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The Art & Science of Pricing Small Group Medical Coverage

Renewal Pricing

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Regression Toward The Mean — The Wearing Off of Underwriting

When an actuary is considering how to set rates on renewal for a block of small group medical business, one tendency of medical loss ratios is critical to understand. The claims experience of individual small employers is not fully credible. To some extent, the most recent experience will indeed be a strong predictor of its future experience. But to a significant extent, the experience of a small employer will tend to migrate toward "average" experience for an employer with those particular case characteristics.

There are several underlying reasons that this is true. These include the fact that people with serious chronic conditions tend to utilize more health care resources than average on a year-in-year-out basis. High loss ratios tend to indicate a higher than average proportion of people with serious chronic conditions and vice versa. Thus, if the most recent experience is better or worse than average, there are possibly good reasons that the following year will follow suit.

On the other hand, many expensive conditions are temporary and once fixed do not have a strong predictive value in estimating future health care usage. Also, the employees of a small employer can leave and be replaced with another person whose health care usage is unknown. For example, people who use a significantly high amount of health care resources in a year will have a very high mortality rate as a group. This is true of large employers, but in a large employer, there is a much higher probability that the group of terminating employees is relatively representative of the employer as a whole.

Let us suppose that we could divide all small employers in a given region into six categories based on their most recent usage of health care resources relative to the overall average usage for all small employers. The categories are as shown in the table below. For the sake of clarity, let's assume that the groups in column one were assigned by individual medical underwriting. Therefore, their relative cost as shown in the first column probably could not be measured directly by the carrier. Column two then represents the experience of these cases in their first

year of coverage, and column three represents the first renewal year. Each column shows the relative cost per employee after all (age, gender, dependent, etc.) adjustments. The actual numbers would depend on a number of factors including average employer size and the managed care arrangements prevalent in the area. Note also that the distribution of employers by category will not follow a normal curve. Many employers will be in the "best" category, and relatively few will be in the "worst" categories.

Prior Usage	Cost Prior To Issue Relative To Average	First Year Cost Relative To Average	Renewal Year Cost Relative To Average
A. Under 50%	21%	44.8%	61.4%
B. 50% to 70%	58%	69.6%	78.6%
C. 70% to 100%	84%	89.6%	92.7%
D. 100% to 140%	119%	112.7%	108.8%
E. 140% to 200%	165%	145.3%	131.7%
F. Over 200%	390%	303.7%	243.0%

What has happened is that some employers who used to be in the best category will migrate "upward" and become higher cost relative to average than they were the year before. The reverse will also hold true. In other words, if you take all employers in category "A" this year, that group of employers will not all be "A" the next year, but will be a mix of "A" through "F."

If there were no credibility to prior experience, the current "A" group would have 100% of average experience the following year, as would the current "F."

If there were 100% credibility to prior experience, the current "A" group would have almost the same experience relative to average in the next year as it did in this year.

The actual credibility is in between the two extremes.

Ideal Renewal Pricing

Many companies look at the experience of a small employer in order to estimate the premium needed for the following year. When quoting business, the health status of individuals is reviewed, and when renewing business, the prior claims usage is used. In either event, an attempt is made to categorize that employer relative to an "average" risk.

Prices are then set accordingly. Low risk employers receive low premiums and high risk employers receive high premiums. In the world of Small Group Reform laws, there are limits on both how low and how high the premiums may be, but the principle is the same.

Let us suppose that a carrier was actually able to price at will and had perfect experience with which to judge small employers.

The carrier magically groups together all of the small employers in a marketplace according to their prior usage of health care resources and/or the known health status of each employee. The very best small employers are grouped together, and it is noted their claims experience is 21% of average. The premium that must be charged to cover the claim costs in the following year, however, needs to have a claim cost set at 44.8% of average.

Vice versa, again in an ideal world, the very worst employers are grouped together

and their claims experience has been 390% of average. The premium that must be charged to cover the claim costs in the following year, however, only needs to have a claim cost set at 303.7% of average.

Suppose, in this ideal world, the carrier had been quoting on new business and had given the category "A" groups rates set at 45% of manual and category "F" groups rates set at 304% of manual. All other things being random and equal, the carrier would make their risk charge on both sets of employers in their first year.

The problem sets in when the carrier seeks to renew the groups. The original category "A" groups now need rates at 61% of manual, and the original category "F" groups now need rates at only 243% of manual. If an actuary acts accordingly, the marketing department will go berserk.

The marketing department will say that you have two blocks of business that performed exactly on target this last year, but you are giving a 37% increase (plus trend) to the "best" employers (because they are going from 44.8% of average to 61.4% of average) and a 20% decrease (plus trend) to the "worst" employers (because they are going from 303.7% of average to 243.0% of average). This goes against all "common sense."

