Finding a Balance Between Rate Stability and Adverse Selection Avoidance

2009 CAS Ratemaking and Product Management Seminar

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Finding a Balance Between Rate Stability and Adverse Selection Avoidance

Outline

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Background

- CAS Ratemaking Principle #3 – A rate provides for the costs associated with an individual risk transfer

- Rate should vary with individual risk characteristics

- Not just theoretical concept, but has practical implications – adverse selection

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Background

- Adverse selection – my definition – the increased likelihood of writing risks at inadequate rates due to using a less refined plan than competitors

- Simple example –
    * I have one rate of $150 for all insureds
    * Competitor has two rates - $200 for drivers under age 25 and $100 for others

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Background

- Results –

  * Competitor writes all non-youthfuls b/c of lower rate ($100 vs. $150)

  * I write all youthfuls b/c of lower rate –

  ($150 vs. $200)

- Bottom Line – I have written risks at $150 that competitor has priced at $200

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Background

- Assuming competitor's more-refined rating plan is correct – I am underpriced

- Reality –

  * Much more complex – numerous rating variables in Private Passenger Auto with many categories

  * Differences not as drastic

- Upshot - # pricing points has increased dramatically in recent years – segment or die!!!

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Specific Case Study

- Small PPA (Private Passenger Auto) carrier with traditional 3-tier rating plan based on driving record and insurance history

- Developed 15-tier plan based on market study
    * Several new rating variables –
        - Credit   - Prior BI Limits   - Not-at-Faults
        - Homeowner Discount   - Avg Household Factor
        - College Grad Discount   - Gender Differences All Ages

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Specific Case Study

- Incorporating all the new rating variables resulted in significant rate dislocation for the existing book – in a "revenue neutral" filing, 15-20% of the book would receive a rate increase of 20% or more!!

- Side note – 15-20% of book received a decrease of 20% or more – not as much concern!!!

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To Cap or Not to Cap – That is the Question

- Argument 1 – aka Alvin Actuary's Analysis –
  - Let it Rip – Don't cap –
    - Capped premiums mean inadequate rates for significant portion of book
    - Policies receiving large increase are seeing their premiums come in line with market – they may shop but not leave
    - Implementation Issues – stay tuned!!!

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To Cap or Not to Cap – That is the Question

- Argument 2 – aka Peter Product's Prognosis –
  - Don't Upset the Book – Cap –
    - Small company – anything that hurts retention drives up the expense ratio too much, given relatively high fixed expenses
    - Not enough marketing presence to offset the policy drain if we implement the full effect of the new rating plan
    - Understand the impact of adverse selection on the loss ratio but feel the impact of poor retention would be worse overall on the bottom line

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Capping 101

- Decision – Cap!!

- How to Cap – Base Rule – Cap at 20% for 3 terms

- Simple Example – policy has premium of $500 under prior rating plan. Premium cannot exceed $500 X 1.20 = $600 under new rating plan.

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Capping 101

- Becomes Complex Very Quickly

- Prior Simple Example – $600 under new rating plan – adds identical vehicle – clearly $600 is not an appropriate premium for the new risk - $1200 is appropriate

- Other common situations – add/remove driver, incur driving activity

- Simplified – capping does not apply when newly incurred driving record point

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Capping 101

- Handle with Capping Factor

- Prior Simple Example –

    * Prior premium was $500

    * New premium would be $800 w/o cap

    * Generate actual new premium by way of
        capping factor = $500 X 1.2 divided by $800 =
    $600/$800 = 0.75

- 0.75 applies throughout entire term

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It's Not That Easy!!!!

- The capping factor of 0.75 is the ratio of $600/$800 where $800 is a theoretical premium

- System did not store the theoretical premium – mid-term changes did not reflect the capping factor

- Capping factor had to be hard-coded

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It's Not That Easy!!!!

- Other difficulties –

  - When policy changed after renewal notice was sent but before end of current term – current premium changed, so maximum premium in renewal term changed – renewal had to be re-sent, sometimes late

  - Policies not subject to cap at first renewal under new rating plan should not have been subject to capping at any point in time but were incorrectly capped upon subsequent renewals

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It's Not That Easy!!!!

- The previous discussion was just on base case

- Different states had different requirements –
  - One increase per year
  - Cap decreases as well as increases
  - Tier assignment could not change
  - Cap set below 20%, which meant more than three
    terms were needed to get to final rate

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Results

- For the better part of a year, checked all capped policies – pulled entire actuarial department away from other activities – opportunity cost of not making rate filings

- Policyholders received renewal notices late and then were hit with numerous premium revisions – negative impact on retention –

   Was it worse than going all the way???

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Reflections

- Cost-Benefit Analysis would be interesting

- Hindsight always 20/20 – in this case????
  - Arguments for capping still make sense from practical business standpoint
  - Considerations –
    - Start with one small state and make sure it's working
    - Alternative – divide new rating components into two groups and make two filings – DOIs granted approval easier than we anticipated – overall less work and likely higher retention