess is or is expected to be exceeded, or a rejected claim where investigation or like costs are incurred.

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Use of a more mature book helps ensure that most large claims have been reported and recognised in the payments and estimates.

- post Nov-99: There were significant scheme changes in late 1999 including the restoration of access to common law (which was removed in 1997 and subsequently restored) and the introduction of an impairment lump sum using the AMA4 Guides<sup>3</sup>, replacing the Table of Maims in use for injuries prior to this date. For this analysis it is preferable to focus on the experience under a broadly consistent benefit structure.

The benefit regime was relatively stable in the years selected for this analysis. However we note that there have been some changes, a brief discussion of which follows.

### Legislative changes since 1999

In 2003 changes were made to the statutory impairment lump sum in respect of musculo-skeletal impairment, primarily impacting the scheme experience in terms of lower levels of whole person impairment (WPI).

In 2006 the timing of the capacity test for ongoing entitlement to long term weekly compensation benefits was changed from applying at 104 weeks, to 130 weeks. In addition the maximum death lump sum payable was increased and changes were made to the interaction between the statutory lump sum benefit and common law, although these changes are thought to primarily have impacted the timing of payments rather than the total payments as such.

In 2010 the accident compensation legislation was amended, following the Hanks Review<sup>4</sup>. The bulk of the changes increasing benefits were effective 5 April 2010. Whilst many of these changes applied only to new claims, some also impacted older claims, including those in the period we have used for this analysis. For example the weekly benefit replacement ratio for claims beyond the first 26 weeks was increased from 75% of pre-injury earnings, to 80%. This change applied for all incapacity periods after 5 April 2010<sup>5</sup> so impacted existing claims, not just new claims.

Other changes apply only to new claims, including the increase in the maximum weekly benefit (to twice the Victoria average weekly earnings, an increase in the maximum of around 30%).

Note that no changes have been made to the threshold for common law access, nor to the minimum or maximum damages (other than indexation) since the restoration of common law in 1999. The legal costs environment has, however, been changed, with defendant panel costs based on an events-based costing model since 2005 and plaintiff firms' costs determined using a fixed cost model (events-based) since late in 2010.

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<sup>3</sup> American Medical Association "Guides to the Evaluation of Permanent Impairment", 4<sup>th</sup> Edition

<sup>4</sup> "Accident Compensation Act Review", by Peter Hanks QC. The final report is dated August 2008

<sup>5</sup> There are a small number of exceptions to this, to ensure that some grandfathering provisions from previous changes were not adversely impacted.

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### Other Notes on the Analysis

Appendix A contains some notes on the data and analysis. Of these we draw particular attention to the following:

- Report Year – Where trends are shown by claim year, they are by report year, not injury year. The years are July to June years, presented as YYYY for the second half of the twelve month period. So, for example, 2006/07 is presented as 2007.
- Recoveries – The analysis is based on data gross of all recoveries.
- Current Values – Dollar values have been converted to current values (\$CV) at June 2013 using the Victorian Average Weekly Ordinary Time Earnings (AWOTE) as the proxy measure for inflation.
- Industry Codes - The Victorian scheme changed the injury classification codes used for the 2011/12 and later years. This change has complicated the construction of any industry analysis for this paper. This is discussed in more detail, later in the paper.

### Claim Size Distribution

The following chart provides an indicative claims size distribution for the scheme as a whole. It is based on claims reported in the eight years from 2000/01 to 2007/08. The incurred cost combines the payments to date with the estimate from the WorkSafe statistical case estimate (SCE) model. This is the estimation model used within the premium system<sup>6</sup>. All claims values have been converted to current values (\$Jun-13) using wage-based inflation as the underlying inflation index.

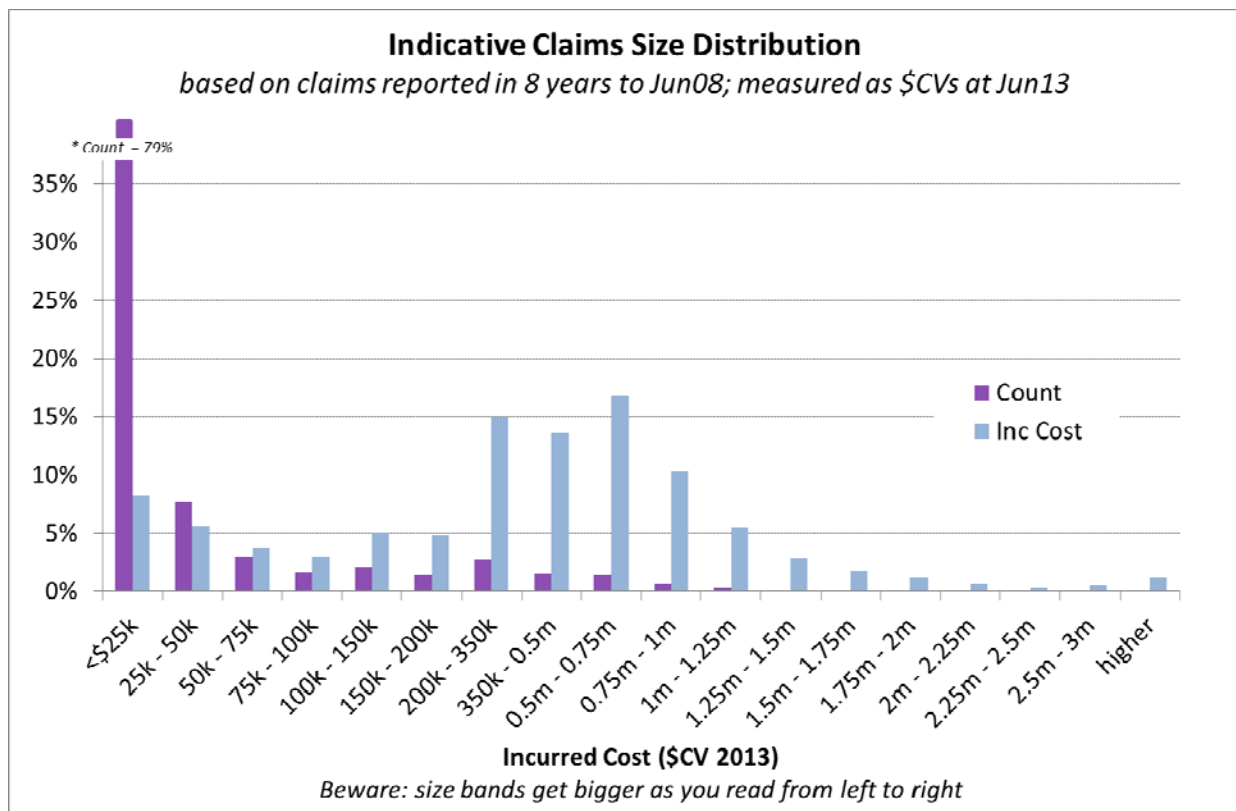
This paper focusses on the lower frequency/high cost end of the distribution shown.

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<sup>6</sup> Note that in Victoria the Agents are not required to place case estimates (estimates of future costs) on individual claims.

## Large Claims Cost in Workers' Compensation

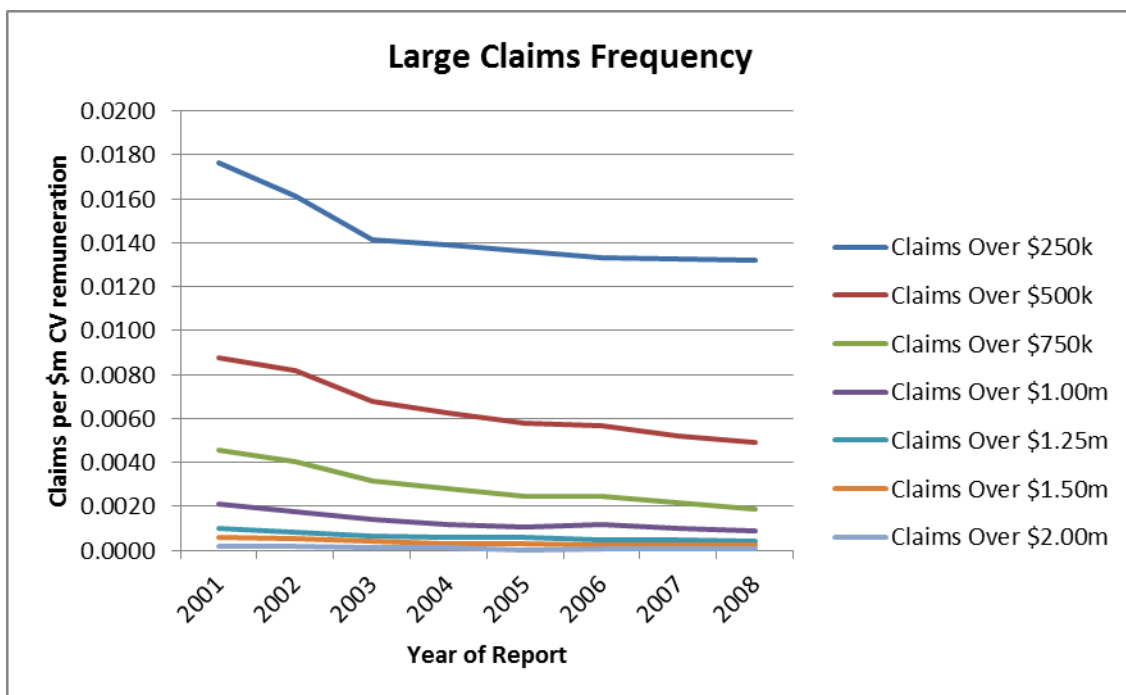
Figure 1



## Large Claims

The following chart summarises the scheme large claims frequency per \$m remuneration, at various large claim threshold levels.

