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Price Optimization

Casualty Actuarial & Statistical Task Force
NAIC 2014 Fall National Meeting
November 16, 2014

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Ratemaking Process – Step Back

- Regulatory Requirement – rates should be adequate, not excessive, or unfairly discriminatory
- Process (per EPIC Consulting)
  - Actuaries determine expected losses, expenses, and profit loading
  - Management makes adjustments to reflect business considerations, marketing, underwriting, and competitive conditions
  - Regulators permit insurers to reflect judgment and competitive environment in rates
  - Rate Filer (Insurer) must ensure that filed rates are adequate, not excessive, or unfairly discriminatory
  - Actuaries can opine that the filed rates meet statutory standard if reasonably close to actuarial estimate
    - Similar to reserving actuaries opining on held reserves

Price Optimization – defined by Earnix

- Systematic and statistical method to help an insurer estimate a rating plan factoring in a competitive environment
- Informs an insurer’s judgment when setting rates by producing suggested competitive adjustments to the actuarial indicated loss costs
- Utilizes a variety of applied mathematical techniques (linear, non-linear, integer programming) to analyze insurer’s data and other considerations
- Enables exhaustive search across thousands of pricing alternatives in multiple scenarios to assist insurers in comparative rate analysis
  - Improves efficiency of rate setting process;
  - Enables companies to more accurately predict the outcome of their rate decisions

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Price Optimization – Proponents

- Compare price optimization to traditional rating approach
  - Traditional approach: Base rate (loss cost) x adjustment factors
    - Adjustment factors based on age, gender, territory, make, and model year
    - Adjustments to rate based on market, regulatory, and other considerations
      - Filed rates may have been below actuarially derived loss cost
  - Price Optimization: Base rate (loss cost) x adjustments
    - Adjustments based on price optimization methodology
- Loss costs remain the foundation of the rate setting process
  - Price optimization factors typically are designed to stay within certain constraints and may increase or decrease the indicated loss cost
  - Actuarial standards still apply to the loss cost and potentially to the constraints
- Personal lines is a very competitive market as evidenced by advertising spent by large insurers
  - Multi channel advertising though: Internet, television, radio, etc.
  - Competition has decreased the size of the assigned risk markets

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Price Optimization – Issues

- Price Optimization has generated controversy among some regulators and consumer advocates
  - Do the resulting rates from price optimization models violate the requirement of: “not excessive nor unfairly discriminatory”?
- Relies on an analysis of the elasticity of demand of customers to raise prices above the cost-based estimate on some policyholders who are known to be less likely to change insurers when price increases are below a certain threshold
  - Great inertia in the personal lines market (people tend not to shop much), as evidenced by recent survey
  - Concern is that price optimization tries to find these policyholders
- Rates should be based on the cost of transferring risk, not ability or willingness to pay

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Price Optimization – Questions

- How does price optimization fit within the actuarial profession?
  - Cost-based resides with actuaries
  - Where does the demand and competitive analysis reside?
  - Should actuaries be involved in price optimization at all?
- Is price optimization ratemaking or NOT ratemaking?
  - Actuarial Code of Conduct (Precept 1?)
- Should the actuary consider outcomes other than cost when making rates?
- Is price optimization consistent with:
  - Statement of principles on ratemaking?
  - Actuarial Standards of Practice?
  - Actuarial practice notes (ratemaking practice note does not exist!)?

Price Optimization – Questions

- Does price optimization cross the lines into not excessive nor unfairly discriminatory?
  - Has it already or is there a threshold?
  - Is the threshold or constraint across the entire book or vary by class?
- What can and should be reviewed to ensure this line has not been crossed?
  - Complexity of the rating model and variables
    - Constraint utilized in price optimization five percent of indicated loss cost or 25 percent?
  - Dispersion of final rates relative to indicated loss costs
    - Are some coverages more affected than others?
  - Analysis of dispersion of final rates by geographic region
  - Differential between retention and new business rates
- Should the actuary be involved in price optimization with regard to final rates?

Price Optimization

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