Presentation to the NCOIL Special (EX) Committee on Race in Insurance Underwriting
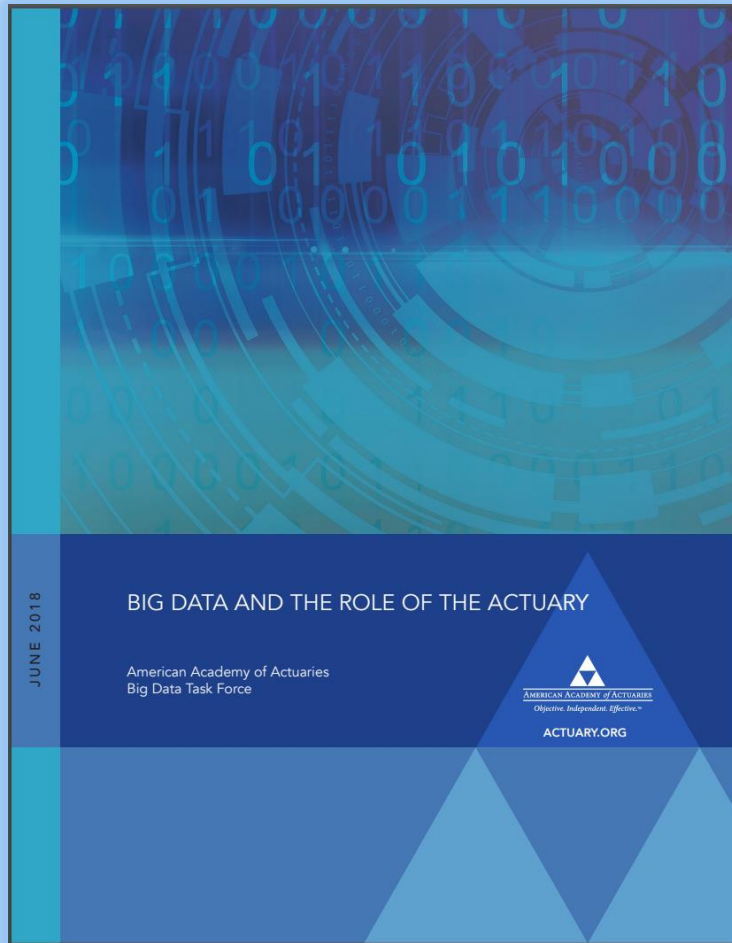
Dorothy L. Andrews, MAAA, ASA
Chair, Data Science and Analytics Committee
American Academy of Actuaries

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December 9, 2020

Data Science and Analytics Committee (DSAC) Genesis

The need for a Data Science and Analytic Committee resulted from the work of the Academy's Big Data Task Force which was charged to

☐ Understand the impact of big data and algorithms on the role of the actuary,

☐ Examine the framework of professional standards to provide guidance for working with these new tools.

☐ Work with policymakers and regulators to address issues related to their use.

The efforts of task force produced a monograph titled *Big Data and the Role of the Actuary*.

JUNE 2018

BIG DATA AND THE ROLE OF THE ACTUARY

American Academy of Actuaries
Big Data Task Force

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Our Charge

"To further the actuarial profession's involvement in the use of data science, big data, predictive models, and other advanced analytics and modeling capabilities as it relates to actuarial practice.

To monitor federal legislation and regulatory activities, and develop comments and papers intended to educate stakeholders and provide guidance to actuaries."

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The Evolution of the Data Scientist

United States Government Accountability Office
Report to Congressional Requesters

GAO

June 2019

INSURANCE MARKETS

Benefits and Challenges Presented by Innovative Uses of Technology

GAO-19-423

The evolution of the data scientist building insurance models present several challenges as the GAO identified:

- ☐ Models are being developed by data scientists who, unlike actuaries, may not fully understand insurance-specific requirements, such as setting premium rates that are not unfairly discriminatory, and may struggle to measure the impact of new variables used in the models.

- ☐ Data scientists may be unfamiliar with insurance rules and regulations and may not understand how to communicate their work to state insurance regulators.

- ☐ Data scientists may not adhere to a set of professional standards equivalent is scope and moral and ethical values.