Figure 2



## Large Claims Cost in Workers' Compensation

It is difficult to distinguish the lines on Figure 2 for the higher threshold levels. The following chart includes the same information as Figure 2, but only for those claims with a current value incurred cost of more than \$1 million.

Figure 3

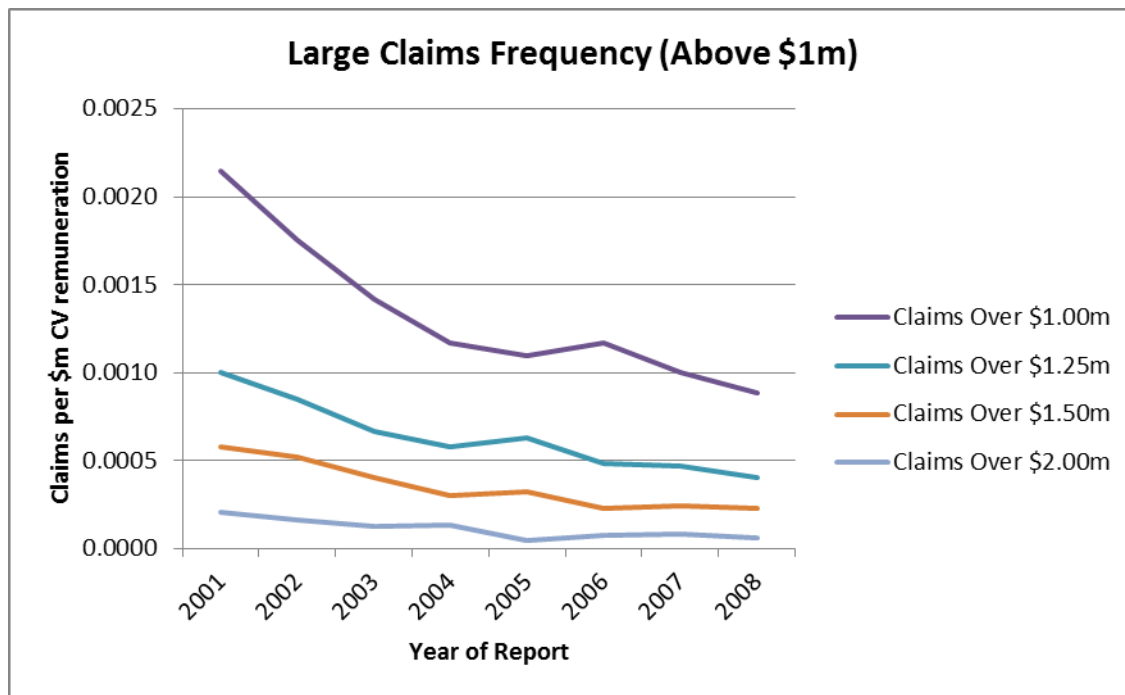


Figure 2 and Figure 3 show a reducing trend in the large claim frequency.

The frequency of large claims reported in 2001 and 2002 is noticeably higher than the years that follow. There is an element of this which is impacted by the changes to common law, with a higher than usual number of reports in those years in respect of earlier accident years where the claim has subsequently had common law activity. Whilst this is a contributing factor, it does not explain all of the "extra" large claims in these years.

In terms of the more general downward trend it is likely that there are both real and methodological factors playing out in the trend shown, including:

### Real

- There is a continuing shift in the risk profile of Victorian industry. For example, we have seen a reduction in the size of manufacturing, and a growth in service industries.
- The community focus of the importance of occupational health and safety, and the investment by employers in improving workplace safety, has increased strongly over this time.
- Claims management practices have improved, particularly regarding consistency and quality of decision making on entitlements.

### Methodological

- At the very largest thresholds, there may be some under-development of costs impacting the downward trend in the chart. Whilst the SCE provides a sound basis for an objective estimate of future payments on the vast majority of individual claims, there is a larger margin of error at the extreme end of the

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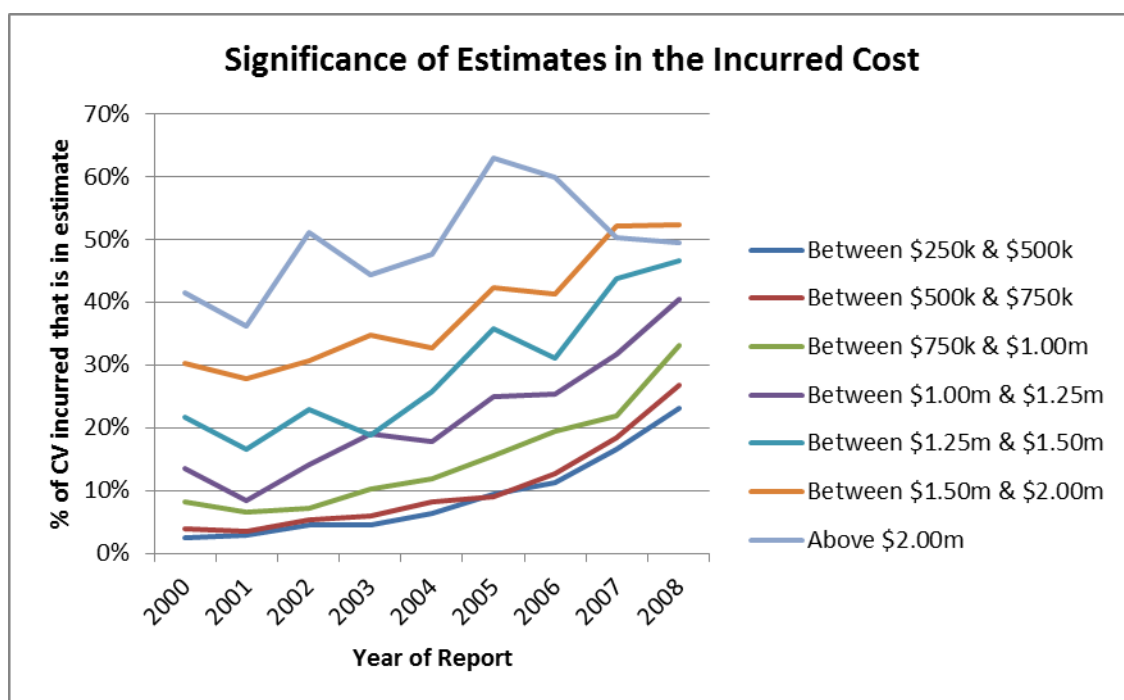
distribution. We note that the experience rating calculation used for employer premiums caps the cost of large claims.

- WorkSafe has improved the completeness and accuracy of remuneration declarations over time. Even if there had been no growth in the underlying risk profile or exposure (workforce and/or hours worked) this will have meant that the remuneration has increased over time as the level of under-insurance or under-declaration of wages has reduced.

### Maturity/under-development

With regards the second last bullet point, as discussed earlier the development aspect was one of the considerations in selecting the claims reporting period for the analysis. The following chart summarises the proportion of the ground-up incurred cost (i.e. total cost, not just the excess above the threshold shown) that is represented by the estimate of future payments (the SCE) for the claims within each band.

Figure 4



We make the following observations:

- As expected there is generally an upward trend in the chart. Those to the right of the chart are more recent reports and accidents so will typically have a higher proportion of the cost in future payments.
- For the earliest report years shown, there is relatively little in future estimated payments for most claims with an incurred cost of under \$1.0m. These injuries are now more than ten years old and a considerable share of the entitlement to statutory benefits will be in past payments and any common law actions are likely to have been resolved.
- For the very high cost claims, a high share of the incurred cost remains in estimates, even for the oldest report years shown. For a very small number of injured workers the liability is dominated by attendant care and other



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medical and like costs. For those not in this category the ongoing liability tends to be dominated by future weekly benefits.

- For the most recent years (now at least five years old), there is still a quarter or more of the ultimate incurred cost in estimates – with much more than this for some of the very high cost cases.
- In the case of those above \$2 million, at the far right of the chart the line reduces and ends lower than the group below it. There are small numbers of injured workers in this very severe cohort so the cost will be volatile and depend very heavily on the individual circumstances of each of the injured workers. However one possible interpretation of this shape is that there may be under-estimation for some individual very high cost claims from the most recent years<sup>7</sup>.

