6. (1.5 points)

Two methods of deriving expense provisions in ratemaking include the premium-based projection method and the exposure-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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Question 6	
TOTAL POINT VALUE: 1.5	**LEARNING OBJECTIVE: A4**
SAMPLE ANSWERS	
Part a: 1 point	

Sample 1
Premium-Based Projection = Fixed expense is separated and divided by premium to get the fixed expense ratio. Variable expense is separated and is divided by premium (either WP or EP) depending on whether the expense incurred at the beginning or throughout the policy period.
Exposure-Based Projection = Fixed expense is divided by earned exposure (or policy count) to get a fixed expense per exposure. Variable is also divided by premium, like the Premium-Based Method.

Sample 2
For Premium-based projection method
WP => Written Premium
EP => Earned Premium
Fixed: (the total expenses x percentage of fixed expenses)/(WP or EP)
Variable: (the total expenses x percentage of variable expenses)/(WP or EP)

For Exposure-based projection method
For variable is the same as premium-based projection method.
Fixed: (the total expenses x percentage of fixed expenses)/(Written Exposure or Earned Exposure)

Sample 3
In the premium-based projection method, fixed and variable expenses are separated, and each are divided by either written or earned premium to produce separate fixed and variable expense ratios to premium. If the premium and fixed expenses are trending at different rates, a trend can be applied to the fixed expense rate to adjust for the difference. In the exposure-based projection method, fixed and variable expenses are separated. Variable expenses are divided by either written or earned premium to produce a variable expense ratio. Fixed expenses are divided by either written or earned exposures to produce an average fixed expense per exposure. A fixed expense trend can be applied to the fixed expense per exposure to project the average future level.

Sample 4
For both methods, the expense categories are assigned fixed and variable percentages.

The variable provision is calculated the same for both methods. The variable percent of each expense category is divided by the appropriate premium – written if incurred when a policy is written, earned if incurred over the policy period. This is done for all historical years in the analysis and a selection representative of future expense levels is made. The result is an expense %.

For fixed expenses under the premium-based method, the approach is the same as above except with fixed percent of each expense category.

For fixed expenses under the exposure-based method, fixed expenses are divided by exposures – earned if expenses incurred over the policy period or written if incurred at time policy is written. The result is a dollar amount of expense per exposure. Done for all relevant years, and a selection for future expense levels is made. One consideration for fixed expenses under this method is that the fixed expense provision may need to be trended.

Another consideration for both methods is whether to use state-specific or countrywide expenses and premiums. Generally, commission and taxes, licenses and fees use state and General and other acquisition use countrywide as state-specific allocations of these expenses might be impossible or difficult to do.

Part b: 0.5 point

Sample Premium Based Shortcomings (distortions)

- A shortcoming with the premium-based projection method is rate changes during or after the experience period can distort the historical fixed expense ratios.
- Premium-Based Projection Method can be problematic if expenses are calculated at the countrywide level and allocated to state. The allocation between countrywide and state can cause distortions.
- Premium-based projection method: fixed expenses might trend at a different rate than premium.
- Premium-based projection Method can be distorted based on the split between the fixed and variable expenses. Need to find more accurate way to split the expenses into fixed and variable components.
- In the premium-based method, since fixed costs are a percentage of premium, high premium policyholders would be paying significantly higher fixed costs than low premium policyholders. This would not be appropriate as some cost are truly fixed.

Sample Exposure Based Shortcomings (distortions)

- A shortcoming with the exposure-based projection method is the existence of the economies of scale in a changing book may lead to increasing or decreasing projected average fixed expenses.
- Exposure-Based Projection Method can be distorted based on the split between the fixed and variable expenses. Need to find more accurate way to split the expenses into fixed and variable components.
- Exposure based projection method: Some fixed expense actually vary by risk characteristics. For example, new and renewal business tend to have different fixed expense. Allocation of fixed expense to different classes are therefore distorted to the extent to which these risk characteristics vary between classes.
- Exposure based method may be distorted if exposures are trending at a different rate than expenses.

EXAMINER'S REPORT

Candidates were expected to distinguish fixed and variable expenses from total expenses, as well as the differences between and details of both expense provision approaches.

Part a

Candidates were expected to explain how fixed and variable expenses are treated in the 2 common methodologies.

Common mistakes include:

- No mention of separating total expense into fixed and variable buckets.
- Not identifying the use of exposure or policy count for the fixed expense portion of the exposure-based method.

Part b

Candidates were expected to understand and describe a potential shortcoming/distortion of each method.

Common mistakes include:

Premium-based method

- Stating a need for on-level premium without any explanation for why.

Exposure-based method

- Stating simply that exposures must be clearly defined or aren't readily available.
- Stating that exposures are difficult to estimate or subject to change.