

2. (2 points)

An insurer is considering changing the exposure base for a commercial auto line of business to one of the following:

- i. Annual fuel expense
- ii. Number of miles driven

Using three relevant actuarial criteria, evaluate the effectiveness of each of these potential exposure bases and provide a recommendation for the preferred exposure base.

EXAM 5 SPRING 2015 SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: 2

TOTAL POINT VALUE: 2

LEARNING OBJECTIVE(S): A2

SAMPLE/ACCEPTED ANSWERS:

Annual fuel expense

Sample 1:

Annual fuel expense may not be proportional to expected losses since the fuel expense depends on the type of car, the type of gasoline, gas prices at different gas stations, and driving habit.

Sample 2:

Annual fuel expense may be somewhat proportional to expected loss, since it's correlated with miles driven, but it can change due to changing gas prices.

Sample 3:

This would be easily verifiable with receipts, and not subject to manipulation.

Sample 4:

This exposure base fails this criterion. Although it could easily be tracked and documented it would be subject to tampering and is not easily verified.

Sample 5:

This is not practical because it would be difficult to obtain and not easily verifiable. Companies may not keep track of fuel expenses as a separate expense item.

Sample 6:

Changing the exposure base may be difficult because it can cause premium swings for the insureds, it can be costly from the IT standpoint, and it would take considerable amount of adjustments to the data for future ratemaking analysis.

Sample 7:

The industry usually use the numbers of vehicles and annual fuel expense to rate commercial auto, therefore the annual fuel expense is more consistent with the industry practice.

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Number of miles driven

Sample 1:

Number of miles driven is more directly proportional to expected loss as more accidents can occur the more you drive.

Sample 2:

It is directly proportional to expected loss (with perhaps the exception of comprehensive coverage).

Sample 3:

This would be easily verifiable with an odometer or telematics, and it cannot be manipulated by insureds.

Sample 4:

It would be difficult and costly to verify and could be easily manipulated by the insured.

Sample 5:

Number of miles driven is also objective but also difficult to verify and again could be manipulated if the insured was self-reporting.

Sample 6:

With the development of technology, it is objective and easy to obtain. Nowadays, cars all have mile meters or GPS. The insurer can track the mile driven accurately.

Sample 7:

The historical exposure is number of car years, so the criteria wouldn't be satisfied. Changing to a new exposure base would cause large premium swings, it would be costly to implement, and would cause extra work for IT and actuarial staff.

Sample 8:

Considering historical exposure base for commercial auto, miles driven is rarely an exposure base. But pilot UBI insurance is starting to use miles driven as an exposure base.

Recommendation

Sample 1:

Overall I recommend implementing the number of miles driven since it is more proportional to expected loss.

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Sample 2:

I recommend annual fuel expense because the data is of a higher quality and is sufficiently proportional to losses. I would likely adjust exposure data for state/vehicle due to MPG differentials in vehicles and prices in different states.

Sample 3:

Neither of these exposure bases is practical or considerate of historical precedent, so I would choose neither and recommend continuing to use car years.

EXAMINER'S REPORT:

Candidates needed to identify the 3 criteria of a good exposure base and evaluate how well annual fuel expense and number of miles driven met each of the criteria. Most candidates received full credit.

Common mistakes included:

- Not identifying all 3 criteria
- Identifying the criteria, but not evaluating whether the proposed exposure bases met the criteria
- Identifying and discussing criteria for evaluating rating variables rather than for exposure bases. However, where there are similarities in the criteria for rating variables and exposure bases, candidates received credit

The question also required candidates to provide a recommendation on the preferred exposure base. For full credit, candidates needed to provide an overall recommendation and a clear rationale for their recommendation. Many candidates did not provide a reason for their recommendation or their rationale was not clear. For the rationale, it wasn't enough to say "Based on the above..." or "Because of these reasons..."