

EXAM 6 – UNITED STATES, SPRING 2018

1. (3.25 points)

a. (0.75 point)

Briefly describe three differences between price optimization and traditional actuarial ratemaking.

b. (0.75 point)

Identify two pieces of information that could be used in a price optimized rating plan that might lead to prices that are unfairly discriminatory, and briefly describe one reason why the resulting prices might be unfairly discriminatory.

c. (0.75 point)

Briefly describe three constraints a regulator could impose on a price optimized rating plan.

d. (1 point)

Briefly describe four disclosures a regulator may require from an insurer when price optimization is used in a rate filing.

SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: SPRING 2018 EXAM 6U, QUESTION 1	
TOTAL POINT VALUE: 3.25	LEARNING OBJECTIVE: A1
SAMPLE ANSWERS	
Part a: 0.75 point	
Sample 1: <ul style="list-style-type: none">• Price optimization can be performed at the policy level (individual price optimization) whereas traditional ratemaking typically rates by class (groups of insureds with similar characteristics).• Traditional ratemaking only considers cost-based factors when determining rates whereas price optimization incorporates non-cost-based considerations like propensity to shop for insurance, price sensitivity, etc.• Deviations from indicated rates under traditional ratemaking are subjective and applied at class level; deviations under price optimization are objective (calculated by model output) and can be applied at policy level.	
Sample 2: <ul style="list-style-type: none">• Price optimization uses non-risk factors such as likelihood to shop for cheaper coverage.• Can depend on individual factors rather than risk groups with similar characteristics.• The optimization results from models like GLMs rather than actuarial judgment.	
Sample 3: <ul style="list-style-type: none">• Of the same group of risks, traditional charges the same premium while optimization can be different.• Optimization considers the retention and elasticity of the policyholder but traditional doesn't.• Optimization charges the max premium possible which traditional charges the actuarially sound rate.	
Sample 4: <ul style="list-style-type: none">• While traditional ratemaking is based only on expected value of future losses, expenses, and profit, price optimization also bases rates on:<ul style="list-style-type: none">○ Individual's price elasticity of demand,○ Individual's ability/propensity to shop for insurance, and/or○ Maximum amount an insurer can charge while maintaining a given retention level.	
Sample 5: <ul style="list-style-type: none">• Traditional ratemaking relies more heavily on qualitative judgment when pricing individual risks, whereas price optimization often incorporates quantitative models.• Price optimization may balance rate change with retention whereas traditional ratemaking adjust rate to cover all future expected loss and expense.• Traditional ratemaking is often incorporated at a less granular level than price optimization.	

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample 6:

- Price optimization quantifies consumer demand when selecting a rate that differs from the actuarial indication where traditional rate making uses actuarial judgment.
- Price optimization directly uses price elasticity of demand which traditional rate making does not.
- Price optimization may charge a different price to two identical risk profiles which traditional ratemaking does not.

Sample 7:

- Provides a more quantitative measure of rate adjustments as opposed to primarily qualitative in traditional.
- Accounts for price elasticity of demand in price optimization.
- Price optimization can look at optimized price for retention at an individual policy level.

Part b: 0.75 point

Sample 1:

- Elasticity of demand.
- Propensity to shop for insurance.
- Could result in different rates for two insureds with the same risk profile.

Sample 2:

- Could use price to see what the highest price a consumer is willing to pay for coverage.
- Can also check to see how often or how willing a consumer to shop around at renewal.
- The price from these factors would be different for the consumer that have the same underlying risk but one person is willing to pay higher than the other, so they will be charged more which is against rates being equitable.

Sample 3:

- Customer price elasticity.
 - Two insureds with the same risk characteristics but with different sensitivities to price could receive different rates which is unfair.
- Expected retention.
 - The company might charge different premium to an insured if they are more likely to renew even though they have the same risk characteristics as an insured that is less likely to renew.

Sample 4:

- Elasticity.
 - How much rate a customer is willing to accept before they will look for a new policy. Customers such as wealthy customers who may not care about price as much will pay a higher rate than their true cost based rate.
- Propensity to shop.
 - How often a customer is shopping their policy. Providing a lower rate to those customers so that they will stay with the company even if not cost justified.

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample 5:

- Price sensitivity of individual.
 - This could result in two insureds with the same risk profile having different prices.
- Number of complaints/questions.
 - This is unrelated to the actual loss cost of insuring individuals.

