Price Optimization with Imperfect Information

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BACKGROUND

Price Optimization provides the opportunity for carriers to significantly improve their profitability, growth or other business objectives.

However, carriers face significant challenges in getting the maximum benefit from price optimization:

- The data, modeling and reconciliation work required using traditional optimization techniques is time consuming; carriers are forced to choose between (1) taking significant risks with model & data quality to improve implementation timeframes or (2) slow rollouts.
- Outside of a randomized price test, elasticity estimates will be biased due to endogeneity bias, and carriers have few to no ways of assessing the magnitude of that bias in their models or minimizing it.
- Finally, carriers are often stuck with several significant data issues – difficulties obtaining good quality quote data, schema matching quotes to in-force, or low data volumes in smaller jurisdictions.

AGENDA

- Traditional price optimization:
    - Quick & Wrong: How modest errors in data and models have significant negative impacts on the prices you set.
    - Slow & Right: What checking you should do, and how long most carriers take if they do that.
- Rapid price optimization: How do you get Quick & Right?
- Endogeneity bias:
    - Some competitor price based models have produced errors of 300% in price elasticity when evaluated with a price test even after the addition of every reasonable instrumental variable and interaction available.
    - Others have much more modest errors.
    - If you're in the 'no price test thanks' camp, how do you evaluate the likely bias in your model?
    - How can you go about reducing it?
- Data issues:
    - Modeling price elasticity with no/poor/hard to match quote data.
    - Modeling in jurisdictions with low data volume by:
        - Using industry data or models
        - Clever extrapolation from higher volume jurisdictions
        - Together with credible data in that jurisdiction