



Contingencies



Aging and

Financial Security:

It's Complicated





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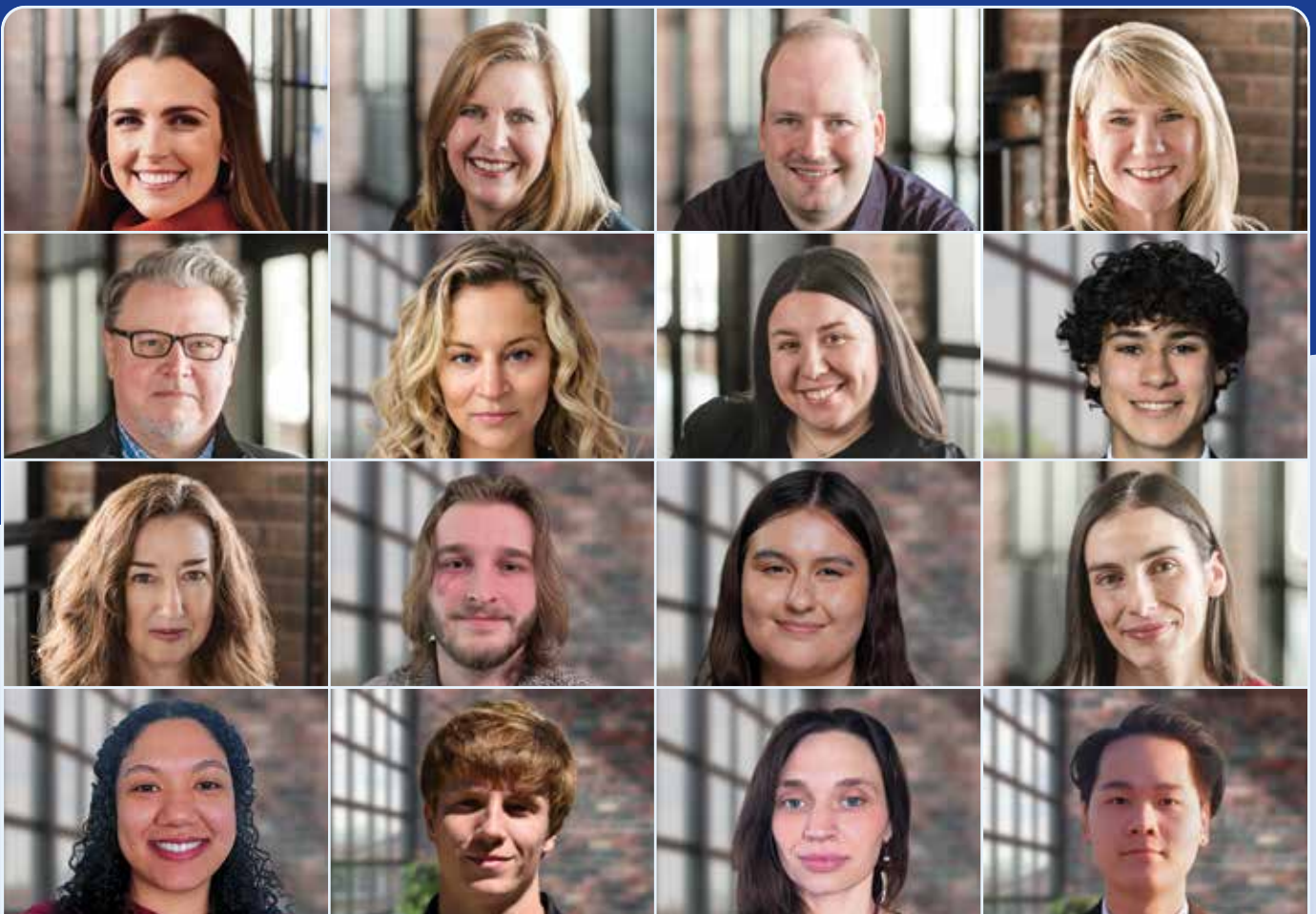
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MAY | JUNE 2025 ▲ VOL. 37 | NO. 3

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Innies and Outies and the Interconnected World of Actuarial Work

IMAGINE A WORLD where work and life are completely separate—where decisions made in one realm have no bearing on the other. That’s the premise of *Severance*, the highly acclaimed workplace sci-fi Apple TV+ series, which recently closed out its second season. Employees at Lumon Industries, a mysterious biotech company, undergo a procedure called “severance” that splits their consciousness. Their “Innie” knows only the workplace, while their “Outie” remains oblivious to what happens inside. But as the show unfolds, it becomes clear that no true separation exists, and the decisions made by both Innies and Outies inevitably ripple across both realms.

For actuaries, this serves as a powerful parallel: no issue exists in isolation. Affordability issues in one sector may make it difficult for a customer to purchase insurance or financial products in another sector. In fact, some trends are impacting multiple parts of the actuarial field at once. For example, natural disasters such as wildfires don’t just influence property casualty rates, but they can also impact a person’s health, which may affect forecasts for the Medicare and regular health insurance programs.



Just as *Severance* challenges the idea that work and life can be truly severed, actuaries must recognize and navigate the deeply interconnected nature of actuarial areas. You can read the details in this issue’s cover story, “Aging and Financial Security: It’s Complicated” (page 10), which underscores the need for actuaries across all fields to collaborate, understand each other’s coverage areas, and ensure that potential reforms lead to system-wide improvements.

In addition to understanding the broader interconnectedness of actuarial work, effective leadership plays a crucial role in navigating these complexities and more. The article, “What Makes a Chief Actuary Truly Effective?” (page 16), details the 10 key competencies that enable chief actuaries to drive success in insurance companies across all sectors.

The issue also features “Raising Awareness of Health Equity Considerations in Actuarial Work” (page 22), which explains how inherent biases in program development and modeling can contribute to health disparities, but existing ASOP guidance can help identify and mitigate these disparities.

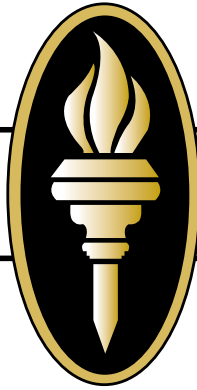
Lastly, “The Dynamics of Market Forces: Setting the Stage” (page 26), the first in a two-part series, explores the history of supply and demand pricing. While actuarial pricing is typically based on a cost-plus model, there are situations where professionals can benefit from an understanding of economic pricing, such as in competition-based health insurance.

~ ~ ~ ~ ~

As Editor-in-Chief, I navigate a dynamic interplay of decisions that shape both the immediate and long-term direction of *Contingencies*. *Severance* illustrates how actions in one realm impact another. Similarly, I’ve found that recognizing the interconnectedness of editorial choices and broader industry trends helps us create content that resonates with our diverse readership. By keeping this perspective in mind, we ensure our coverage reflects the evolving landscape of the actuarial profession.

