17. (3.5 points)

A monoline insurance company writes business in one state. The state has experienced significant increases in insurance costs. In an effort to reduce costs, the state's government passes legislative reforms effective January 1, 2013, which impacts all outstanding and future reported insurance claims.

The legislative reforms were expected to have the following impacts:

- Reduce the amount of time claims remained open.
- Reduce the average annual inflation by half of what it was prior to the reforms.

The following information is available for the insurance company as of December 31, 2013:

Accident	Cumulative Paid Claims as of (months)			
Year	12	24	36	48
2010	$1,000,000	$1,750,000	$2,350,000	$2,850,000
2011	$1,210,000	$2,117,500	$3,059,100	
2012	$1,089,000	$2,042,370		
2013	$1,709,000			

Accident	Cumulative Closed Claim Counts as of (months)			
Year	12	24	36	48
2010	100	150	180	200
2011	110	165	209	
2012	90	144		
2013	132			

Accident	Incremental Closed Claim Counts as of (months)			
Year	12	24	36	48
2010	100	50	30	20
2011	110	55	44	
2012	90	54		
2013	132			

Accident Year	Ultimate Claim Counts
2010	200
2011	220
2012	180
2013	220

a. (2.5 points)

Assuming the closure rates and inflation observed during calendar year 2013 continue, use a frequency-severity approach to estimate unpaid claims for accident year 2013.

b. (1 point)

Discuss whether or not each of the legislative reform impacts has occurred.

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QUESTION 17	
TOTAL POINT VALUE: 3.5	**LEARNING OBJECTIVE: B3, B5**
SAMPLE ANSWERS	

Part a: 2.5 points

Disposal Rate Triangle (Closed Claim Count / Ultimate Claim Counts)

AY/Eval	12	24	36	48
2010	0.50	0.75	0.90	1.00
2011	0.50	0.75	0.95	
2012	0.50	0.80		
2013	0.60			

Incremental Closed Claim Counts for AY 2013 ((Ultimate Claims – Closed) x (1-%closed to date) x (incremental % closed)

AY/Eval	12	24	36	48
2010	100	50	30	20
2011	110	55	44	
2012	90	54		
2013	132	**44**	**33**	**11**

Incremental Paid Severity Triangle (Incremental Paid / Incremental Closed Claims)

AY/Eval	12	24	36	48
2010	10,000	15,000	20,000	25,000
2011	11,000	16,500	21,400	
2012	12,100	17,655		
2013	12,947			

Change in Incremental Severity Triangle

AY/Eval	12	24	36
2011/2010	10%	10%	7%
2012/2011	10%	7%	
2013/2012	7%		

AY 2013 Trended Incremental Severities

AY/Eval	12	24	36	48
2010	10,000	15,000	20,000	25,000
2011	11,000	16,500	21,400	
2012	12,100	17,655		
2013	12,947	**18,891**	**24,501**	**30,626**

Unpaid Claims Estimate (Incremental Closed Claims x AY 2013 Trended Incremental Severities)

AY/Eval	24	36	48	Total
Severity	18,891	24,501	30,626	
Counts	44	33	11	
Ultimate	831,197	808,528	336,887	1,976,613

Part b: 1.0 point

As can be seen from the increase in disposal rates in the latest calendar year, the reforms have reduced the amount of time that claims remain open. (see triangle in part a)

Inflation in 2013 was reduced from prior years (7% from 10%, see severity trend triangle) but it did not decrease by half, so the reforms only had a partial impact here.

EXAMINER'S REPORT

Part a

Candidates were expected to be able to use the given counts and paid triangles to assess how the recently implemented reforms have affected claim closure and payment patterns in CY 2013, and then use adjusted claim counts and severities to calculate an unpaid estimate. On the claim count side, this involves calculating cumulative disposal rates for CY 2013 and then applying those disposal rates to the AY 2013 ultimate claim counts to project incremental closed claims. For severity, this involves knowing how to calculate incremental severities, severity trend, being able to correctly select the right trend, and then applying the trend to CY 2013 severities to bring them up to AY 2013 levels.

1. Cumulative Disposal Rate Triangle – Most candidates were able to get full credit here.

2. Incremental Closed Claim Counts for AY – This part was a little more challenging and was often skipped. Common mistakes involved taking a historical average of the disposal rates rather than using the most recent diagonal and calculation or formula errors that resulted in a change in the overall ultimate claim count.

3. Incremental Paid Severity Triangle – This was somewhat challenging. Many candidates calculated the cumulative severity triangle instead of the incremental triangle.

4. Change in Incremental Severity Triangle – Candidates who attempted this part generally did well, but this was often skipped.

5. AY 2013 Trended Incremental Severities – This was challenging for a lot of candidates. The most common mistakes were selecting the wrong trend, not correctly applying the trend, using an average severity as the base instead of the latest diagonal, or just skipping this section entirely.

6. Unpaid Claims Estimate – This was somewhat challenging. Answers to this response were related to how the rest of the question was approached. One common mistake was to calculate paid LDFs and then calculate the unpaid estimate as ultimate severity times ultimate claims.

This was a challenging question overall. There were a significant number of candidates who used Frequency-Severity Method 1 or 2, which did not correctly adjust for the legislative reform.

Part b

Candidates were expected to be able to use the diagnostic severity trend and disposal rate triangles to assess whether the reforms were successful or not. Most candidates who answered this question did fairly well on part b. Some common errors were not calculating the inflation/severity trends correctly or not specifically stating that while the change in inflation was directionally consistent with the intent of the reforms, the reforms were still not fully successful.