

EXAM 5, FALL 2013

7. (1.5 points)

Two methods of deriving expense provisions in ratemaking include the Premium-Based Projection Method and the Exposure/Policy-Based Projection Method.

a. (1 point)

For each method, briefly describe how both fixed and variable expenses are treated.

b. (0.5 point)

Briefly describe one shortcoming (or distortion) of each method.

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Exam 5 – Question #7

- A. Premium-based: fixed expenses and variable expenses are separated then divided by either written or earned premium to get expense ratios.

Exposure-based: Variable expenses are separated out and divided by either earned or written premium for a variable expense ratio. Fixed expenses are separated out and divided by either earned or written exposures to get an average fixed expense. This can be trended if necessary.

- B. Premium-based: fixed expense ratio will be distorted if there are rate changes during or after the experience period.

Exposure-based: Does not account for economies of scale for a growing book of business.

Or

- B. When using countrywide premiums for the prem based method, you are not accounting for the differences between states, such as regulatory environment. You may assign more fixed expense to states with large average premiums, even though fixed expenses should not vary with premium.

Exposures may trend at a different level than fixed expenses, so it may be inappropriate to use expos/policy- based in this instance.

Or

- B. If using an all variable prem method, a shortcoming is that policies with large premium are overcharging expenses and vice versa for policies with small premium.

A shortcoming of the fixed expense per exposure is that it doesn't take into account that fixed expenses sometime vary. For example, a renewal would have less fixed expense than a new policy.

7.

- a. More than half of the candidates received full credit for this part. Some common mistakes were stating that both fixed and variable expenses were treated as one ratio and stating that variable expenses are related to exposures/policy counts instead of premium for the Exposure/Policy Based method.
- b. A majority of candidates were able to correctly describe a shortcoming for the Premium Based method, while many had difficulty doing the same for the Exposure/Policy Based method. A common mistake was referencing a shortcoming of the pure premium or loss ratio methods, which aren't necessarily shortcomings of the methods for deriving expense provisions.

8.

Most candidates received full or nearly full credit. Some common errors include: incorrectly utilizing both the non-modeled and modeled CAT Pure Premiums, incorrectly applying credibility by year and not in total, incorrectly utilizing the ULAE factor, and incorrectly using the complement of credibility. Some candidates applied the ULAE factor to provisions that already included LAE.

9.

In general, most candidates were able to correctly calculate the weighted impact of the proposed relativity changes and recognize the need for an off-balance in order to neutralize the overall premium back to the starting premium. Most candidates were also able to then apply the targeted rate change of 20% in order to derive a total uncapped change for each territory.

Some candidates only showed that territory 2 would exceed the maximum rate cap of 25% without explicitly demonstrating that territories 1 and 3 would *not*. When attempting to calculate the premium shortfall due to the cap on territory 2, some candidates failed to identify the correct premium to which the excess ratio should be applied. Another common error involved candidates capping the rate change at the overall targeted change of 20%. Most candidates struggled with the final step of the calculation – either by not correctly identifying the denominator of premiums to which the excess premium should be applied or by forgetting to make an adjustment to compensate for the base rate cap.

10.

- a. Most candidates received full credit. When candidates did lose points they correctly identified key ideas regarding exposure distributions or correlation of variables but misstated the concept in some way.
- b. Most candidates received full credit. Most common mistakes for this calculation were: using the Loss Ratio method instead of Pure Premium or incorporating the current relativities, possible typos/miscalculations with no work shown.