

**Race and Insurance Pricing:  
Industry Developments  
& CAS Research**

May 18, 2022

Mallika Bender, FCAS  
Brian Mullen, FCAS, CPCU  
Susan Kent, FCAS, CPCU

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**CAS Approach to  
Race and Insurance Pricing**

May 18, 2022  
Mallika Bender

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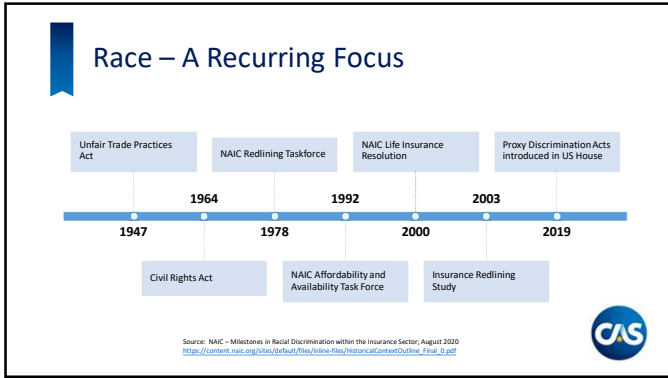
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### CAS Research Series on Race and Insurance Pricing

<https://www.casact.org/publications-research/research/research-paper-series-race-and-insurance-pricing>

**CAS RESEARCH SERIES ON RACE AND INSURANCE PRICING**

**DEFINING DISCRIMINATION IN INSURANCE**

Kudakwashe Chibanda, FCAS

CASUALTY ACTUARIAL SOCIETY CAS

**CAS RESEARCH SERIES ON RACE AND INSURANCE PRICING**

**UNDERSTANDING POTENTIAL INFLUENCES OF RACIAL BIAS ON P&C INSURANCE: FOUR FACTING FACTORS EXPLORED**

Members of the 2021 CAS Board and Research Task Force

CASUALTY ACTUARIAL SOCIETY CAS

**CAS RESEARCH SERIES ON RACE AND INSURANCE PRICING**

**METHODS FOR QUANTIFYING DISCRIMINATORY EFFECTS ON PROTECTED CLASSES IN INSURANCE**

Research Task Force and Research Task Force

CASUALTY ACTUARIAL SOCIETY CAS

**CAS RESEARCH SERIES ON RACE AND INSURANCE PRICING**

**APPROACHES TO ADDRESS RACIAL BIAS IN FINANCIAL SERVICES: LESSONS FOR THE INSURANCE INDUSTRY**

Members of the 2021 CAS Board and Research Task Force

CASUALTY ACTUARIAL SOCIETY CAS

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### Defining Discrimination in Insurance

By: Kudakwashe Chibanda, FCAS

Purpose: To provide clarity on new and old terminology being used in insurance industry discussions on racial bias.

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### Defining Discrimination in Insurance

Report explores history, context, definitions and inconsistencies in usage of common terms.

- Protected Class
- Unfair Discrimination
- Proxy discrimination
- Disparate impact
- Disparate treatment
- Disproportionate impact

The diagram consists of three blue circular nodes arranged in a triangle, labeled 'Intent' at the top, 'Extent' on the left, and 'Enforce' at the bottom. Arrows connect them in a clockwise cycle: Intent to Extent, Extent to Enforce, and Enforce to Intent. A blue arrow points from the text area to the 'Extent' node. The CAS logo is in the bottom right corner.

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### Understanding Potential Influences of Racial Bias on P&C Insurance: Four Rating Factors Explored

By: 2021 CAS Race and Insurance Research Task Force

Purpose: Explore the impacts of racially biased policies and practices outside of the system of insurance as it relates to commonly used insurance rating factors.