If there’s a topic you’d like to see covered, a story idea to share, or an article you’re interested in writing, I’d love to hear from you. Email me at editor@actuary.org. Happy reading! ▲

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How the Academy Helps You Stay Ahead

ONE OF THE THINGS I LOVED ABOUT BEING A HEALTH ACTUARY

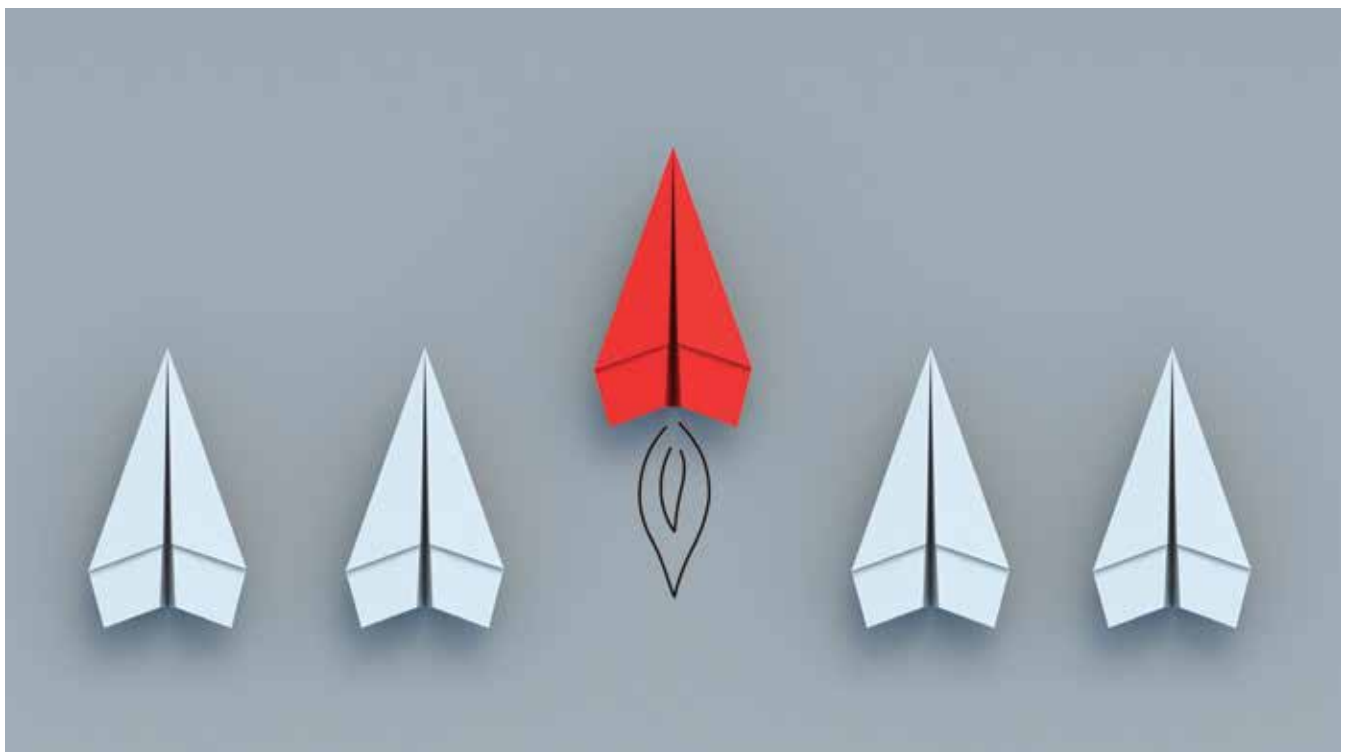
was that you couldn't do your job in a silo. The decisions you made and the assumptions you created were affected by a myriad of factors, including the economic environment, political and legislative decisions, and external issues such as climate change and air quality. Other factors included broad health trends and developments in health care such as flu-season severity, new treatments or drug therapies and, of course, developments in technology. No matter your area of focus, it was likely what the government was doing with Medicaid and Medicare would affect you. All in all, it made for a very dynamic work environment. I am sure actuaries working in other disciplines faced similar challenges.

Keeping abreast of all these critically important emerging issues always seemed to me to be a Herculean challenge. I was thankful that in carrying out its mission to serve the public and the U.S. actuarial profession, the American Academy of Actuaries provided insight into many of these important emerging issues. These insights are valuable not only to members but to the public as well, offering balanced, well-thought-out analysis of the potential implications of responses to certain emerging issues or policy proposals.

The Academy's objective, independent analysis should help

policymakers to make better decisions when developing policies that impact our financial security systems. One way I stay abreast on a range of issues is through the Academy's webinars—either by attending live sessions or listening to recorded webinars, which are free to Academy members. (Some webinars of broader interest are posted on YouTube and are available to the public.)

I have also been fortunate to grapple with the implications of a number of these issues by volunteering with Academy committees and task forces working to identify and address them. "Being in the room" as a volunteer provides a much greater level





of insight and visibility into the topics at hand—just one of the many benefits to being an Academy volunteer.

The cover story in this issue of *Contingencies* discusses aging and financial security, one of the many emerging issues that the Academy is focused on. In addition, recent Academy webinars and publications have addressed issues such as the state of long-term care insurance, behavioral economics in insurance and retirement planning, and collective defined contribution retirement plans.

Looking ahead, the Academy will host its annual webinars on the Social Security Trustees Report, Medicare's financial outlook, and final rules for Affordable Care Act exchanges. In addition, it will host an Insurance Investment Summit in May, a Future of Retirement Symposium in June, and the annual Casualty Loss Reserve Seminar in September (co-hosted with the Casualty Actuarial Society). Later in the year, the Academy will host the

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Life and Health Qualifications Seminar in November, and the Seminar on Effective P/C Loss Reserve Opinions in December. All these events provide valuable information on emerging issues, reinforcing the Academy's role in providing essential resources for actuaries and their employers.

Throughout my career as a health actuary, I was thankful that the American Academy of Actuaries, along with other actuarial organizations, provided (and continue to provide) high-quality communications around a wide variety of emerging issues. These provided enormous value to both me and my employer to remain knowledgeable on issues to make informed decisions as an actuary. Staying on top of emerging issues sometimes is overwhelming, but it's been made more manageable by the Academy and other actuarial stakeholder organizations through their ongoing analysis and insights. ▲

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Contingencies (ISSN 1048-9851) is published bimonthly by the American Academy of Actuaries, 1850 M Street NW, Suite 300, Washington, DC 20036-5805. For subscription information and customer service, contact the *Contingencies* subscription department at the address above or (202) 223-8196.

Advertising offices: Jeff Rhodes of MCI Group, 410-316-9857, jrhodes@mci-group.com. Periodicals postage paid at Washington, D.C., and at additional mailing offices.

