Trends and Insights:
Risk-Based Pricing of Insurance

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Risk-based pricing of insurance is a fundamental concept that might seem intuitively obvious when described — yet misunderstandings about it regularly sow confusion.

Simply put, risk-based pricing means offering different prices for the same level of coverage, based on risk factors specific to the insured person or property. If policies were not priced this way — if insurers had to come up with a one-size-fits-all price for auto coverage that didn't consider vehicle type and use, where and how much the car will be driven, and so forth — lower-risk drivers would subsidize riskier ones.

Risk-based pricing allows insurers to offer the lowest possible premiums to policyholders with the most favorable risk factors. They don't want to overcharge and send consumers shopping for a better price or undercharge them and experience losses that erode their ability to pay claims. Charging higher premiums to insure higher-risk policyholders enables insurers to underwrite a wider range of coverages, thus improving both availability and affordability of insurance.

This concept becomes complicated when actuarially sound rating factors intersect with other attributes in ways that can be perceived as unfairly discriminatory. For example, concerns have been raised about the use of credit-based insurance scores, geography, home ownership,
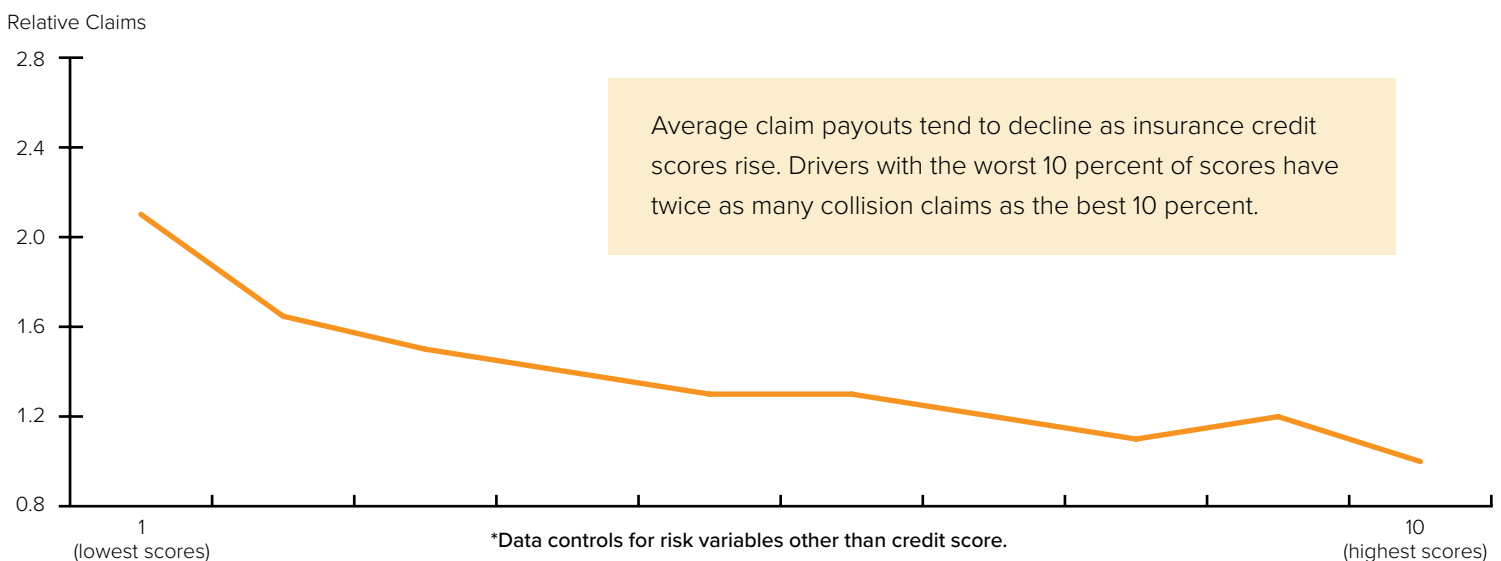
> ## Risk-Based Pricing Benefits
> ●
>
> 👆 Price reflects risk, helps align premium paid with risk assumed
>
> 👆 Expands availability of coverage
>
> 👆 Promotes a competitive marketplace

and motor vehicle records in setting home and car insurance premium rates. Critics say this can lead to "proxy discrimination," with people of color in urban neighborhoods sometimes charged more than their suburban neighbors for the same coverage.