## Combined Frequency Experience

The following table provides another means of summarising the claims frequency experience. For this summary we have also added a further size band to the lower end of the scale: the \$100,000 to \$250,000 band. Whilst for this paper we have concentrated on the higher thresholds, the inclusion of this lower threshold may assist those actuaries who use a lower threshold for their large claims analysis when undertaking reserving work for self-insurers.

The following table summarises the combined experience for the final five years of our analysis period: the years 2003/04 to 2007/08. It shows both the frequency for claims above the given threshold (using the same definition as for the earlier analysis), and another way of presenting the same information – the number of cases that the frequency equates to if there are 1,000 claims above \$100,000.

Figure 5

<b>Frequency above \$100k (\$CV) for 2003/04 to 2007/08</b>		
<b>threshold</b>	<b>frequency</b>	<b>if base is 1,000</b>
over \$100k	0.02374	1,000
over \$250k	0.01344	566
over \$500k	0.00554	233
over \$750k	0.00235	99
over \$1.00m	0.00106	45
over \$1.25m	0.00051	21
over \$1.50m	0.00026	11
over \$2.00m	0.00008	3

So, for example, the number of claims above \$100,000 for this period averages 0.02374 per \$million of remuneration (current values) per annum. The frequency

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<sup>7</sup> We hasten to add that this is not a portfolio reserving adequacy conclusion. The liability reserving for the WorkCover Fund is a separate exercise and uses different valuation techniques. The SCE is calibrated at the aggregate level to the valuation to maintain consistency and reflect trends between remodelling exercises.

## Large Claims Cost in Workers' Compensation

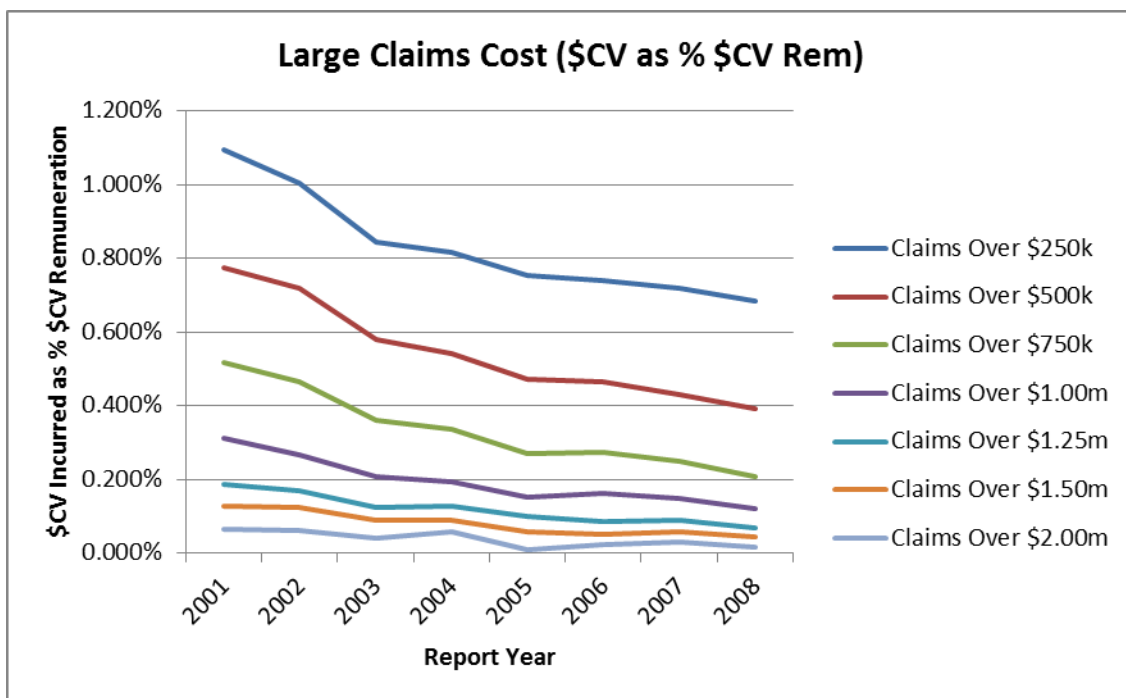
analysis suggests that every 1,000 cases above \$100,000 includes 11 with an estimated incurred cost over \$1.5 million and 3 with an incurred cost of more than \$ 2 million.

### Trend in Cost

Having shown the strong downward trend in the frequency of large claims (refer Figure 2 and Figure 3 , we now turn to the incurred cost of those cases (the combination of frequency and size). The following chart shows the ground-up incurred cost (in \$CV) as a percentage of the remuneration (also \$CV).

This measure can be used as a guide to the risk premium for large claims – after making appropriate adjustments for inflation and discounting. Note that it needs further adjustment before being used for estimating an excess of loss premium. The cost measure here is “ground up”, so includes the cost below the deductible. The deductible needs to be removed before estimating the excess of loss risk premium. We comment further on this later in the paper.

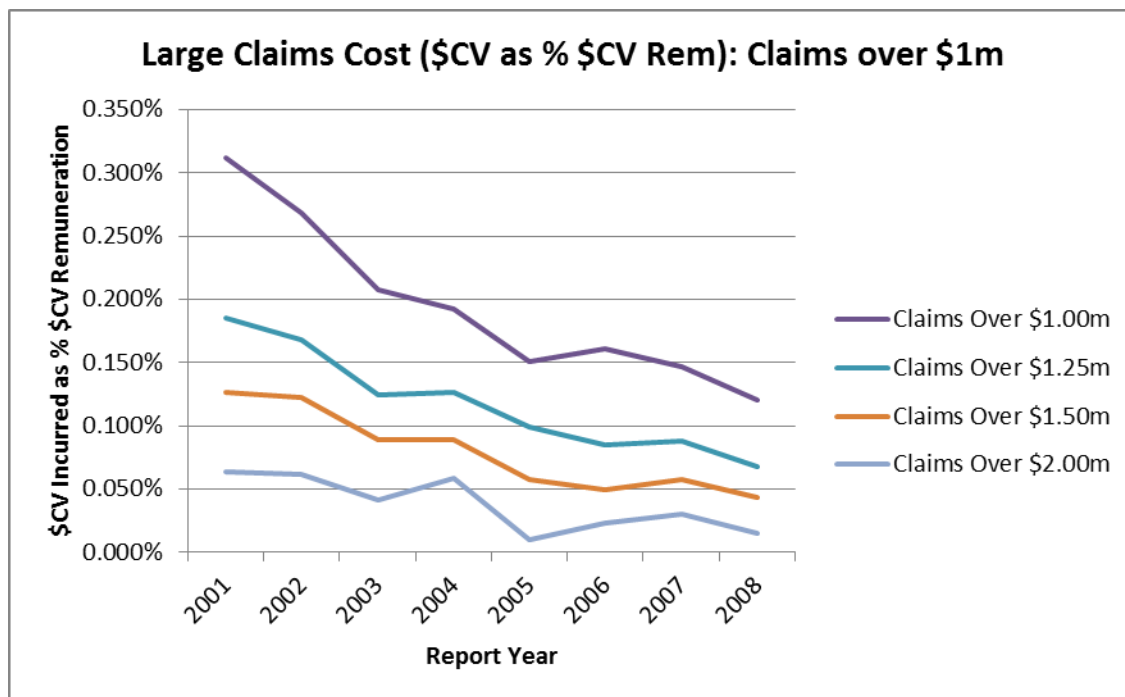
Figure 6



As for the claim frequency, a second version of the chart is provided below, which focusses on the claims over \$1 million. This helps give a clearer view of the experience at these higher thresholds.

## Large Claims Cost in Workers' Compensation

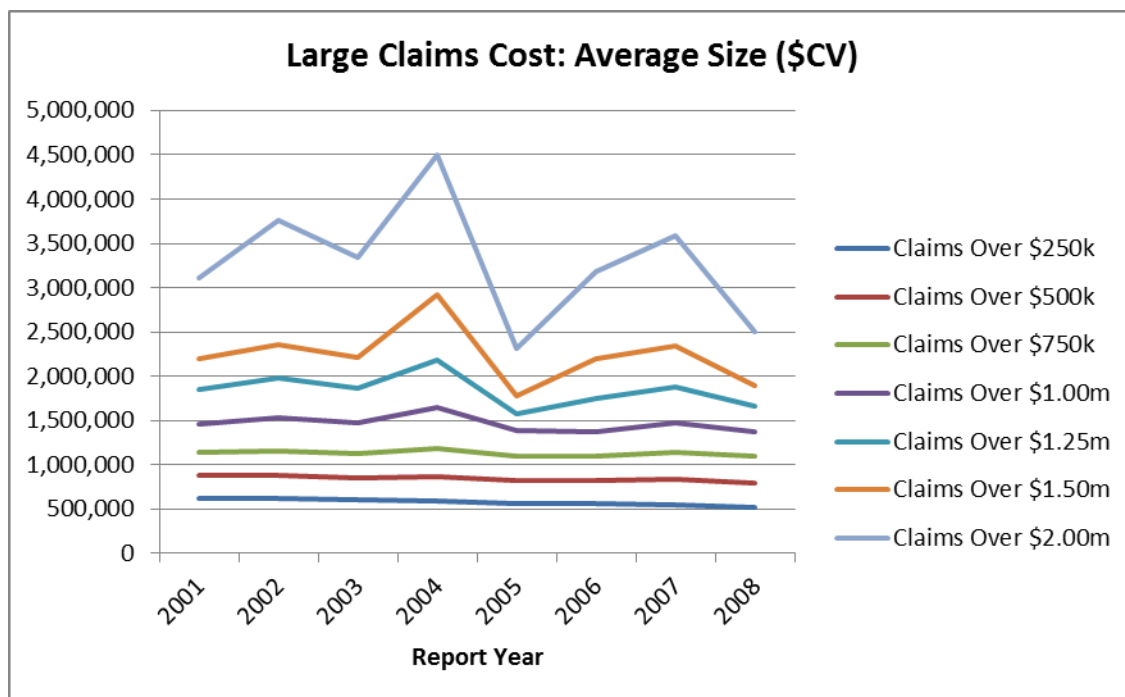
Figure 7



The difference between the trend in claims frequency and the trend in the incurred cost (if any) is movement in the average claim size.