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Postmaster: Please send change-of-address notices to *Contingencies*, PO Box 16976, North Hollywood, CA 91615-6976.

Mission Professionalism

“Our lives are not defined by any one action. Our lives are the sum of our choices.”

—*Mission: Impossible—The Final Reckoning*

BY THE DATE THIS COLUMN IS PUBLISHED, the release of *Mission: Impossible—The Final Reckoning* will be just weeks away. If you regularly go to the movies you will have already seen the trailer, perhaps many times. The opening lines to the trailer, noted above, remind me of the ABCD process. You do not end up in front of the ABCD because of a single action or mistake. It is almost always a series or sum of choices, events, and missteps.

The Request for Guidance (RFG) process is intended to help actuaries avoid professionalism missteps and stay on the right path. Numerous additional resources are available to guide them in determining an appropriate path forward. The following are three common areas where actuaries face professionalism challenges, along with key questions, recommended actions, and resources to help prevent missteps, keeping the individual actuary on the right path and mitigating any potential negative impact on the reputation of the broader actuarial profession.

Qualification Standards

Precept 2 of the Code of Professional Conduct (Code) states “An Actuary shall perform Actuarial Services only when the Actuary is qualified to do so on the basis of basic and continuing education and experience, and only when the Actuary satisfies applicable qualification standards.”

According to the ABCD Annual Reports from 2021 to 2023, Precept 2 is the second most common topic for an RFG. This may be partly due to the revisions initiated in 2021, which took effect on Jan. 1, 2022, for

statements of actuarial opinion beginning Jan. 1, 2023. Nevertheless, prior to 2021, Precept 2 was typically among the top three topics for RFGs.

The Academy website offers a comprehensive listing of frequently asked questions about the *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* (USQS). This is an excellent resource if you have specific questions on the USQS.^[1]

A more general question to ensure you’re on the right path is simply “Am I qualified?” This can be broken down into a series of questions, such as:

- Do I have the requisite experience?
- Do I have adequate subject area knowledge?
- Is my continuing education up to date?

The suggested actions and choices are straightforward: Keep current with, and document, relevant continuing education throughout the year. Obtaining the minimum required six hours of organized activity credits can be challenging for those on limited budgets. Webinars and committee work are cost-effective activities, while reading and reviewing current Actuarial Standards of Practice (ASOPs) and commenting on proposed ASOPs can satisfy the professionalism credits. Starting any new assignment with a review of the Code, USQS, and applicable ASOPs is a near-guaranteed way to accumulate adequate hours on professionalism topics. It also provides



the solution to the easily avoided misstep of using an out-of-date ASOP for an assignment that has become “routine” and thereby avoiding a possible material violation of Precept 3.

Pressure from Principals

In 2015, the Academy survey results indicated that responding to pressure from principals was overwhelmingly the highest perceived concern for actuaries.^[2] Since that time, RFGs involving pressure from principals have continued to come to the ABCD. Pressure can take on many forms, such as pressure to complete an assignment without adequate time, pressure to change the actuarial report or result, pressure to sign a report, or pressure to opine in an area outside of the actuary’s area of expertise.

When faced with pressure to change results, revisiting the assumptions that led to the result is a good place to start. Ideally done with the principal by your side, focusing on the decisions along the process rather than the result gives them the opportunity to challenge, and you the opportunity to reconsider reasonable alternative assumptions. Recall ASOP 1, *Introductory Actuarial Standard of Practice*, Section 3.4.1 states, “... there will often be a range of reasonable assumptions, and two actuaries could follow a particular ASOP, both using reasonable methods and assumptions, and reach different but reasonable results.”

Responding to time pressure can be tricky. Can you reprioritize other projects? Negotiate for more time? Get more resources? Or scale the project to the available time? Ultimately, if you do not believe you can perform the work with skill and care within the time allowed, saying “no” is the safest answer professionally. No single assignment is worth gambling a hard-earned credential and reputation.

Our mission, which we choose to accept, is professionalism. No need to jump off cliffs, hang from airplanes, or fight off sentient rogue AI (yet). Instead, make the choices to follow the Code, stay current with actuarial standards of practice, keep current with and document your qualifications, and make use of the resources available.

Explaining the importance of professionalism to the principal before starting the work can mitigate future pressure. The Academy’s Committee on Professional Responsibility published a discussion paper on this topic in 2021.^[3]

Mistakes Were Made

It happens.

Adequate time to complete the assignment, technical reviews, data reconciliations, and peer reviews are some of the elements and actions that can prevent errors from making their way into an actuarial analysis or report. But what if “it” happens? What then?

Apologize and fix it. Assess the materiality. If it is small, ask the principal how they would like it treated and document the resolution. If it is big, develop a correction plan that meets all legal requirements, execute on the plan, and document the resolution. In both cases, propose corrective actions to address the root cause of the error. This might include additional training, changes in policies, or enhanced oversight mechanisms which mitigate the possibility of future errors and demonstrate a commitment to professionalism.

If it is a large error, will the above actions prevent a complaint of an alleged material violation of the Code? Not necessarily. Nevertheless, you definitely do not want to cover up the mistake. It is important to remember that part of Precept 13 contemplates resolving an apparent violation. If the mistake has been fixed and preventative actions implemented, there is a better chance

that the error will not result in a complaint or recommendation for disciplinary action. However, the decisions and recommended actions by the ABCD will be based on the specific facts and circumstances. Nor is the “reckoning” of the ABCD final. The ABCD recommends discipline. It is up to each of the actuarial membership organizations to determine if discipline is to be applied and to implement any disciplinary actions they deem appropriate for their respective members.

Our mission, which we choose to accept, is professionalism. No need to jump off cliffs, hang from airplanes, or fight off sentient rogue AI (yet). Instead, make the choices to follow the Code, stay current with actuarial standards of practice, keep current with and document your qualifications, and make use of the resources available to help guide you from the Academy and other organizations, like RFGs to the ABCD. This column will not self-destruct in five seconds. ▲▲

SHAWNA ACKERMAN, MAAA, FCAS,

is a property casualty actuary specializing in catastrophe risk. She is vice chairperson of the Actuarial Board for Counseling and Discipline.

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 Aging *and*



  Financial Security:

  It's Complicated

While financial challenges of aging may seem like a standalone issue, a closer look reveals that other dramatic shifts are collectively impacting it and other actuarial areas. This underscores the need for actuaries across all fields to collaborate, understand each other's coverage areas, and ensure potential reforms lead to systemwide improvements.