Sample 6:

- Price elasticity quantification.
- Tenure / # of years with insurer.
- This might lead to unfairly discriminatory rates if the price optimization suggests that a longer-tenured insured who is less likely to shop after experiencing a rate increase should have their rates increased based solely on the fact that they probably won't "shop" while having to do with the actual underlying risk (hence unfairly discriminatory).

Sample 7:

- Price elasticity of demand.
 - Using any variable at the individual level may result in two insureds with the same risk profile being charged a different rate, which would be unfairly discriminatory.
- Propensity to file complaints or ask questions of the insurer.
 - Insureds and consumers should be able to file complaints without any negative effects or different treatment by the insurer, as this would be unfairly discriminatory.

Part c: 0.75 point

Sample 1:

- Rate changes could be limited to move in between the current rate and the indicated rate, but always towards the indication.
- Optimization could only be allowed to be used on groups of at least a certain size.
- Ban price optimization all together.

Sample 2:

- Can only be used if results in a price decrease.
- Limit the amount of increase allowed (this can be the same as already in regulation or specific to PO).
- Disallow it completely and deem PO illegal in the state.

Sample 3:

- Restrict price optimization to be used only on specific classes of specific size.
- The resultant price/rate after using price optimization should lie between the current rate and indicated rate.
- The price optimization should only be used when the insurer is sure that it will maintain the cost-based differences.

Sample 4:

- Make it illegal to use price optimization in rating.

SAMPLE ANSWERS AND EXAMINER'S REPORT

- Limit use of price optimization (i.e., don't allow use of price elasticity).
- Only allow movement of indicated factors towards actuarially indicated ones.

Sample 5:

- Can only be used if would result in premium discounts.
- Can only move rate towards actuarial indication.
- Cap changes by certain %.

Sample 6:

- Only allow price optimization on renewals if it lowers insured's premium.
- Place caps on rating factors.
- Only allow price optimization in underwriting decisions not rating.

Sample 7:

- Only allow discounts, not surcharges due to optimization.
- Only allow for groups of a reasonable size, not individuals.
- Limit the amount that optimized rates may deviate from manual, actuarially-sound rates.

Sample 8:

- Forbid price optimization in rating plans.
- Only allow price optimization on new business, not renewals.
- Impose rate caps.

Sample 9:

- Limit the use to ratebook optimization. Cannot perform individual price optimization.
- Cannot include non cost-based adjustment in ratemaking.
- Require minimum number of risks in each classification group.

Sample 10:

- Ban the use of price optimization method.
- Require to justify the rate based on expected cost.
- Limit the rate change per year.

Part d: 1 point

Sample 1:

- If the resulting rate selected is different from the current indicated rate.
- The rating factors on which price optimization was used, and the magnitude of the effect it had on those rating factors.
- A summary of all new and existing customers with the same risk profile who are charged a different premium.
- The source of the data, data characteristics, and analysis methods used to arrive at the resulting prices.

SAMPLE ANSWERS AND EXAMINER'S REPORT

Sample 2:

- That price optimization is being used.
- The factors used in optimization.
- The proportion of insureds deviating from manual rates.
- The average amount that an insured not at full rates is deviating from full rates.

Sample 3:

- Whether price optimization was used.
- Which variables are impacted.
- Differences in premium between a new policyholder and an existing policyholder of the same risk profile and same coverage.
- Disclose the loss ratio distribution of the new rates.

Sample 4:

- Disclose the methodology.
- Disclose all adjustment factors.
- Disclose any use of non cost-based adjustment.
- Disclose the minimum number of risks in the classification group.

Sample 5:

- Rate impact on the overall book of business.
- Highest and lowest rate impact an individual receives due to price optimization.
- Complete list of variables used in the price optimization model.
- The price optimization model itself.

Sample 6:

- Disclose that price optimization is being used.
- Disclose which variables are considered in the model.
- Disclose which type of price optimization is being used (ratebook, individual, hybrid).
- Disclose the proposed vs. indicated rate.

Sample 7:

- If it is used on renewal business.
- Disclosure of the model and factors used.
- Projected premium changes due to use.
- If model is used to optimize profit or retention.

