A1 Risk Classification Statement of Principles

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Definition: Risk classification

- Grouping of risk with similar risk characteristics (expected cost)
- Purpose: Setting prices
- Challenge is to identify the appropriate risk characteristics to classify the risk
- Especially useful when there are no retro/exp rating

3 Primary Purpose

1. **Protect insurance system's financial soundness**
   - Guard against adverse selection
2. **Enhance fairness**
   - Price reflect differences in E[costs]
   - Insured within same class should have ≈ E[costs]
3. Permit **economic incentives to operate** and encourage widespread **availability of coverage**
   - Profit incentives:
     - Insurer makes a profit on all insured -> they'll write all risk
   - Note that the cost of classification should be < reduction in E[costs] for the lower cost class

5 Principles to achieve the 3 Primary Purposes

Risk classification system should:

1. Reflect E[costs] **differences**
2. **Distinguish** among risks on the basis of *relevant* **cost-related factors**
3. Applied **objectively**
4. **Practical** and **cost-effective**
5. **Acceptable** to the *public*

9 Considerations in design

1. Underwriting

Review risk for eligibility or schedule rating
Should be ⊥ of *classification* system criteria

2. Marketing

Need to be able to sell to that type of customer

3. Program Design

The program design differs based on some of the considerations below:

Degree of choice available

- Voluntary vs compulsory
  - Compulsory: program's main goal is to get everyone on the plan; don't have to worry about adverse selection
  - Voluntary: buyer has more choice so risk classification helps address the 3 principles

Experience based pricing

- If rating plans price based on loss experience after insured is in the plan, initial classifications doesn't need to be as sophisticated

Premium payer

- If someone else is paying the premium rather than the insured, they're less likely to minimize their premium; less sophisticated risk class is more appropriate

4. Statistical Criteria Memorize

- **Homogeneity**: E[Costs] $\in$ a class should be $\approx$ with no clear sub classes with different loss potential
- **Credibility**: Class large enough to be statistically credible
- **Predictive Stability**: Prices should be responsive to Δ in E[Loss] by class without being too volatile

5. Operational Criteria Memorize

- **Expense**: Cost of obtaining/maintaining the data
- **Consistency**: Shouldn't have to reclass frequently
- **Availability**: Might have to add deductibles, limits or exclusions to make price more affordable for certain class
- Avoid *extreme* price **discontinuities** between classes
- **Absence of ambiguity**: Classes should be *exhaustive* and *mututally exclusive*
- **Minimize ability for Manipulation**
- **Measurability**

6. Harzard Reduction Incentives

7. Public Acceptability (Social Criteria)

- ***Not* differentiate unfairly** among risks
- Based on clearly **relevant data**
- Respect personal **privacy**
- Risks tend identify naturally with their classification

8. Casuality (Social Criteria)

Clear cause & effect will increase public acceptability; Nice to have but not a criteria

9. Controllability (Social Criteria)

Encourages risk mitigation but subject to manipulation; Nice to have but not a criteria

Evaluating a rating variable

Likely exam question will be to evaluate a new rating variable against the considerations above

Good prior questions

2008 Q2 2013 Q8