By Noah Kirsch

America's demographics are rapidly changing. One out of six citizens is now at least 65 years old; a century ago, that figure was one in 20, according to census data. Meanwhile, Americans are living much longer—a testament to improved technology and health care access, but a financial strain on the country's social safety net programs. Unless policy changes are made, the Social Security Administration forecasts that its trust fund reserves will be depleted within a decade. Likewise, proposed cuts to Medicare, Medicaid, and other entitlement programs are part of perennial conversations in Washington, D.C.

These changes are unfolding as many aging Americans are struggling to prepare for their golden years. Roughly a third of the population is not saving anything for retirement, says Angela Antonelli, executive director of the Center for Retirement Initiatives at Georgetown University's McCourt School of Public Policy. Simultaneously, roughly a quarter of people over 65 years old rely on Social Security payments for at least 90% of their annual income.

The financial pressure on aging Americans comes amid other dramatic shifts. Climate change, for instance, has greatly increased the intensity of wildfires in the United States, driving up the cost of property and casualty insurance.

Collectively, these trends will impact all areas of the actuarial field—life insurance, health insurance, property and casualty, and retirement. Affordability issues in one sector may make it difficult for a customer to purchase insurance or financial products in another sector, says Geralyn Trujillo, senior director of public policy at the American Academy of Actuaries. Moreover, some new trends are impacting multiple parts of the field at once. For example, natural disasters like

wildfires don't just influence property insurance rates, but they can also impact a person's health, which may affect forecasts for the Medicare program.

Actuaries, therefore, need to collaborate to understand the bigger picture, Trujillo says. "We're focusing on various issues impacting specific practice areas, but we recognize the need to have multiple conversations that pull every practice area together, so that as a profession we understand how this all really does work together."

Donna Megregian, chair of the Academy's Life Products Committee, adds, "Every practice area contributes to retirement savings and being aware of options that are available is beneficial to a client and consumer for them to be better prepared for retirement. If people are concerned about the availability of public systems to support them, there ought to be a push to help plan for how the private sector is filling the gaps."

Retirement Savings

In recent decades, the systems helping American workers prepare for retirement have evolved dramatically. Many employers have shifted away from defined benefit plans, such as pensions, putting the onus on individual employees to stow money away, whether as offered by employers or through more personal efforts.

Employer-sponsored plans continue to incentivize savings, however. Antonelli notes that individuals with access to such programs are 15 times more likely to save for retirement. Claire Wolkoff, MAAA, FSA, former chair of the Academy's Retirement Policy and Design Evaluation Committee, says that access to employer-sponsored plans varies based on an individual's type of work, among other factors. Union workers, for example, have higher rates of access and participation, as do

The median retirement age of those surveyed by Transamerica Institute was 62, costing those workers five or 10 years at the end of their careers in lost time for their savings and investments to grow.



full-time employees, those in the highest income brackets, and those at large firms. Savings rates also vary demographically, she says, though the gaps narrow once employees participate.

Wolkoff says, “Surveys show [that] if an employer offers a retirement plan, people are more likely to participate and save.”

However, experts consulted by *Contingencies* caution that a substantial portion of the population remains unprepared for retirement.

The lower 40% of the population approaches retirement with net assets of zero or below zero, says Josh Hodges, chief customer officer at the National Council on Aging. In other words: Even if the upper echelons of the savings bracket are improving their financial positions, “we’re seeing this broader dichotomy, or bimodal distribution, of wealth and financial security.”

Roughly six out of 10 people are retiring sooner than they planned, says Catherine Collinson, president of Transamerica Institute. Most of those early retirees aren’t doing so by choice, but rather because they are aging out of their jobs or are “forced into retirement one way or another.”

The median retirement age of those surveyed by Transamerica Institute was 62, costing those workers “five or

10 years at the end of their careers in lost time for their savings and investments to grow,” Collinson says. Early exits from the workforce also cost these individuals years of additional income and force them to draw on their savings earlier than planned.

Meanwhile, according to Transamerica Institute surveys, almost 40% of employed workers say they “have a side hustle to bring in extra income,” which might include gig economy jobs such as working as an Uber driver. Some are simply stockpiling extra cash, but full-time independent contractors may have less access to savings plans, employer-matched retirement programs, and other benefits.

The gig economy may have other unintended consequences. Those pressured to take on a second job might struggle to afford essential insurance products or experience mental and physical strain from financial stress, potentially leading to higher health care costs and other effects.

Some state governments are working to fill the gaps. So far, 20 states have begun offering (or will soon offer) state-facilitated retirement savings accounts, Antonelli says. “They’re telling employers you have to take action. You either have to adopt an employer-sponsored plan [if one isn’t already offered], or, at a

minimum, facilitate the ability of your workers to be auto-enrolled and to start saving for retirement,” she says. Workers can always opt out, though.

State programs will soon reach \$2 billion in assets saved for retirement and a million funded saver accounts, Antonelli says, adding that, “I’m incredibly optimistic.”

Other initiatives are in the works as well. Cheryl Evans, director of the Lifetime Financial Security Program at the Milken Institute, says that her team encourages employers to offer an “annuity-like product” within 401(k) plans, which can offer guaranteed lifetime income down the road.

Wolkoff adds that the SECURE 2.0 Act, enacted in 2022, allowed for the establishment of emergency savings accounts within 401(k) plans, which would enable individuals to set money aside for unexpected short-term expenditures.

Employers can also match contributions. These kinds of initiatives, in turn, can help lower-income Americans begin saving for retirement. Once the emergency funds reach a certain threshold, “the contributions switch over to long-term savings,” Wolkoff says.

Evans says financial innovations can help assuage individuals’ anxieties. For most people, outliving one’s money is “a bigger fear than death,” she says.

Megregian notes that one mitigation technique for outliving your savings is leveraging inflation adjustment on life insurance annuity products. Although it is more expensive to pay for that adjustment, it can help protect against inflation.

Thankfully for many aging Americans without substantial independent savings, Social Security checks can help make ends meet. Still, many experts worry that the Social Security

The Impact of AI

Rapid technological change, such as the emergence of artificial intelligence (AI), will impact nearly every industry, and the actuarial field is no exception. Already, AI is being tested to calculate premium costs or evaluate risk in the property and casualty space, says Geralyn Trujillo, senior director of public policy at the American Academy of Actuaries. It is also being deployed—or considered for use—in health care to help diagnose illnesses, collect claims data, and identify trends about health care expenditures. The concern, of course, is that the data used to train AI models should be both high quality and free of bias, she says. A

consumer looking to buy insurance should not face discrimination on the basis of an algorithm that may not be using credible data or experience. As the technology continues to rapidly evolve, it requires continuous vigilance and attention from actuaries, technologists, policy makers, and corporate leaders.

“AI and data bias have implications for all practice areas,” Trujillo says. “The challenge for public policy and actuaries is understanding that the emerging issues can be really broad, but the way we talk about them is very nuanced. Important details might be missed in an area simply because we aren’t actively paying enough attention.”