The ground-up average size (in \$CV) is shown in the following chart. Note that the average shown is the average of all claims with a cost above the threshold, not those within the band.

Figure 8



There is clearly a high level of volatility at the higher claims sizes, which is the result of relatively small numbers in the experience. For the highest group, those over \$2m, the experience comprises 105 claims for the combined eight year period shown.

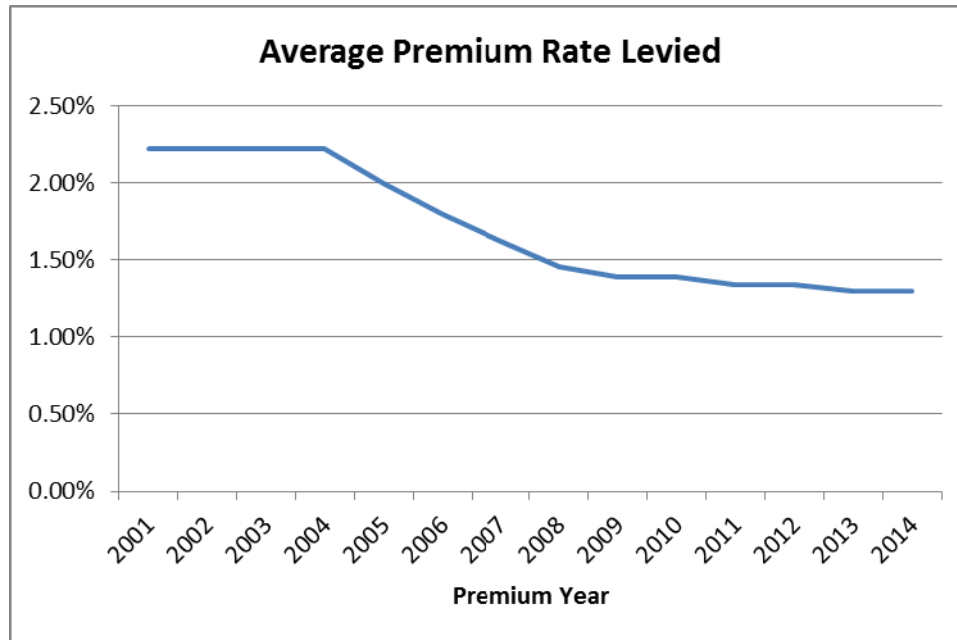
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### Comparison with Premium Rate

The reduction in the large claims cost rate over time is not inconsistent with the overall trend in the scheme premium rate.

The average premium rate charged is shown in the following chart.

Figure 9



Note that the premium information shown in Figure 9 extends to the most recent premium period, beyond the period of the large claims data that is the subject of our analysis. This is to provide some information to readers on movements in the scheme cost since the period used for our analysis.

As noted previously, the current premium charged is similar to the level of the underlying estimated breakeven level. This has not always been the case, and the buffer above the breakeven rate has been larger in the past<sup>8</sup>.

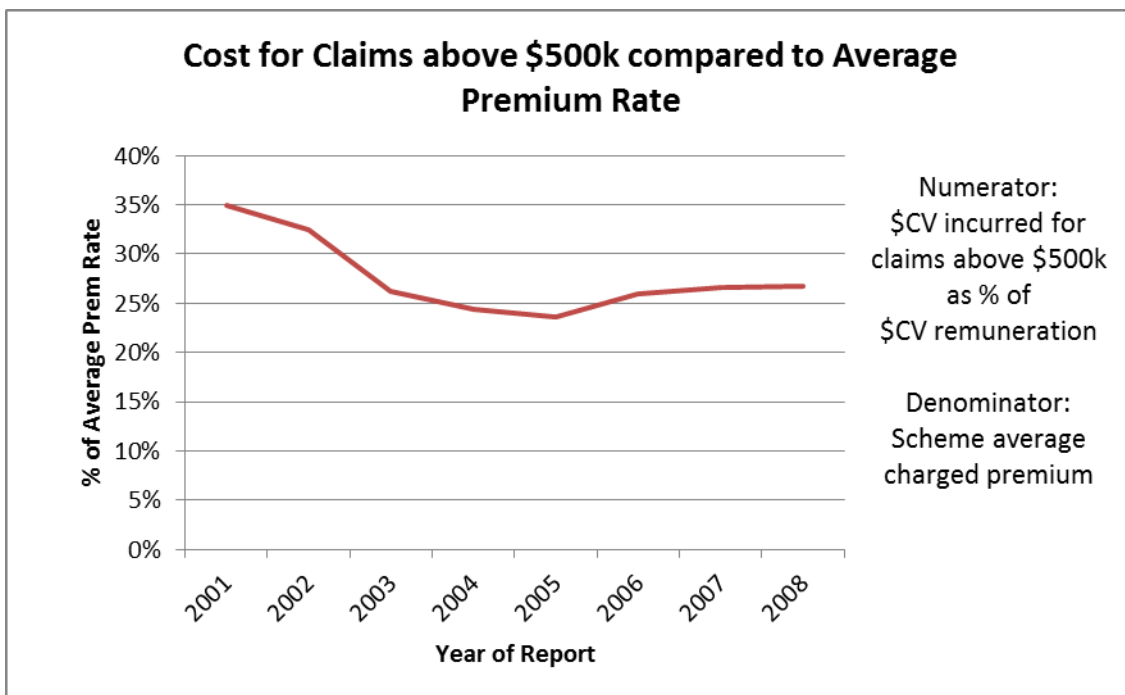
In the earliest periods on the chart, the average premium rate charged was set in line with costings undertaken at the time of the 1999 changes. Over time, the rate has been reduced as the experience has improved. The cost of the Hanks changes in 2010 were able to be absorbed without an increase in scheme average premium rate.

The following chart combines the information from the Figure 6 and Figure 9. It shows the ratio of the ground up incurred cost rate for the "over \$500k" cases to the scheme average charged premium rate. The year of report for the claims is matched to the premium year for this chart.

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<sup>8</sup> We note, for example, that there was an explicit deficit funding levy included in the premium between 1993/94 and 1995/96 (a period prior to the years used in for the analysis in this paper). This levy was 25% for the first two years, and 10% for the final year.

Figure 10



The ratio is very stable for the more recent years in the comparison. This might indicate that the contribution of large claims to the overall risk premium is similarly stable in this period.

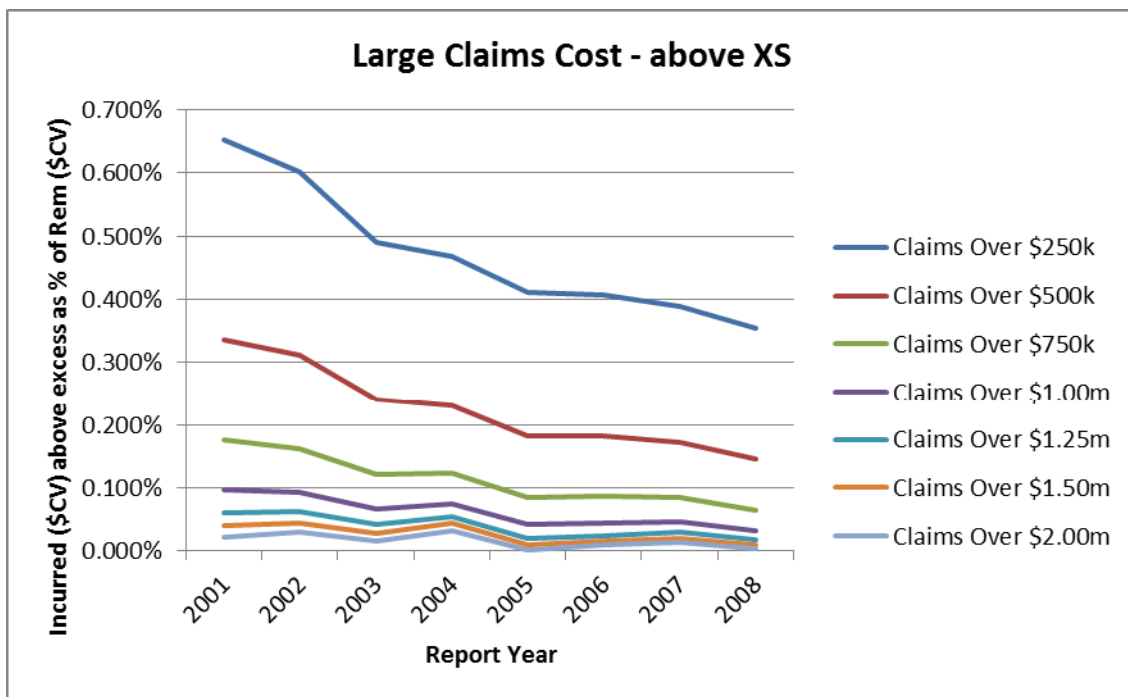
We note that the comparison here is to average charged rate, rather than breakeven premium rate, but the picture is not dissimilar in shape on a breakeven basis.

