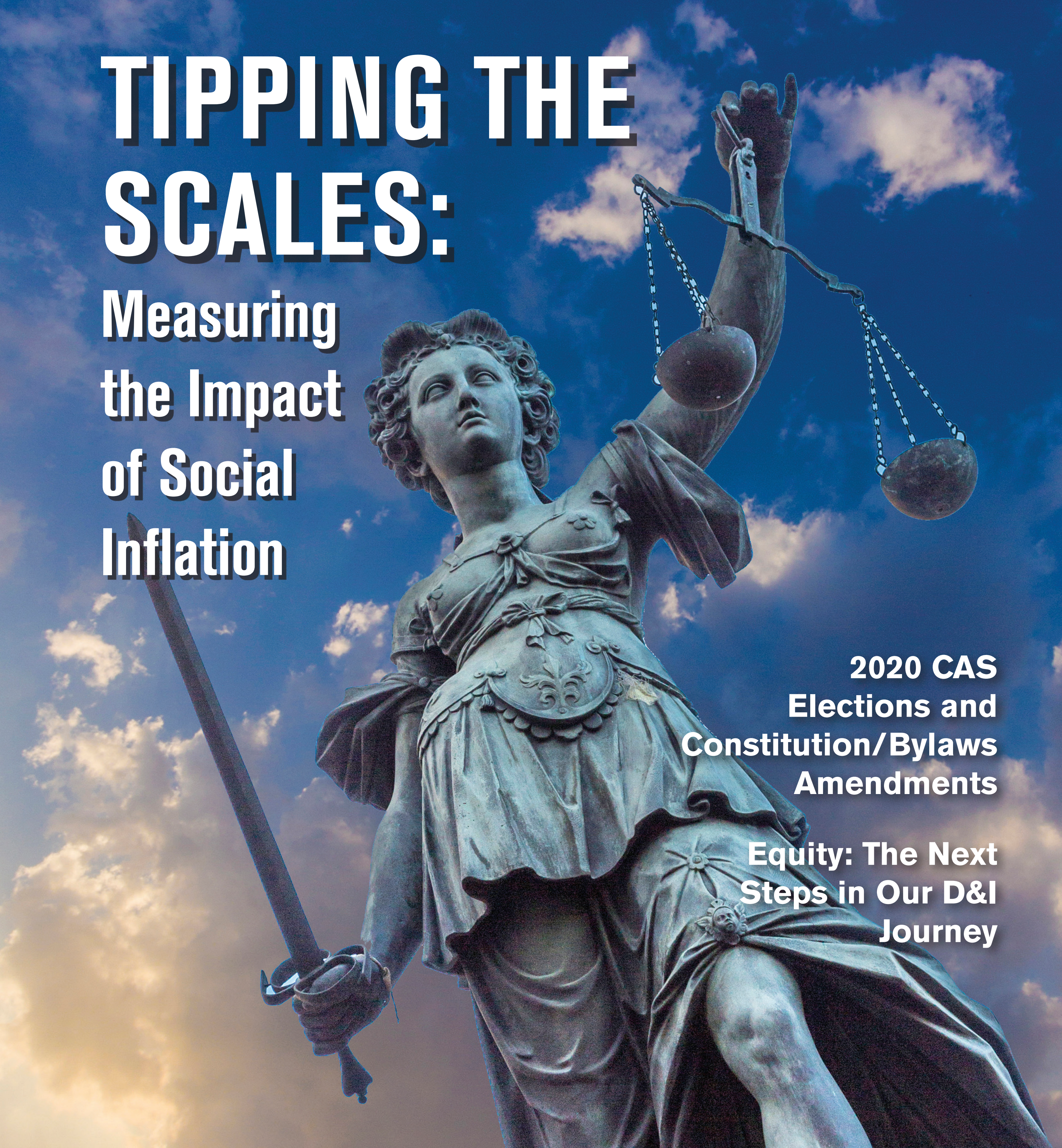
actuarialREVIEW

VOL 47 / NO 4 / JULY-AUGUST 2020

PUBLISHED BY THE CASUALTY ACTUARIAL SOCIETY

TIPPING THE SCALES: Measuring the Impact of Social Inflation



2020 CAS Elections and Constitution/Bylaws Amendments

Equity: The Next Steps in Our D&I Journey

actuarialREVIEW

July-August 2020

departments

4 **EDITOR'S NOTE**
- We Aren't Slowing Down

6 **PRESIDENT'S MESSAGE**
- Skills Check: Assessing What You Have and What You Need

8 **MEMBER NEWS**
- Comings and Goings
- CAS and IIHS/HLDI Present August Auto Safety Webinars
- *Variance* 13:1 Is Now Online
- CAS Staff Spotlight
- Calendar of Events
- In Memoriam
- In Remembrance

30 **PROFESSIONAL INSIGHT**
- Ethical Issues
- 2020 CAS Virtual Spring Meeting Coverage
  - Pandemic Litigation: The Many Effects of COVID-19
  - Is Climate Change Driving Rising Catastrophe Costs?
  - Gains in Autonomous Truck Technology Call for Insurance Solutions
  - Insurers Enjoy Benefits from Data Modeling the Claims Process
- 2020 CAS Virtual Reinsurance Seminar Coverage: CEOs Ponder the Pandemic and Beyond
- The CAS Calls for Essays on COVID-19
- The iCAS Community of Practice Event Goes Virtual with New Webinar Series

41 **VIEWPOINT**
- In My Opinion

43 **SOLVE THIS**
- It's a Puzzlement

FSC LOGO

on the cover

Tipping the Scales: Measuring the Impact of Social Inflation

By ANNMARIE GEDDES BARIBEAU

Despite the buzz, social inflation's impact might not be what it seems.

20

2020 CAS Elections & Constitution and Bylaws Amendments **13**

On the ballot: President-elect and board director candidates and ACAS voting rights.

Equity: The Next Step in Our D&I Journey **28**

By SARA TEPPEMA AND MALLIKA BENDER

Equity is essential for diversity and inclusion initiatives.

Actuarial Review (ISSN 10465081) is published bimonthly by the Casualty Actuarial Society, 4350 North Fairfax Drive, Suite 250, Arlington, VA 22203. Telephone: (703) 276-3100; Fax: (703) 276-3108; Email: ar@casact.org. Presorted standard postage is paid in Lutherville, MD. Publications Mail Agreement No. 40035891. Return Undeliverable Canadian Addresses to PO Box 503, RPO West Beaver Creek, Richmond Hill, ON L4B 4R6.

The amount of dues applied toward each subscription of *Actuarial Review* is $10. Subscriptions to nonmembers are $10 per year. Postmaster: Send address changes to *Actuarial Review*, 4350 North Fairfax Drive, Suite 250, Arlington, Virginia 22203.

actuarialREVIEW
The magazine of the Casualty Actuarial Society

Expertise. Insight. Solutions.

editor's NOTE By ELIZABETH A. SMITH, *AR* MANAGING EDITOR

We Aren't Slowing Down

COVID-19 has been shutting down meetings around the world, but without missing a beat, CAS members and staff worked to create a virtual Spring Meeting after the decisions were made to postpone CAS meetings and seminars, starting with March's Ratemaking, Product and Modeling Seminar.

For this Spring Meeting, CAS members and speakers met the challenge of this pandemic to provide our members with the continuing education that they need. The virtual setup was quite an unusual experience for many, but the presenters adapted to offer their usual high-quality and informative sessions. The CAS even held a Spring Meeting reception! Actually, it was six simultaneous, virtual receptions via Microsoft Teams that were hosted by staff and members. Just like a real-time, in-person gathering, attendees could pop in and out of these receptions as they wished. They, of course, had to provide their own refreshments!

AR covers some of the many sessions held during the Spring Meeting and has thrown in a Reinsurance Seminar session report for good measure.

In this issue

Our cover and feature stories involve some emerging and groundbreaking topics. In our cover story, Annmarie Geddes Baribeau pins down expert opinions on the rather amorphous subject of social inflation — a topic whose impact remains to be seen. Our first feature story is the time-honored tradition of CAS election. This summer CAS Fellows will cast their votes on the slate of candidates and decide on granting CAS Associates the right to vote. In *AR*'s second feature story, CAS Fellow Mallika Bender and her coauthor Sara Teppema illustrate the concept of equity, thus widening the understanding of diversity and inclusion issues.

Remembering Mary and Tom

Also in this issue, we honor two members, Thomas J. Chisholm and Mary D. Miller, in the column "In Remembrance." Please take some time to read about these two extraordinary people.

I hope you enjoy this issue of *Actuarial Review*.

Actuarial Review welcomes story ideas from our readers. Please specify which department you intend for your item: Member News, Solve This, Professional Insight, Actuarial Expertise, etc.

SEND YOUR COMMENTS AND SUGGESTIONS TO:
Actuarial Review
Casualty Actuarial Society
4350 North Fairfax Drive, Suite 250
Arlington, Virginia 22203 USA
Or email us at AR@casact.org

Follow the CAS

You're the expert on your business. But we can help you leverage the wealth of **information** out there.

Every business has its own strategic goals, and our expertise will help you achieve yours.

When you want to incorporate data into your business strategy, we're your partner in determining which information will best serve your unique needs. Starting with your key objectives, we'll work with you to sort through the wealth of available intelligence and mine the data to reveal the most relevant insights. With more data accessible than ever before, there is greater risk of information overload and potential to miss valuable indicators.

Trust Pinnacle's expertise to guide you through the data evaluation process and help you **make better business decisions**.

Commitment Beyond Numbers

PINNACLE
ACTUARIAL RESOURCES, INC.

| Alternative Markets | Enterprise Risk Management | Legislative Costing | Litigation Support | Loss Reserving | Predictive Analytics | Pricing and Product Management | Reinsurance

pinnacleactuaries.com

president's MESSAGE By STEVEN ARMSTRONG

Skills Check: Assessing What You Have and What You Need

Whether you are a CAS candidate sitting for exams or a credentialed CAS member, there is a certain presumption of skills underlying your actuarial role or designation.

So, what are these presumptive skills and are they accurate?

BeAnActuary.com lists the following abilities that actuaries bring to their work:

- Specialized math knowledge
- Keen analytical, project management and problem-solving skills
- Good business sense
- Solid communication skills (oral and written)
- Strong computer skills

While this generalization is entirely accurate, does it represent the full picture of the skills that you bring to your current role? Are these the skills you need to elevate yourself to other levels of the organization or into different roles? And what are you doing to promote these skills?

Skills assessments

In Basic Education, we are conducting a comprehensive job task analysis to create an upcoming syllabus. This syllabus will educate future actuaries on the skills they need to be successful and to handle all the expected tasks required of them. Upon passing these future exams, actuaries should easily be able to talk about and demonstrate the skills they've learned — in short, to promote themselves and the profession.

In Professional Education, work is underway studying competency-based education. Data would be gathered from conducting a simple survey that explores skillsets wanted or needed for career advancement. The CAS would then take this knowledge to develop individualized programs for members that combine webinars, articles, monographs and seminars to help them develop the skills identified in the survey.

Our greatest asset

The CAS firmly believes that property-casualty actuaries should be sought after not only for their skills but their immense capacity to acquire new ones. Acknowledging our skills and remaining adaptable are essential for the continued growth of our members and our organization. We cannot presume that stakeholders know what an FCAS can do — we must boldly underscore that our skills can be used in both actuarial and nonactuarial roles within and outside of the P&C space.

Beyond job titles and credentials

A lot of importance has been put onto an actuary's credential or their job title (e.g., senior actuarial analyst). So much can hinge on your designation and title. The skills that CAS members bring to the table, however, are more important than the credential or title alone. As part of our new three-year plan, the CAS will be focused on helping our candidates and members articulate their skills and demonstrate them in new and meaningful ways.

Promoting our skills as actuaries is crucial. It would be regrettable if employers and other stakeholders — just because they don't know what actuaries can do — were to seek nonactuaries for special projects or solving nonactuarial problems. The people who hire us need to know the full picture of what the true skills sets of actuaries are.

We ask you to promote yourself beyond your current role. Showcase the value that actuaries can bring to all facets of the P&C industry.

Reinventing understanding

The world is changing fast. To keep up, P&C actuaries at all stages of their careers must be nimble. The CAS aims to provide a vital service that allows our members to continue to be the objective problem-solvers that our industry relies on for P&C and risk management issues.

As the CAS promotes our members' unique skill set, we also need your help: We ask you to promote yourself beyond your current role. Showcase the value that actuaries can bring to all facets of the P&C industry.

Please join us on our journey of reinventing the understanding of the P&C actuary.


DON'T STAY UP LATE SETTING RESERVES.
(UNLESS THAT'S YOUR THING.)
STILL STRESSING OVER DEADLINES? GET SOME PEACE OF MIND WITH ARIUS. Our cloud-based and desktop P&C reserve analysis solutions automate, streamline, and add reliability to your entire reserving process. Find out why companies like yours rely on Arius every day for better, more efficient analysis.
milliman.com/arius
Milliman Arius®

COMINGS AND GOINGS

David Kaufman, ACAS, has accepted a two-year appointment as interim president at Capital University in Columbus, Ohio. Kaufman is an immediate past chief executive officer of Encova Insurance.

Albert Zhou, FCAS, senior vice president and actuarial director of Third Point Reinsurance, has been recognized as "young risk and actuarial professional of the year" by the industry publication *Insurance ERM*. Zhou was promoted to senior vice president at Third Point Re in May 2020, after being appointed actuarial director in February 2019.

EMAIL "COMINGS AND GOINGS" ITEMS TO AR@CASACT.ORG.

See real-time news on our social media channels. Follow us on Twitter, Facebook, Instagram and LinkedIn to stay in the know!

ACTUARIAL REVIEW *LETTERS POLICIES*

Letters to the editor may be sent to ar@casact.org or to the CAS Office address. Please include a telephone number with all letters. Actuarial Review *reserves the right to edit all letters for length and clarity and cannot assure the publication of any letter. Please limit letters to 250 words. Under special circumstances, writers may request anonymity, but no letter will be printed if the author's identity is unknown to the editors. Event announcements will not be printed.*

CAS, IIHS and HLDI Offer August Auto Safety Webinars

The CAS, the Insurance Institute for Highway Safety (IIHS) and the Highway Loss Data Institute (HLDI) will offer a series of webinars that focus on the latest research in highway safety and vehicle technologies affecting auto safety and insurance. HLDI Senior Vice President Matt Moore and other IIHS/HLDI experts will deliver these webinars on the following dates:

"The Drive to Automation" — August 6, 2:00-3:30 p.m. EDT

"Speed, Weed and Distraction" — August 21, 2:00-3:30 p.m. EDT

"COVID-19 and Traffic Safety Puzzle of 2020" — August 28, 2:00-3:30 p.m. EDT

NOTE: These webinars are not part of the CAS Yearly Subscription. Fees are $50 for one webinar or $120 for all three.

Registrations require a CAS login and password. If you do not already have a username and password, please register for the site through the New Visitor Registration. Registration will close at 5 p.m. EDT the day before the webinar.

For more information and to register, check the CAS Calendar of Events.