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### Understanding Potential Influences of Racial Bias on P&C Insurance: Four Rating Factors Explored

- Credit-Based Insurance Scores
- Geographical Location
- Homeownership
- Motor Vehicle Records

The diagram features three blue rounded rectangular boxes stacked vertically on the right side, labeled 'Lending Discrimination', 'Segregation', and 'Pre-Textual Traffic Stops'. The CAS logo is in the bottom right corner.

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**Approaches to Address Racial Bias in Financial Services: Lessons for the Insurance Industry**

By: 2021 CAS Race and Insurance Research Task Force

Purpose: Learn from solutions implemented in (non-insurance) financial services sectors to address racial bias.



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**Approaches to Address Racial Bias in Financial Services: Lessons for the Insurance Industry**

- Mortgage Lending
- Personal Lending
- Commercial Lending
- Credit Scoring System

Government Intervention

Bias Testing & Monitoring

New Product Innovation



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**Methods for Quantifying Discriminatory Effects on Protected Classes in Insurance**

By: Roosevelt Mosley, FCAS and Radost Wenman, FCAS

Purpose: Encourage discussions about potential algorithmic bias in insurance and explore methods to identify, measure, and mitigate bias in predictive models.



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**Methods for Quantifying Discriminatory Effects on Protected Classes in Insurance**

- Fairness Definitions in Modeling
  - Demographic Parity / Independence
  - Equal Opportunity / Separation
  - Calibration / Sufficiency
- Bias Mitigation Techniques
  - Pre-processing / Inputs
  - In-Processing / Modeling
  - Post-Processing / Predictions



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• **Approaches to Address Racial Bias in Financial Services: Lessons for the Insurance Industry**

May 18, 2022  
Brian Mullen, FCAS

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**Financial Services**

1. Mortgage Lending
2. Personal Lending
3. Commercial Lending
4. Credit Scoring



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**Audience Poll #1**

What was the approximate Black and White Homeownership Gap in 1960?

- A. 10%
- B. 20%
- C. 30%
- D. 40%



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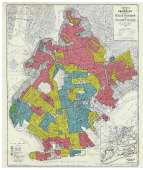
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**Contributing Policies and Practices**

- 1934 Federal Housing Act (New Deal)
- Valuation maps color-coded areas
  - "Red" >> As little as 10% minority owned
- Allowed covenants on titles prohibiting sales to Blacks
- 1934-1962 –Underwrote \$120B in new housing
  - < 2% to non-White groups
- Penalties on "Predatory Loans"



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### Government intervention

- Fair Housing Act (FHA) - 1968
- Home Mortgage Disclosure Act - 1975
- Community Reinvestment Act - 1977
- National Community Reinvestment Coalition - 1991
- Housing Finance Agency (HFA) - 2008



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### Audience Poll # 2

What was the approximate Black and White Homeownership Gap in 2020?

- A. 10%
- B. 20%
- C. 30%
- D. 40%



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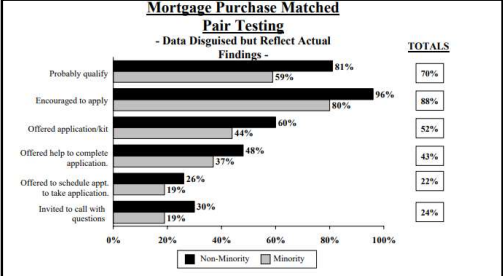
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### Ongoing Bias Testing – Matched Pairs

**Mortgage Purchase Matched Pair Testing**  
- Data Disguised but Reflect Actual Findings -



Action	Non-Minority	Minority	TOTALS
Probably qualify	81%	59%	70%
Encouraged to apply	96%	80%	88%
Offered application kit	60%	44%	52%
Offered help to complete application	48%	37%	43%
Offered to schedule appt. to take application	26%	19%	22%
Invited to call with questions	30%	19%	24%