Josh Hodges, chief customer officer at the National Council on Aging, notes that AI may affect consumers in other ways—with seniors among the most vulnerable. AI-generated videos, known as “deep fakes,” can make it easier to scam older adults, as one example. Scammers have become sophisticated at utilizing “extremely complex IT systems,” he says. They have also refined their techniques, such as defrauding elderly targets by mimicking their family members or engaging in “romance scams.”

On a positive note, technological change may yield positive benefits in other unexpected ways, says Steve Malerich, chair of the Academy’s Risk Management and Financial Reporting Council. For instance, developments in robotics could potentially fill the likely shortage of caretakers for older adults, he says, assuming those innovations are combined and accepted by society. That might sound like science fiction, but “if I get comfortable relating to C-3PO, or C-3PO can take care of me when I’m old, OK, great,” Malerich says, referring to the humanoid droid from the *Star Wars* films. Still, that may be many years away.



trust fund's reserves are expected to run out in 2034, as the Social Security Administration forecasted in its 2023 report, "Will Social Security Be There for Me?"

"We're still operating under the rate setting that was done in 1983," says Dan Doonan, executive director of the National Institute on Retirement Security.

Sam Gutterman, chair of the Academy's Social Security Committee, says, "Right now, I'm pessimistic because no one's talking about this. It's less than 10 years away."

Without replenishment, social security payments wouldn't end immediately in 2034, however. Federal taxes would still allow the government to dole out approximately 80% of planned benefits, but experts say that such a dramatic cut would be unlikely.

Don't forget about the protection gap—that space between being uninsured and underinsured, Megregian says. Many don't have or have enough insurance, especially life insurance. The risk of losing a salary too early greatly impacts the ability for the remaining family to save. Of all the insurances, life and annuity products likely don't get enough attention of their contributions to preparing for retirement because they are neither compulsory or government funded. According to LIMRA's 2021 Insurance Barometer Study, 40% of Americans are insufficient in their life insurance needs—that's 120 million consumers who will be impaired in their financial situation and further hindered in their ability to save for retirement. This gap is higher for women than men, as women tend to live longer, making it easier to outlive incomes without proper preparation.

Andrew Biggs, a senior fellow at the American Enterprise Institute and a former associate director of the White House National Economic Council, points out that aging Americans vote at higher rates than younger Americans,



Federal health insurance programs, particularly Medicare and Medicaid, face the same financial pressures caused by America's aging population, longer lifespans, and general cost increases.

and politicians would be reluctant to allow benefits to be slashed so drastically overnight. Regardless, the potential for fewer benefits being fulfilled, when Social Security is already being deemed insufficient to fund retirement, is a concern that requires attention.

Health Care Costs

Social Security payments now equate to more than 5% of the United States gross domestic product—a "huge" percentage, Gutterman says—though less than a third of what the country spends on health care. Federal health insurance programs, particularly Medicare and Medicaid, face

the same financial pressures caused by America's aging population, longer lifespans, and general cost increases.

Mick Diede, chair of the Academy's Health Care Delivery Committee, says Medicare and Medicaid expenditures are outpacing inflation. Expenses on the two programs rose about 8% in 2023 alone; each now accounts for about a fifth of all national health expenditures (inflation in 2023 was about 3.4%, as measured by the Consumer Price Index). Prescription drug prices remain an intractable problem, while new technologies like genetic testing and specialized medications are enormously costly, despite their benefit to patients.

Additionally, coverage gaps remain. "There's always a kind of a joke in our space that the first time you learn Medicare doesn't cover long-term care is the second you need long-term care covered by Medicare," says Hodges of the National Council on Aging. Many retirees also mistakenly believe that Medicare is entirely free, he adds, when in reality, premiums often cost hundreds of dollars per month.

Programs exist for low-income individuals, Hodges says, "but if you're in the slightly-above poverty level, many of those programs aren't there for you. And so people are spending a lot more on their health insurance than they're expecting to."

Dawn Carpenter, director of Financial Longevity at Milken Institute Health, says that the average couple will incur approximately \$300,000 in out-of-pocket health care costs during retirement. The link between a person's financial stability and their health works both ways, she says. When someone gets sick, they are more likely to deplete their savings, and if they are already in a precarious financial condition, they are less able to tend to their health.

Much like with retirement, some states are working to step in where

needed, says Seong-min Eom, who chairs the Academy's Longevity Risk (E/A) Subgroup. As one example, some governments are working on long-term care programs. The problem is these initiatives are extremely expensive and will require actuaries to step in to correctly project funding needs, she says.

States are working to tackle other sources of financial strain that require actuarial attention, too, says Eom, who also chairs the Academy's Climate Change Joint Committee. For instance, climate change has increased the severity of wildfires in California, which has pushed up the cost of property and casualty insurance for many consumers and, in many cases, caused insurance companies to withdraw coverage altogether, according to an article, "California Sees Two More Property Insurers Withdraw From Market" in *Insurance Journal*.

In California, Eom says, officials are allowing companies to model extreme climate events and charge consumers premiums commensurate with that risk. Previous regulations prevented them from doing so in some cases, she says. While this might lead to higher prices, it would at least discourage insurers from leaving the state altogether. Similar issues are playing out in Florida, where floods and hurricanes are straining both private and publicly funded insurance markets.

Other forces are pushing up homeowner insurance rates, too, Gutterman says. Home repair costs are rising, driven by supply-chain shortages and inflation. Moreover, "if we get more trade wars, you're going to have the cost of wood and housing replacement" increase further. All of that is happening while a housing shortage is already pushing many people out of the market, he says.

For many Americans, particularly the financially vulnerable, financial pressures require difficult choices. In extreme cases, that might be cutting back or eliminating needed financial purchases—or even cutting back on food.

If a person lives in an area that was flooded, and their insurance rates skyrocket, that "does not mean their payroll doubles," Eom says. That doesn't even account for other sudden expenses. It is not difficult to imagine a scenario where a natural disaster causes a person to become sick, or potentially affects many people at once, Eom continues. That would place a strain on several insurance markets simultaneously. "Affordability is not only limited to one area," she says. "You have to understand the interconnections."

Connecting the Dots

As Eom identifies, emerging trends within the actuarial landscape may seem like disparate issues, but many of the previously mentioned phenomena are intertwined or, at a minimum, may affect different parts of the field at the same time.

For instance, Gutterman says, longer lifespans in the United States would obviously affect annuity products that provide recurring payments over a person's lifetime. At the same time, they would affect life insurance forecasts differently, as well as Social Security needs and health care cost expectations.

This blending of practice areas is something that resonates across the board. Megregian notes that many life insurance and annuity products offer access to cash value that can help when financial stress occurs. These products also provide living benefits such as long-term care, critical illness or chronic illness benefits that pay in situations when large financial losses can occur. "It's the combination of products and services that will help people become more prepared for retirement. Starting early is so vital," says Megregian.