These webinars may qualify for up to 1.8* CE Credits for CAS members.

To learn more about HLDI, watch this video: https://youtu.be/c6vQE-5N62o.

* The amount of CE credit that can be earned for participating in this activity must be assessed by the individual attendee. It also may be different for individuals who are subject to the requirements of organizations other than the Casualty Actuarial Society.

Variance 13:1 Is Now Online

Visit variancejournal.org for the latest issue of *Variance*, featuring papers on ratemaking and reserving, including credibility-weighting for large account and excess of loss treaty pricing, a Bayesian approach for estimating loss costs associated with excess reinsurance programs, and more.

Printing and mailing of Variance is suspended until further notice due to the COVID-19 pandemic.

CAS STAFF SPOTLIGHT

Meet Karen Sonnet, CAS Research Coordinator

Welcome to the CAS Staff Spotlight, a column featuring members of the CAS staff. For this spotlight, we are proud to introduce you to Karen Sonnet.

Karen Sonnet

- **What do you do at the CAS?**
  I'm the CAS research coordinator.
- **What do you enjoy most about your job?**
  I really like working with my committees and the volunteers. We facilitate research, so it's really cool to see the whole process from start to finish on topics that are vastly important to the actuarial profession.
- **Where's your hometown?**
  Falls Church, Virginia — I'm a D.C.-area native!
- **Where'd you go to college and what's your degree?**
  I went to George Mason University here in Northern Virginia, and I got my degree in linguistics.
- **What was your first job out of college?**
  I worked at a before- and after-school childcare program. It was fun, but very noisy!
- **Describe yourself in three words.**
  Curious, funny and offbeat.
- **What's your favorite weekend activity?**
  Hiking with my family and our dog, Ziggy.
- **Where's your favorite travel destination?**
  I backpacked through Scandinavia for three weeks on a budget of $20/day. It was beautiful and challenging!
- **Name one interesting or fun fact about you.**
  I'm extremely well-versed in children's literature and have read almost all the Newberry Award-winning books! I enjoy reading them aloud to my daughters now.

Stockholm, Sweden

CALENDAR OF EVENTS

September 15-17, 2020
Casualty Loss Reserve Seminar (CLRS) & Workshops
Online Event

October 20-22, 2020
In Focus Virtual Seminar

November 10-12, 2020
Annual Meeting
Online Event

May 25-28, 2021
2021 Actuarial Colloquia (hosted by the CAS)
Disney's Coronado Springs Resort
Orlando, FL

May 23-26, 2021
Spring Meeting
Disney's Coronado Springs Resort
Orlando, FL

IN MEMORIAM

Thomas J. Chisholm (FCAS 2000)
1956-2020

Mary Cecilia Downey Miller (FCAS 1992)
1946-2020

IN REMEMBRANCE

In Remembrance is an occasional column featuring short obituaries of CAS members who have recently passed away. These obituaries and sometimes longer versions are posted on the CAS website at bit.ly/CASMbrObits.

The Ambassador

Thomas J. Chisholm (FCAS 2000)
1956-2020

Thomas Joseph Chisholm of East Greenwich, Rhode Island, died unexpectedly at home on May 3, 2020.

A senior high school trip to Spain in 1975 hooked Chisholm on travel. The friendships he forged on that trip lasted his lifetime. He traveled all over Europe, the U.K., the Virgin Islands — French, British and U.S. — and nearly every state in the U.S. Throughout his life, Chisholm embraced others wherever he went, often inviting new people into his circle of family and friends.

Chisholm graduated with honors from Hamilton College in Clinton, New York, with a BA in mathematics in 1979. After briefly considering a medical degree, he decided to continue with mathematics, joining Travelers Insurance Company in Hartford as an actuarial analyst. From there he worked for American Universal Insurance Company, AIPSO, Providence Washington Insurance Co. and One Beacon, moving up with each post. In 2010, he accepted a position with NLC Insurance Companies in Connecticut as an AVP & actuary, and he remained there until his untimely passing.

Chisholm was a generous supporter of Hearts for Animals Inc., a nonprofit animal sanctuary and healing center founded by his sister in 2009. His love of Hawaii led him to serve on the board of advisors for the Grand Wailea, a five-star resort on Maui, since its opening in 1991.

Chisholm is survived by his parents, Joseph and Carol Chisholm of East Greenwich, and his sister JoAnn Chisholm-Dueno of Hauula, Hawaii. In lieu of flowers, donations may be made to Hearts for Animals Inc. (www.heartsforanimals.org).

The Educator-Turned-Regulator

Mary D. Miller (FCAS 1992)
1946-2020

Recipient of the Academy's Jarvis Farley Service Award and the CAS Matthew Rodermund Memorial Service Award, Mary D. Miller died on June 7.

Born Mary Cecilia Downey in Napoleon, Ohio, to Robert and Patricia (Lawler) Downey, she attended St. Augustine High School, where she discovered her love of mathematics. She graduated from The Ohio State University with a math degree and a French minor in 1968. She taught math at Roy C. Start High School in Toledo for six years prior to the birth of her first child. She was a stay-at-home mom for 10 years and, when her last child entered school, she went back to earn her master's in mathematics from the University of Toledo, where she was reintroduced to the actuarial profession.

Her first actuarial job was with Lumberman's in Mansfield, Ohio. Later she moved to the State of Ohio's Department of Insurance, where she rose to chief actuary and chief financial examiner. Very active in both the CAS and the American Academy of Actuaries, Miller was a vice president for both organizations and a director on their boards. In 2014 she became Academy president.

On June 26, 1999, she married Michael C. Miller, who survives her. Other survivors include her five children, nine grandchildren, seven siblings and other relatives and friends. Memorial gifts may be made to the Ovarian Cancer Research and Education in Gynecology Fund (#312187) at The James Cancer Hospital (https://giveto.osu.edu/makeagift).

UPDATE YOUR PREFERENCES FOR PRINT PUBLICATIONS

For more information, visit http://ow.ly/jVml50zSQWJ.

Expertise. Insight. Solutions.®

2020 CAS ELECTION

CAS Fellows will vote on a proposed amendment to the CAS Bylaws and a slate of candidates for the CAS Board of Directors and CAS President-Elect, with online voting beginning on August 3, 2020. On that day, the CAS will email Fellows a link to the online ballot. Paper ballots will be mailed on August 3 to those Fellows who do not have an email address on file with the CAS office. Completed ballots must be submitted online or returned to the CAS office by August 31, 2020.

In the following pages, readers can learn about the candidates through the 100-word summaries they provided regarding their interest in running for CAS leadership positions.

More details about each candidate can be found in the Meet the Candidates section of the CAS website. Please contact Mike Boa (mboa@casact.org) with any questions or comments about the election process. Following the slate of candidates is information on the proposed amendments to the constitution and bylaws concerning voting rights for CAS Associates.

Meet the *Candidates*

President-Elect Nominee

Katherine H. Antonello

FCAS 2001

I am enthusiastic about the opportunity to give back to the organization that laid the foundation for my career, with an emphasis on reshaping the credentialing process and educational offerings so that the CAS adapts to this rapidly changing environment. With more than 30 years of broad actuarial background, I will strive to bring a unique perspective as president-elect by drawing on lessons learned from my company, consulting and bureau experience. My understanding of the varied actuarial needs of numerous stakeholders, including executives, students, companies, regulators and legislators will help the CAS formulate a competitive strategy and thrive.

Board Director Nominees

Justin Brenden

FCAS 2009

The CAS is at an important point in time, and we will need to simultaneously stay true to our history and step boldly into the future. To do this, we need broad representation of membership, including veteran and younger members. I would represent the younger generations of actuaries well, given that I both qualify as a millennial and that I have extensive experience with the CAS. During my recent term as CAS vice president from 2016-2019, I learned about the dynamics of the CAS Board, and I will also be able to draw on my experience from the corporate boardroom.

Jonathan Charak

FCAS 2013

Throughout my career, I have continued looking to develop. I have spent time in the U.S. and Australian markets, traditional pricing and reserving positions, as well as operational, strategic and underwriting roles. I believe this added diversity of thought has made me a better actuary. I am outspoken, always eager to learn, and willing to probe and ask questions. I strongly believe in the CAS, its mission and the talented membership. I have grown from my 10 years of volunteering with the CAS and would love the opportunity to serve the CAS and its membership on the board.

Kris DeFrain

FCAS 2000

I hope to bring diverse experiences to the board from serving the CAS as vice president-international, working in regulation for 20 years and starting my career in the P&C insurance industry in both small and large actuarial departments. I will support innovative strategies that create new opportunities and build on our P&C actuarial foundation, strategies to broaden our educational scope embracing new techniques and industries, and strategies to aid both basic and continuing education. I am eager to help the CAS as it evolves in the world of actuarial and data science.

2020 CAS Elections

Pierre Laurin

FCAS 1989

With close to 40 years' experience as a CAS actuary, I can bring insights, enthusiasm and energy to help the CAS address the many issues it faces. From I&D to technology and COVID-19, our Society needs to take on these challenges. I want to help guide timely solutions that must be implemented, while maintaining a strong base of ethics and morality. As a result, our international stature will improve, and our members will be recognized as contributors. Our members will look to the CAS for support throughout their careers beyond the exam process. I am on task for these challenges.

David Mamane

FCAS 2016

I am a compassionate, curious and collaborative volunteer leader looking to inspire the CAS and our members to be bold, innovative and forward-looking. If elected to the board, my platform would include the following key issues: the continued modernization of our basic and continuing education, elevating actuaries as key strategic advisors to C-suite executives and ensuring the sustainability of the profession and the CAS. In the wake of COVID-19, the actuarial profession is going to experience unprecedented social, economic and technological disruption, and I look forward to the opportunity to help position the CAS for success through the recovery.

Alejandra S. Nolibos

FCAS 2002

As many others, I discovered the actuarial profession almost by accident, yet it was the perfect match. I have gained a broad and global perspective through working on diverse topics and collaboration across geographies and disciplines. My career was shaped by working with and mentoring colleagues with diverse interests and backgrounds and by the privilege of counting exceptional actuaries as my own mentors. Volunteering in the CAS and AAA has been a highlight. I am incredibly proud to be an actuary and hope to bring this experience, my perspectives and my enthusiasm to the board. *#BeAnActuary*

Erika Schurr

FCAS 2006

As a member of the CAS Board, I look forward to the opportunity to leverage diverse perspectives and experiences to foster ideas and innovation that will enable our profession to adapt to an environment where change is constant. I also want to broaden the reach of the actuarial profession, tapping into our capabilities and knowledge to solve challenges beyond what we traditionally support, integrating the value of actuarial science more broadly within business functions and the communities we serve.

Geoffrey Werner

FCAS 1997

The demand for analytical resources who can solve real-world issues has never been greater. Our members are trained to do just that, yet companies are not always choosing our members for those roles. I am honored to be nominated as a candidate for the CAS Board of Directors. If elected, I will leverage my broad experience to expand the opportunities for CAS members in traditional and nontraditional roles globally. I will do so by driving strategic initiatives across all CAS verticals: admissions, research & development, education, international and marketing & communication.

CAS Constitution and Bylaws *Amendments*

Proposed CAS Constitution and Bylaws Amendments to Allow Five-Year Associates the Right to Vote

By MARY HOSFORD, VICE PRESIDENT-ADMINISTRATION

With recent CAS membership surveys demonstrating growing support for voting rights for CAS Associates, the CAS Board of Directors has approved putting the issue to a formal vote of the Fellows. The 2020 CAS elections ballot includes a proposal to amend the CAS Constitution and Bylaws to allow Associates who have been members for at least five years to vote in CAS elections for president-elect and board of directors. In putting the issue on the ballot, the board is recommending that the Fellows vote in favor of the amendments.

The 2018 Quinquennial Survey results indicate that 68% of Fellows responding are in favor of allowing Associates to vote in CAS elections. This continues an increasing trend from 48% in 2008 and 62% in 2013, and now exceeds the required two-thirds approval necessary for amending the Constitution and Bylaws. A 2019 Member Advisory Panel survey shows similar levels of support.

The CAS currently has 3,364 Associates among its 9,217 members. If the amendments are approved, 1,475 Associates who have held their designations for at least five years (44% of current ACAS), would be eligible to vote. Reasons for approving the amendments include:

- Despite paying full dues, Associates lack true representation within the CAS. It is important and beneficial to the CAS to include the views of all members in the governance processes that have a direct impact on their abilities to practice.
- Many of the "career Associates" provide a high level of volunteer service to the CAS, yet, according to comments submitted through the surveys, the lack of a vote makes some ACAS feel disenfranchised.
- Voting rights have not changed since the inception of the CAS, a period when there was a much clearer distinction between Fellows and Associates. While many Fellows view Associateship as a stepping-stone toward full recognition and not an end in and of itself, this view does not recognize the many changes that have significantly narrowed the differences between Associates and Fellows, particularly regarding practice rights.
- Among actuarial organizations in North America, both the Society of Actuaries and Canadian Institute of Actuaries allow Associates the right to vote five full years after becoming Associates.

Please refer to the marked-up versions of the CAS Constitution and Bylaws to review the proposed changes to the governing documents.

Constitution and Bylaws changes require an affirmative vote from 10% of the Fellows or two-thirds of the Fellows voting, whichever is greater.

Wording of Ballot Question for Proposed Changes to the CAS Constitution and Bylaws:

"Do you approve the Constitution and Bylaws changes allowing Associates to vote in CAS elections for President-Elect and Board of Directors (i.e., to become Voting Members of the CAS) five years after they are recognized as Associates?"

- Yes or No

2020 CAS Elections

Proposed Amendments to the CAS Constitution and Bylaws

Constitution and Bylaws changes require an affirmative vote from 10% of the Fellows or two-thirds of the Fellows voting, whichever is greater. CAS Fellows will be invited to cast online ballots on the Constitution and Bylaws amendments in conjunction with the elections for president-elect and board of directors beginning on **August 3, 2020**. The deadline for voting is **August 31, 2020**.

The following shows changes to only the affected sections of the CAS Constitution and Bylaws. To view the full CAS Constitution and Bylaws with marked changes, visit https://www.casact.org/press/index.cfm?fa=viewArticle&articleID=4733.

CAS CONSTITUTION

(As Amended ~~September 5, 2013~~xx, xxxx)

ARTICLE III. — *Membership*

SECTION 1.—CLASSES OF MEMBERS

The membership of the Casualty Actuarial Society shall be composed of three classes:

a) Fellows

The Fellows of the Society shall be the present Fellows and those who may be duly admitted to Fellowship as hereinafter provided. Fellows shall be ~~eligible to vote,~~Voting Members of the Society and shall also be eligible to hold office, make nominations, and generally exercise the rights of full membership. Fellows are authorized to append to their names the initials F.C.A.S.

b) Associates

The Associates shall be the present Associates and those who may be duly admitted to Associateship as hereinafter provided. Associates shall be entitled to attend meetings of the Casualty Actuarial Society and to participate at Society functions. Five years after becoming an Associate (or upon becoming a Fellow, whichever occurs first), an Associate shall become a Voting Member of the Society. Members who have been Associates for five years as of any date on or after the date of adoption of this provision will then immediately become Voting Members. Associates are authorized to append to their names the initials A.C.A.S.