**The Cost as “Excess of Loss”**

The claims cost within an excess of loss reinsurance premium will take into account the large claims experience, adjusted for the deductible. The following chart shows the incurred cost (in \$CV) less the deductible (the threshold for the size group shown).

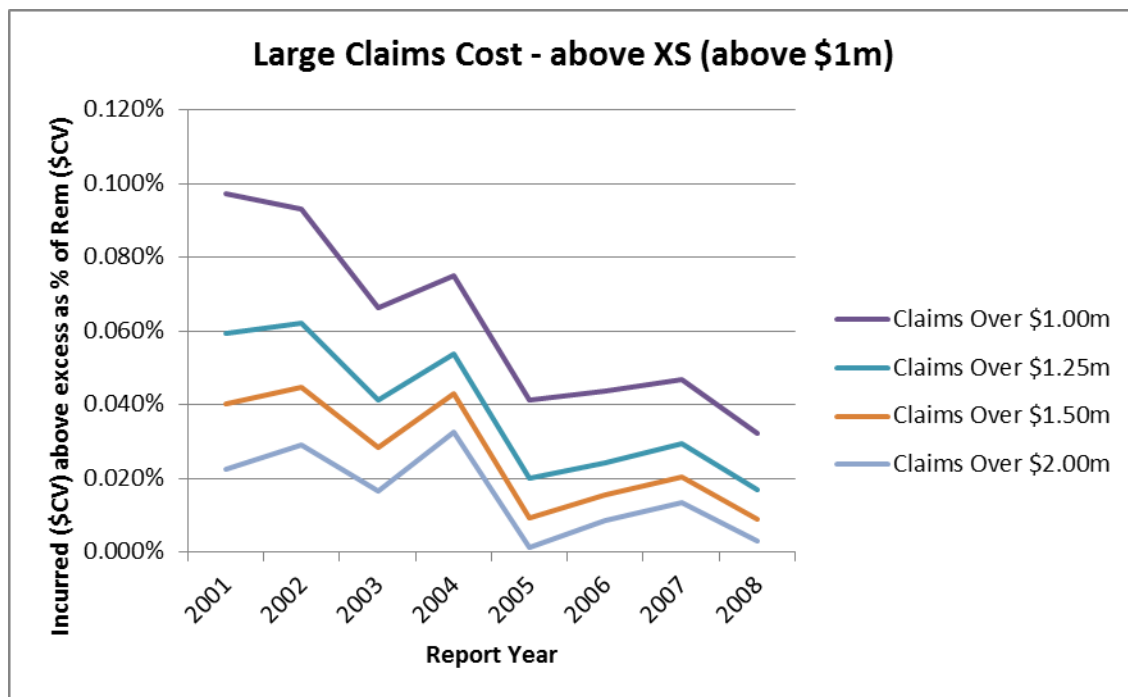
## Large Claims Cost in Workers' Compensation

Figure 11



As for the earlier chart on claims frequency, it is difficult to read the cost at the higher threshold levels because of the scale of the chart. The following chart shows the same information, but limited to the higher deductible levels.

Figure 12



There is considerable volatility in the year-by-year cost, even for a scheme the size of WorkSafe (over \$1.8 billion in premium income). This is a function of the small number

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of claims at this very high cost level together with the sensitivity of the cost to individual circumstances.

So, for example, in the case of the 2005 report year, there are a small number of claims with an estimated incurred cost above \$2 million, but these are all less than \$3 million. The implied hindsight excess of loss risk premium for a \$2 million deductible is therefore very small (at 0.001% based on current values claims costs).

In contrast, the 2004 report year has three times as many claims above \$2 million, including several well in excess of \$2 million in estimated cost. The risk premium (using current value claims costs) is 0.032%.

These examples help illustrate the volatility of the experience and the importance of large bodies of claims experience when pricing for risks of this type.

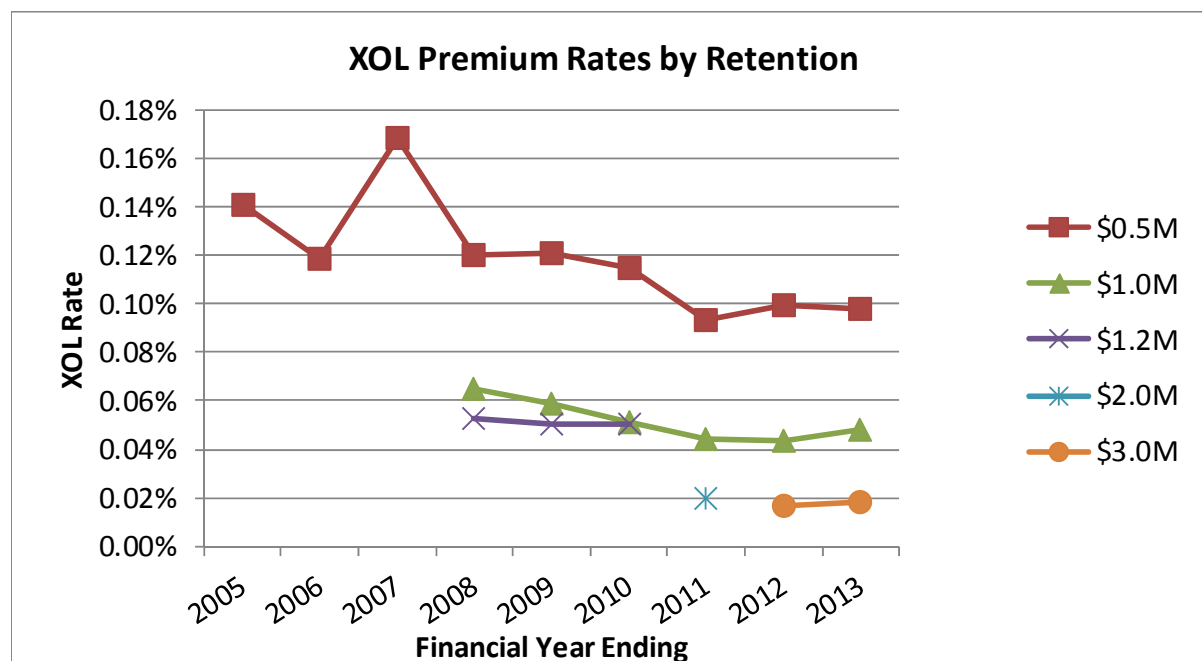
## Comparison to Rates charged for XOL for self-insurers

We invited self-insurers in Victoria to participate in this study, and asked them to provide a history of excess levels and the premiums paid. Unfortunately the response rate was low and we have therefore not been able to undertake a comprehensive analysis.

A number of self-insurers did respond, though, and we wish to thank them for their assistance.

The data from self-insurers covered a range of retentions over various years. The following shows the excess of loss (XOL) premium rates as % of remuneration by retention level. All retentions were as at the financial year of cover so the \$500,000 excess for 2005 is now equivalent to about \$705,000 in June 2013 values.