Trujillo offers another anecdote. "When you talk about pension risk transfers, employers are looking at their risk profile and are looking to shift from a more traditional defined benefit program to a different opportunity for their employees. Sometimes that means a lump-sum payment, while other times it's a transition to an annuity product." Traditionally, a defined benefit plan would fall under the retirement umbrella, whereas annuities would fall within life insurance. "So, the two practice areas need to be able to communicate, understand the respective risks and opportunities, and work collaboratively with regulators," she says.

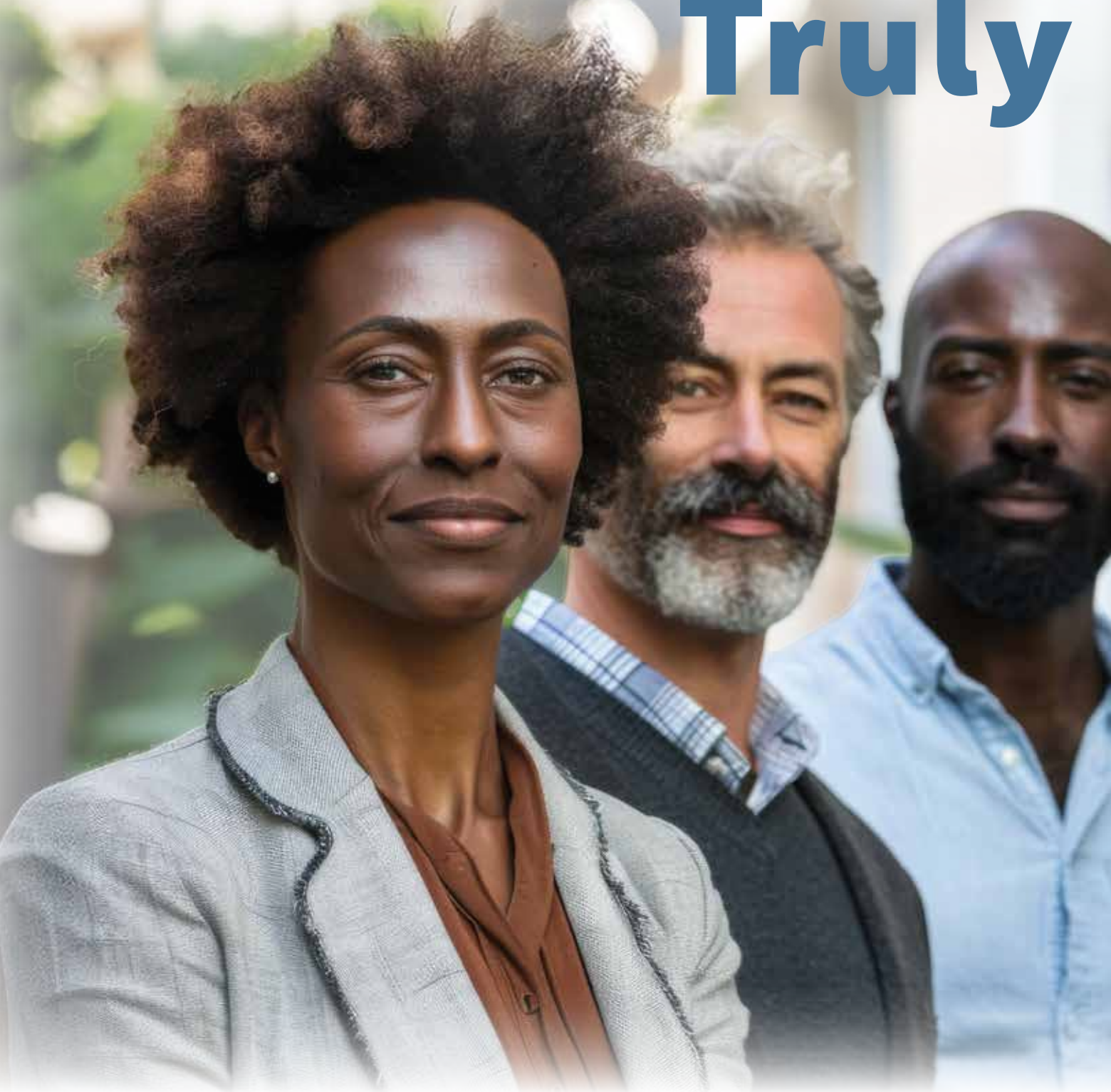
These types of relationships are unfolding across the industry, including interconnectedness between retirement and health. Each year, the Social Security Administration and the Centers for Medicare & Medicaid Services release trust fund reports about the sustainability of their respective programs. Often, they are viewed individually, and policy proposals are sometimes floated on Capitol Hill to tax one program in order to boost another. Trujillo sees that kind of approach as "robbing Peter to pay Paul," since Medicare and Social Security, for example, are intended to serve the same population of Americans. It would make little sense to try "to help them on one side by hurting them on the other."

The list continues, she explains. Broadly, in the current climate, actuaries must collaborate to understand each other's coverage areas and to ensure that potential reforms lead to improvements for the entire system.

The crucial question, Trujillo says, is how to "do a better job of ensuring that everyone has appropriate access to the products or the services that they need at a cost that they can afford," while also keeping it sustainable for companies and beneficial for the broader economy. ▲

NOAH KIRSCH is a freelance writer for *Contingencies*.

What Makes a Chief Actuary **Truly**



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Learn about the 10 key competencies that enable chief actuaries to drive success in insurance companies across all sectors.

Effective?

By Ken Avner, Jack Burke, William Cashion, Patrick Getzen, Dave Nelson, Keith Passwater, Dan Rachfalski, Stafford Thompson, Jr., Kate Tottle, and Karena Weikel

What makes a chief health actuary effective? To find the answer, we surveyed 10 actuaries with 300+ combined years of industry experience and 50+ years as chief actuaries managing billions in premiums. Their perspectives helped us identify 10 key competencies for chief health actuaries, which in turn help define the skills needed to succeed in the chief actuaries roles.

While this article is primarily intended for aspiring chief health actuaries and draws from our experience in health insurance, the insights provided are valuable to anyone seeking to understand how chief actuaries, whether in health or other practice areas, contribute to the success of insurance companies across all sectors.

Every chief actuary needs a strong skill set, but the demands of the job differ based on company-specific factors, such as:

- **Company size:** Leadership in larger firms requires extensive delegation, while smaller firms require a more hands-on approach.
- **Business model:** Provider-owned plans call for closer involvement with providers than traditional insurers.
- **Organizational structure:** Successful actuaries adapt to and align with key leaders to foster effective partnerships.

The topics discussed below are primarily ordered by importance, with adjustments for logical flow.