…

ARTICLE IV. — *Officers*

…

SECTION 2.—ELECTION AND TERM OF OFFICE

At the close of the annual meeting, the President-Elect shall assume the office of President for a term of one year. Annually, a new President-Elect shall be elected by the ~~Fellows~~Voting Members in a secret ballot for a term of one year. Before the close of the annual meeting, the Board of Directors shall, by majority vote of the Directors present and voting, elect the Vice Presidents for a term of one year.

…

SECTION 4. REMOVAL FROM OFFICE

CAS Constitution and Bylaws *Amendments*

The process for the removal from office of the President-Elect or President can be initiated by either a petition of 5% of the ~~Fellows~~Voting Members, a two-thirds majority vote of the Officers of the CAS (with the person proposed to be removed not voting), or a majority vote of the Board of Directors (with the person proposed to be removed not voting). Reasons for the removal include: violation of the code of conduct; abuse of power; behavior materially incompatible with the proper function and purpose of the office.

Procedures relating to the removal process shall be adopted by the Board. Once the removal process has been initiated, a hearing and vote of the Board will be held within 45 days. A vote to recommend removal requires a two-thirds majority of the Board members voting (with the person proposed to be removed not voting). A Board recommendation for removal shall be subject to approval by a vote of the Voting Members~~Fellows~~, to be held within 45 days of the Board vote. A two-thirds majority of the Voting Members~~Fellows~~ voting is required for removal.

ARTICLE V. — ***Board of Directors***

…

SECTION 2.—ELECTION AND TERM OF OFFICE

Annually, in a secret ballot of the Voting Members~~Fellows~~, four Fellows shall be elected to the Board of Directors for a term of three years. A retiring elected Director shall not be eligible for reelection for at least one year after the expiration of the term for which the Director was elected. Appointed Directors will be elected by the Board of Directors and will serve a term of one year, renewable for up to three years.

…

SECTION 4. REMOVAL FROM OFFICE

The process for the removal from the Board of the immediate past President or any elected Director can be initiated by either a petition of 5% of the Voting Members~~Fellows~~, a two-thirds majority vote of the Officers of the CAS (with the person proposed to be removed not voting), or a majority vote of the Board of Directors (with the person proposed to be removed not voting). Reasons for the removal include: violation of the code of conduct; abuse of power; behavior materially incompatible with the proper function and purpose of the office.

Procedures relating to the removal process shall be adopted by the Board. Once the removal process has been initiated, a hearing and vote of the Board will be held within 45 days. A vote to recommend removal requires a two-thirds majority of the Board members voting (with the person proposed to be removed not voting). A Board recommendation for removal shall be subject to approval by a vote of the Voting Members~~Fellows~~, to be held within 45 days of the Board vote. A two-thirds majority of the Voting Members~~Fellows~~ voting is required for removal.

…

ARTICLE VII. — ***Meetings***

There shall be an annual meeting of the Society on such date in the last quarter of each calendar year as may be fixed by the Board of Directors, but other Society meetings may be called by the Board from time to time and shall be called by the President at any time upon the written request of 5% of the Voting Members~~Fellows~~. At least two weeks notice of all Society meetings shall be given to the members. At Society meetings, the presiding officer shall vote only in case of a tie.

ARTICLE VIII. — ***Quorum***

A majority of the members of the Board of Directors shall constitute a quorum. Five percent of the Voting Members~~Fellows~~ of the Society shall constitute a quorum at every meeting of the Society.

CAS BYLAWS

(As Amended ~~August 30, 2019~~xx, xxxx)

…

ARTICLE V. — *Elections and Filling of Vacancies*

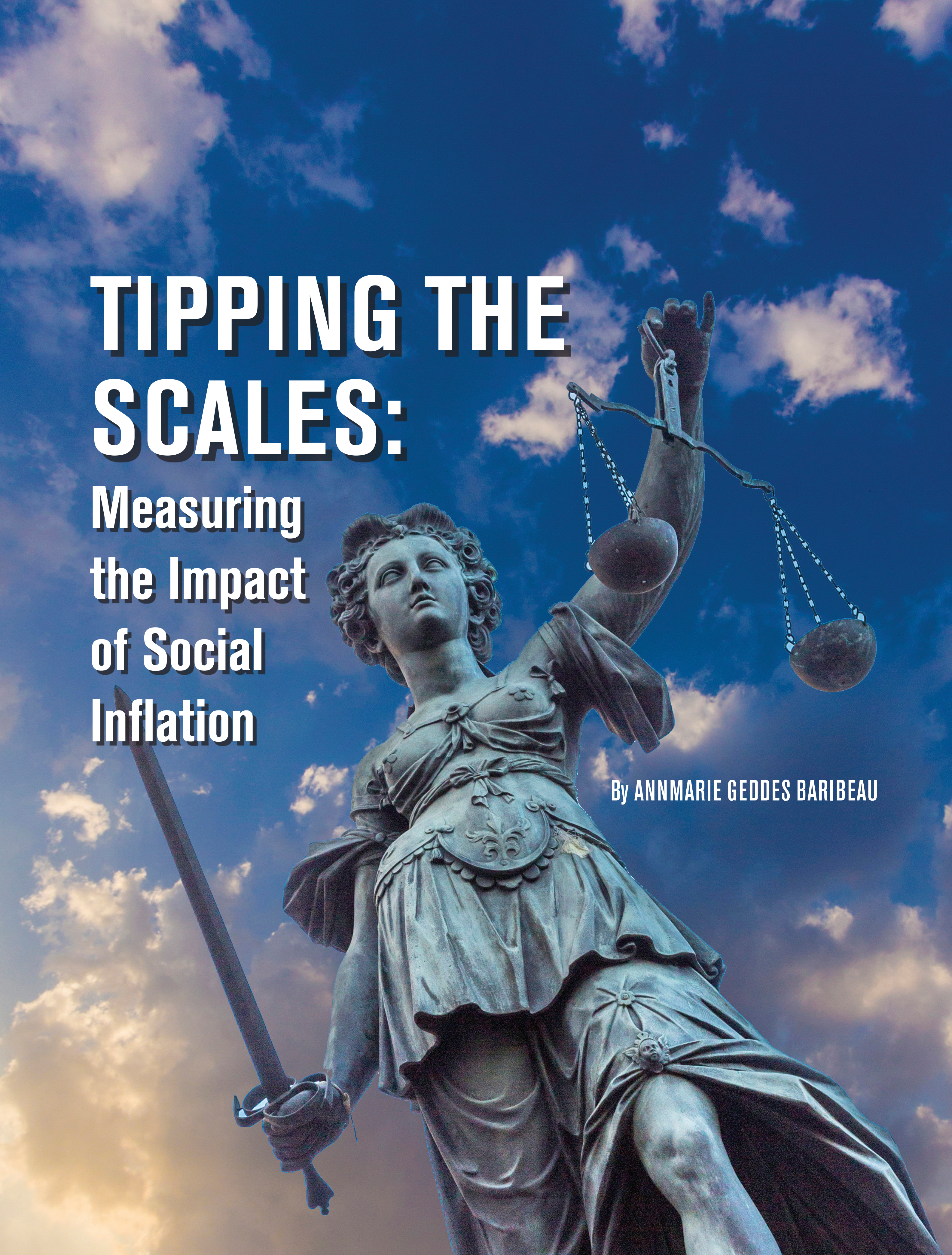
Procedures for nominations and elections shall be established by a majority vote of the Directors present and voting at a meeting of the Board of Directors. These procedures shall be provided to the membership annually at the beginning of the election process. A majority of the votes cast by Voting Members ~~Fellows~~ shall be necessary for the election of the President-Elect. For the election of Directors, the four candidates with the highest number of votes cast shall be elected, subject to a requirement that one-third of the valid ballots cast for Director shall be necessary for the election of a Director.

The Board of Directors may fill vacancies in the term of any Officer or member of the Board. Any Officer so appointed shall serve until the next annual meeting. Any member of the Board so appointed shall serve, subject to ratification by the Voting Members ~~Fellows~~ at the next meeting of the Society, until the expiration of the term of office of the Board member being replaced.

TIPPING THE SCALES:

Measuring the Impact of Social Inflation

By ANNMARIE GEDDES BARIBEAU



Despite the buzz, social inflation's impact might not be what it seems

Before COVID-19 reared its ugly head in the United States, nearly all commercial property-casualty markets were hardening. A significant culprit generating media buzz during the past year is a phenomenon called social inflation.

"It is not a new term, but it does tend to gain more attention when litigation expenses start increasing rapidly," observes Ken Williams, staff actuary for the Casualty Actuarial Society.

Reflecting changes in societal values with economic and social dissatisfaction, social inflation manifests itself in losses when juries, as microcosms of the American mood, reach verdicts more influenced by emotion than facts and logic. This amorphous variable is a force behind rising legal expenses, especially headline-making and eye-popping "nuclear verdict" awards that reach $5 million and more.

Reflecting changes in societal values with economic and social dissatisfaction, social inflation manifests itself in losses when juries, as microcosms of the American mood, reach verdicts more influenced by emotion than facts and logic.

Already a major concern for commercial auto as well as other liability coverages, there is some evidence that social inflation is spreading to personal lines as well.

While sources generally agree that social inflation exists, reliably quantifying it for rating and reserving purposes is elusive. Social inflation is one of several factors pressuring pricing, making it challenging to tease out actual influence from the others.

There has "always been a background presence of what is commonly referred to as 'social inflation,'" offers Richard Henderson, senior vice president of the Transatlantic Reinsurance Company (TransRe). He cautions against using social inflation as a "catch-all scapegoat" for adverse results. "Social inflation should not be blamed for less-than-prudent claim or underwriting decisions," he warns.

Understanding Social Inflation

In his 1977 shareholder letter, Berkshire Hathaway CEO Warren Buffett wrote that insurance costs were expected to rise from "a broadening definition by society and juries of what is covered by insurance policies."* He called it social inflation. More modern interpretations see social inflation as the force that enables plaintiffs' attorneys to apply certain legal strategies successfully that appeal to jurors' emotions

* https://www.berkshirehathaway.com/letters/1977.html

to boost settlement amounts and jury awards.

Like Buffett more than four decades ago, several insurers, reinsurers and consulting firms are reporting that social inflation is a key explanation for the rising premiums leading to market hardening.

"Social inflation is pushing U.S. liability loss costs up," according to a paper[†] published by the Swiss Re Institute last November, "and the pain is spreading from commercial auto to general liability, D&O, and medical malpractice." Liability coverages are especially of concern, the report observes, because they are long-tail lines where social inflation's impact can last for multiple accident years.

The "2020 Review & Preview: U.S. Property/Casualty,"[‡] published by AM Best in March, reports that "social inflation is increasing both current year loss picks and estimates of the adequacy of prior years' reserves for most casualty lines." The insurance rating company expects most major casualty line results to deteriorate in 2019 and 2020.

Social inflation is not just a concern for commercial auto and liability lines. The Insurance Research Council (IRC) June report, "Social Inflation: Evidence and Impact on Property-Casualty Insurance," offers evidence that social inflation has been creeping somewhat in personal auto. Using data from the National Association of Insurance Commissioners' Profitability by Line by State and other reports, the IRC paper notes that private passenger auto incurred claim losses rose by 5.6% annually during 2013 to 2018 compared to the annualized consumer price index (CPI) of 1.5% during the same period. The average bodily injury liability claims payment climbed three times the amount of the CPI during 2014 to 2019, according to the report.

The line from social inflation to higher losses in frequency and severity requires running through a complex gauntlet of circumstances with various probabilities. It presumes juries are emotionally accessible to the point that they can be manipulated through plaintiffs' attorney strategies. This causes juries to disregard facts and logic presented by defendant representatives to reach a verdict that punishes corporations by awarding claimants' large sums of money. While this sounds like a helpless situation for insurers, there are measures they can take to reduce the influence of social inflation (see "Reversing the Trend").

One commonly cited courtroom tactic applied by plaintiffs' attorneys is called reptile theory. Introduced in 2009, the idea is to inspire empathy in juries toward claimants by appealing to the primitive part of the human brain shared with reptiles. Since plaintiff's attorneys are not allowed to use the Golden Rule in final arguments, reptile theory appeals to jurors' emotions and fears to evoke empathy and sympathy.

One commonly cited courtroom tactic applied by plaintiffs' attorneys is called reptile theory. Introduced in 2009, the idea is to inspire empathy in juries toward claimants by appealing to the primitive part of the human brain shared with reptiles.

"Whether reptile or simply more successfully presenting their case, or to some extent social inflation, or a combination of all three, the plaintiff attorneys have been able to tap into juror anger to create nuclear verdicts," Henderson observes.

Since social inflation is buried in industry loss figures, sources look to other indicators of its existence and spread. One method is measuring investment in legal advertisements by plaintiffs' attorneys. Offering evidence that attorney advertising is up in both traditional and social media, the IRC report notes that higher advertising spend cultivates positive consumer attitudes toward personal injury litigation. Thanks to plaintiffs' attorney advertising strategies and investment, social inflation is now "wrapped in as justice," observes David Corum, vice president of the organization.

Assured Research LLC, which started drawing attention to social inflation in 2017, points to other signs. One is the growing American dissatisfaction with the broadening gap between the rich and the poor, according to a written presentation called "Social Inflation is Back" dated in March and provided by the firm to *Actuarial Review*.

Gallup's "Satisfaction with the United States" survey,

[†] https://www.swissre.com/institute/research/sigma-research/economic-insights-social-inflation.htm
[‡] https://www.insurance-research.org/sites/default/files/news_releases/IRCSocialInflation2020.pdf

which takes the country's temperature about once a month, shows that a majority of Americans have been dissatisfied with "the way things are going" in the United States for well over a decade. This can used to vouch for how Americans feel affects juries.

Americans generally have been more dissatisfied since the Great Recession. When the economic downturn was taking place from December 2007 to June 2009, about 80% of Americans were dissatisfied with "how things were going." In contrast, before the nation's shutdown in February 2020, 55% of respondents indicated dissatisfaction, which was the lowest since February 2005. Not surprisingly, 66% were dissatisfied in May, when much of the country was in some form of lock-down.

The growing distrust in societal institutions is considered another social inflation indicator. Over two-thirds (69%) of Americans say the federal government intentionally withholds important information unnecessarily from the public, according to a Pew Research Center survey released in July 2019.[§] Nearly two-thirds of Americans find it difficult to identify the truth from elected officials, as opposed to social media (48%), cable news (41%) or talking to people they know (30%), the study shows.