Figure 13



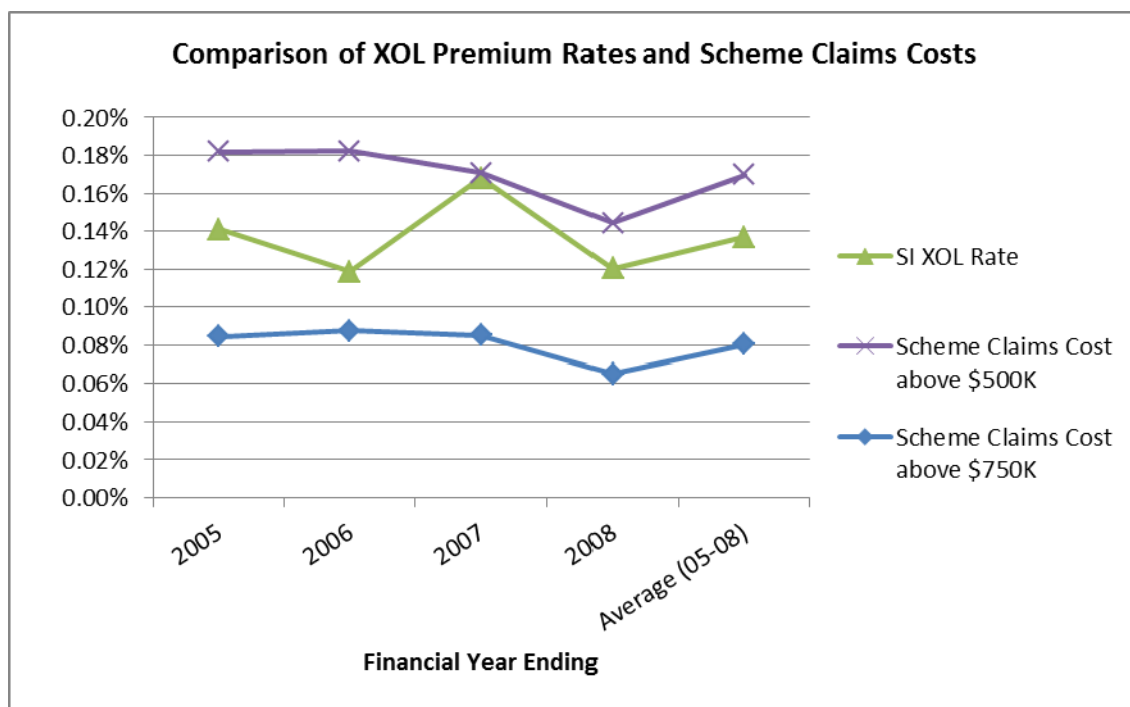
In general we would expect the premium rates to increase over time if retentions remain constant due to inflation (the value of money increasing). However we have not seen this for the \$500,000 or \$1 million retentions (at least for years to 2011). We have already shown the fall in the scheme claims rates over the past years and

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hence it would appear the XOL premiums have also reflected improving experience, albeit with some volatility.

The comparison of the excess of loss premiums for the \$500,000 retention (relative to past year values) to the claims cost across all industries over \$500,000 and \$750,000 (\$Jun-13) is shown in the following chart. The claims cost rates are from Figure 11 and reflect the ultimate estimated incurred cost of claims less the specific deductible in current values. As stated above, the XOL retention of \$500,000 applicable to the year ending June 2005 would be about \$705,000 in June 13 values. Using a similar approach, for the year ending June 2008 a \$500,000 retention would be equivalent to about \$635,000 in June 13 values.

Figure 14



There are many points of difference between the XOL rate and the scheme claims cost. In particular:

- The \$500K retention is equivalent to claims cost in excess of \$635,000 to \$705,000 in June 2013 values over the range of years shown in the chart.
- The XOL rate would be loaded for expenses/profit margin, but
- The XOL also allows for expected investment earnings as the timing of the payments on excess claims would have considerable delay from when premium is paid.
- The Scheme claims cost is across all industries and not specific to the self-insurers included in the data above. Later we show the scheme claim cost varies considerably by industry.

The following figure compares the average ratio of the excess of loss premium at various deductibles or retentions over the excess of loss premium for the base retention of \$500,000 to the ratio of the scheme excess claims cost rate at those same deductibles again relative to the \$500,000 retention. The ratio of the excess of loss premiums at specific retentions to the excess of loss premium for the \$500,000 retention is relatively constant across financial years. For example, the ratio of the

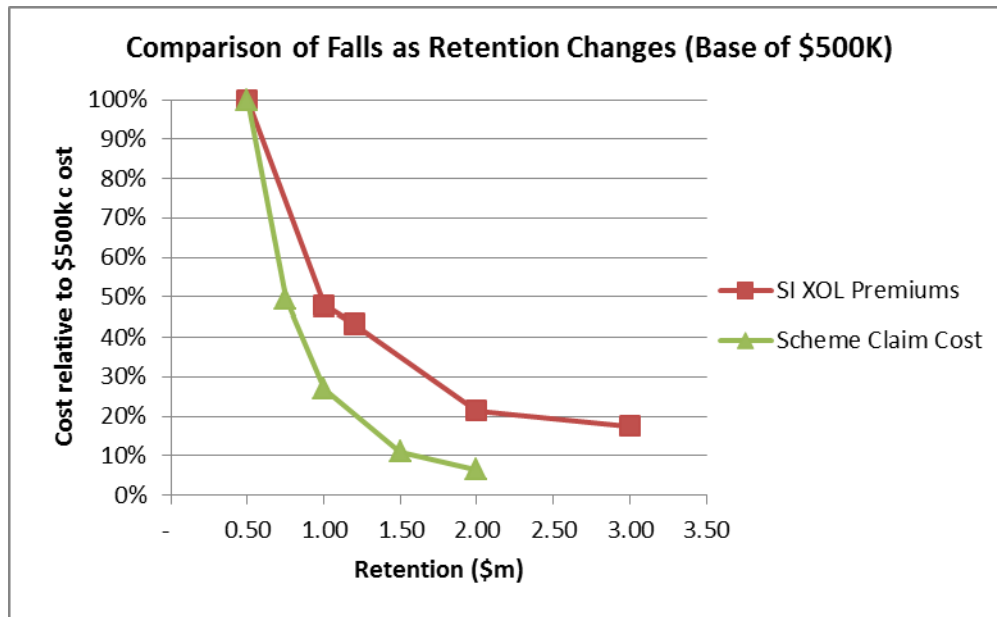


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XOL premium for \$1 million deductible compared to the \$500,000 deductible is in the range 44% to 54% over the years 2008 to 2013 with an average of 48%.

So, as the retention increases we see the fall in the excess of loss premium or the excess scheme claims cost rate compared to the cost at the \$500,000 retention. It is evident that the excess of loss premium (as % of remuneration) does not fall as much as the actual claims cost or risk premium cost as the retention increases. For example the XOL premium would fall by about half by increasing the retention from \$500,000 to \$1 million but the cost of claims falls by nearly 75% to be about one quarter of the cost.

Figure 15



The comparison shows some differences between the change in the XOL premium compared to the fall in the claims cost as the retention changes. We expect this comparison is less impacted by the issue mentioned above of time value of money.

One thing that will contribute to a difference between the two lines on the above chart is the event risk. The analysis of the WorkSafe experience in this paper is based on the size of individual claims. The excess of loss insurance purchased by self-insurers will kick in once the cost of an individual claim – or the cost of a number of claims from the one event – exceeds the deductible.

Further the fall in the scheme reflects falls in what we would call the risk premium. However, the XOL premium would also need profit margins and expenses, some may not vary in proportion to claim cost or be perhaps higher the more risky the cover. For example, a higher profit margin required for the XOL coverage at the higher layers.

## Differences by Industry

The WorkCover Industry Classification (WIC) system currently in use is based on Australian and New Zealand Standard Industrial Classification 2006 (ANZSIC). The current classification system was introduced in 2011.

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For 2012/13, there were 509 WIC codes listed, with 339 unique industry rates. The lowest industry rate was 0.260% and the highest was 12.245%.<sup>9</sup>

A concordance is available between the previous (pre-2001) WIC codes and the new, based on the predominant activity. The predominant activity code attached to workplace coverage records has been used to create a remuneration series for each of the current WIC codes. The labour hire codes used prior to the mid-2000s have not been able to be converted in this way, and have been included as additional industries.