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Ethics and Standards

Beyond education and training, an occupation becomes a profession through accountability to others, adherence to defined standards, a commitment to a code of ethics, and a disciplinary process that reinforces an adherence to these professional elements. Chief actuaries must uphold Actuarial Standards of Practice (ASOPs) and ethical principles, ensuring that all actuarial work meets professional and regulatory expectations. By doing so, they reinforce trust and deliver high-quality, reliable work products. They also empower their teams to ask the right questions and seek accurate answers, guiding decision makers toward sound insights grounded in observations. The goal of actuarial science is to move beyond assumptions, impressions, and conjecture. As John Ruskin's quote reminds us: "The work of science is to substitute facts for appearances and demonstrations for impressions."

Talent Development

Chief actuaries develop actuarial talent by focusing on key behaviors and skills, including building trust, developing strong analytical abilities, promoting effective communication skills, and enhancing business acumen. Encouraging continuous learning and offering diverse project opportunities are essential to building a strong team. Leaders must adopt a growth mindset, engage in talent calibration, and ensure both a strong technical base and a leadership pipeline through strategic succession planning. Creating a collaborative culture and empowering employees by avoiding micromanagement helps attract and retain top talent, ensuring the team is well-equipped to meet demands of the role, adapt to the evolving business environment, and contribute to organizational success.

Chief actuaries develop actuarial talent by focusing on key behaviors and skills, including building trust, developing strong analytical abilities, promoting effective communication skills, and enhancing business acumen.



Category	Description	People or Influence Skill	Technical or Business Skill
Ethics and Standards	Maintain professional integrity and credibility.		yes
Talent Development	Recruit, develop, and retain top talent.	yes	
Strategic Planning	Enable future-oriented long-term actions.		yes
Financial Risk Management and Controls	Serve as a senior financial risk manager and implement controls to ensure financial viability.		yes
Market Awareness	Understand market trends and optimize sales interactions.		yes
Effective Communication	Clearly convey technical concepts to senior leaders and the board.	yes	
Integration of Technology and Data Science	Use technology and data analytics for strategic insights.		yes
Relationships	Build strong internal and external partnerships.	yes	
Business Acumen	Be a team player that considers more than just financial issues.		yes
Provider Contract and Data Analysis	Analyze contracts to manage costs and improve outcomes.		yes

Strategic Planning

Strategic planning is a critical skill for the chief actuary due to the impact the actuarial team has on the company's performance. In many ways, the chief actuary must demonstrate the value of the actuarial team or risk being replaced. Demonstrating value involves having clear deliverables, developed using meaningful feedback from leaders across the company, along with key performance indicators (KPIs) to measure and report on successes. There should be a direct link between the actuarial team's deliverables and the company goals. The actuarial strategic planning process should optimize current business results while anticipating future market conditions. A flexible framework that works both today *and* tomorrow helps position the actuarial team as strategic partners to the company's leadership.

Financial Risk Management and Controls

The chief actuary is a senior financial risk officer responsible for developing and refining processes

to proactively manage pricing risks and cost trends. While they routinely collaborate with the CFO and enterprise risk management teams, their actuarial staff often serves as the company's primary safeguard against significant unforeseen financial disruptions. Exceptional leaders also monitor distribution, operational, regulatory, and legal risks, while identifying new risks on the horizon. In short, the chief actuary is *always* focused on company risk.

Equally important, outstanding chief actuaries understand the need to look inward for risk as well. They establish effective control mechanisms to ensure accuracy and prevent errors in the work produced by the actuarial team.

Market Awareness

Actuaries drive financial predictability by tracking current cost drivers—such as the focus on GLP-1 drugs and gene therapies—while anticipating future shifts in health care services. Comparing emerging and historical financial trends with those of competitors



The best chief actuaries transform complex technical analysis into clear, concise communications. They ensure that senior leaders, the board, and other stakeholders understand the key risks and assumptions in all critical actuarial work products.

helps enhance awareness of potential regulatory responses to industry profit levels. Furthermore, effective chief actuaries utilize financial analysis and public policy expertise to drive strategic planning and regulatory influence.

Forward-thinking actuaries anticipate how regulators might respond to rate requests and develop strategies to explain trend drivers and market shifts—whether they are one-time anomalies or persistent patterns, and whether they impact only their company or the industry as a whole.

To maintain a competitive edge, chief actuaries must help position their company as the preferred partner for members, providers, brokers, and consultants through improvements in technology, customer relations, and product sales/service.

Effective Communication

For chief actuaries, the technical skills we bring to a table are useless if they are not paired with effective communication. Understanding the situation, framing its essence, analyzing alternatives, and quantifying risks—often with ranges when the risk is significant—are all important aspects of the actuary's

contribution. However, unless leading a technical discussion with other actuaries, the ability to summarize is the essential product.

The best chief actuaries transform complex technical analysis into clear, concise communications. They ensure that senior leaders, the board, and other stakeholders understand the key risks and assumptions in all critical actuarial work products.

Integration of Technology and Data Science

Chief actuaries play an important role in a company's data, analytics and technology strategy. Establishing and maintaining close partnerships with the chief information officer (CIO), the chief data officer (CDO), and the chief technology officer (CTO) are essential to equip the actuarial team with high-quality data and cutting-edge technology. These partnerships enable the actuarial team to maximize value by leveraging a full range of information sources, from base level reporting to advanced analytics. With tools like artificial intelligence and machine learning, actuaries gain deeper insights that drive better decision making. This capability allows for a comprehensive

understanding of member and provider behavior, leveraging both outlier detection and traditional averaging methods to identify key patterns.

Relationships

Relationships are a long-standing leadership competency. These connections go beyond personal ties; they are mutual business networks that support career growth. They are built through joint projects, selfless support of colleagues, and even informal conversations over a meal.

These networks are also enduring. Two business colleagues can go a decade without speaking and then reconnect to further their careers. Key professional partnerships often span IT, underwriting, consulting, reinsurance, actuarial peers at other firms, and most importantly, senior leaders within one's organization.

Ultimately, building business relationships is a leadership competency that enables actuaries to grow into executive roles, such as chief actuary.

Business Acumen

Chief actuaries must be strategic leaders, broadening their business and financial acumen to complement their technical skills. At times, this involves embracing “calculated risks” and supporting growth rather than defaulting to conservatism. Chief actuaries need to align their decisions with the organization's growth and financial objectives by thinking holistically and applying sound business judgment. A proven history of financial balance enables the company's actuaries to credibly pursue necessary actions when cost trends accelerate.

Provider Contract and Data Analysis

Actuaries improve financial outcomes in provider arrangements through data-driven analysis. They assess contracts, collaborate with clinicians, explain findings, and offer recommendations.