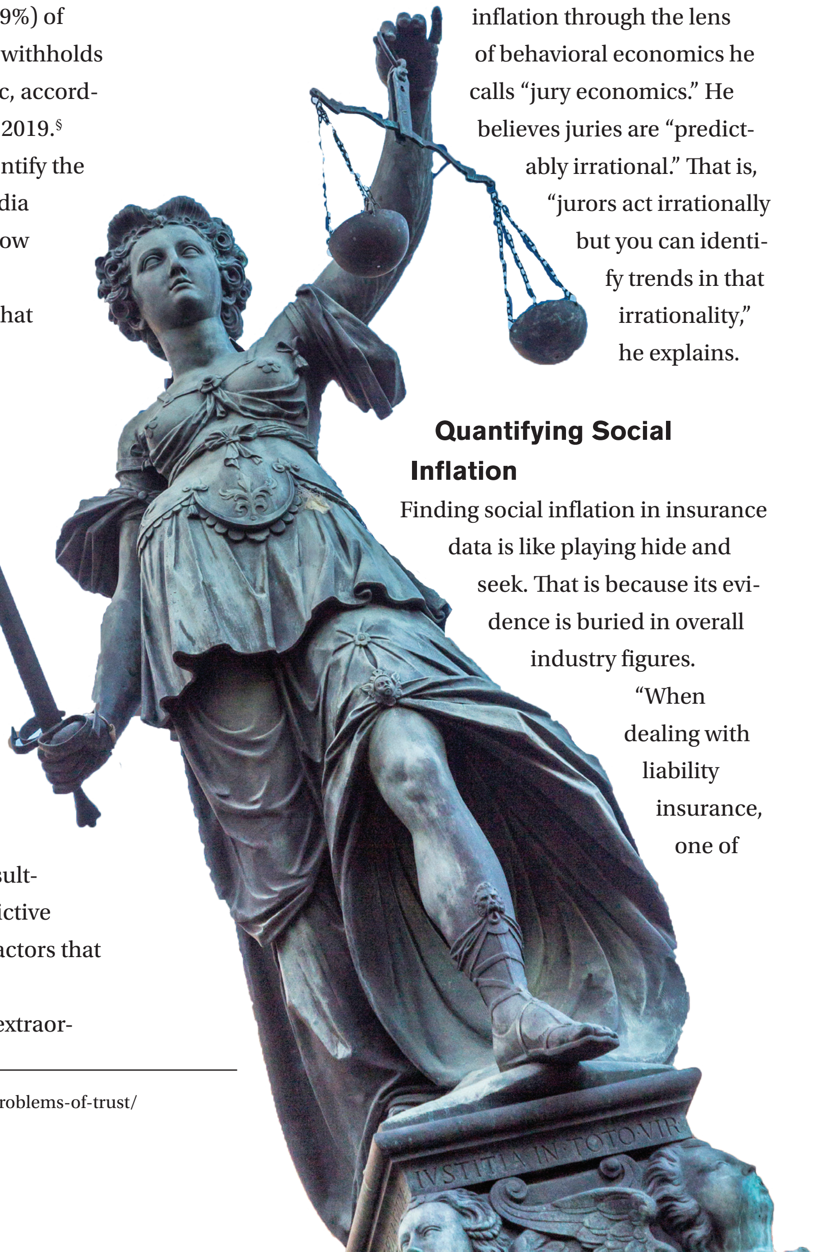
Given these results, the response to COVID-19 that led to an unemployment rate of about 15% could make social inflation and therefore rising litigation expenses even worse (see sidebar). When Sound Jury Consulting conducted a survey during the COVID-19 crisis in May, 65% of 1,000 respondents said they would be more likely to force an insurer to a pay a lot of money to a plaintiff, according to its "Pandemic Juries" study.

The Occupy Wall Street movement and emergence of popular so-called socialist candidates in both local and national elections reflect dissatisfaction with the status quo, says Thomas M. O'Toole, president & consultant for Sound Jury Consulting. The firm deploys multivariate analysis and predictive modeling to create damages models by identifying factors that make a case more prone to nuclear verdict.

The "me first" culture, O'Toole says, creates an extraordinary tendency towards motivated reasoning, "where our beliefs drive what we are willing to accept as 'facts' and 'law.'" When jurors become "more unbound from the restraints of the law with jury instructions," nuclear verdicts are easier to achieve, he adds.

This is backed by his company's surveys. A 2019 survey offers that 75% of respondents indicated they would disregard the judge's instructions and base a case on their own personal beliefs of right and wrong. Fifty-seven percent affirmed they would ignore a judge's instructions to avoid internet research on the case if they felt that they could learn something important from it. And perhaps more disconcerting, 75% would disregard the instruction from a judge to ignore inadmissible testimony if they felt the testimony was important.

O'Toole views social inflation through the lens of behavioral economics he calls "jury economics." He believes juries are "predictably irrational." That is, "jurors act irrationally but you can identify trends in that irrationality," he explains.



Quantifying Social Inflation

Finding social inflation in insurance data is like playing hide and seek. That is because its evidence is buried in overall industry figures.

"When dealing with liability insurance, one of

§ https://www.people-press.org/2019/07/22/how-americans-see-problems-of-trust/

the challenges is that societal attitudes are always evolving," cautions Neil Bodoff, executive vice president of Willis Re. "The question is whether recent changes in societal attitudes are material enough to change the trajectory of liability claims behavior. To answer this question, we need to adopt an evidence-based framework that builds upon data and quantitative analysis."

Until then, sources point to other signs that social inflation is a growing concern. For instance, the number of tort caseloads began to rise in 2016, according to National Center for State Courts data analyzed by Assured Research. Specifically, in an analysis of 17 states representing around 33% of liability premiums, the number of tort cases rose 1.6% in 2016, 3.2% in 2017 and 1.7% in 2018. Other Liability Occurrence, a proxy for general liability, has been experiencing adverse loss development for three years, according to the Swiss Re report.

There is evidence that the number of nuclear verdicts, which often have higher punitive and compensatory damages than plaintiff economic damages, are increasing.

Damon N. Vocke, partner and head of corporate & regulatory insurance litigation at Duane Morris LLP, finds social inflation is a factor in the higher frequency and severity of jury awards relative to past trends, but loss data often reflects multiple causes of losses. "It is difficult to pinpoint exactly where social inflation fits in relative to rising loss trends when other factors can affect those trends beyond the blanket default to social inflation," he explains.

Sources point out other contributing factors to rising losses. In a white paper published last August, "Three rising trends in D&O insurance," Milliman notes a "staggering" 71% increase in the size of settlements for directors & officers coverage, from $1.4 billion in 2017 to $2.4 billion in 2018. Besides highlighting a "heightened awareness to social issues," such as the #MeToo movement, the paper also points to increases in securities action lawsuits and growing cyberrisks and data protection laws.

Overall, the average liability award for personal injury claims for all P&C lines seems to ebb and flow, showing a large percentage decline from 2008 to 2010. The average award was $1,224,000 in 2007, which dropped to less than half the amount at $575,000 in 2010. However, the average award increased a whopping 36.4% to $1,847,000 between 2016 and 2017 (see Figure A).

There is evidence that the number of nuclear verdicts, which often have higher punitive and compensatory damages than plaintiff economic damages, are increasing. The American Property Casualty Insurance Association released a chart showing large jury awards above $5 million jumped from 143 cases in 2011 to 230 cases in 2017. However, since there were 190 cases in 2010 and similar amounts in 2015 and 2016, the number of cases in 2017 might not be as dramatic as it seems.

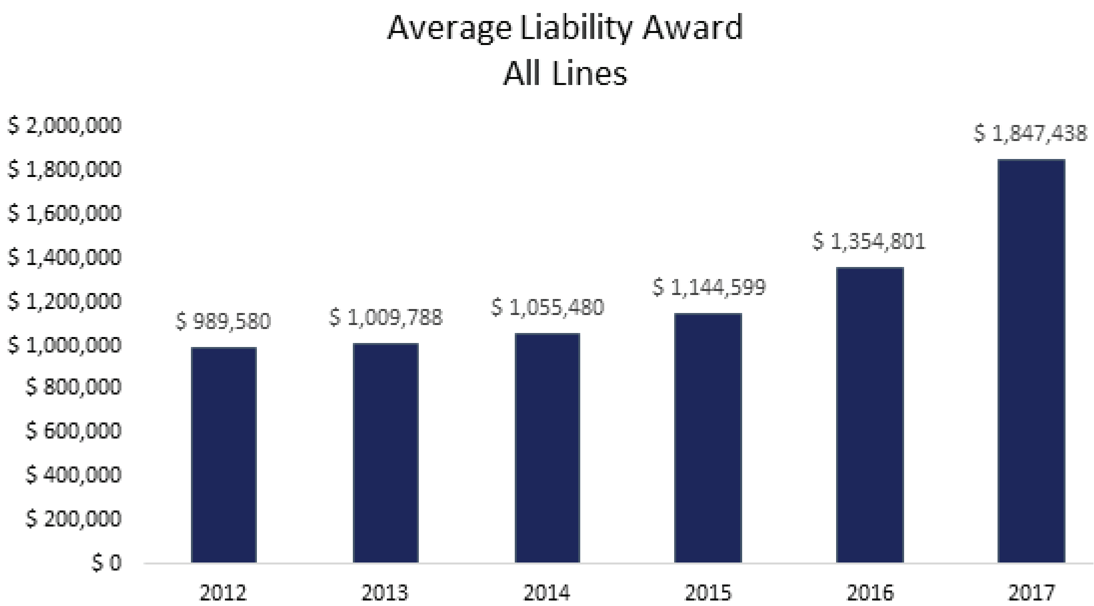
The evidence suggests that the medical malpractice line is suffering at least in part from social inflation. TransRe reports that the number of claims with $10 million or greater verdicts has increased substantially since 2014 from an annual low of 18 cases to a high of 46 cases for both 2018 and 2019 (see Figure B).

Since only a small percentage of claims — perhaps 5% — are tried to conclusion and the vast majority of plaintiff verdicts are settled or resolved for much lesser sums, a common retort is the number of large verdicts is not significant, explains Henderson. However, "the other side of the coin is that historical verdicts form a significant basis for settle/defend decisions on future claims as well as impacting settlement amounts," he explains. "Clearly, if verdicts are increasing in frequency and/or severity, it can make an insurer far more risk-averse and lead them to settle claims for higher than desired amounts rather than risk a trial," he adds.

Social inflation is also cited as a main explanation for increasing commercial auto premium. However, Louise Francis, consulting principal of Francis Analytics & Actuarial Data Mining, has a different view. After studying the rise in commercial auto liability costs for her clients, she offers, "I am not convinced that social inflation due to litigation, as opposed to texting, is the main driver of commercial automobile liability trends." Specifically, her research indicates that the causes behind higher commercial premium increases are higher frequency from greater travel with contributions from distracted driving due to texting.

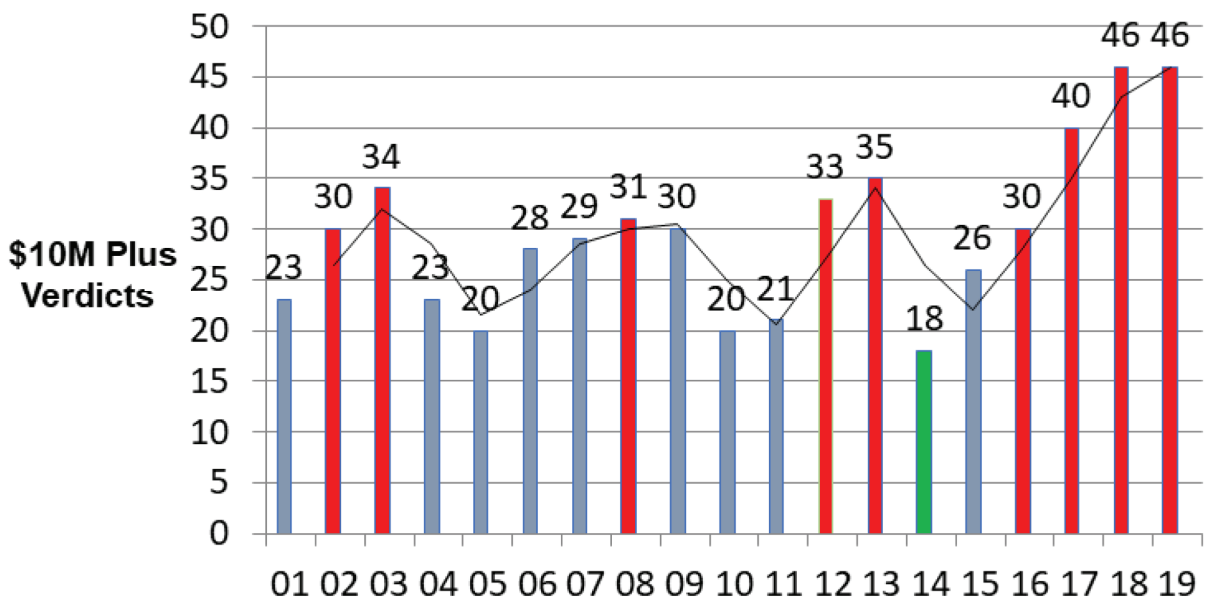
Besides social inflation, there are other perennial litigation challenges threatening to pressure legal-related costs in general, such as jurisdictions or judges that commonly favor plaintiffs. The website, "Judicial Hellholes," has been warning

Figure A



Source: Insurance Information Institute – Median and Average Personal Injury Awards By Type of Liability

Figure B



Source: TransRe. Used by permission.

The COVID-19 Effect

Since social inflation was reportedly a growing problem before COVID-19 arrived at America's shores, it will be a larger challenge going forward. A widening gap between the rich and poor, higher unemployment and loss of employer-sponsored health plans are likely to release even more dissatisfaction from Pandora's box to the jury box.

"Now there is a new paradigm," says Damon N. Vocke, partner and head of corporate & regulatory insurance litigation at Duane Morris LLP. "I think what is going to happen is a perfect storm of preexisting social inflation coupled with catastrophic public health and economic disaster."

"We are at the tip of the spear," he continues. "It will take years to play out and I think insurance companies will be trying to grapple with loss exposures because there are so many unknowns of how these cases will be resolved."

As for the cases and legislation being introduced to assure business interruption coverage for the pandemic, he says that the industry is unified against them, but results in the courts will differ. "There will be accelerated pressure to find recoveries as a lot of businesses go under," he says. The pressure could last into 2021 as tens of thousands of businesses may fold before economic normalcy returns, which is likely on hold until an effective vaccine can be developed and distributed.

He expects property insurers to be most affected by COVID-19, but there are also general liability exposures. Businesses with public interfaces have higher risk exposure, Vocke explains, because people can claim that they picked up the coronavirus from such establishments.

"Jurors will feel sympathetic," he predicts. Part of the unknown is whether and to what extent legislators pass laws providing liability immunity for businesses that comply with public health recommendations and whether waiver forms will be enforced.

COVID-19's impact on litigation is not clear. Although plaintiffs' attorneys are filing lawsuits, there is a chance for temporary liability protections due to the exceptional situations presented by the response to COVID-19.**

In May, the business community, including the U.S. Chamber of Commerce and dozens of organizations, wrote a letter to Congress requesting liability protections for the following qualifying exemptions:

- Organizations working to follow applicable public health guidelines against COVID-19 exposure claims.
- Health care workers and facilities providing critical COVID-19-related care and services.
- Manufacturers, donors, and distributors and users of vaccines, therapeutics, medical devices and supplies critical to the COVID-19 response.
- Public companies targeted by unfair and opportunistic COVID-19-related securities lawsuits.