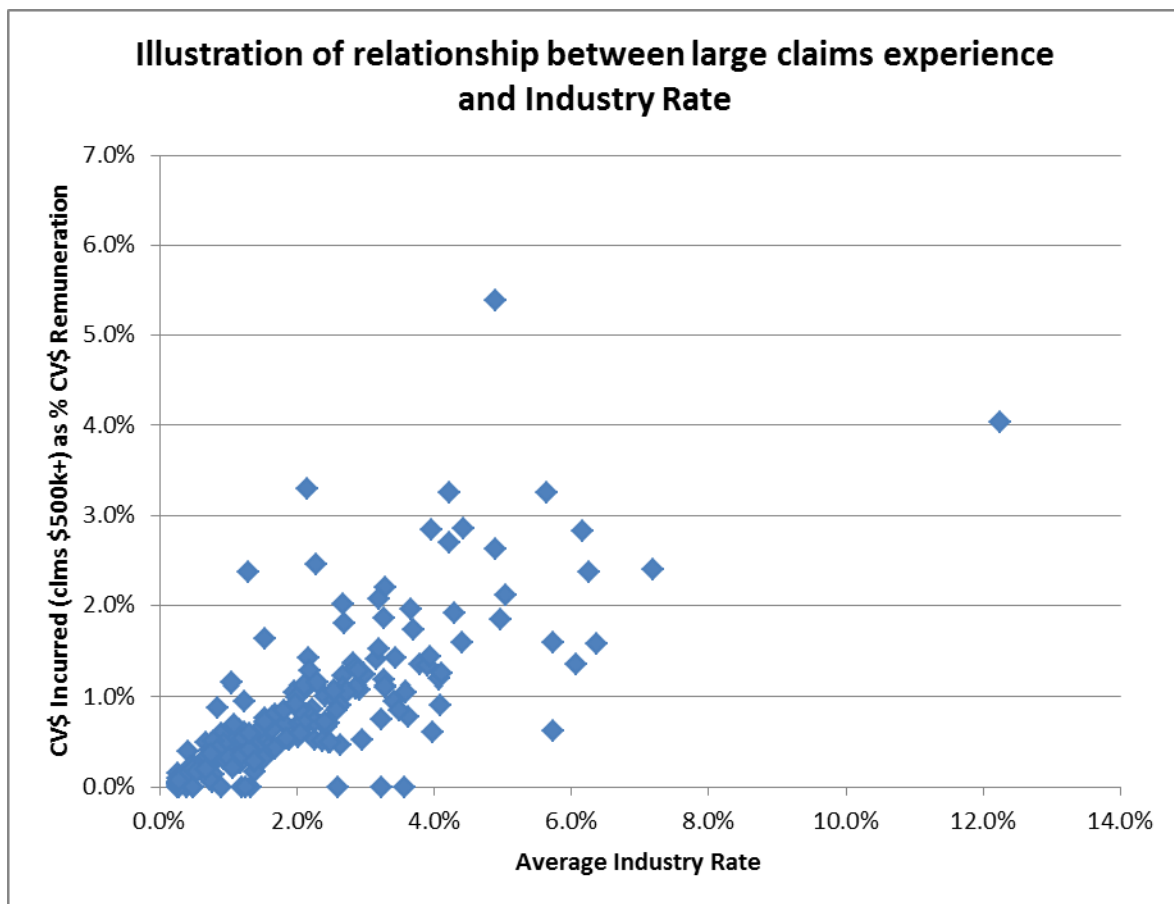
Existing data extracts for claims do not contain details of the predominant activity, and where the industry code recorded is the old WIC, we have developed a proxy concordance using only the industry codes. This was a manual process and has groups of old WIC codes mapping to a group of new WIC codes, with the groups selected taking into account the predominant activity concordance, and the remuneration, claims experience and industry rates for the old and new WICs. At the lowest level this has the 509 new WICs grouped into 189 WIC groups. These can be grouped further for analysis.

The following chart shows the relationship between the ground-up incurred cost rate for claims above \$500k, with the industry rate. The data is for the 189 groups, with the incurred cost rate being the weighted average for the period 2001 to 2008, and the industry rate being the weighted average for the group for 2013 (using 2013 remuneration). This is intended to be illustrative only, and in interpreting the results it is important to take into account the mismatch between the time periods for the numerator and denominator.

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<sup>9</sup> The 2013/14 rates have been released. There are 509 WIC codes with 336 unique industry rates. The lowest industry rate is unchanged at 0.260%. The highest industry rate has reduced to 10.020%.

Figure 16



The primary purpose of presenting the chart is to demonstrate that there does look to be a reasonable relationship between the large claims cost and the industry rate. This is indicated by the tendency of the "dots" on the chart to cluster along a diagonal line. There is, however, a degree of "noise".

### Another Way to Assess the Relationship

An alternative presentation of the same data provides another way of demonstrating any relationship between the large claims experience and the industry rate. The x-axis on the following chart is the same as in Figure 16 being the industry rate for 2012/13. The y-axis is the ratio of the large claims cost rate to the industry rate. That is:

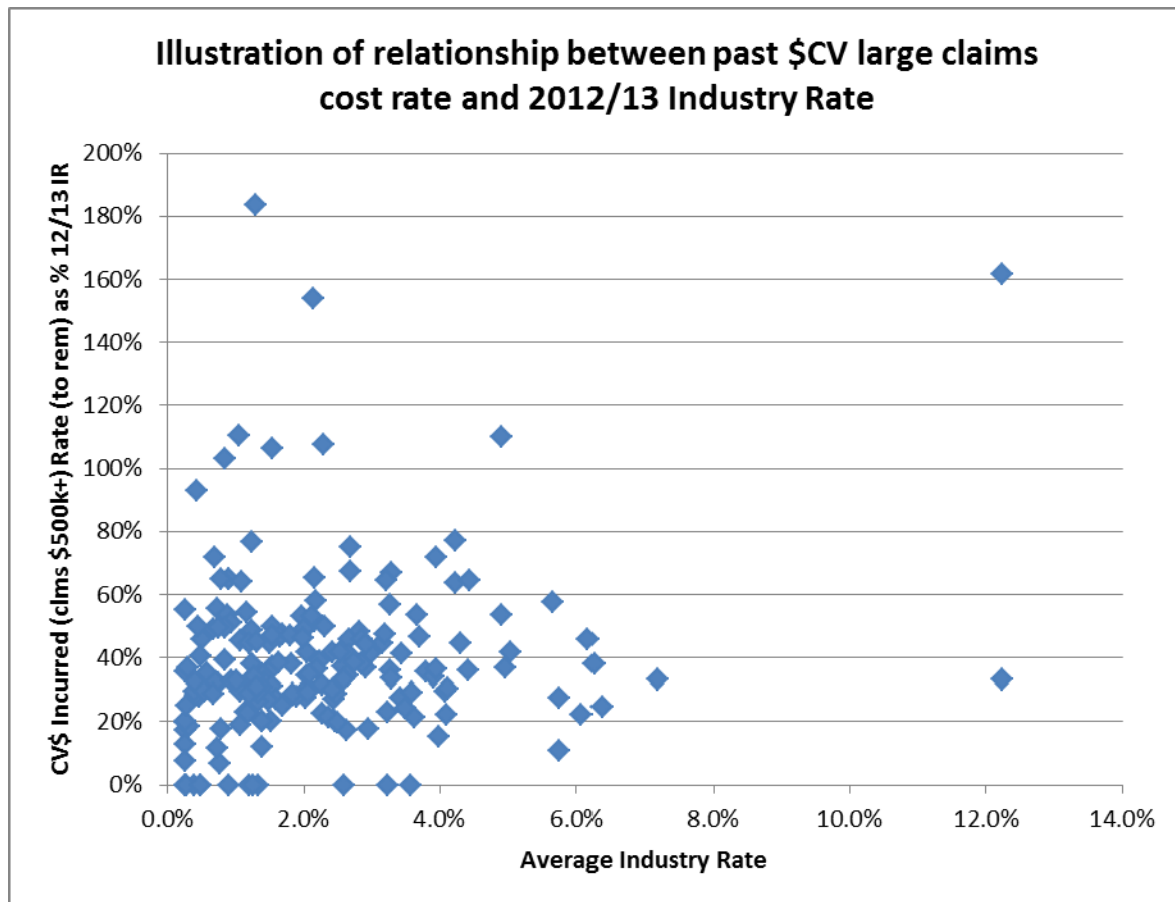
$$\text{large claims cost rate} = \frac{\text{\$CV ground-up incurred cost for claims >\$500k}}{\text{\$CV remuneration}}$$

where the large claims cost rate is aggregated for the reporting period 2000/01 to 2007/08

$$\text{y-axis} = \frac{\text{large claims cost rate}}{\text{industry rate 2012/13}}$$

By expressing the claims cost rate as a proportion of the industry rate, if there is a constant relationship between the two, then the "dots" should cluster along a straight line (rather than the diagonal that would illustrate this relationship in the approach used for Figure 16).

Figure 17



The clustering is evident in a band at, say, 30% to 50%. The variation around this clustering is clearer in this chart than it was in the previous one. This is simply a question of scale. In Figure 16 the high volume of points at the lower industry rate levels was compressed into the bottom left 5% or so of the chart. In this version, there is added granularity provided by standardising by the industry rate which spreads those same points over a greater vertical area.

The spread around the band is to be expected as any one industry will have a small number of large claims, and the premium will also be influenced by the volume and size of the small claims. The addition or subtraction of a single large claim will, for many of the smaller industries in particular, move the "dot" materially.

The existence of a relationship is meaningful, but the absolute level as it is shown here (the 30% to 50%) cannot be used without adjustment:

- There is a mismatch between the claims experience period (the eight years 2000/01 to 2007/08, and the year of the industry rates (2012/13).
- The risk profile of some industries will likely have changed more than the average over that period, whilst others will have changed by less than the average. The relative positions of individual "dots" on the chart might therefore have shuffled around over time.
- As shown previously there has been a strong reduction in premium rates since the mid-2000s. The premium rate denominator is therefore lower than would apply on average through the claims period (so that the ratio to that rate is higher).

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- The claims cost used in the claims cost rate is in current values. The risk premium within the average premium rate is in inflated and discounted values. The pricing basis used by WorkSafe Victoria assumes a real discount rate of 4%. With this real discount rate and the payment term that would likely be expected for longer term, higher severity claims, a pricing basis for these claims might well imply a discount of 25% against the current values (potentially much more for some of the highest cost cases).
- The industry rate is not the same as the average charged rate for an industry, as the Victorian premium system has an experience rating component.

