



June 28, 2024

Philip Barlow
Associate Commissioner for Insurance
District of Columbia
Department of Insurance, Securities and Banking (DISB)
1050 First Street NE, 801
Washington, DC 20002

Re: Report on Market Conduct Examination—Evaluating Unintentional Bias in Private Passenger Automobile Insurance (Market Conduct Review)

Dear Philip Barlow,

On behalf of the Property and Casualty Committee on Equity and Fairness (the Committee) of the American Academy of Actuaries,¹ I appreciate the opportunity to offer these written comments regarding the draft market conduct report, *Evaluating Unintentional Bias in Private Passenger Automobile Insurance*, recently released by the DC Department of Insurance, Securities and Banking (DISB). The development of this report has taken considerable time and effort, and the Committee commends DISB for undertaking it. We are pleased to have been among those stakeholders providing comments to DISB in the early stages of development and look forward to further engagement with DISB as it evaluates next steps. We also commend the insurance companies that provided the data, and O’Neil Risk Consulting and Algorithmic Auditing (ORCAA), which provided the analytic services.

The length of time it has taken to complete this work is indicative of the importance of the questions under consideration. Further, properly gathering, reviewing, and drawing conclusions about insurance data can be a time-consuming endeavor. These are tasks and challenges that are quite familiar to actuaries. The report also notes that DISB had undertaken earlier work that looked at insurer rating models and concluded that those models were “working as intended and did not include any factors that would directly introduce bias into the rating process.” However, left open was the question of whether unintentional bias was present. The motivation for this additional effort as stated within the report indicates that:

- “DISB wanted to explore whether the use of certain information by auto insurers in the application and underwriting process may cause unintentional harm to those who are Black, indigenous, people of color, or belong to another protected class of Washington, DC consumers.”

Also noted within the report is that DISB has had a longstanding practice of reviewing private passenger insurance rates and that those reviews held rates to the existing statutory standard that rates not be excessive, inadequate, or unfairly discriminatory.

¹ The American Academy of Actuaries is a 20,000-member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

Considerations

From our initial review of the report, the Committee is offering the following for your consideration:

- We encourage DISB to define the aforementioned term “harm,” which is not defined specifically in the report. It is unclear whether DISB is evaluating harm within the context of statutory standard or some alternative standard. Charging one group a higher average premium than another does not, in itself, constitute harm in either a legal or actuarial context. In that vein, we also encourage DISB to consider defining the term “bias.”
- The report uses the term “black/white premium gap.” We suggest a different term—“average premium difference by race.” This latter term makes clear that the differences are defined by averages. There may be additional insight gained from including a view of the distributions of premiums by race.
- The report uses the term “causal” or “causal factors.” Because few if any rating variables within private passenger auto insurance are causal, we suggest using the term “explanatory factors” because the report seems to be seeking to explain the reason for the average premium differences by race. As DISB evaluates terminology, we encourage consideration of a 2022 Academy issue brief, [*An Actuarial View of Correlation and Causation—From Interpretation to Practice to Implications*](#).
- As the report notes, differences in premiums by race were not wholly explained by the small subset of factors selected to be studied. DISB acknowledges “there may be additional legitimately explanatory factors that we did not capture, or we did not have sufficient information to evaluate the explanatory impact.” Additional explanatory factors may include policy characteristics like deductible selection and coverage selection (e.g., full coverage or liability coverage only), as well as vehicle and driver characteristics including type of vehicle, annual mileage, telematics discounts, defensive driver discounts, and others that are commonly used in rating and can have a significant impact on a policyholder’s premium. If included in the analysis, these variables would likely provide a more thorough explanation of premium differences.
- The report also notes that there is an average loss difference by race. The Committee has encouraged and supported the inclusion of loss data in the study. The overriding reason to include loss data is that insurance ratemaking relies on expected costs as a key driver of rate levels and rate differentials within a classification plan. Setting premiums based on expected losses and expenses is the definition of “not unfairly discriminatory” used by companies and commonly referred to as “cost-based” pricing. With that said, we caution against drawing broad conclusions about the profitability of one group over another without clear understanding of whether the premium and loss data are well aligned.
- The use of variable binning in this report may be a useful area for potential future review. The report opts to use binning for variables like Driving Record, Driver Age, Vehicle Age, and Coverage Limits in the “Explanatory Factors” regression model. If bins are oversimplified, this practice may underestimate the impact of an explanatory factor, particularly in the tails. For example, driving record is binned into “major or DUI,” “minor or at-fault,” or “clean record.” In practice, surcharges are typically applied incrementally for each accident or conviction, resulting in a multiplicative effect for each additional event.

- Variable interactions may also be a useful area for potential future review, if not already considered. In practice, automobile insurance rating plans will typically include interactive effects like “Age x Gender x Marital Status.” Interactions also align with frequently seen effects, such as young unmarried male drivers being riskier. These interactive effects provide additional predictiveness for insurers and may be useful for this model.
- It would be helpful to understand how the report treats geodemographic, first name, or surnames that are missing or cannot be matched. From the Voicu paper cited in the appendix: “The BIFSG formula requires that all input probabilities are non-missing. However, to the extent that this requirement results in significant data attrition, it may be desirable to enhance the algorithm so that it also creates proxies when one or more of the input probabilities are missing.” Assuming there was no enhancement to the algorithm, the report does not provide information on the extent of the data attrition, any analyses done to remediate the attrition, or its potential impact on the model and results.

The report provides a number of conclusions—including that a difference in premiums by race is not sufficient to establish bias—and additional questions. Should DISB deem that additional study is warranted, we are available and willing to provide ongoing assistance.

Finally, the links below provide access to our previous comments to DISB. Later this summer, the Academy’s Data Science and Analytics Committee will be publishing a paper on algorithmic bias relevant to actuarial practice, which will also be of interest to the DISB in its efforts to evaluate unintentional bias in private passenger automobile insurance. We will share the new paper when it is published.

- [July 8, 2022, comment letter](#)
- [August 22, 2022, comment letter](#)
- [January 20, 2023, comment letter](#)

Thank you again for the opportunity to provide these comments. If you have any questions or would like to discuss further, please contact Rob Fischer, the Academy’s casualty policy analyst, at fischer@actuary.org.

Sincerely,

Susan Kent, MAAA, FCAS
Chairperson, Property and Casualty Committee on Equity and Fairness
American Academy of Actuaries