As long as it continues to harm people, COVID-19 is likely to affect insurers for years to come.

**https://www.uschamber.com/letters-congress/coalition-letter-liability-relief-legislation-response-the-pandemic

of specific jurisdictional areas of concern for nearly 20 years. There are also particular states, such as Louisiana, New Jersey and California, that have a reputation for plaintiff-leaning courts and judges. While most attorneys on the defense side are aware of plaintiffs' attorney tactics, "some judges still allow plaintiff attorneys significant latitude during their questioning of witnesses," Henderson says.

Reversing the Trend

Despite social inflation and jurisdictions and judges unfavorable toward defendants, sources say insurers can step up their litigation game. One area is improving communication.

"On the claim/legal front, many are of the opinion the plaintiff's bar is more cohesive and communicative with each other than the defense," Henderson says. "This in and of itself can lead to more and larger settlements and verdicts, and is not necessarily part of social inflation."

O'Toole reports seeing defendants' attorneys that just don't quite have the skill and talent to be persuasive in front of jurors. When attorneys fail to connect with and effectively communicate to jurors, he explains, they cede control to the corrosive influences that drive nuclear verdicts.

One way to improve communication is recognizing that the average juror's learning style has changed, O'Toole explains, while the presentation style of defendants' attorneys has largely remained the same. Insurers should also reconsider the wisdom of hiring less expensive legal representatives, he suggests. "The truly effective trial attorneys are going to charge more and have no interest in negotiating lower rates," he observes.

Insurers, as an industry, should also address systematic influences. Rising litigation costs from lawsuits pushing beyond the four corners of policies signal the need for litigation reform.

In the 1980s, the federal and state legislatures passed laws to limit tort suits. Since then, new laws and legal precedents have reversed course in some areas. The response to COVID-19 is also introducing a new flurry of lawsuits and potential state law changes, which could motivate an appetite for tort reform (see sidebar).

Conclusion

While eye-poppingly large jury verdicts and the social inflation explanation for rising premiums have gained media buzz, quantifying their impact on losses and premiums remains elusive. The good news is that insurers are not powerless against social inflation. By improving their litigation game and advocating for tort law reform, insurers can curtail social inflation's impact.

Actuaries also can play a critical role in identifying and measuring the effect of social inflation. Applying data analytics to address litigation expenses and social inflation is one potential way forward. Given the unknowns surrounding the effect COVID-19 will have on litigation, insurers need actuaries more than ever.

Annmarie Geddes Baribeau has been covering insurance and actuarial topics for nearly 30 years. Find her blog at www.insurancecommunicators.com.

Equity: The Next Step in Our D&I Journey

By SARA TEPPEMA AND MALLIKA BENDER

The practice of adding equity to "diversity and inclusion" is becoming increasingly common.

Editor's note: This article was originally published in The Actuary*, December 2019/January 2020 edition. It is reprinted with permission from the Society of Actuaries.*

As co-chairs of the new Joint Committee for Inclusion, Equity & Diversity (JCIED), we are excited for the Society of Actuaries (SOA) and Casualty Actuarial Society (CAS) to continue to work together on our common goals for the actuarial profession. The committee has begun work on several initiatives, including:

- Career encouragement for diverse students.
- Professional development programs to educate our members on DE&I topics.
- Leadership development to increase diversity in leadership in the profession and at our employers.

As we continue the hard work toward a diverse and inclusive actuarial profession, the JCIED has embraced the concept of "equity" as a core value. The practice of adding equity to "diversity and inclusion" is becoming increasingly common in nonprofit and social justice settings, but it is not often mentioned with corporate D&I efforts — possibly because the concept is not widely understood.

One helpful analogy comes from executive coach and DE&I expert Kevin Anthony Johnson:

> Equity is a new addition because the old D&I lacked the intention of leveling not only the access but the opportunities. Equity represents the pay and career path inequities experienced by marginalized folks. We might be invited to the dance (diversity), and even asked to get on the dance floor (inclusion), but we get charged a two-drink minimum (less pay, higher standards, lower recognition, has nothing to do with dancing) while others aren't. Equity says everyone pays the same cost of entry to the dance.

Equity takes D&I one step further. It promotes fair treatment and access to opportunities, while working to eliminate the institutional and unconscious barriers that limit the potential of diverse participants.

Equity is often confused with equality; however, equality doesn't necessarily achieve the same outcomes as equity. Let's say Jack and Jill walk up the hill and each is handed a glass of water — they've been treated equally, and both get to rehydrate before climbing the next hill. What if I told you, however, that Jill was forced to carry a 10-pound load up the hill and Jack was not? Perhaps she needs two glasses of water to be able to take the next step. Recognizing that these two people did not start from the same place, and providing the appropriate resources with that in mind, is equity.

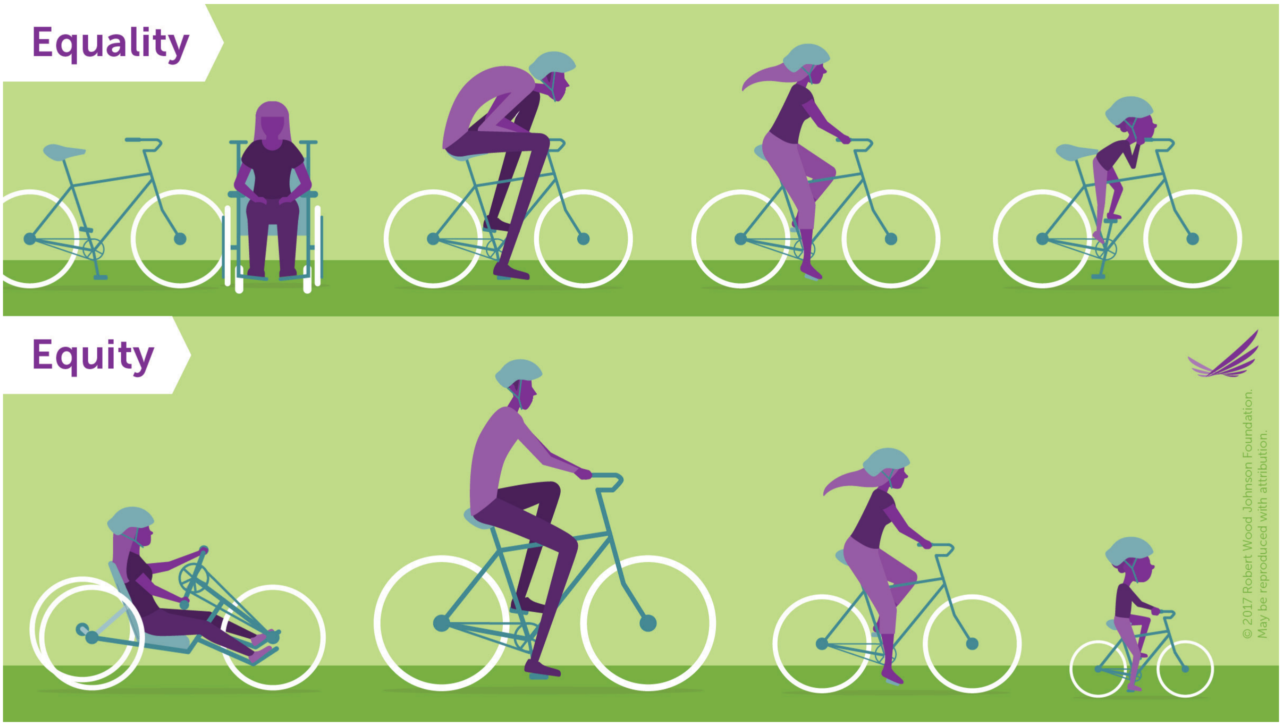
Figure 1 shows a visual representation of the difference between equity and equality with a healthy "spin." Here you can see how equality leads to a suboptimal outcome, as compared to equity.

Let's now look at a very current and relevant example: the gender wage gap. Many actuaries believe we are a step ahead of other professions in addressing wage inequality. Because we have a credentialing system that often ties pay to the number of exams passed, there may be less evidence of a gender wage gap when comparing men and women at similar points early on in their careers. However, from our vantage point, a gender disparity still exists at the highest levels of management in the profession.

A large body of research shows there are still barriers preventing many women from reaching higher-paid leadership levels. Women across industries are systemically given fewer opportunities for stretch assignments and promotions and are less likely to have strong sponsorship or mentoring relationships within their organization. Our focus on equity will allow us to raise awareness about such barriers and take an aggressive approach toward dismantling them.

Debates around equity in insurance offerings have surfaced in recent years. One example is the recent report from the California Department of Insurance that found auto

Figure 1: Equality vs. Equity



Source: "Visualizing Health Equity: One Size Does Not Fit All Infographic," Robert Wood Johnson Foundation, June 30, 2017. ©2017 Robert Wood Johnson Foundation

insurance discounts for affinity groups in the state "disproportionately and adversely affected drivers residing in ZIP codes with lower per capita incomes, lower levels of educational attainment and larger communities of color."* For now, assume that affinity discounts are justified by a concentration of highly educated, highly skilled members of these organizations presenting a lower risk to the insurer. The lack of equity here stems not from insurers discriminating against low-income communities, but rather from generations of systemic discrimination and bias that have blocked these people from attaining the wealth needed to acquire higher education and skills and move into lower risk conditions.

Discounts put money back in the pockets of people with wealth, rather than in the pockets of those who could benefit the most. Applying equity in this context, we could suggest that eliminating affinity discounts and building that savings to the insurer into base rates would more equally spread the value across high- and low-income communities. Others might take it one step further and say that giving discounts to those in low-income communities, thus increasing their wealth and access to opportunities that lower their risk, would be the most equitable approach.

Time will tell where this debate ends up, but we can be sure we'll see the push toward more equitable conditions in the workplace, as well as in the products we provide, becoming stronger and stronger over time. The JCIED is excited to be doing this hard work in our corner of the insurance industry to create a more diverse, inclusive and equitable actuarial community.

Mallika Bender, FCAS, MAAA, is a property-casualty actuary with experience in the United States and Australia. Bender's pronouns are she/her/hers.
Sara Teppema, FSA, MAAA, FCA, is president of Alta Advisers, a health care consulting firm. Teppema's pronouns are she/her/hers.

---

* Meyerowitz, Steven A. "'Disturbing' Disparities Found in Auto Insurance Discounts for Millions," NU Property Casualty 360°, October 10, 2019 (accessed October 11, 2019).

ETHICAL ISSUES

We Don't Need No Stinking Documentation!

Ethical Issues is written by members of the CAS Committee on Professionalism Education (COPE). The column's intent is to stimulate discussion among CAS members. Therefore, positions are sometimes stated in such a way as to provoke reactions and thoughtful responses on the part of the reader. The opinions expressed by readers and authors are for discussion purposes only and should not be used to prejudge the disposition of any actual case and do not modify published professional standards as they may apply in real-life situations.

Malcolm "Mal" Reynolds, FCAS, MAAA, CSPA, is a pricing actuary who has spent the majority of his career building predictive models at Independent Insurance Company. His company was recently purchased by a much larger company, Alliance Insurance.

After the merger, Alliance consolidated the actuarial teams. Malcolm was asked to meet with Bob Shephard, also an FCAS and head of the newly consolidated actuarial modeling team.

Bob: I am excited to have you join our modeling team. I've heard great things about the modeling work you did for Independent, but they never mentioned you were such a snazzy dresser … I love that brown coat!

Mal: Thanks, I think! I was nervous about the acquisition, but after meeting you and the rest of the team, I'm eager to get to work. I always worked alone on the modeling projects at Independent, so working on a team will take some adjustment.

Bob: That's understandable, but I hope it doesn't take you too long to adjust. The first project I would like you to work on is getting Tiffany, your Alliance counterpart, up to speed on the models you developed at Independent. I would like to have her review your development documentation to understand your methods and assumptions. We all benefit by following best practices.

Mal: Um, I don't have a lot of documentation for my models. I was the sole developer and didn't have the time to formally document everything. A lot of it is in my head or personal notes, but I would be happy to talk to Tiffany about my process.

Bob: I appreciate your willingness. When you say you don't have a lot of formal documentation, what exactly do you mean?

Mal: Well, I have some Excel files and the Python code I used to run the model. Nothing is in a format that I could easily hand over to someone else without additional work. As I said, I was the only modeler at Independent, so there wasn't a need for more than that. My code is well-commented and includes all of the distributional checks and model fit statistics.

Bob: As a member of the Alliance modeling team, you'll need to document to our standards. We require all steps of the process to be well-documented. Our typical documentation for model development is about 150 pages and covers everything from data preparation and decision support to expected performance statistics. We also require all models be peer-reviewed and independently validated before we use them.

Mal: An *average* of 150 pages!?! How do you get any modeling done? I was successful at Independent because I could build and deploy a predictive model in under a week, but that didn't include the extensive documentation you're describing.

Did Mal violate ASOP 41 and ASOP 56 because he did not document his work to a level that another actuary was able to follow?

Yes

A few working files and some code aren't enough documentation for another actuary to make an objective appraisal. Additionally, any actuary using the model in the future will need to review this information in order to rely on the model.

ASOP 41, Actuarial Communications, Section 3.2 states: "The actuary should complete an actuarial report if the actuary intends the actuarial findings to be relied upon by any intended user . . . the actuary should state the actuarial findings, and identify the methods, procedures, assumptions, and data used by the actuary with sufficient clarity that another actuary qualified in the same practice area could make an objective appraisal of the reasonableness of the actuary's work as presented in the actuarial report."

ASOP 56, Modeling, Section 3.7 states: "The actuary should prepare such documentation in a form such that another actuary qualified in the same practice area could assess the reasonableness of the actuary's work." The degree of such documentation should be based on the professional judgment of the actuary and may vary with the complexity and purpose of the actuarial services. In addition, the actuary should refer to ASOP 41, Actuarial Communications, Section 3.8, for guidance related to the retention of file material other than that which is to be disclosed under Section 4.

No

Mal saved all of his working files and has well-documented code. Another modeling actuary should be able to read through his notes and code to know what he was doing.

ASOP 41, Actuarial Communications, Section 3.2 states: "An actuarial report may comprise one or several documents. The report may be in several different formats (such as formal documents produced on word processing, presentation or publishing software, e-mail, paper, or websites). Where an actuarial report for a specific intended user comprises multiple documents, the actuary should communicate which documents comprise the report."

ASOP 56, Modeling, Section 3.7 further states: "The degree of such documentation should be based on the professional judgment of the actuary and may vary with the complexity and purpose of the actuarial services."

It depends

It depends on how complete the working files and code commentary are. The completeness and quality of the documentation should be based on how easy it is to interpret and follow.

Ethical Issues Poll — Let Us Know What You Think

Visit https://ar.casact.org/ to take the online poll of the following questions:

Did Mal violate ASOP 41 and ASOP 56 because he did not document his work to a level that another actuary was able to follow?

☐ Yes ☐ No

Should Bob report Mal to the ABCD?

☐ Yes ☐ No

Does it matter if the models were not built by actuary?

