

# EVALUATING UNINTENTIONAL BIAS IN PRIVATE PASSENGER AUTO INSURANCE REPORT

**Maryland Private Passenger Automobile Insurance Affordability Study Workgroup**

September 24, 2026

DISB | GOVERNMENT OF THE DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

# OVERVIEW

- In 2020, Commissioner Woods created DISB's DEI Committee to engage in a wide-ranging review of financial equity and inclusion and to make recommendations to remove barriers to accessing financial services.
- DISB staff developed draft initiatives related to insurers use of factors like credit score, education, occupation, home ownership, and marital status in ratemaking and underwriting.
- Stakeholder feedback on this draft initiative concluded that data was necessary to properly address this initiative
- Staff conducted research and contacted subject matter experts before concluding that relevant data was not readily available

# MOTIVATION

- 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.
- To examine rates using methodologies that have been developed more recently to evaluate potential bias in the use of algorithms.
- To determine the presence of unintentional bias.



# BACKGROUND

- We determined this initiative will be deliberative and transparent to ensure the resultant data would address the issue of unintentional bias.
- We also decided to initially focus on private passenger automobile insurance as that is a line of insurance that affects many District consumers and has previously had questions raised about the use of non-driving rating characteristics.
- DISB engaged the services of O'Neil Risk Consulting and Algorithmic Auditing (ORCAA) to assist the Department and provide subject matter expertise.
- DISB held a public hearing, public meetings, produced exposures for public comment and engaged subject matter experts along the way.



# APPROACH

DISB conducted a data call and reviewed auto insurance applications from consumers in Washington, DC.

- All carriers writing private passenger auto policies in the District of Columbia submitted data from recent applications to DISB for testing.
- DISB was not looking to determine which pricing or rating criteria might be introducing unintentional bias into the rates, but rather could the differences in premiums be explained by looking at factors that are not considered reflective of unintentional bias.
- DISB did not require detailed information about carriers' underwriting or pricing models, such as a description of the models' structures, lists of variables used, and their weights. The focus was on the outcomes of these models.
- BIFSG methodology + outcome of models were used.

# METHODOLOGY

## Bayesian Improved First Name Surname Geocoding (BIFSG)

- A forerunner of this methodology, BISG, was developed to "help U.S. organizations produce accurate, cost-effective estimates of racial and ethnic disparities within datasets".
- U.S 2010 census data leveraged to guess an individual's self-reported race/ethnicity based on their name and address. The Census publishes tables on the demographics of census blocks and common surnames.
- The BIFSG methodology incorporates another piece of information — the individual's first name (i.e., "F" in "BIFSG") – and another application of Bayes' theorem to further refine the race/ethnicity inference.

# 2010 CENSUS DATA CATEGORIES USED

- Hispanic,
- non-Hispanic Black,
- non-Hispanic white,
- non-Hispanic Asian or Pacific Islander (“API”),
- non-Hispanic American Indian or Alaska Native,
- Multiracial,
- Other

The analysis used the largest four categories, the last three categories combined for less than 1% of the data.

# OUTCOMES INVESTIGATED

| Outcome Data | Consumer harm questions | Population |
|---|---|---|
| **Quotes ($)** | Are certain groups being quoted higher prices? | Interested potential customers |
| **Underwriting decision (decline/ accept/ tier/class)** | Are certain groups declined more often, or more likely to be placed in an expensive tier/company? | Applicants |
| **Premium ($)** | Are certain groups paying higher premiums? | Customers |
| **Loss ratio (%)** | Are certain groups charged more in premium, relative to the insurance losses they sustained? | Customers |

# OBSERVATION

**Quotes**

"Are certain groups being quoted higher prices?"

Our review showed that quoted prices were consistent with premiums.

While we did not identify a bias issue with quote systems, there was information identified that might warrant a separate review:

- Quotes given by agents were lower on average than quotes given through other channels (e.g., online), and the race gap is smaller for quotes given by agents.
- Black consumers are less likely than others to get quotes through agents



