Reading: Fisher.ExperienceRating

Fisher_QuintilesTest2 (Problem 2)

Model: 2011.Q16

Problem Type: Apply the Quintiles Test and interpret the results

Given

Quintile	Actual Losses	Expected Losses	Modified Expected Loss
1	169,000	192,045	149,558
2	187,000	203,261	171,560
3	210,000	214,286	196,262
4	227,000	218,269	252,222
5	233,000	221,905	284,146

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	88.0%	113.0%
2	92.0%	109.0%
3	98.0%	107.0%
4	104.0%	90.0%
5	105.0%	82.0%

Interpreting the results

Manual Loss Ratio Dispersion	17.0%	= 105.0% - 88.0%
Standard Loss Ratio Dispersion	31.0%	= 113.0% - 82.0%

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

There is a downward trend in the standard loss ratios. This means the plan places **too much** credibility on past experience.
The standard loss ratio dispersion is greater than the manual loss ratio dispersion so the plan is **not an improvement**.

Reading: Fisher.ExperienceRating

Fisher_QuintilesTest2 (Problem 3)

Model: 2011.Q16

Problem Type: Apply the Quintiles Test and interpret the results

Given

Quintile	Actual Losses	Expected Losses	Modified Expected Loss
1	165,000	235,714	187,500
2	184,000	238,961	197,849
3	204,000	217,021	217,021
4	222,000	211,429	222,000
5	230,000	216,981	219,048

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	70.0%	88.0%
2	77.0%	93.0%
3	94.0%	94.0%
4	105.0%	100.0%
5	106.0%	105.0%

Interpreting the results

Manual Loss Ratio Dispersion	36.0%	= 106.0% - 70.0%
Standard Loss Ratio Dispersion	17.0%	= 105.0% - 88.0%

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

There is an upward trend in the standard loss ratios. This means the plan places **too little** credibility on past experience.

The standard loss ratio dispersion is less than the manual loss ratio dispersion so the plan is **an improvement**.