☐ Yes ☐ No

Would it matter if Mal was a data scientist instead of an actuary?

☐ Yes ☐ No

Pandemic Litigation: The Many Effects of COVID-19 By JEFF DUNSAVAGE

COVID-19 has hobbled the global economy, but the insurance industry's potential exposure to the pandemic has kept attorneys busy.

"I can't even begin to tell you the number of phone calls we've received from commercial clients desperate for guidance about what they're supposed to do to reopen their businesses," Tancred Schiavoni, a partner at the law firm of O'Melveny and Myers, told attendees at a session from May's CAS Spring Meeting. The meeting had been scheduled for Chicago but was held virtually because of the virus.

In "Risk Management in Light of the Coronavirus Pandemic," actuaries heard how litigation and proposed legislation over business interruption coverage threaten to affect insurers for some time to come. They also received a detailed description of the likely impact on insurers' underwriting and asset losses.

"This might be a lawyer's dream of bringing just about any kind of claim you can think of . . . but it's a nightmare for our country and the [insurance] industry," Schiavoni said. Clients worry their businesses could be held liable for future outbreaks on their premises.

Schiavoni said some clients have already had claims brought against them for wrongful death and other injuries associated with alleged exposures on their properties. "We haven't seen many of these claims so far, but we are hearing from our non-insurer clients," he said. He expects these threats to be "more in the forefront as businesses reopen." Schiavoni speculated that hotels, cruise ship operators, nursing homes and venues for public gatherings would be primary targets.

Significant first-party claims

Zoheb Noorani, a counselor with O'Melveny, spoke about a number of first-party business interruption claims litigation currently being initiated. Noorani said that, despite most policies specifically excluding coverage for viruses, most plaintiffs claim their losses are due to government actions that shut businesses down. "So, there is an argument framed to get around the virus exclusion," he said. "We don't think it's very strong."

Noorani explained that policy language typically pivots on the words "direct physical loss of or damage to property at premises." "Those words," he said, "will be the critical issue being litigated. Does the presence of COVID-19 on a property constitute direct physical loss or damage?"

Arguments based on "civil authority" policy language still must contend with the "direct physical loss or damage" issue, Noorani said. He presented typical language stating that business losses will be covered "if they are caused by action of civil authority that prohibits access to the described premises due to direct physical loss of or damage to property, other than at the described premises."

Civil authority provisions, Noorani explained, are intended for situations in which, say, a fire damaged one building but access to adjacent buildings had to be barred. Plaintiffs would need to show that access is prohibited (in many cases, it clearly is not), and it was prohibited due to damage at a property other than the one covered in the policy.

Another critical issue for Noorani is how damages will be measured. For example, would damages consist of lost income that would have been earned absent the pandemic or lost income that would have been earned had the business remained open during the pandemic?

Legislative efforts

Schiavoni recounted how, in the wake of the 9/11 attacks, concerns were prevalent that businesses in New York City and other likely targets might not be able to get insurance. Efforts by state and federal governments and business interests led to the creation of the federal Terrorism Risk Insurance Act (TRIA), which provides a backstop to insurers to cap losses should another large-scale terror event occur. "We've seen legislative initiatives proposed, initially in states, and also before Congress, that were designed, in essence, to force coverage retroactively for COVID claims, particularly business interruption claims."

If approved, he said, the bills now pending in a half-dozen legislatures to essentially override virus exclusions would cause "tremendous negative economic impact and result in claims being paid that weren't anticipated."

Schiavoni expressed support for a proposed federal initiative to mirror TRIA that would require participating insurers to make coverage available for public health emergencies, including "any outbreak of infectious disease or pandemic."

A "double hit"

Aon senior managing director Sherman Power discussed the "double hit" property-casualty insurers have taken from the pandemic: underwriting losses and losses due to declining asset values.

"This correlation between assets and liabilities is a big lesson for our industry" in terms of any future pandemics, Power said. The second lesson, he said, is that "We are not — not yet at least — a good mechanism as an industry to address systemic risk . . . We know this now by the fact that the insurance industry here largely did not sell coverage for the pandemic." The coverage in place was "just a fraction of the immense societal exposure," Power said.

Using industry and financial markets data, Power described a disconnect in how reinsurers and financial markets perceive the pandemic. Reinsurers see the virus, from an underwriting perspective, as similar to a "typical" catastrophe in terms of expected losses.

In the equity markets, however, share prices of publicly traded large-cap P&C insurers fell more than 30% from January to May. To put that in context, Power said, those companies "lost aggregate market cap of $300 billion, which, by itself, is probably an order of magnitude larger than any of the current estimates of COVID-19 underwriting losses." Possible explanations for the disconnect include uncertainty over the business interruption issue and recession-related concerns.

Aon managing director and actuary Dustin Loeffler discussed how the pandemic is affecting insurers' and reinsurers' solvency. "Out of all sources of capital companies have," he said, "the one least impacted [by the pandemic] has been capital provided through reinsurance." Reinsurers see COVID-19 "more as an earnings issue and not so much as a capital issue." For most companies, he said, capital and surplus remain within or at the low end of an acceptable range, but they might need to "rebuild their buffer." Loeffler said that this "might make some companies more vulnerable as they might have less capacity to absorb future shocks."

Loeffler wrapped up with a discussion of how an insurer whose BCAR (Best's Capital Adequacy Relativity) ratio has been impacted by the pandemic might bring that measure back up to pre-COVID-19 levels. BCAR uses an insurer's leverage, underwriting activities and financial performance to determine how various scenarios might affect the company's balance sheet.

Starting with a hypothetical insurer whose pre-crisis BCAR of 54% fell to 49% because of a 20% drop in capital and surplus, Loeffler said that the simple answer might be to increase capital and surplus through a combination of debt or equity. "But that could come at a very expensive cost," he said, "especially in the current marketplace."

Instead of focusing on increasing capital and surplus, Loeffler suggested. challenging the amount regulators say you need to have. He described several approaches to reducing net required capital by using reinsurance solutions to address the relevant asset, credit and operational risk components. ●

Jeff Dunsavage is a senior research analyst at the Insurance Information Institute.

Is Climate Change Driving Rising Catastrophe Costs? By JEFF DUNSAVAGE

Ten percent of the insured property losses worldwide of the past 30 years have occurred in the most recent three years. One-third of these latest losses were due to tropical cyclones.

Numbers like these often are simply chalked up to global warming or climate change.

But attendees at the virtual CAS Spring Meeting were told that warming trends and their resultant "weather weirdness" are just one component in catastrophe loss trends — and not the most significant one. Included in their evidence: a preliminary version of a climate risk index that uses data from the Actuarial Climate Index (ACI), which was created by the four North American actuarial associations.

Losses on the rise

The United States has accounted for about 63% of total insured losses since 1900, Aon Director and Meteorologist Dan Hartung said. Since 1950, global insured losses have increased at an annual rate of about 7% above inflation.

Against the backdrop of this trend, he says, 2017, 2018, and 2019 represent the largest consecutive insured loss years in U.S. history.

"Of that $1.7 trillion of insured loss," Hartung says, "a third can be attributed to tropical cyclones." Hartung said it's common insurance industry knowledge that tropical cyclones — called "hurricanes" when they occur in the Atlantic Ocean and certain parts of the Pacific — tend to drive losses.

The overwhelming consensus in the scientific community is that human-caused climate change has been going on since the Industrial Revolution. Climate change is also widely viewed as a leading contributor to the rise in insured losses. In fact, when actuaries attending the session "Climate Change and Catastrophic Trends" were asked if they believe increasing catastrophe losses are due to climate change, 83% said they do.

In a separate presentation, Richard Gibson, FCAS, MAAA, senior property-casualty Fellow at the American Academy of Actuaries, quantified that "common knowledge" with data from the Actuaries Climate Risk Index (ACRI). This data shows that, from 1961 through 2016, tropical storms accounted for $268 billion in inflation-adjusted losses, followed by convective storms ($169 billion) and flood ($156 billion).

The ACRI is a new index developed by the Academy that seeks to determine whether there is a correlation between climate change and losses from extreme weather. It builds on previous work done in developing the ACI, a tool launched in 2016 to monitor the frequency of extreme weather and sea-level change.

Socioeconomic changes … are the predominant driver of more natural catastrophe loss for all perils.

The ACRI found that "extreme weather-related loss events have been increasing in frequency since 1990," Gibson said. "Along with higher losses, we've also been seeing higher volatility."

Gibson described the ACRI as "version 1.0" and its results as "preliminary." An eventual, more robust version is expected to benefit actuaries, policymakers, public and private decision makers, and the general public by helping them better understand the economic impacts of climate change.

Socioeconomic factors dominate

A warming climate leads to more unpredictable weather patterns that can include more tornadoes per outbreak, precipitation per event, cold spells and heavier snows, and more intense droughts and prolonged fire seasons.

"If you perturb the climate system," Hartung says, "you get more unpredictable changes in weather patterns across different geographies. In other words, more weather weirdness."

Alongside these changes, Hartung points to shifts in human behaviors that also contribute to growing losses:

- People moving to areas that are more subject to weather-related claims (hurricane- and flood-prone coastal regions and fire-prone mountain locales).
- Larger, more expensive homes with "more stuff" inside them.

Hartung shared a series of charts showing frequency and severity of hurricanes, convective storms, and wildfire that displayed little to no trend — whereas population growth in catastrophe-prone areas was clear in his data visualizations.

Although shifting weather patterns likely play a role, such socioeconomic changes, he concludes, are the predominant driver of more natural catastrophe loss for all perils. The ACRI's preliminary results support this conclusion.

Gibson also cited a report by the United Nations Intergovernmental Panel on Climate Change: "Economic costs of extreme weather events have increased over the period since 1960 . . . However, the greatest contributor to increased cost is rising exposure associated with population growth and growing value of assets."

Insurers' responses

Insurers are getting better at acknowledging the reality of climate change and its impact on business, Hartung says. They are using scenario-based models and insurtech tools as they work to improve their pricing of climate change-related risks. Actuaries are an important part of that conversation, as Gibson illustrated in his discussion of the ACRI.

Another presenter, James Orr, chief actuary, general insurance, for the Prudential Regulatory Authority, part of the Bank of England, discussed the importance of considering climate-related trends in actuarial work.

"It may be tempting to assume that slow, gradual changes in the climate will be experienced and only small differences in premiums will be needed to reflect these changes," he said. "However, acute physical risks include the frequency of large Cat events, where trends are difficult to identify."

In addition to pricing, Orr discussed reserving considerations: "What existing chronic or acute weather- and climate-related drivers of insurance claims might be affected by climate change? How will adaptations affect the risks?"

Orr also looked beyond physical risks to liabilities companies might be exposed to, such as failures to adapt, to mitigate physical impacts of climate change, to disclose relevant information and to comply with climate change-related legislation or regulation.

He suggested keeping an eye on the courts for emerging litigation and thinking about what lines of business are most likely to be vulnerable.

Gains in Autonomous Truck Technology Call for Insurance Solutions

By ANNMARIE GEDDES BARIBEAU

Since autonomous trucks are expected to join America's fleets in two to five years, insurers should be looking more seriously at how they should be covered, Drew Groth, an associate actuary for Milliman, Inc. pointed out during his May 13 presentation at the CAS Spring Meeting, "The Road Ahead: Autonomous Trucking and Its Impact on Insurance."

After describing various successful experiments and uses for autonomous trucks taking place in the United States and Europe, Groth points out there are few insurance options available to suppliers and manufacturers of autonomous trucks. As a result, companies are accepting full responsibility for accidents in case of technology malfunction.

"If you think about it, though, this is really a confidence play" by manufacturers to demonstrate their willingness to put their brand and financials behind their autonomous trucking technology, he adds. For instance, Tesla began their own insurance company believing they can insure their technology for 20% to 30% cheaper "simply because most insurers are not incorporating any sort of safety discount for Tesla technology."

Most manufacturers of autonomous vehicle technology, he believes, do not want to create their own insurance company but prefer to develop fronting arrangements with insurers. So far, however, insurers have not been eager to offer coverage. One insurer offering coverage for autonomous trucks is AXA XL. Their policies offer liability, property damage, theft, cyber coverage and care, and custody and control, which is important for moving goods.

One common idea for covering autonomous vehicles is to shift from auto to product liability coverage. Groth explains that this is problematic because it takes months, if not years, to settle product liability cases and people usually need quick post-accident reparations. The more likely scenario is that auto insurers will operate in some sort of gap or status quo coverage and then subrogate the claim with the product liability insurers, he says.

Because autonomous trucks can both reduce current risks and introduce new ones, offering commercial auto coverage for autonomous trucks may mean insurers could lead change in the structure of coverage. At the very least, insurers will need to adjust policy language to explicitly include or exclude autonomous trucks.

Another possibility is the formation of a federal- or state-based no-fault coverage pool paid by manufacturers to cover potential accidents. This could include a formalized process to assure quick reparation and save on costs from years of litigation.

He acknowledges, however, that the insurance complications of risk assignment "could get really messy." It raises the issue of how much an accident is due to the driver compared to truck technology error or improper maintenance or both. Telematics, which focuses on driver behavior, will remain important, but as drivers do less of the actual driving, the focus has to shift to the reliability of the technology and how well the truck was maintained.

Groth also offers some positives concerning semiautonomous and fully autonomous vehicles. Noting that vehicular accidents are the leading cause of work-related deaths and that associated workers' compensation claims for such accidents are exceptionally high, he hopes that there will be fewer accidents when the technology is driving rather than humans. Drivers can be better rested for situations when manual driving is called for and could even avoid repetitive motion injuries.

One common idea for covering autonomous vehicles is to shift from auto to product liability coverage.

Besides reducing work-related safety exposures, trucking companies can also enjoy other benefits of autonomous technology such as lower fuel costs, Groth says. The technology could also reduce the cost of stolen cargo, which is an especially important concern for transporting pharmaceuticals and technology.

However, the chance of an autonomous vehicle being manipulated through a cyberattack is the biggest unknown risk, he observes. And although trucking companies have expressed interest in autonomous trucks, there are potential barriers to adoption. The trucking industry is short on drivers, he explains, and some do not want to work for companies that use safety technology in cabs. Drive cams, for example, have caught drivers indulging in accident-encouraging behavior such as talking on a cell phone.

Expense could be another barrier to autonomous truck technology. Semi-autonomous trucks cost about $250,000. Aftermarket installation on conventional trucks is about $100,000. There are also additional maintenance costs.

Furthermore, state policies for autonomous commercial trucks differ vastly, making interstate driving a challenge. And although Groth is hopeful that autonomous trucks will reduce risk, the safety promises of automated vehicular technology are arguable because the technology reduces some risks while introducing others. (See *Actuarial Review*, May/June 2018 and November/December 2019 issues.) Ultimately for the insurance industry, however, the greatest potential barrier to covering autonomous trucking will be finding the appropriate data and useful proxies as necessary to properly price the risk.

Insurers Enjoy Benefits from Data Modeling the Claims Process

By ANNMARIE GEDDES BARIBEAU

Applying data analytics to the claims process is reaping a multitude of benefits and future opportunities, panelists agreed at the CAS Spring Meeting session, "Data Science and Improving Claims Customer Experience."