# OBSERVATION

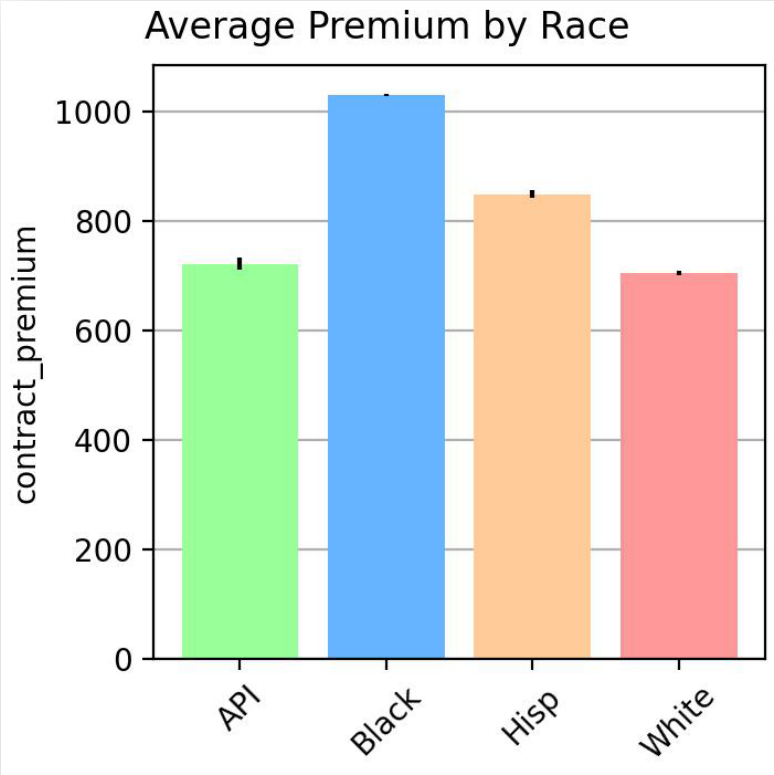
**Underwriting Decision**

"Are certain groups declined more often, or more likely to be placed in an expensive tier/company?"

- What we discovered with underwriting decisions is that there are very few actual declinations to offer coverage. Typically, a quote will be given for almost all risks – with higher premiums for drivers deemed riskier. We therefore did not pursue this outcome further.

# PREMIUMS

## Are certain groups paying higher premiums?



# LOSS RATIO

## Are certain groups charged more in premium, relative to the insurance losses they sustained?

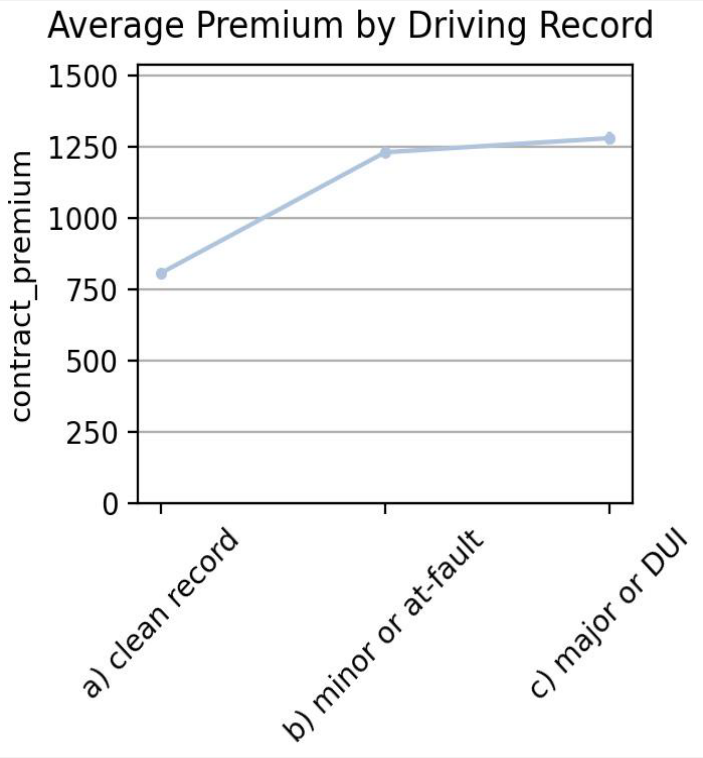
| inferred_race | Avg Premium ($) | Avg Loss ($) | Loss/Premium |
|---|---|---|---|
| API | 734.54 | 279.76 | 0.38 |
| Black | 1024.42 | 611.54 | 0.60 |
| Hisp | 858.82 | 370.32 | 0.43 |
| White | 709.96 | 256.49 | 0.36 |

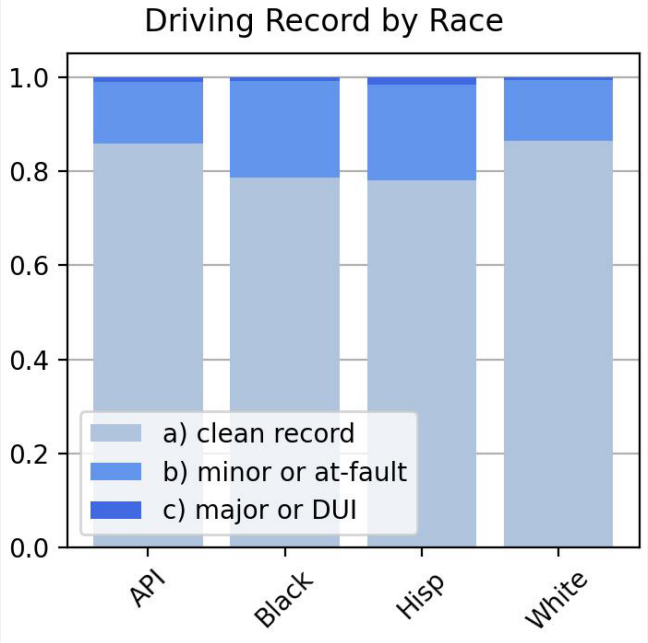
# PREMIUMS AND LOSSES

- Black drivers pay higher premiums vs other drivers. However, losses for Black drivers are similarly higher than losses for other drivers.