Confusion around insurance rating is understandable, given the complex models used to assess and price risk, and insurers are well aware of the history of unfair discrimination in financial services. To navigate this complexity, they hire teams of actuaries and data scientists to quantify and differentiate among a range of risk variables while avoiding unfair discrimination.

Collision Claims Track With Insurance-Based Credit Scores*

Relative Claims

> Average claim payouts tend to decline as insurance credit scores rise. Drivers with the worst 10 percent of scores have twice as many collision claims as the best 10 percent.

*Data controls for risk variables other than credit score.

1 (lowest scores) ... 10 (highest scores)

Source: National Association of Insurance Commissioners (NAIC)

Algorithms and machine learning hold great promise for ensuring equitable pricing, but research has shown these tools also can amplify any biases in the underlying data. The actuarial profession has been researching and attempting to address these concerns for some time.

Holly Bakke, former banking and insurance commissioner for New Jersey, recalls conditions in 2002, before her state implemented risk-based pricing, when:

- Four of the six largest insurers didn't do business in New Jersey and the country's largest insurer had announced it was leaving the state;

- Good drivers spent months shopping for a policy; and

- 80 percent of drivers subsidized bad drivers.

"The Legislature replaced an outdated system with a competitive one that protected consumers," she writes. "In short order, over $170 million was returned to drivers in the form of refunds and price reductions. Today, there are over 70 auto insurers competing for New Jersey drivers, and the percentage of uninsured drivers is the lowest in the country."

Bakke was writing in June 2021, after the New Jersey Senate passed S-111 – still pending in the Assembly – which, she argued, would "raise insurance costs for the majority of drivers by prohibiting insurers from considering factors proven to reduce premiums for low-risk drivers."

Concerns also have been expressed about using gender as a rating factor. Six states – California, Hawaii, Massachusetts, Michigan, North Carolina, and Pennsylvania – currently ban considering gender when pricing personal auto insurance. A similar measure was approved in Delaware's Senate in 2022, but the state Legislature adjourned without the House acting on it.
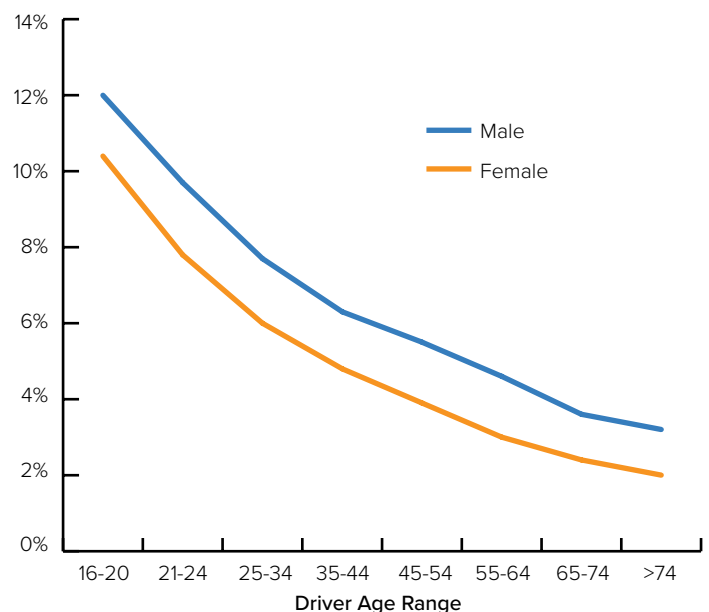
Research from the Casualty Actuarial Society

- Defining Discrimination in Insurance

- Methods for Quantifying Discriminatory Effects on Protected Classes in Insurance

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

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

State governments have the right to regulate what rating factors are applied in their jurisdictions. But leaders must understand that gender and age have long been reliable predictors of auto claims. As shown in the chart below, accident claims among female drivers tend statistically to be lower than those involving male drivers, and accidents for both populations tend to decrease with age. Denying insurers actuarially sound rating tools would force them to price risk less precisely, causing lower-risk drivers to subsidize the riskiest.

Lower-risk policyholders should pay less, and there is no place in today's insurance market for unfair discrimination. In addition to being illegal, discrimination based on any factor that doesn't directly affect the insured risk would be bad business in today's diverse society.

Crash Involvement Rates per 100,000 Licensed Drivers

Source: National Highway Traffic Safety Administration (NHTSA)

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