4. (2.25 points)

Given the following information:

- Policies are written on an annual basis.
- Proposed rates will be in effect from January 1, 2016 to January 1, 2017.
- Calendar year 2014 earned premium = $100,000.
- Beginning with July 1, 2012 renewals, the minimum deductible was increased from $500 to $1,000.
- The premium impact of any law change is applicable to all policies, including those in-force.
- The rate change history is as follows:

Effective Date	Overall Change	Type of Change
April 1, 2014	+5%	Law
July 1, 2014	+3%	Rate
July 1, 2015	-7%	Rate

- The annual premium exponential trend fit based on data for the 12 months ending each quarter evaluated through December 31, 2014 is as follows:

Calendar Year Ending	Average Earned Premium at Current Rate and Law Level
March 2012	$510.00
June 2012	$512.50
September 2012	$499.50
December 2012	$489.00
March 2013	$481.00
June 2013	$473.00
September 2013	$477.50
December 2013	$481.50
March 2014	$487.00
June 2014	$492.50
September 2014	$496.00
December 2014	$502.00

Number of Points	Annual Exponential Trend Fit
12 point	-0.5%
8 point	2.2%
6 point	3.4%
4 point	3.1%

Calculate the trended calendar year 2014 earned premium at current rate level. Include justification of the premium trend selection.

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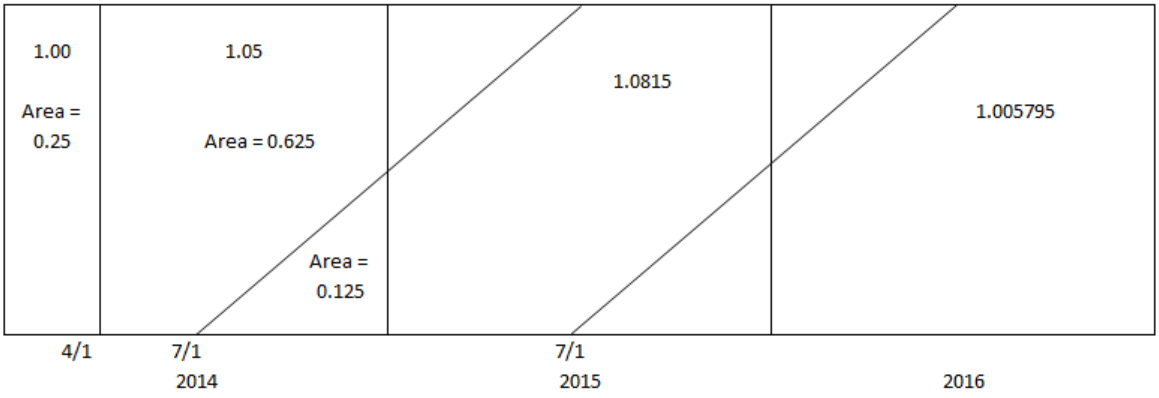
EXAM 5 SPRING 2015 SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: 4

TOTAL POINT VALUE: 2.25

LEARNING OBJECTIVE(S): A3

SAMPLE/ACCEPTED ANSWERS:



Sample 1:

CY 2014 Average Rate Level (assume written uniformly)
=0.25 A + 0.125 C + 0.625 B = 1.0414375
OLF = 1.005795 / 1.0414375 = 0.96578
Select the 6-point pure premium trend of 3.4% to eliminate the effects of the deductible change but to include as much data as possible
Trend period = 7/1/14 to 1/1/17 => 2.5 years
Trended EP at current rates = $100,000 * .9658 * 1.034^2.5 = 104,999.82

Sample 2:

CY 2014 avg rate level = 0.25(1.0) + 1/8(1.0815) + (1-.25-1/8)(1.05) = 1.0414
Current rate level = 1.05 * 1.03 * .93 = 1.0058
On-level factor = 1.0058/1.0414 = .9658
Trend period 7/1/14 -> 1/1/17 2.5 years
The 12-point fit and the March 2013 & prior avg EP at CRL is useless due to the deductible change.
The 8-point exponential fit even includes a quarter of data at the old deductible level.
Choose trend of 3.4% (6 point) as data stabilizes at this point and is close to 4 point value.
Trended 2014 EP@CRL = 100,000 * 1.034^2.5 * 0.9658 = $104,997

EXAMINER'S REPORT:

Overall, candidates performed well on this question, with over half of candidates scoring close to full credit or full credit.

EXAM 5 SPRING 2015 SAMPLE ANSWERS AND EXAMINER'S REPORT

On-level factor: The candidate was expected to know the difference between a law change and a normal rate change and how those would be reflected in an on-level calculation. The candidate had to demonstrate how to calculate the different areas associated with a given rate level for the parallelogram method and apply the correct rate factor to each area. Finally, candidates needed to demonstrate the calculation of the on-level factor by dividing the current rate level by the 2014 weighted average rate level.

Many candidates were able to re-create the diagram shown in the sample answers. Candidates generally scored well on this question. The most common errors were not reflecting the law change correctly (treated as a diagonal rather than vertical line) or not calculating the areas associated with a given rate level correctly.

Trended on-level earned premium:

The candidate needed to select a trend factor based on the information provided and justify that selection. Further, the candidate needed to determine the appropriate trend period. Finally, the candidate had to put all of the pieces together to calculate a final answer.

Candidates generally performed well with calculating trended on-level earned premium. The most common shortcoming was not justifying the trend selection properly. While most candidates were able to identify an out-of-pattern trend in the data, it was not always attributed to the deductible level change. Some candidates did recognize the deductible change, but still chose a trend factor based on information that would have been affected by the deductible change (i.e., 8-pt trend). Another common error was choosing an incorrect trend period.