Reading: Fisher.ExperienceRating

Fisher_QuintilesTest2 (Problem 1)

Model: 2011.Q16

Problem Type: Apply the Quintiles Test and interpret the results

Given

Quintile	Actual Losses	Expected Losses	Modified Expected Loss
1	187,000	190,000	182,000
2	195,000	195,000	187,000
3	201,000	200,000	195,000
4	227,000	205,000	210,000
5	238,000	210,000	255,000

Find Apply the Quintiles Test and interpret the results.

Solution

We aren't give the premium in each quintile, so we'll need to use the adjusted versions of the manual and standard loss ratios.
Also, we're already given the data in quintiles, so there is no need for the experience modification factor, we can presume the quintiles were calculated with them already sorted from smallest to largest.

$$\text{Manual Loss Ratio} = \frac{\text{Actual Losses}}{\text{Expected Losses}}$$

$$\text{Standard Loss Ratio} = \frac{\text{Actual Losses}}{\text{Modified Expected Losses}}$$

Quintile	Manual LR	Standard LR
1	98.4%	102.7%
2	100.0%	104.3%
3	100.5%	103.1%
4	110.7%	108.1%
5	113.3%	93.3%

Interpreting the results

Manual Loss Ratio Dispersion	14.9%	= 113.3% - 98.4%
Standard Loss Ratio Dispersion	14.8%	= 108.1% - 93.3%

There is an upward trend in the manual loss ratios so the plan does a good job at **identifying** differences between risks.

There is no noticeable trend in the standard loss ratios. However the values are not approximately equal for all risks and the dispersion is not materially lower than seen in the manual loss ratios. This implies the plan does **not do a good job of adjusting** for differences between risks.