This illustrates a very common misconception in setting renewal rates. Namely, many people firmly believe that the renewal rate *percentage increase* that a group should receive can equal trend if the group achieved its profit margins in the prior year. In larger groups with strong credibility, this concept will generally work relatively well. In small employers, it simply isn't true. The truth sounds very similar, but is quite different. A group with better than average experience in the prior year can generally be offered a renewal rate which is also better than average (but not as much so), and, in an ideal world, vice versa.

The mechanism that many companies use to accomplish this approach is called "blending." The renewal rate that a case would generate based on its own experience is blended with an average or manual rate. The weight given to a group's own experience is called its "credibility." And the complement of the credibility is the weight applied to the manual rate. The net

result is that the rates for "good" cases go up, and the rates for "bad" cases go down. I won't claim that marketing departments like credibility blending, but it is a fairly common practice that handles the problem of "regressing toward the mean" without explicitly pointing out that better cases will have higher trend and vice versa.

Many carriers over the years have had an opportunity to "cherrypick" various blocks of business, meaning that they had access to claims experience and could offer rates only to the best employers. In far too many cases, these carriers lost money on these blocks. The employers they selected were indeed better than average, but the pricing by the carrier was based on the actual claims of the employers that were offered coverage and did not contemplate that the cases would tend to migrate toward average as a block and that premiums had to accommodate this effect.

Ideally, a carrier will attempt to charge premiums to the "best" business at rates that are well above the minimum needed to meet profit goals in the following year. Renewal increases can then be much more moderate, allowing the carrier to retain the block even though the profit margin on this portion of the block will rapidly diminish. The "worst" cases will still be offered rates that would produce expected margins in the first year, but these cases as a whole (if they all persist) might then receive trend increases that would produce growing profit margins on this block of business.

Years ago, this approach was possible, but is not any more in most states.

Real World Renewal Pricing

Small Group Reform laws have put severe restrictions on rating practices of carriers. A typical set of restrictions might be an allowance for rates to be set at a minimum of 65% of manual and a maximum of 135% of manual. In addition, the percentage of manual that the carrier is charging cannot be increased at renewal by more than 15%.

This creates a number of issues for pricing a block of business.

The Art & Science of Pricing Small Group Medical Coverage

On the one hand, the rating laws force a carrier to charge higher than necessary rates on the best groups. Given human nature, as noted above, this is a practical approach. On the other hand, however, the "worst" cases are charged very inadequate rates to cover their actual costs. Even though these cases might, as a block, get better each year, it would take many years for these cases as a whole to reach the point where 135% of average is sufficient to cover their actual cost. Hence, you must have a good mixture of better cases if you have any reason to expect to make a profit on the block.

In addition, if the person or persons who had the high health care resource usage leave the group, the employer can easily go to a new carrier at a much reduced rate. While ideally the block of the "worst" cases should improve over time, the departure of employers who recognize they can get better prices elsewhere causes the remaining block of "worst" cases to stay at a high claim cost level.

Another, but similar, anti-selection problem applies to the "best" cases. They received their very low rate because no one within the group had any significant health issues at all. Even though as a block, these employers will have a sharp increase in health care costs, many of these employers will remain very healthy. If these employers are offered renewal rates that reflect an expectation that the health status of their group will deteriorate, then they can and will shop for better rates from another carrier. This type of anti-selection can cause the experience of the "best" employers to deteriorate even faster than random statistics would indicate.

Imagine a carrier which magically has been able to write only the very best, most select business at a rate which produces the expected gain in its first year. The wearing off of underwriting will cause the claim costs for this block of business to rise by roughly 37% in addition to trend. Either the carrier must raise its entire manual rating structure to allow for this increase (which will cause it to be unable to sell new business in the second year and will also cause very high lapsation), or the carrier will be forced to keep its renewal rate increases to trend plus 15% as mandated by law (and will therefore lose a lot of money because claims will be 19% higher than the premium can cover).

No carrier can write only such select business, but if the "best" business that a carrier writes is merely making the pricing margin in the first year, the problem remains for this portion of the business. Either the manual rates must rise sharply for all cases, or a significant potion of the block will lose a significant amount of money in the second year.

In essence, a carrier must have a strong margin on the most select business that it writes or the rating laws will cause this portion of its second year business to lose money.

In essence, you have to reconsider every case each renewal. You can't just treat them as members of a category that get the same treatment.

Similarly, if you keep all of the "worst" cases at a maximum load, the "worst" cases as a block never will reach a profitable level. As noted before, part of the reason that some of these cases get better is that the one or two very unhealthy people within the group leave the employer. The case is now an average or better risk. It can go to another carrier and get a much lower rate than it has been paying. In other words, if you keep its rates at maximum load, it won't stay within the pool of "worst" cases and the average risk in the pool won't improve.

For cases in the middle (Categories "C" and "D"), renewal rating can offer trend increases and be safe. These cases are running close to average, and a trend increase, more or less, will keep them as a block at about the right rate for the following year.

