Consumer Perspectives on

Risk Classification: Big Data and Price Optimization

Casualty Actuarial Society
Ratemaking and Product Management Seminar

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The Center for Economic Justice

CEJ is a non-profit consumer advocacy organization dedicated to representing the interests of low-income and minority consumers as a class on economic justice issues. Most of our work is before administrative agencies on insurance, financial services and utility issues.

On the Web: www.cej-online.org

Why CEJ Works on Insurance Issues

Essential Financial Security Tool for Individual and Community Economic Development: CEJ Works to Ensure Access and Fair Prices for These Essential Products and Services, particularly for Low- and Moderate-Income Consumers.

Primary Institution to Promote Loss Prevention and Mitigation: CEJ Works to Ensure Insurance Institutions Maximize Their Role in Efforts to Reduce Loss of Life and Property from Catastrophic Events.

Overview

1. Public Policy Goals and Insurer Purposes of Risk Classification
2. Big Data Mining and Price Optimization – “Not Risk Classification”
3. What Is a Risk Classification?
4. Pricing Judgments
5. Confidence Intervals
6. Undermining Public Policy Goals
7. Introducing Modeling Risk – Lessons from AIG Financial Services
8. Disparate Impact and Unfair Discrimination

Public Policy Goals of Risk Classification

1. Protect Insurer Financial Condition by Minimizing Adverse Selection

2. Promote Loss Mitigation by Providing Incentives for Less Risky Behavior and Disincentives for More Risky Behavior

   Foundation of Risk Classification is Cost-Based Pricing

   Foundation of Statutory Standards for Rates – "Not Unfairly Discriminatory" – is Cost-Based Pricing

Price Optimization – Big Data and Modeling of Rates/Prices

Old Old School Big Data: Advisory Organization Loss Costs. Oversight of Data, Advisory Organization, Analytic Techniques, Filings, Complete Transparency

Old School Big Data: Credit-Based Insurance Scores. Limited Consumer Protections for Completeness and Accuracy of Data via the FCRA, Limited Oversight of Modelers and Models, Limited Transparency

New School Big Data: Predictive Modeling of Any Database of Personal Consumer Information. No Consumer Protections for Completeness and Accuracy of Data, No Oversight of Modelers and Models, No Transparency to Consumers

Insurer Justification for Price Optimization

1. Insurers have always deviated from indicated rates for a variety of competitive and business reasons, relying on management judgment for such deviations. PO is simply a more scientific, data-driven approach to employing such management judgment.

2. Rating factors are factors related to costs of transfer of risk – loss costs or expenses. Since PO is not related costs of transfer of risk, it is not a rating factor and, consequently, not subject to regulatory oversight.

3. There is a statistical confidence interval around the indicated rate and any selection based on management judgment within that confidence interval is actuarially sound.

Insurers' Historical Deviation from Indicated Rates

- Historical deviation from rates has typically been an insurer selecting a lower rate than the indicated rate.

- Regulators have not routinely approved insurer requests for, say, a 20% rate increase when the insurer's indication is for a 5% rate increase.

- Historical deviation from indicated rates has almost always been a lower selected than indicated rate and the lower selection has been across broad risk groups

Price Optimization is Risk Classification

- Definition: A risk classification/rating factor is any characteristic of the consumer, vehicle or property utilized by the insurer to determine the premium charge.

- Rating factors must be risk classifications to comply with statutory rate standards; that is, a rating factor must related to expected costs of the transfer of risk – expected losses or expenses to issue and administer the policy.

- PO is clearly a rating factor as it is based on individual consumer characteristics and is applied to individual consumers to determine the premium charge for that consumer. At once, it is now obvious that PO is an impermissible rating factor because it is not related to the cost of transfer of risk,

“PO Not Applied to Individual Consumers, But to Risk Classes”

- Modeling of Rates and Ultra-Refined Risk Classification Has Created Tens of Millions of Rating Cells Within A State – Far More Rating Cells Than Policyholders

- Allstate Complementary Rating Group includes factors based on birthdates – two consumers otherwise identical but born a day apart are treated differently.

- Small Insurer Filing in Midwest State: Rating Plan with millions of rating cells for a book of business of 25,000 policyholders. “Geo-Demographic Data” for Creating ZIP Code Factors. “1,044 Raw Demographic and 600 industry NAICS variables.”

“Adjustments Are Within the Confidence Interval”

- A confidence interval is created around the output of a statistic or statistical model. The size and nature of the confidence interval is determined by inputs chosen by the modeler, including the type of probability distribution used and the size of the data set used (e.g., number of observations), among many other factors.

- Ratemaking has been transformed from actuarial analysis of historical experience into a modeling exercise. Modeling is highly subjective and the results of the underlying ratemaking model can be manipulated.

PO Undermines Public Policy / Insurer Goals of Risk Classification

- Undermines Risk Classification as Tool to Assure Financial Condition of Insurer – Replaces traditional and proven actuarial analysis for rates with modeling of prices. Introduces modeling risk to financial condition of insurers.

- For example of modeling risk, AIG Financial Services risk modeling indicated a 98.15% probability that AIG would not lose money on credit default swaps.

- Undermines Loss Mitigation Role of Insurance by Making Pricing More Opaque to Consumers and Less Related to Activities a Consumer Can Take or Avoid to Impact Pricing.

PO and Big Data Models Lack Fundamental Consumer Protections

- Accuracy and Completeness of Data
- Oversight of Data Bases
- Disclosures to Consumer About Data Used and How Used
- Consumer Ability to Challenge False Information
- Regulators' Knowledge Of and Capability to Provide meaningful Oversight
- Discrimination Against Low-Income and Minority Consumers

Disparate Impact and Unfair Discrimination

- PO based largely on price elasticity of demand – willingness and ability of consumer to shop around in face or increase – as well as presence or absence of competitors for the consumer.

- Low-income and minority consumers more likely to be serviced by "non-standard" insurers and live in areas with fewer active standard and preferred insurance options.

- If a statistical relationship is justification for use of a risk classification, it follows that the same statistical relationship test is a valid measure of discrimination on the basis of protected classes.

Disparate Impact and Unfair Discrimination

- As a public policy matter, if insurers are prohibited from intentionally discriminating on the basis of race, it follows that non-intentional discrimination that has the effect of discriminating on the basis of race is also prohibited – unless there is a business justification and no less discriminatory alternative.