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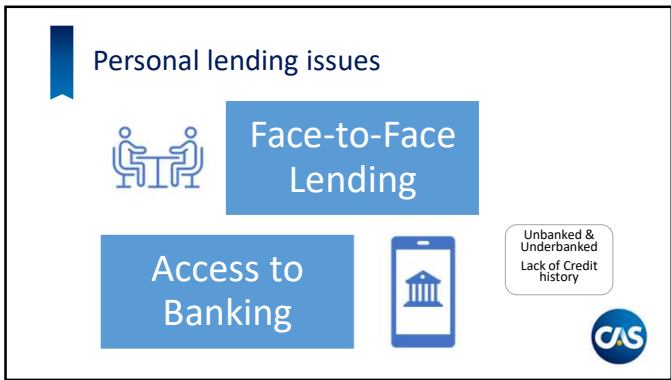
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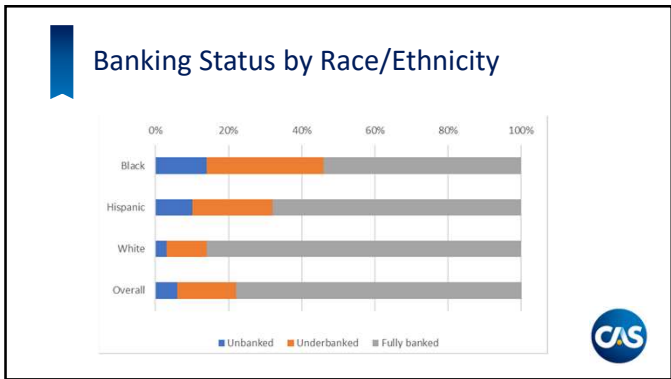
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## Personal lending solutions

- Application of Community Reinvestment Act
- Implement low-cost banking services via USPS
- Community Development Financial Institutions (CDFI)
- Fintech products



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## Commercial Lending



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## Government Intervention to Mitigate Discriminatory Impacts

MBDA Minority Business Development Agency (1969)	ECOA Equal Credit Opportunity Act (1974)	CRA Community Reinvestment Act (1977)
↓	↓	↓
Support minority businesses through access to capital, contracts and markets	Race-based discrimination* prohibited including business loans	Includes business lending in its focus on community lending

\*Race, color, religion, national origin, sex, marital status or age discrimination unlawful



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## Alternative Data for Credit Scoring

Data Elements that may mitigate racial bias

- Rent
- Utility bills
- Phone bills
- Deposit account history
- Community group affiliation
- Netflix payments

Brookings Institution:

- Utility payments ➡ increased acceptance rates
- New products using such data
  - Experian
  - Trans Union
  - Equifax



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## Conclusion

- Focus on outcome, not intent
- Solutions can be a combination of public and private actions
- Bias testing useful tool to measure disparate impact



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## Legislative and Regulatory Developments

May 18, 2022  
Susan Kent

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### Audience Poll #3

How would you characterize your company's efforts in addressing racial bias in ratemaking and underwriting?

- A: Our algorithms make explicit adjustments for bias.
- B: We are in the process of reviewing our algorithms for racial bias.
- C: We are unsure how to address racial bias.
- D: We don't collect race data, so we are unable to evaluate bias.




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### Legislative and Regulatory Developments

- NCOIL Special Committee on Race in Insurance Underwriting
- Colorado Statute
- NAIC Special (EX) Committee on Race and Insurance
- Others




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### NCOIL –Special Committee on Race in Insurance Underwriting

**“Proxy Discrimination”** means the intentional substitution of a neutral factor for a factor based on race, color, creed, national origin, or sexual orientation for the purpose of discriminating against a consumer to prevent that consumer from obtaining insurance or obtaining a preferred or more advantageous rate due to that consumer's race, color, creed, national origin, or sexual orientation.