EXAMINER'S REPORT

Candidates were expected to know the objectives of and types of information used by price optimization, how price optimization differs from traditional ratemaking, and constraints/disclosures that may be requested by a department of insurance when evaluating a submitted rate filing.

SAMPLE ANSWERS AND EXAMINER'S REPORT

Part a

Candidates were expected to contrast price optimization and traditional actuarial ratemaking and identify differences in how rates are created.

Common errors include:

- Stating that traditional actuarial ratemaking uses a quantitative approach while price optimization uses a more qualitative and quantitative approach. Traditional actuarial ratemaking actually uses a more qualitative (not quantitative) approach when deviating from actuarial indicated rates.
- Providing separate answers that contained the same idea, in which case credit was awarded to one of the responses. For example, if both responses 'Differences from indicated rates are selected judgmentally in traditional ratemaking and objectively in price optimization' and 'Price optimization provides a more quantitative measure of rate adjustments as opposed to primarily qualitative in traditional' were given, credit was awarded for only one.
- Stating that price optimization, relative to traditional ratemaking, is more of a "black box", more complex, or less widely accepted.

Part b

Candidates were expected to identify two types of information used by a price optimization rating algorithm and explain how they may be unfairly discriminatory since they don't reflect differences in expected costs.

Common errors include:

- Stating two pieces of information (including examples such as age, gender, income, and credit score) that either are not unique to price optimization or do not explicitly identify that the actual information used is price elasticity of demand, propensity to shop, etc.
- Stating a propensity to file claims (as opposed to complaints).
Not stating that the information doesn't reflect expected cost or risk differences.

Part c

Candidates were expected to provide examples of constraints on a rating plan that are pertinent to price optimization.

Common errors include:

- Providing disclosures as opposed to constraints on the rating plan.
- Stating that price optimization can only be used (or is forbidden) for certain lines of business. This constraint isn't applicable since the specific filing (with a specific line of business) is the one under review.

Part d

Candidates were expected to identify disclosures pertinent to a rate filing that may have price optimization.

Common errors include:

- Stating a disclosure to customers that price optimization is used. This response does not

SAMPLE ANSWERS AND EXAMINER'S REPORT

apply to the use of price optimization in a rate filing.

QUESTION: SPRING 2018 EXAM 6U, QUESTION 2	
TOTAL POINT VALUE: 2	LEARNING OBJECTIVE: A3
SAMPLE ANSWERS	
Part a: 0.5 point	
<ul style="list-style-type: none">• A surplus lines transaction is a transaction in which a specially licensed surplus lines broker places insurance with and unauthorized/non-admitted insurer.• A surplus lines insurance transaction is one that is conducted in the non-admitted market after an insured has proven that they cannot obtain the insurance coverage in the admitted market.• Surplus lines transaction is in the non-admitted market for highly unique risks that have high limits or unique underwriting characteristics that can't be insured in the admitted market.• Insureds cannot get coverage in admitted market and are denied through "diligent search" due to high limits, difficult underwriting and high individualized risks. Then agents with special license place the policy with non-admitted market surplus line insurer.• Insurance is placed through a surplus lines broker with an insurer not authorized in state.	
Part b: 1 point	
<ul style="list-style-type: none">• Do not have to file rates: This benefits policyholder since it increases availability by allowing insurers to charge an adequate premium; otherwise they would have to decline the policy like insurers in the admitted market• It is not subject to rate regulation; this benefit customers as insurer may offer the insurance at cheaper price, given it saves on compliance cost• Do not have to file coverage forms: This benefits the policyholders since it allows insurers to be more flexible; insurers can draft coverage to suit the specific needs of the insured who likely has unique risks• Not eligible for guaranty funds, it has an incentive to be financially strong since guaranty funds are not available, therefore protecting policyholders• Guarantee Funds: Surplus Lines are exempt from guarantee funds so the costs of the funds are not passed down to policyholders• Involuntary markets/assigned risk plans – Insurers do not have to take on any bad surplus line risks, so no subsidizing which is good for the policy holder• It doesn't need to be licensed in the state – benefit is that policyholders can have more options from these non-admitted insurers	
Part c: 0.5 point	
<ul style="list-style-type: none">• There must be a "diligent search" to show that the product is unavailable in traditional insurance market• Agents must be responsible for the assessment of transaction• Still has to adhere to solvency requirements	