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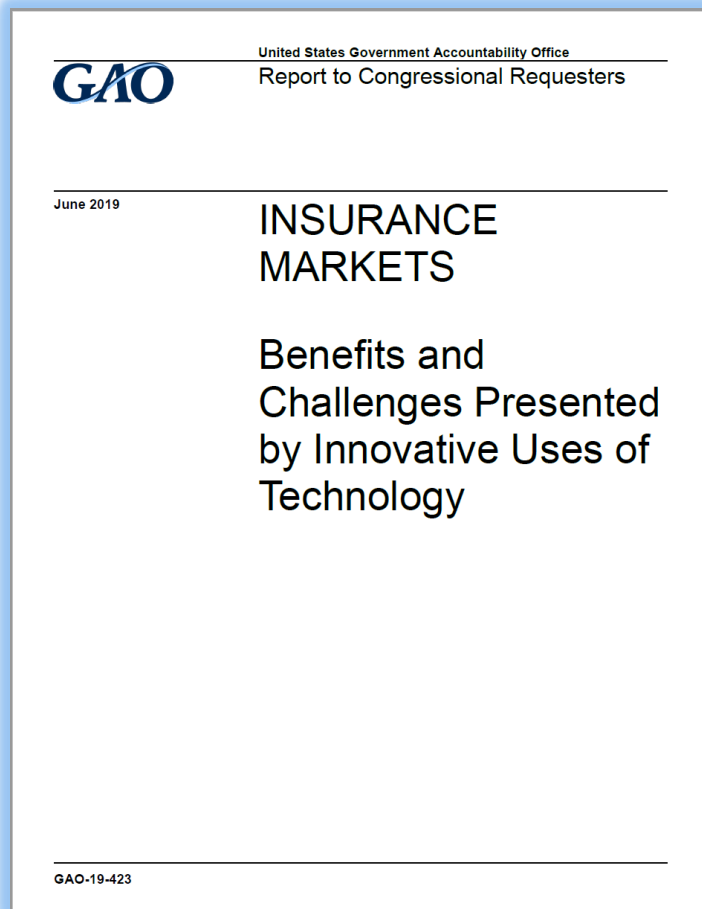
Committee's Big Data & Artificial Intelligence (AI) White Paper

Purpose of the White Paper is to:

- Demonstrate the high ethical and professional standards that actuaries operate under to deliver value to insureds using objective actuarial, statistical, and AI methods.

- Discuss the changing nature of actuarial practice and the benefits of big data and predictive algorithms with a growing focus on human behavior to improve risk selection and the customer experience.

- Examine the work of insurers to control for systemic influences and socioeconomics by rigorously examining and eliminating the potential for biases to impact every step of the modeling process.

- Consider the willingness of insurers to work with regulators to resolve big data, algorithm, and AI disparate impact concerns and to promote a positive transformation of the insurance industry.

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DSAC Issue Brief: The Use of Big Data and Algorithms in Actuarial Modeling and the Impacts on Consumers

The issue brief will lay out a road map for working with regulators to resolve issues in the following areas:

- ☐ Standards for emerging data sources

- ☐ Evolution of actuarial standards of practice

- ☐ Ethical issues related to artificial intelligence models

- ☐ The reliability and regulation of external data sources

- ☐ Controlling for systemic influences and socioeconomics

- ☐ Regulatory concerns impacting the work of the actuary

- ☐ Impacts of big data to transform the practice of insurance

- ☐ Behavioral data science impacts on traditional actuarial practice

Promoting Social Justice

Actuaries have a role in ensuring consumer data is protected and algorithms are:

- Appropriately transparent

- Explainable and interpretable

- Free of unfairly discriminatory variables & related proxies

- Based on variables with an appropriate relationship to the risk being insured

- Appropriately granular to guard against unintended disparate impacts to protected classes

- Attended to with human oversight to ensure controls and metrics are in place to monitor the continued fit and appropriateness of models for the purpose they were designed

- Validated for quality and reliability by actuaries or experts who understand insurance company target markets, product lines, and insurance liabilities

Thank You

Questions?