Marty Ellingsworth, senior analyst at Celent and moderator of the May 12 session, began by explaining that improving claims processes through data science helps enhance the customer experience, which is one step in the overall customer relationship journey with the insurer.

Improving the claims process through analytics results in lower costs, better quality and consistency, faster processing and an enhanced customer experience, says Eric Sanders, head of claims for QBE North America. "We've already seen all this happening, and it's really exciting," he adds. Thanks to data analytics, the panel agreed, there has been more improvement to the claims process in the past two years than during the prior few decades.

One breakthrough is using predictive models to triage the claims process, ensuring that applications go to the appropriate adjuster, says Tom Warden, senior vice president and chief data and analytics officer for Employers Insurance Services. His company is deploying automation to make more efficient decisions and to minimize the time that claim reps and adjusters spend on routine decisions. "We are trying to focus adjusters on the decisions that really require their intelligence," Warden explains. In turn, this hastens meeting the workers' compensation goals to encourage the healing of injured workers and their return to work.

Thanks to data analytics, the panel agreed, there has been more improvement to the claims process in the past two years than during the prior few decades.

By using "some pretty sophisticated data science, [the company is] continuing to refine our approach based on the more complex modeling and the feedback we get from our adjusters," Warden offers. This helps staff find claims with a high potential to become "jumper claims" that start off with $10,000 or $15,000 losses and can jump to $200,000 or $300,000 losses due to attorney involvement.

To accomplish this, "We're taking the decision processes that our best adjusters use and putting that in the code and, in essence, creating complex business rules that address specific situations," Warden explains. "The data science really comes in on the back end," he adds, which allows learning continuously from decisions and trying to improve upon business rules written in the code. "So, a lot of machine learning will be used to modify and update the business rules in the models being used in the day-to-day process."

USAA is aiming to allow customers to self-service less complex claims, says Luke Harris, the insurer's assistant vice president of innovation. "We want [adjusters] focused on that 25% of work that is the most complex, whether it's from an empathy perspective, or whether it's from a truly complex type of claim process or claim event," he explains. The personal auto and home insurer has set a goal to automate up to 75% of claims "without material impact to the member experience or the employee experience by 2022," when the company is celebrating its 100-year anniversary. "We believe it is attainable," Harris adds.

Emphasizing that relationships still matter, QBE's Sanders offers that his company is using "data science to gain insights but also to drive relationships by way of how we automate claims, and how we use the data science in a smart way to improve the customer experience." At the same time, data is being used to improve upon other areas, such as loss prevention. Since QBE has a diverse professional lines book of business — including directors & officers, errors & omissions, transactional liability, trade credit, surety and more — the insurer's goal is to automate about 25% to 30% of claims within three years.

Data analytics is also effective for fraud detection, USAA's Harris observes, but proper controls are necessary to accurately pay a claim instantly while still catching fraud. "Identification of fraud certainly is a byproduct of having the proper controls and very sophisticated models to identify claims that deserve to be paid," he offers. "I really see a shift in approach where it's less about catching the fraud [and] it's more about identifying the claims where there are elements of fraud, and then very quickly turning those, with the byproduct [that] the bad actors do get caught."

While there are injured workers who try to remain on benefits as long as possible in workers' compensation, Warden sees "the real fraud" coming from doctors and lawyers. Thanks to predictive modeling, Employers Insurance Services is successfully finding organized fraud committed by medical provider networks and bringing it to district attorneys for successful prosecution.

The potential for data analytics in the claims process has not yet been fully realized. "The biggest untapped part of the data and analytics equation is around how claims can really support underwriting in informing intelligently how to underwrite business," Sanders says. He also sees opportunities to address the impact of litigation, which requires large-scale data.

The potential for data analytics in the claims process has not yet been fully realized.

Panelists agreed that ensuring a significant amount of quality data is a central challenge while maximizing the potential for applying analytics to the claim process. "You need scale, or you need external data to supplement internal data," Sanders says. "You need your claims team coding accurately. That's not something that anyone should take for granted," he adds.

For workers' compensation, Warden says, part of the difficulty is that claims adjusters are under pressure to move quickly. Sometimes they have to skip steps on claims systems just to get the claims open, which does not lend itself to data quality. "All our automation efforts and our modeling efforts are really based on that source data," Warden says. His team is partnering with claims adjusters to encourage efficacy and ensure that data quality is "as pristine as it can be."

USAA's Harris says it is important to determine how to prioritize, pursue or collect data in order to solve business problems. He suggests examining the cost of incremental enhancements or improvements and considering whether there may be a lower-fidelity solution to that same business problem.

More data and analytics possibilities abound as well. QBE is now using tech tools to address claim-related challenges. The company is running a pilot project for fraud detection that examines digital picture data to detect manipulated photos. "Actuaries are going from loss triangles to predictive modeling to internet of things data sources, such as using geospatial data with voice and video and collusion networks," Sanders says.

Sanders also sees data analytics and tech tools as ways to help enhance customer experience. "In our crop area, we're using microclimate weather data not only as a method of managing a loss better, but [also] to round out services we provide to the American farmer to help them manage their crops better," he says. "You'll see a lot more of that going forward where carriers will certainly be interested in rounding out the types of services that they provide." ●

Annmarie Geddes Baribeau has been covering insurance and actuarial topics for nearly 30 years. Find her blog at www.insurancecommunicators.com.

Reinsurance CEOs Ponder the Pandemic and Beyond BY JIM LYNCH

With the nation just starting to reemerge from its pandemic-spun cocoon, three reinsurance executives discussed the state of their industry at a virtual meeting of the CAS Reinsurance Seminar in early June.

They spoke about the pandemic itself, of course, but also about what the reinsurance marketplace had been experiencing before the lockdown and what is likely to come next.

Other topics in the session moderated by Amy Stern of FTI Consulting included insurtech, social inflation and the next-generation talent as well as the steady increase of rates among primary insurers and reinsurers.

Executive panelists for the opening session of virtual seminar were Keith Wolfe, president property & casualty U.S. of Swiss Re Americas; Jean-Paul Conoscente, CEO of SCOR Global Property and Casualty; and John Bender, CEO of Allied World Reinsurance Co.

The worldwide crisis precipitated by the COVID-19 pandemic has become clear, and the property-casualty implications are just emerging. Both sides of the balance sheet will be affected, Bender said.

On the liability side, event cancellation insurance and trade credit are seeing pandemic-driven losses now. Bender cited employment practices liability insurance coverage as concerning once workers return to their offices.

He was most concerned about business interruption coverage, which can address losses from closures caused by physical damage to property. In addition, some governments' decisions to push for retroactive coverage where none exists are problematic.

On the asset side, insurers were hurt by falling stock prices and bond yields, as well as an economy that was placed in a "medically induced coma." He is confident that "when the economy is brought out of that coma, then the insurers will rally."

"If you have a solid balance sheet and are well managed," he said, "you will be able to survive this."

SCOR's Conoscente noted that casualty and business interruption claims will take time to emerge and settle, perhaps 24 to 36 months. His organization hasn't changed its underwriting philosophy and risk appetite but will be asking more about coverage details, like the actual wording of business interruption policies and what exposure might exist for civil unrest.

Wolfe of Swiss Re said the insurance industry was better prepared for the pandemic than many realize. Non-property-casualty lines had modeled pandemics frequently. Operationally, the industry has done well, shifting rapidly to the work-from-home environment. "We don't have to be in an office to operate," Wolfe said. "I don't think we were able to say that before."

Still, few expected what the pandemic would do to the economy. The business interruption problem, he predicted, would have to be addressed through a public/private partnership as a privately managed backstop is more effective way to fund recovery than government programs.

The pandemic appears to have lent momentum to a hard market.

Conoscente noted that lower interest rates will force companies to derive more profits from technical underwriting, which is likely to result in higher prices and more discipline, with companies walking away from unfavorable treaties. Bender said the market will reward "nimble, disciplined companies."

Before the pandemic, insurance and reinsurance executives worldwide were concerned with social inflation — an acceleration of claim costs above inflation, particularly on the liability side. (See this issue's cover story.) Bender is concerned that the liability potential of COVID-19 could exacerbate the problem. "Trial lawyers will leverage any trend to their advantage, and COVID-19 is the latest example to help drive the plaintiff's bar agenda."

Conoscente noted that U.S. trial lawyers are shifting from the liability space to focus on pandemic-driven, business interruption claims. The shift might be temporary, he said, but in any event he expects social inflation to continue.

For solutions, the executives spoke about embracing technological change and recruiting new talent.

Digitization can reduce internal expenses, Conoscente said, but it can also provide reinsurers with a strategic advantage when dealing with their insurance clientele. They are interested in learning more about any tech company that adds value to the risk-transfer chain, either at SCOR or at client insurers. He predicted more development in the next few years, using artificial intelligence to triage claims or prescreen risks, for example. Whatever the innovation, he said, companies will have to absorb it into their operational future.

Wolfe noted that many of the innovators will come from outside the industry. The property-casualty space needs more outside thinking, he said, and hiring people with wide and diverse backgrounds will help — data analysis in particular will be key.

In the end, Wolfe thinks that the industry does a good job of understanding risks, even if it can take time to sort things out. His example: flood insurance. The industry considered it uninsurable for decades, but advanced data collection and analysis are making prudent underwriting possible.

Technology has forced some self-examination at Bender's company. Allied World wants to rely less on older, legacy computer systems and is looking to new technology to support its insurance and reinsurance business. He said that Allied World will also do more in-house system development. Ideally, artificial intelligence, big data and bots will reduce processing time and help the organization become even more analytical.

Employees won't be processing claims, Bender said, "they will be analyzing claims." Those workers will form the next generation of reinsurance talent. A gap has grown, particularly among underwriters; the hiring of millennials and Gen Xers hasn't kept pace with the retirement of baby boomers. "Over the last 10 years, I believe we've lost more talent than we have hired, and it takes a long time to catch up." His firm has continued to add employees during the shutdown, including two on the day the seminar took place.

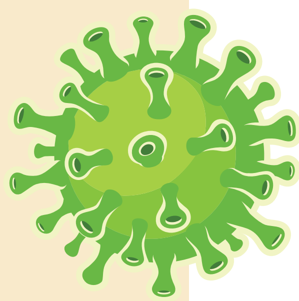
Conoscente said much the same early in the session: "There's a generation gap that we need to bring up to speed."

Wolfe said his employer is looking for self-starters. He thinks the current economic environment will create "one of the best recruiting opportunities we have had in a generation."

He encourages managers to challenge employees to broaden their skill sets as they gain experience. If they don't feel they are being challenged in their current roles, they may look for those challenges elsewhere. "If you throw them out of the nest, they will fly almost every time," Wolfe said.

James P. Lynch, FCAS, is chief actuary and vice president of research and education for the Insurance Information Institute. He serves on the CAS Board of Directors.

The CAS Calls for Essays on COVID-19



The CAS wants to learn how P&C actuaries, actuarial science academics, insurance industry professionals and risk managers are responding to the COVID-19 crisis. The organization is looking for individuals to prepare short essays addressing a variety of COVID-19-related topics.

Essays should (1) address particular challenge(s) that the P&C insurance industry is facing as a result of the pandemic; (2) identify problem(s) encountered by the profession and the industry; and (3) suggest possible solutions on how the industry may respond to satisfy the insured while maintaining the financial stability and strength of the industry.

Suggested topics include COVID-19's impact on:

- Business interruption
- Commercial and private auto insurance
- D&O coverage
- General liability
- Medical malpractice
- Reinsurance
- Travel insurance
- Workers' compensation
- Data collection
- Equity markets and interest rates
- Data visualization used to express quantitative ideas
- Pricing reflecting extreme events
- Nonfinancial elements of risk management for insurance companies and other organizations

Completed essays are due by **September 3, 2020**. Each essay should be no more than three pages (approximately 2,000 words or less). Prizes may be awarded for worthy essays from a prize fund of $4,000. Essays will be published on the CAS website by October 2020, and authors may be invited to present their essay during a concurrent session at the 2021 CAS Spring Meeting.

Reviewers will determine which essays are published, which authors are invited to present their essays and whether any essays will be awarded a prize.

To submit essays, email Karen Sonnet at ksonnet@casact.org.

The iCAS Community of Practice Event Goes Virtual with New Webinar Series

By MIKE WOODS, FCAS, CSPA, ICAS EXECUTIVE TEAM CHAIRPERSON

For the past three years, The CAS Institute (iCAS) Community of Practice has been held the day before the Ratemaking and Product and Modeling (RPM) Seminar and has brought together predictive analytics professionals for pertinent presentations and roundtable discussions.

When the COVID-19 outbreak forced the postponement of the 2020 RPM Seminar in March, the iCAS Continuing Education Committee also had to suspend its annual event. The committee decided to replace the cancelled event with a series of six webinars occurring from June to October.

Developed with feedback from holders of the Certified Specialist in Predictive Analytics (CSPA) credential, the iCAS webinar series focuses on topics such as data architecture, artificial intelligence and text analytics. The intent of the Community of Practice event is to provide more in-depth discussions than possible during introductory sessions found at other multipurpose events. The iCAS webinars are geared towards individuals with previous experience in predictive analytics, but they are open to everyone, including those without the CSPA credential.

On June 24, iCAS kicked off its first Predictive Analytics Community of Practice Webinar Series with a presentation on text analytics led by Brendan Gallagher, a data engineer at RiverStone, and Will Frierson, CSPA, a data scientist with Octo Telematics Inc. Adam Scarth, CSPA, who leads a small startup analytics team at Northbridge Insurance, moderated the session.

The CAS Institute hopes to see you at an upcoming webinar. Registration can be purchased for the entire series (at a discount) or for individual webinars within the series. More information on the series can be found on the education page at TheCASInstitute.org. See the table below for future webinar dates, topics and presenters.

The CAS Institute Predictive Analytics Community of Practice Webinar Series

Date and Registration Deadline	Topic and Description	Presenter
July 8, 2020	Modern Data Architecture	Meghan Goldfarb, FCAS, CSPA Technology Director, State Farm Mutual Automobile Insurance
August 5, 2020	Modeling Practices Roundtable	Denise Christophel, CSPA, CPCU Director Advanced Analytics, Sentry Insurance
August 19, 2020	Trusted AI	Satadru Sengupta, CSPA Co-Founder & CEO, Dobby
September 23, 2020	Prospecting Sales Model	Denise Christophel, CSPA, CPCU Director Advanced Analytics, Sentry Insurance
October 14, 2020	Model Interpretability Roundtable	Chris Macella, CSPA Data Scientist, Allstate Insurance Company

Registration is open until the date of each event.
Those registrants who are unable to attend one or more of the webinars will receive access to a recording at no additional charge for a limited period of time.

IN MY OPINION By GROVER EDIE, *AR* EDITOR IN CHIEF

Observations on Chores and Grandchildren

"You can observe a lot by just watching."
—Yogi Berra

"You can learn a lot by just paying attention."
—Grover Edie's rendition of Yogi's quote

In recent weeks, I have been working with our grandchildren on a variety of house-related chores. My younger son is preparing to move, and I have been at his house helping to paint doors, replace floor trim and do other repairs. My older son's children stayed a few days with us and helped with yard work, cleaning and painting the garage, and performing some other tasks.