Whilst the absolute value of the relationship cannot be used directly, the banding does suggest that the relationship between the large claims cost and the average charged premium (refer to Figure 10) might well be more broadly applicable at industry level – at least for broad industry groups. Again it is important to note that the claims cost used in the derivation of Figure 10 is based on current values, so a discount for inflating and discounting needs to be applied to convert it to an implied large claims risk rate.

### How might the self-insurer experience differ?

One of the purposes in writing this paper was to provide some high level scheme information to actuaries advising self-insurers, to assist with reserving for large claims. Some of the larger self-insurers will have a reasonable body of claims data to assist the actuary, but the very large claim experience is likely to be either absent or limited and very hard to interpret.

Whilst we expect that this analysis will be of some assistance, some differences may apply. For example:

- WorkSafe has a tremendous scale and insurance is a core business; it has both data to detect, and resources to respond, to emerging pressures within the scheme.
- Some self-insurers may have a different liability mix to the scheme. For example, the scheme has liabilities of roughly similar size for weekly benefits and for common law. A review of a selection of self-insurer actuarial reports suggests that some self-insurers have a higher proportion of common law within their total liabilities, and a lower proportion of liability in weekly benefits. The reverse may well be true for others.
- WorkSafe has outsourced the management of the care and support for catastrophic injury cases to the Transport Accident Commission (TAC). The TAC has particular expertise in this area, and the claims cost profile may be materially different for this management model when compared to the model used by others.
- Self-insurers who have taken the decision to opt out of the scheme as a premium payer may reflect expectation of improved outcomes and hence may expect better claims experience to the industry data from those companies remaining as premium payers. However whether this is real or perceived, the level of incurred costs that relate to large claims as a percentage of all claims may still be consistent for self-insurers and the scheme.

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### Other Things to Consider

We remind the reader of the following, when seeking to use the results of the analysis presented in this paper:

- The analysis is gross of recoveries. The potential for non-reinsurance recoveries should be factored into any pricing or reserving basis.
- The results are shown in current values. Allowance for inflation and discounting should be factored into any pricing or reserving basis.

Beyond the data-specific factors, the key question is how to extrapolate the historical results to current circumstances. We note the following:

- The claims experience has continued to change beyond the end of the data period considered for this analysis, although as shown in Figure 9 the average charged premium rate has steadied in more recent years.
- The experience of the last five years has been impacted by the Global Financial Crisis and the generally harder economic conditions that have followed it. Whilst the impact on claims costs was likely to be most apparent for new claims in that period, there was also an impact on return to work opportunities for existing claims.
- Treatment options and costs continue to develop and change.
- The environment of care and support for individuals with enduring disability is undergoing change with the introduction of the National Disability Insurance Scheme. The interplay with the accident compensation schemes will become clearer in the coming years
- The experience is susceptible to change from legal or administrative precedents. Whilst the Victorian scheme has been quite stable on this front in the period examined, it remains a factor to consider when considering how the future may differ from the past.

### Overseas Experience

We endeavoured to find overseas data from the UK, USA or Canada to see if there were any similarities or differences to note. Unfortunately we were only able to get some limited information from Canada which is expected to be received after this paper is submitted. We are hoping to be able to provide some analysis of a Canadian scheme in our presentation.

### Further Research

The WorkSafe scheme is a mixture of common law and weekly compensation. Although other schemes within Australia have different benefits it would be interesting to see if the cost of large claims relative to overall costs is consistent across the different schemes and benefits. We leave this possible research for others to look at in future.

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### Appendix A: Some Technical Notes

The following notes on the construction of the analysis should be considered when interpreting the analysis presented in this paper.

Report Year	<p>Where trends are shown by claim year, they are by report year, not injury year. Both have been considered and there is very little difference – as the most severe claims tend to be reported very quickly. Report year has been used for convenience.</p> <p>The years are Jul-Jun years, presented as YYYY for the second half of the twelve month period. So, for example, 2006/07 is presented as 2007.</p>
Exclusions	<p>All claims under the scheme have been included other than those of self-insurers during the time for which they were insured.</p> <p>We have not included the small number of claims reported each year in respect of failed insurers from the pre-scheme years (the scheme commenced in September 1985). The bulk of the remaining liabilities under the Insurer Guarantee Fund are for asbestos-related disease.</p>
Self-insurers	<p>Self-insurers are excluded from all of the analysis, including any time in which they were scheme insured.</p>
Recoveries	<p>The main analysis shown in this paper is on data gross of all recoveries.</p> <p>The scheme does have material recoveries, both from the TAC and from third parties, including against some of the larger claims. Currently there is no reinsurance in place.</p> <p>The potential for non-reinsurance recoveries needs to be considered when interpreting or using the results of the gross analysis presented.</p>
Current Values	<p>The analysis is based on current value (\$CV) payments to date, plus the current value estimates. The past inflation used to convert past payments to current values is the Victorian AWOTE.</p> <p>The remuneration used as the denominator for most of the measures has also been converted to \$CVs using the same approach.</p>
Case Estimates	<p>The case estimates used in the measure of incurred cost are those from the Statistical Case Estimate (SCE) model. This is the model used within the premium system.</p> <p>Note that in Victoria the Agents are not required to place estimates of future cost on individual claims.</p>
Remuneration	<p>Rateable remuneration, the remuneration measure used for calculation of employer premiums, is used as a measure of</p>

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	<p>exposure.</p> <p>WorkSafe has an ongoing program to ensure that employers are insured, and that the declared remuneration is correct. This has improved the completeness of declared remuneration over time, and it is expected that the remuneration series included as a measure of exposure in this paper will have become progressively more complete over time. We have not sought to adjust for this (to make it more "like with like").</p>
Industry Groupings	<p>Note that the Victorian scheme changed the injury classification codes used for the 2011/12 and later years. The workplace industry classification (WIC) codes for older insurance periods and against older claims therefore need to be mapped to the new classification.</p> <p>The mapping and the grouping of industries is discussed in the body of this paper.</p>



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### Appendix B: Summary of Results

The following table summarises the frequency, cost and average size experience for the eight report years 2000/01 (shown here as 2001) through to 2007/08 (shown here as 2008).

freq (clms per \$m CV rem)	2001	2002	2003	2004	2005	2006	2007	2008
Claims Over \$250k	0.0176	0.0161	0.0141	0.0139	0.0136	0.0133	0.0132	0.0132
Claims Over \$500k	0.0087	0.0082	0.0068	0.0062	0.0058	0.0057	0.0052	0.0049
Claims Over \$750k	0.0045	0.0040	0.0032	0.0028	0.0025	0.0025	0.0022	0.0019
Claims Over \$1.00m	0.0021	0.0018	0.0014	0.0012	0.0011	0.0012	0.0010	0.0009
Claims Over \$1.25m	0.0010	0.0008	0.0007	0.0006	0.0006	0.0005	0.0005	0.0004
Claims Over \$1.50m	0.0006	0.0005	0.0004	0.0003	0.0003	0.0002	0.0002	0.0002
Claims Over \$2.00m	0.0002	0.0002	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001

inc (CV\$ per \$m CV rem)	2001	2002	2003	2004	2005	2006	2007	2008
Claims Over \$250k	1.09%	1.00%	0.84%	0.82%	0.75%	0.74%	0.72%	0.68%
Claims Over \$500k	0.77%	0.72%	0.58%	0.54%	0.47%	0.47%	0.43%	0.39%
Claims Over \$750k	0.52%	0.46%	0.36%	0.34%	0.27%	0.27%	0.25%	0.21%
Claims Over \$1.00m	0.31%	0.27%	0.21%	0.19%	0.15%	0.16%	0.15%	0.12%
Claims Over \$1.25m	0.18%	0.17%	0.12%	0.13%	0.10%	0.08%	0.09%	0.07%
Claims Over \$1.50m	0.13%	0.12%	0.09%	0.09%	0.06%	0.05%	0.06%	0.04%
Claims Over \$2.00m	0.06%	0.06%	0.04%	0.06%	0.01%	0.02%	0.03%	0.01%

Average inc (CV\$m per lge clm)	2001	2002	2003	2004	2005	2006	2007	2008
Claims Over \$250k	0.62	0.62	0.60	0.59	0.55	0.56	0.54	0.52
Claims Over \$500k	0.88	0.88	0.85	0.87	0.81	0.82	0.83	0.79
Claims Over \$750k	1.14	1.15	1.13	1.19	1.09	1.10	1.14	1.10
Claims Over \$1.00m	1.45	1.53	1.47	1.64	1.38	1.37	1.47	1.36
Claims Over \$1.25m	1.84	1.98	1.87	2.18	1.57	1.75	1.88	1.67
Claims Over \$1.50m	2.19	2.36	2.21	2.91	1.78	2.19	2.34	1.89
Claims Over \$2.00m	3.10	3.76	3.34	4.50	2.31	3.18	3.59	2.51