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**NCOIL –Special Committee on Race in Insurance Underwriting**

Adopted Resolutions

- Use of Certain Rating Factors
- Use of Artificial Intelligence in Underwriting
- Insurance Score Transparency



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**Colorado Revised Statute § 10-3-1104.9**

Prohibits an insurer – regarding any insurance practice – from:

- **Unfairly discriminating** based on race, color, national or ethnic origin, religion, sex, sexual orientation, disability, gender identity, or gender expression; or
- Using any **external consumer data and information sources, algorithms, or predictive models that use external consumer data and information sources** in a way that unfairly discriminates based on race, color, national or ethnic origin, religion, sex, sexual orientation, disability, gender identity, or gender expression.



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**Colorado Revised Statute § 10-3-1104.9**

- **"Unfairly discriminate"** and **"unfair discrimination"** include the use of **one or more external consumer data and information sources, as well as algorithms or predictive models** using external consumer data and information sources,
- that have a correlation to race, color, national or ethnic origin, religion, sex, sexual orientation, disability, gender identity, or gender expression, and
- that use results in a **disproportionately negative outcome** for such classification or classifications,
- which negative outcome exceeds the reasonable correlation to the underlying insurance practice, including losses and costs for underwriting.



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### NAIC – Property/Casualty Work Stream of Special (EX) Committee on Race and Insurance

- **Develop analytical and regulatory tools** to assist state insurance regulators in defining, identifying, and addressing unfair discrimination in Property/Casualty insurance
- Consider **enhanced data reporting and record-keeping requirements** across product lines **to identify race and other sociodemographic factors of insureds**, including consideration of legal and privacy concerns. **Consider a data call** to identify insurance producer resources available and products sold in specific ZIP codes to **identify barriers to access**.



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### AAA P/C Racial Equity Task Force Response

Objective: Provide independent actuarial perspective to inform public policy makers on issues related to racial equity in insurance practices as they relate to property and casualty insurance.



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### Actuarial Standards of Practice

- Actuarial Standard of Practice (ASOP) No. 12, *Risk Classification*: Rates within a risk classification system would be considered equitable if **difference in rates reflect material differences in expected cost** for risk characteristics. This is demonstrated if it can be shown that the experience correlates to the risk characteristic.
- Others, including
  - ASOP No. 23, *Data Quality*
  - ASOP No. 53, *Estimating Future Costs for Prospective P/C Risk Transfer and Risk Retention*
  - ASOP No. 56, *Modeling*



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**AAA P/C Racial Equity Task Force Response**

- **Activities**
  - Comment letter to NAIC Special Committee
  - Comment letter to National Council of Insurance Legislators
  - Letters to Colorado concerning statute
  - Contribution to Auto Committee comment letter to Federal Insurance Office on automobile insurance affordability



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**AAA P/C Racial Equity Task Force Response**

- **Potential Upcoming Publications**
  - Issue brief on protected class data collection
  - Discussion brief on causation and correlation
  - Recommendations to NAIC Special Committee on regulatory approaches to identify and address racial bias



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**Potential Regulatory Approaches**

- Prohibit certain rating variables
- Allow only pre-approved rating variables
- Employ statistical models to examine whether rating variables are acting as proxies for protected characteristics
- Require a loss ratio test; i.e., that loss ratios be similar across classes



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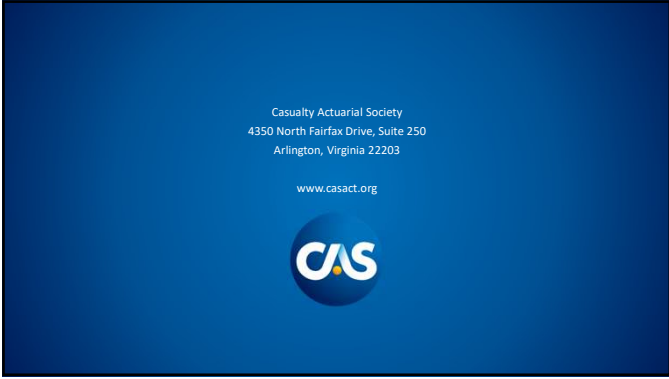
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