Without adjustment, the net result can be significant. Consider the two fictional blocks of business below. The first block has a distribution of cases that matches the overall market. The experience on this block by category matches our average assumptions for a second-year (or renewal) block and produces a relative cost of 100% of average. The second block has lost about 30% of its "best" groups in Category "A" during renewal and 30% of its best Category "F" groups as well. It also lost 15% of its better Category "B" and "E" groups. This causes the distribution of business to be more concentrated in the middle categories, but it makes the expected claims for both the "A" category and the "F" category higher than expected. Overall, the average cost is now 105.8% of average.

Category	First Block		Second Block	
	% of Cases	Cost	% of Cases	Cost
A	30.0%	61.4%	24.7%	68.5%
B	15.0%	78.6%	15.0%	80.2%
C	21.7%	92.7%	25.5%	92.7%
D	18.3%	108.8%	21.5%	108.8%
E	6.0%	131.7%	6.0%	136.2%
F	9.0%	243.0%	7.4%	294.4%
Average		100.0%		105.8%

Anti-select lapsation on renewal can easily add 5% or more to the increase in costs on a block of small group business. The change in the cost within a category is because you are losing the better cases within the category. The amounts shown are based on statistics which were developed for one specific set of circumstances and will differ based on more external factors than we can list. The rough bottom line result, however, is very likely to be the same in almost all cases with strong anti-select lapsation.

One Example of A Projected Real World Renewal

The following calculations are based on various assumptions with regard to how cases migrate by year from one risk category to another and the lapse rates according to both how much of a better price a group can obtain from the "market" and whether the employer is aware of a serious health condition (or the disappearance of a serious health condition) that hasn't yet surfaced to the point where the carrier is aware of the condition. The assumptions will vary by a variety of factors, but the general result will be the same for almost all blocks of small group medical business.

Assume a block which was well-underwritten and the pricing by risk category assumed the need for strong margins at the best risk categories to offset the loss at the worst risk categories. I am assuming a "follow the market" pricing approach as outlined in the article from the last issue.

Assume that groups which increased in risk category received the maximum 15% increase in rates, while all other groups, even those that improved, received no change in rates. I am assuming that trend and expenses are 0% for these calculations to keep the mathematics as simple as possible, but obviously in the real world, trend and expenses are critical components.

Projecting claims based on current risk category and distributing the cases by the percentages that will change risk category, we arrive at an initial conclusion that the ratio of claims to net risk premium will be 96.8%. Looks good so far.

You decide that you can lower the premium on those cases that "got better" from the original quote and allow a 12% discount when the risk category dropped from the initial quote to the first year experience. The ratio of claims to net risk premium now rises to 100%. That means, all other things being equal, you will make your risk margins. Sounds great, but we're not done yet.

If we compare the renewal price as offered to the price we would have quoted on a new group, we can assume that the lapse rate for cases which are offered renewals well above "market" rates will be high and vice versa. When we make reasonable estimates of this impact, the risk ratio now rises to 103.3%. The real world has eaten away some of our margins.

If we assume that some of the cases which are going to change risk category in the new year will use that advance knowledge to their advantage, then we have to readjust the lapse rates further. Our risk ratio is now projected at 105.6%.

We now have two choices: raise the entire manual structure, or go back and selectively increase the groups which "got better" and eliminate their rate reductions. Just eliminating rate reductions does about equal harm as good. We get more premium on paper, but the lapse rates work against us more as well.

Based on the assumptions in this simple calculation, we would have to raise all rates a minimum of 11.5% in order to make the risk ratio go to 100% in the following year, and, of course, we get a rather poor retention of business.

Note this example assumes that we originally got strong margins on the "best" business in their first year. Had this not been the case, the problem would have been increased.

Such is the real world of small group renewals. The exercise as described above is a necessity for a small group carrier in setting renewal rates. Each case must be examined and categorized by risk. The future expected claims (with consideration of regression to the mean on the better cases) and the future premium must be added up with a weighting based on expected persistency. Leaving out these pieces can easily make a block look better than it actually will be next year.

To a certain extent, trend estimates tend to mask these rate mechanics and small employers often accept rates without "shopping the market." Even so, the real world of small group medical presents many challenges that are not obvious to the inexperienced actuary.

The above examples are based on state laws that allow some flexibility in rating. What if you operate in a state with strict community rating allowing no variation by group? Should you still be concerned with the relative mix of business within risk categories? The answer is a qualified "yes." Small employers with better than average experience can always choose a form of self-insurance instead of insurance. This can change the mixture of business in your block in a manner that loses better business and attracts worse business on a steady basis over a number of years. It's another version of an "assessment spiral." A carrier would see it as higher than expected trend. Unfortunately, "higher than expected trend" is just another way of saying "we lost money."

The small group market is a difficult market at best. Some companies have found ways to remain sufficiently profitable and sufficiently competitive to remain in the market on a long-term basis. Many companies have entered the market only to exit in a few years because of mounting financial losses. One of the reasons for the early exits is a lack of advance planning when it comes to the pricing strategy. The good news, of course, is that this is why the carriers need all those high-priced actuaries!

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