

## NAIC Advances White Paper on Use of Predictive Models by Insurance Companies

January 7, 2021

At the National Association of Insurance Commissioners (NAIC) Fall 2020 National Meeting held in December, the Property and Casualty Insurance (C) Committee adopted the Regulatory Review of Predictive Models White Paper. The white paper seeks to "identify best practices for the review of predictive models and analytics filed by insurers with regulators to justify rates and will provide state guidance for the review of rate filings based on predictive models."

The term "predictive model" in the insurance context refers to a set of models that estimate the probability or expected value of an outcome (e.g., the frequency of loss, the severity of loss or the pure premium) given a set amount of input data. The proliferation of the use of big data in the insurance industry has led to the increased use of predictive modeling in insurance ratemaking. Although predictive models have been embraced by traditional carriers, insurtech companies are often at the cutting edge of how to leverage big data and predictive models.

It is expected that the NAIC's Executive Committee and Plenary will consider adoption of the white paper at the Spring 2021 National Meeting.

The white paper identifies four general "best practices" for a regulator's review of predictive models. Such practices include:

1. Ensure that the selected rating factors, based on the model or other analysis, produce rates that are not excessive, inadequate or unfairly discriminatory
2. Obtain a clear understanding of the data used to build and validate the model, and thoroughly review all aspects of the model, including assumptions, adjustments, variables, sub-models used as input and resulting output
3. Evaluate how the model interacts with and improves the rating plan
4. Enable competition and innovation to promote the growth, financial stability and efficiency of the insurance marketplace

Such general practices are further broken down with more specific guidance of what factors and issues a regulator should consider when evaluating an insurer's use of a predictive model.

The practices laid out in the white paper are not binding on state insurance departments but instead are intended to "help the state insurance regulator understand if a predictive model is cost-based, if the predictive model is compliant with state law, and how the model improves a company's rating plan." Although the white paper states that its guidance is focused on personal automobile or home insurance ratings, it notes that such guidance "should be readily transferrable when the review involves other predictive models applied to other lines of business or for an insurance purpose other than rating." For example, life insurers have seen the potential benefit of predictive models in using consumer data to assess mortality risk.

The white paper also identifies what information a state insurance regulator should consider when reviewing a predictive model used by an insurer. Such information is organized into three broad categories that is further delineated with more specificity:

1. selecting the model input (e.g., reviewing the details of sources for both insurance and non-insurance data used as input to the model),
2. building the model (e.g., identifying and analyzing the type of model underlying the rate filing, including an analysis of how any weights are used in the model), and
3. the filed rating plan (e.g., analyzing how the model was used in the filed rating plan).

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