When the grandchildren are at their own homes, chores are dictated by their parents without an opportunity to negotiate. They describe it as a form of a communist dictatorship: The state (parents) own the assets and dictate where the kids will live, what they will eat, what they will do (chores) and where they attend school.

At our house, it is more like a capitalistic free-market society: The grandchildren negotiate for the jobs available, negotiate the salary and can accept the job or decline to do it.

Initially, I was a bit miffed. My wife, Diane, was willing to pay the grandchildren for chores I could do for free! But then I had an epiphany.

First, Diane completed her own tasks.

Second, she was fulfilling the grandchildren's desire to make money. Diane could dictate the terms and condition of their work. She always inspects their work before paying them, which guarantees quality results.

When I was in management, I used to try to delegate work to the lowest pay level that could perform the work. Sometimes I stretched my staff a bit, but

I thought supervising the grandchildren on the various tasks that needed to be done would be simple for me — I had been a manager/supervisor for decades. What I realized is that supervising my grandchildren's work involved a different style for each one.

getting the work done this way was just good management. Diane was doing the same thing, although without the lowest pay part of it.

I thought supervising the grandchildren on the various tasks that needed to be done would be simple for me — I had been a manager/supervisor for decades. What I realized was that supervising my grandchildren's work involved a different style for each one. I wonder if I realized that when I was at a company with people reporting to me.

At first, having the grandchildren watch me do the task and then making the transition to do it themselves, seemed to work well. But no matter how careful the instructions, something always seemed to come up that required more instruction or the experience of someone (me) with a tool or task. Not every contingent situation could be covered in the initial demonstration of how to do the work. This was especially true when it involved a task they had never done or a tool they had never used.

Looking in on them periodically helped. Sometimes they would get stuck and didn't want to ask me what to do next, so they just stopped working. My "dropping by to see how it was going" solved some of the problems that cropped up.

Timing and patience had a lot to do with getting the grandchildren interested in a project. Often the interesting tasks weren't ready to be done until the more mundane ones were finished. Checking on their progress also reduced the time they got distracted into doing something else. For instance, I have a salt gun to shoot carpenter bees. It was more fun than painting the garage ceiling, so sometimes one of them "went on safari" searching out big game: carpenter bees. I had to get him back to painting a few times.

Several times, I would be using a power tool on a project with one of them, get the task started and then ask, "Do you want to try it?" I could sense both excitement and hesitation — the task looked neat, but dangerous. Given a little encouragement and a repeat of safety instructions, they took on the task. Was I as patient and considerate with my staff at work when I gave them a new assignment or asked them to give a presentation? I hope so.

Working with my grandchildren helped me too. I could get distracted as easily as they could, and I found that doing a project with one of them helped to keep me on track. Having a goal in mind does a lot to motivate me. My hope in sharing that goal and the desired results with the grandkids was to motivate them as well. For each task, however, I had to let them know how the result would benefit them personally.

My wife and I also took into consideration the skills of each of the youth. One is a whiz on the computer, so he got the jobs that needed to be done on the PC. Another is an excellent planner, so she got the jobs that dealt with sorting and organizing things. One didn't want to do anything, so he missed out on some of the fun tasks.

Now the garage and the yard look a lot better, a lot of loose items are organized and put away, and I don't have a long list of to-dos hanging over my head.

As I put the finishing touches on this article, I realized that I wished that I had the sense to hire out more work earlier in my life. Now I know, you *can* "buy time." ●

IT'S A PUZZLEMENT By JON EVANS

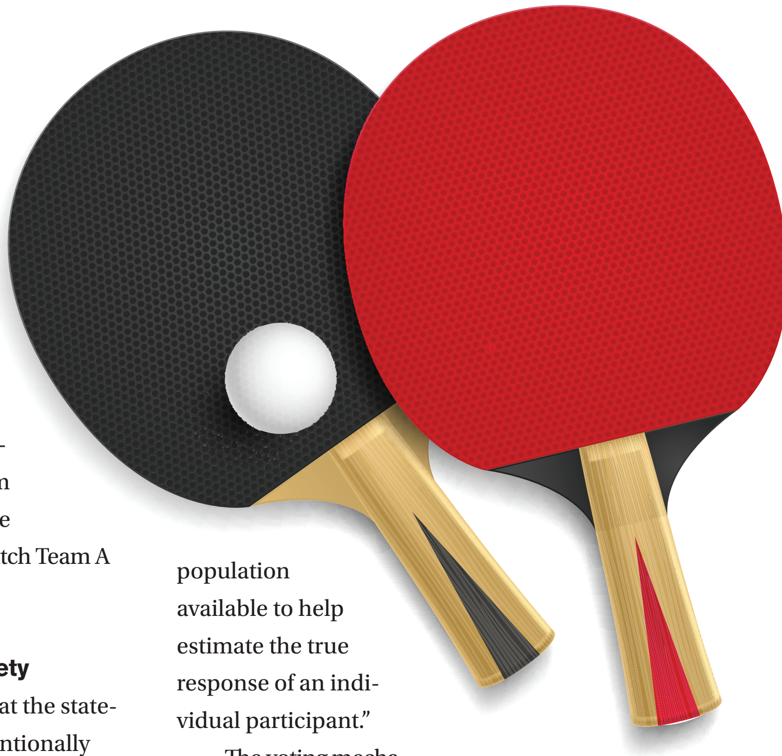
Ping-Pong Team Strategy

Two teams of ping-pong players, Teams A and B, face off in a game under special rules. Two players, one from each team, face off in each match. When the first point is scored, the match ends and the losing player is eliminated from further play. The first team to run out of players loses.

Individual players are rated for strength *S*, measured in the average seconds of playing time until that player gives up a point to the opposing player. For example, if Player X is rated at 20 seconds, then at each instant of playing time Player X gives up an average of 0.05 points per second. The probability of giving up a point is the same at any given instant, independent of the opposing player, and "memoryless," meaning that the probability at any instant is completely independent of whatever happened in earlier instants. Here is the strength table of all the starting players in the teams.

Team A		Team B	
Player	Strength (sec.)	Player	Strength (sec.)
A1	40	B1	90
A2	30	B2	20
A3	25	B3	15
A4	20	B4	10
A5	15	B5	5

Suppose before each match Team B first selects one of its remaining players to play and then Team A can select with this information. What is the best possible strategy for Team B to select players and what is the expected probability Team B will win under this strategy? What is the worst possible strategy for Team B to select players and what is the expected probability Team B will win under this strategy? What are the strategies and probabilities, best and worst for Team A? Now, answer all the same questions if before each match Team A has to select a player first.



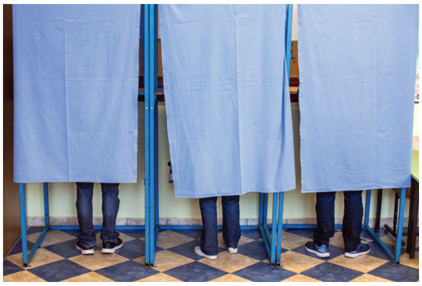
Polling privacy and safety

Apologies to readers, in that the statement of this puzzle unintentionally made the solution much more ambiguous than intended. The wording of the puzzle was slightly flawed or incomplete, defining the 60/40 standard only as "even if a participant's identity and reported response are disclosed, the true intended response of the participant could only be determined with 60% probability of being correct." The problem is that this definition may be impossible if there is information about the population as a whole prior to the survey (e.g., 90% of the population intends to vote for Candidate 1); in some cases, Bayesian estimates then may always allow a higher than 60% probability that the true intended response for a given participant can be determined from the reported response. For a meaningful solution, we will include the condition that "There is no other information about the candidate preference proportions of the population available to help estimate the true response of an individual participant."

The voting mechanism software could employ a random generator (triggered when a survey button is pressed) that reports the true response with probability p, but otherwise reports the result of a random 50/50 coin-flip for the two candidates. Then the probability that a voter's true response is reported is $p + (1\text{-}p)/2 = (1 + p)/2$. For the 60/40 standard, p should be set to 20%. For N total surveyed voters with $N1$ being the number of true responses for Candidate 1 and $M1$ being the reported responses for Candidate 1, $E[M1] = p\,N1 + (N\text{-}N1)(1\text{-}p)/2$. So $N1_{hat} = \frac{(2M1\text{-}N+Np)}{2p}$ is an unbiased estimator that can be used to determine the outcome of the survey.

Let q = the true proportion of the population that would respond for Candidate 1 if surveyed, then for N=1:

$\mathrm{Var}[M1] = \mathrm{Var}[E[N1|\text{ respondents true preference}]]$



$+ E[\mathrm{Var}[N1|$ respondents true preference$]]$

$= (\frac{1+p}{2})^2 q + (\frac{1-p}{2})^2 (1-q) - (\frac{1+p}{2}q + \frac{1-p}{2}(1-q))^2 + (\frac{1+p}{2})(\frac{1-p}{2})$.

In general,

$\mathrm{Var}[M1]=$

$N((\frac{1+p}{2})^2 q + (\frac{1-p}{2})^2 (1-q) - (\frac{1+p}{2} q + \frac{1-p}{2} (1-q))^2 + (\frac{1+p}{2})(\frac{(1-p)}{2}))$.

$\mathrm{Var}[N1_{hat}] = \frac{Var[M1]}{p^2}$.

$$\mathrm{Var}[\frac{N1_{hat}}{N}]= \frac{(\frac{1+p}{2})^2 q + (\frac{1-p}{2})^2 (1-q) - (\frac{1+p}{2} q + \frac{1-p}{2} (1-q))^2 + (\frac{1+p}{2})(\frac{1-p}{2})}{N p^2}$$

For the 60/40 standard, since $p = 20\% = 1/5$, after some algebra

$$Var[\frac{N1_{hat}}{N}] = \frac{6+q-q^2}{N}.$$

On the other hand, for no privacy standard $p = 100\% = 1$:

$$Var[\frac{N1_{hat}}{N}] = \frac{Var[M1]}{N} = \frac{Var[N1]}{N} = \frac{q-q^2}{N}.$$

So, introducing the privacy standard increases the variance of the estimate by a factor of

$$\frac{6+q-q^2}{q-q^2} = 1 + \frac{6}{q-q^2}.$$

Unfortunately, this factor goes to $+\infty$ as q goes to either 0 or 1. In general, there is not necessarily a possible proportional increase in the sample size N that would keep the standard deviation of $\frac{N1_{hat}}{N}$ to no more than 3%. As a practical matter, if we make a reasonable assumption that q is no more extreme than 10% or 90%, then

$$\mathrm{Var}[\frac{N1_{hat}}{N}] \le (1 + \frac{6}{0.09})\,\mathrm{Var}[\frac{N1_{hat}}{N}] = \frac{203}{3}\mathrm{Var}[\frac{N1_{hat}}{N}]$$

Thus, $\mathrm{St.Dev}[\frac{N1_{hat}}{N}] \le \mathrm{Sqrt}[\frac{203}{3}]$ St.Dev. $[\frac{N1}{N}]$. If the sample size N is increased by a factor s to $N' = sN$, then $\mathrm{St.Dev}[\frac{N1_{hat}}{N'}] \le \mathrm{Sqrt}[\frac{203}{3}]$ St.Dev.$[\frac{N1}{N}]$ / Sqrt$[s]$. Since St.Dev.$[\frac{N1}{N}]= 2\%$, to keep $\mathrm{St.Dev}[\frac{N1_{hat}}{N'}] \le 3\%$ requires that $Sqrt[\frac{203}{3}]$ / Sqrt$[s] \le 3/2$ or that $s \ge \mathrm{Sqrt}[\frac{203}{3}](2/3) \approx 5.484$. As a practical matter, a bit less than increasing the sample size by a factor 5.5 should reasonably insure that the "sampling error" (after the 60/40 standard mechanism is applied) will still be 3% or less.

Know the answer? Send your solution to ar@casact.org.

Expertise. Insight. Solutions.

Casualty Actuarial Society
4350 North Fairfax Drive, Suite 250
Arlington, Virginia 22203 USA
Phone: 703-276-3100, Fax: 703-276-3108
www.casact.org

PRESORTED
STANDARD MAIL
U.S. POSTAGE PAID
LUTHERVILLE, MD
PERMIT NO. 171

ACTUARIAL DIRECTOR, MIDWEST: For Position 88513, an Actuarial Director at FCAS is sought. Reports to Chief Actuary. Requires commercial lines experience. Must have 5 to 10 years of property and casualty actuarial experience.

SENIOR ANALYST, SOUTHEAST: Insurer plans to hire a Senior Actuarial Analyst for Position 88621. Requires homeowners experience. Ideal candidates will have at least four years of property and casualty actuarial experience.

REINSURANCE ACTUARY, NORTHEAST: Reinsurance pricing actuary sought for Position 88535. Must have 4+ years of reinsurance ratemaking experience. ACAS or near-ACAS preferred.

ACTUARIAL ANALYST, PENNSYLVANIA: Firm plans to hire a property and casualty actuarial analyst for Position 88507. Requires 1 to 3 years of property and casualty actuarial experience. Supports actuarial exams. Must have either pricing or reserving or modeling experience. Immediate need.

PRICING ACTUARY, MIDWEST: ACAS / FCAS pricing actuary immediately needed for Position 88492. Requires commercial lines experience and 5-12 years of property and casualty actuarial experience. A top insurer in the US.

ACAS/FCAS, MODELING SKILLS: Ohio insurance company seeks an ACAS/FCAS with predictive modeling skills for Position 88586. Position open due to impressive growth. Must have 7-15 years of property and casualty actuarial experience. Pricing experience a plus. Client is looking for learners and doers.

ACAS/FCAS, CALIFORNIA: Client seeks an Auto Modeling Actuary for Position 85591. Ideal candidates will be local or have ties to the area. ACAS/FCAS with 4-8 years of experience and an entrepreneurial spirit are sought.

REINSURANCE ANALYST, CONNECTICUT: Reinsurance pricing senior actuarial analyst needed in Connecticut for Position 88536. Must have 3+ years of reinsurance ratemaking experience. Programming skills required. AVP-level opportunity.

ASSOCIATE ACTUARY, MIDWEST: Company plans to hire an associate actuary at the ACAS level for Position 88468. Must have Emblem or Python or SAS or R programming skills. Predictive analytics experience required. Ideal candidates will have 6+ years of property and casualty actuarial experience. Ratemaking skills required.

ACTUARIAL ANALYST, CALIFORNIA: California consulting organization plans to hire a property and casualty actuarial analyst for Position 88601. Must be adept at SQL or R or SAS programming. 2 to 4 actuarial exams required. Immediate need.

FCAS, MIDWEST: Insurer plans to hire an FCAS for a unique pricing and product development property and casualty insurance actuary role for Position 88471. Must have 7 to 15 years of property and casualty actuarial experience. Requires strong predictive modeling knowledge. R/SAS programming skills ideal.