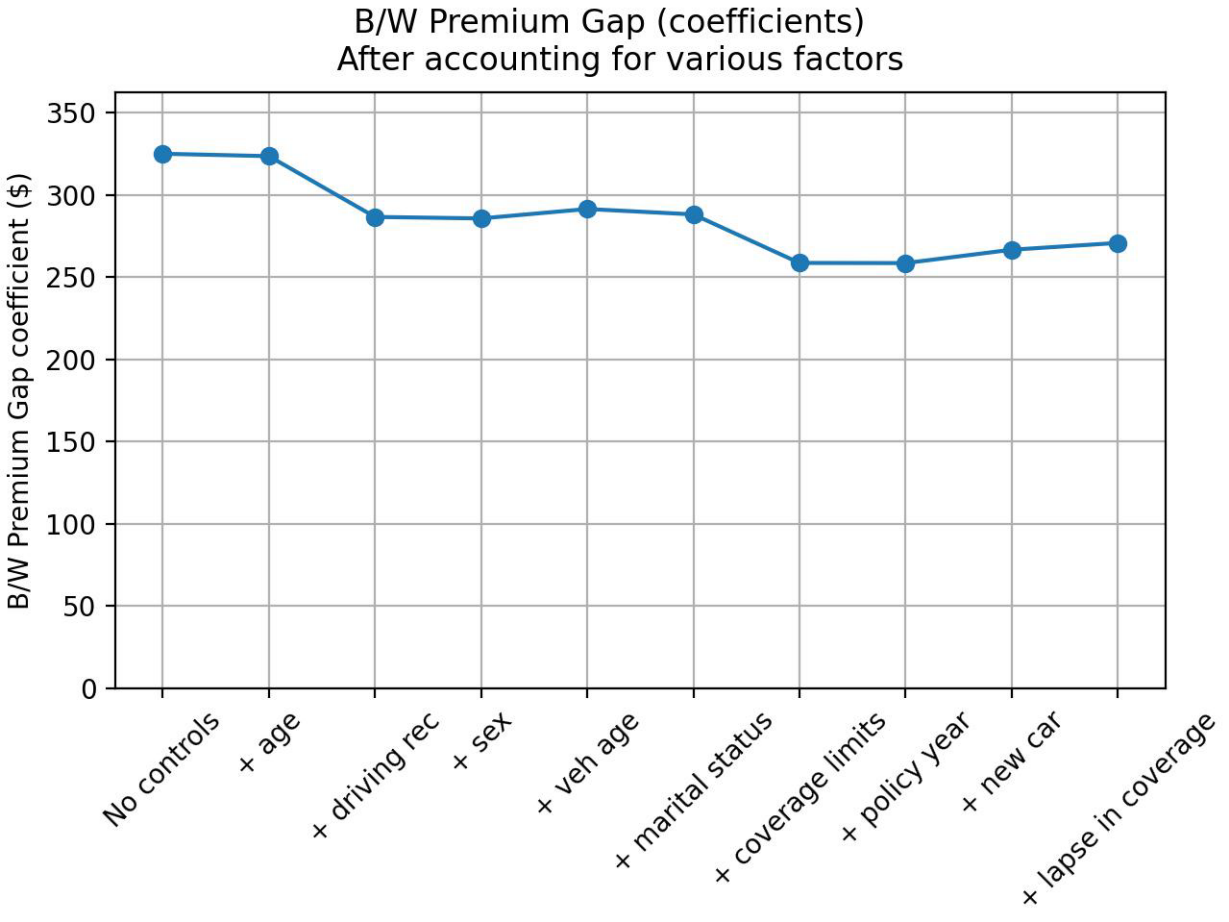
- This did not conclude our review to consider unintentional bias in premiums. We did further analysis to determine if factors more closely related to actual risk could explain the Black/white premium gap.

# EXPLANATORY FACTORS



# IMPACT OF VARIOUS FACTORS ON THE BLACK/WHITE PREMIUM GAP



# WHAT EXPLAINS THE REST OF THE PREMIUM GAP?

- There are some risk-related rating characteristics that we did not have sufficient information to analyze.
    - (e.g., make and model of car).

- There are other rating characteristics that are commonly used by insurers which are likely responsible for the sizeable differences in premium rates.
    - They include credit-based insurance scores, education, occupation, etc. (proxy variables).

# NEXT STEPS

- Create a balancing test to look at factors that are both correlated with losses and race.
- Conduct studies on the types and causes of claims by Black and Hispanic drivers.
- Conduct a review of telematics to identify appropriate consumer protections.



# QUESTIONS

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# THANK YOU

DISB | GOVERNMENT OF THE DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

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