



Disparate Impact – The Impact of the Social Justice Movement on Insurance Rating

Buckeye Actuarial Continuing Education Spring Conference

April 19, 2021

Roosevelt C. Mosley, Jr., FCAS, CSPA, MAAA

Principal & Consulting Actuary

The Impact of the Social Justice Movement on Insurance Rating

- Guiding principles for ratemaking
- How is unfairly discriminatory defined?
- Implications for insurance ratemaking
- Examples of state legislature actions

Guiding Principles for Ratemaking

- **State Rating Laws** – rates are to be not inadequate, not excessive, and not **unfairly discriminatory**
- **Statement of Principles Regarding Property and Casualty Insurance Ratemaking** (rescinded by the CAS Board of Directors)
 - *A rate is reasonable and not excessive, inadequate, or unfairly discriminatory if it is an **actuarially sound estimate of the expected value of all future costs associated with an individual risk transfer.***
- **Actuarial Standard of Practice No. 53** – “Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Retention”
- **Actuarial Standard of Practice No. 12** – “Risk Classification”
 - *Rates within a risk classification system would be considered equitable if differences in rates reflect material differences in expected cost for risk characteristics. In the context of rates, the word fair is often used in place of the word equitable. (3.2.1)*
 - *While the actuary should select risk characteristics that are related to expected outcomes, it is not necessary for the actuary to establish a cause and effect relationship between the risk characteristic and expected outcome in order to use a specific risk characteristic (3.2.2)*

Unfairly Discriminatory?

- Many different terms are used interchangeably
 - Unfairly discriminatory, disparate impact, disparate treatment
- Terms are defined differently in different settings
 - Legal vs. actuarial vs. the general public
- Intent vs. outcomes
- Objective vs. subjective

What Does This Mean For Insurance Pricing?

1. Do nothing
2. Exclude risk characteristics from rating plans
3. Control for protected characteristics in pricing
4. Adjust final pricing outcomes for protected classes

Exclude Risk Characteristics from Rating Plan

- Prohibit certain risk characteristics determined to be problematic from being used in developing premiums
- Considerations
 - Approach taken related to protected classes
 - Does it really address proxy discrimination?
 - Applied in some states (gender, credit score)
 - What is the ultimate criteria for exclusion?
 - Does this result in achievement of the ultimate goal?

What Does This Mean For Insurance Pricing?

- **Control for Protected Risk Characteristics**
 - Include protected characteristics in pricing models to control for proxy discrimination effect of other rating variables
 - Considerations
 - Systematically controls for proxy discrimination
 - Protected class data
 - Only directly applicable to certain model types
- **Evaluate Final Pricing Outcomes for Protected Classes**
 - Statistical measures can be calculated to determine if a rating plan has a disparate impact on protected classes. If it is determined, adjustments can be made to the rating plan to mitigate the impact
 - Considerations
 - Allows insurers to continue using complexity in risk segmentation
 - Shifts the focus from regulation of inputs and process to regulation of output
 - Requires collection of protected class data

Examples of State Legislature Actions

Examples of State Legislature Actions

- Ban of credit based insurance score
 - Maryland Senate Bill 552
 - Maryland House Bill 221
 - Washington Senate Bill 5010
 - Louisiana House Bill 467 and Senate Bill 55
- Oregon House Bill 2043: Insurer may only consider the following information when determining rates
 - History of safe driving
 - Number of miles driven
 - Driving experience
 - Any other information permitted by rule by the Director of the Department of Consumer and Business Services

Colorado Senate Bill 21-169

- INSURER SHALL NOT
 - CONSIDER AN INDIVIDUAL'S RACE, COLOR, NATIONAL OR ETHNIC ORIGIN, RELIGION, SEX, SEXUAL ORIENTATION, DISABILITY, OR TRANSGENDER STATUS IN ANY INSURANCE PRACTICE
 - DIRECTLY OR INDIRECTLY USE ANY EXTERNAL CONSUMER DATA AND INFORMATION SOURCE, ALGORITHM, OR PREDICTIVE MODEL THAT UNFAIRLY DISCRIMINATES AGAINST AN INDIVIDUAL BASED ON AN INDIVIDUAL'S RACE, COLOR, NATIONAL OR ETHNIC ORIGIN, RELIGION, SEX, SEXUAL ORIENTATION, DISABILITY, OR TRANSGENDER STATUS.
- Considerations
 - Insurer must attest to the statements above
 - Insurer must assess whether external data sources result in proxy discrimination, and if so, what steps are being taken to mitigate
 - Definition of external data is broad, no definition of proxy discrimination
 - Applies to any insurance practice

Bias Mitigation Techniques

Bias in Data: Pre-process

- Reweighting
- Disparate Impact Remover
- Optimized Preprocessing
- Learning Fair Representations

Bias in Models: In-process

- Adversarial De-biasing
- Prejudice Remover
- Meta Fair Classifier

Bias in Predictions: Post-process

- Reject Option Classification
- Equalized Odds
- Calibrated Equalized Odds

Poll Question

What Do You Think This Means for Insurance Pricing?

1. Do nothing
2. Exclude risk characteristics from rating plans
3. Control for protected characteristics in pricing
4. Adjust final pricing outcomes for protected classes

The Social Justice Responsibility of Insurance Companies

- Insurers should be at the table
- Insurers should endeavor to be influential in the solution: The approach should not just be a defense of the status quo, but a commitment to collaboration to define the problem and work towards a solution
- Otherwise, the solution ends up in the hands of others, and we most likely will not like that final outcome

Roosevelt C. Mosley, Jr., FCAS, CSPA, MAAA

309.807.2330

rmosley@pinnacleactuaries.com