Provider contracting and data analysis can be particularly challenging for a chief health actuary. Actuaries, who play a pivotal role in financial quantification, often collaborate with teams that are largely focused on clinical or academic issues. Building mutual respect and understanding each department's priorities helps minimize conflicts and promotes effective dispute resolution. As a respected senior leader, transparency and professionalism help the chief

actuary to maintain a supportive culture while striving for optimal decisions.

Actuaries in provider-aligned health plans play a key role in advancing value-based care by improving quality, affordability, and patient outcomes. Their analytical insights identify emerging trends, while providers often identify real-time opportunities that would take months or years to appear in data. Strong communication and genuine collaboration with providers—especially those receptive to actuarial insights—enhance both actuarial impact and care delivery. By leveraging data and fostering meaningful partnerships, actuaries help their company build trust, and drive cost-effective, high-quality health care.

Setting an Example of Self-Awareness and Self-Care

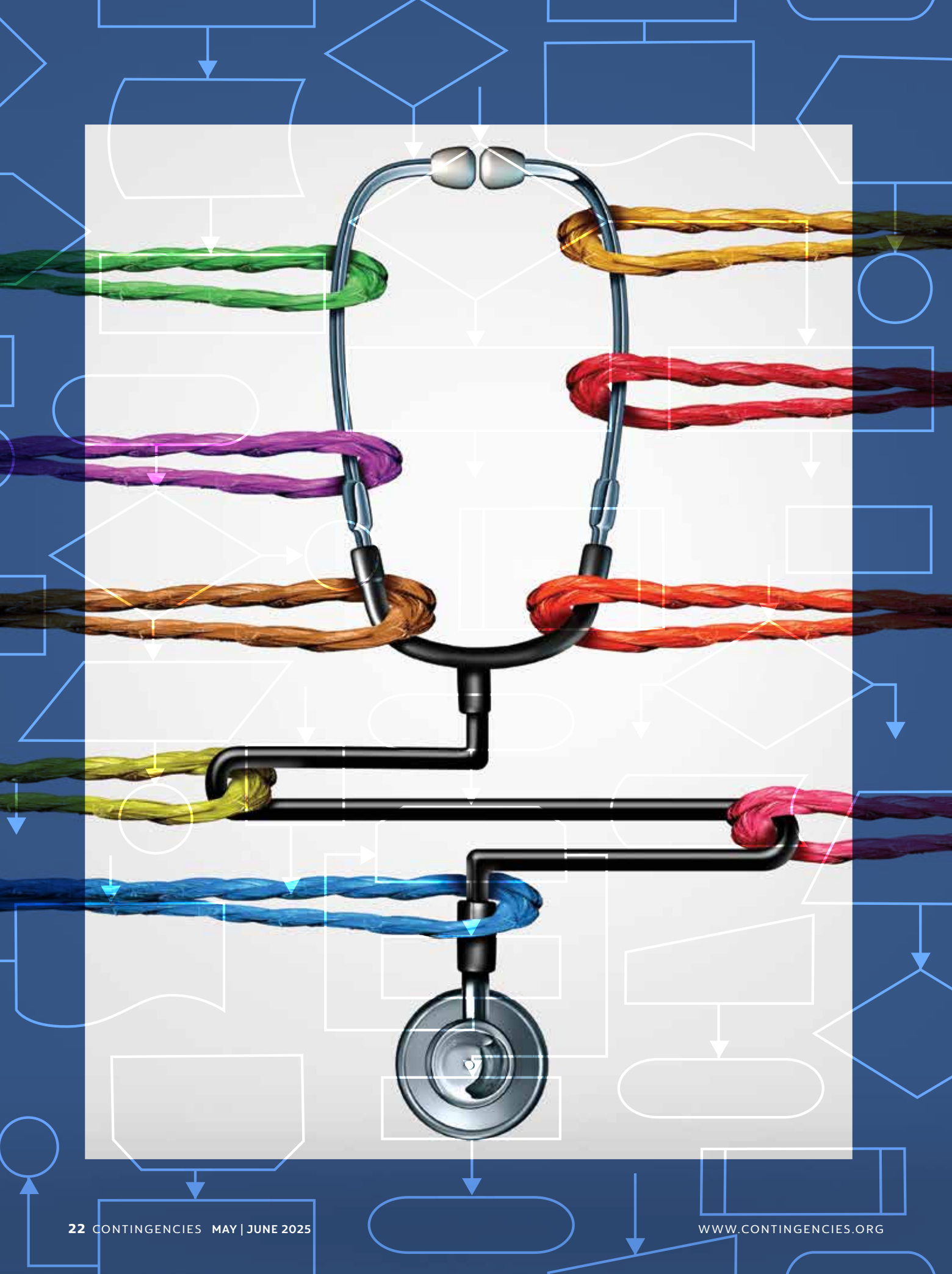
Being a chief actuary is a demanding role that requires self-awareness and setting the right example. Effective leaders recognize their strengths and weaknesses, acknowledge their limits, and build teams that complement their skills. This fosters collaboration, improves performance, and creates a positive work environment.

Equally important is personal well-being: spending time with family, enjoying hobbies, getting enough sleep, eating well, and exercising helps leaders stay focused and resilient. Self-care isn't a luxury, it's essential. Leaders who push to exhaustion risk burnout and send the wrong message to teams who are always watching.

Conclusion

The insights shared by experienced chief actuaries illustrate the multifaceted demands of the role and the diverse mix of competencies and skills needed to be successful—strategic thinking, data-driven decision making, effective communication, and strong leadership. As a senior financial risk officer, the chief actuary helps lead the organization through the complexities of the health insurance landscape. ▲

KEN AVNER, MAAA, FSA; JACK BURKE, RETIRED MAAA, RETIRED FSA; WILLIAM CASHION, ASA; PATRICK GETZEN, MAAA, FSA; DAVE NELSON, MAAA, FSA; KEITH PASSWATER, MAAA, FSA; DAN RACHFALSKI, MAAA, FSA; STAFFORD THOMPSON, JR., MAAA, FSA; KATE TOTTLE, MAAA, FSA; AND KARENA WEIKEL, MAAA, FSA



Raising Awareness of Health Equity Considerations *in* Actuarial Work

Inherent biases in program development and modeling can contribute to health disparities, but existing ASOP guidance can help identify and mitigate these disparities.

By Ian McCulla

AS TRUSTED ADVISORS for organizations interested in managing risk, actuaries are routinely tasked with performing financial estimates and collaborating with other business units in developing, implementing, and monitoring programs that carry financial risk. Within the health care sector, and with respect to major medical coverage in particular, actuaries play a role in setting premium rates, developing performance metrics and corresponding incentives or penalties, and identifying members who would benefit from case management or disease management programs.

The risk assessment component of these tasks generally relies on a model, which includes:

1. an information input component, which delivers data and assumptions to the model;
2. a processing component, which transforms input into output; and
3. a results component, which translates the output into useful business information.

The modeling process, and even the development of the model itself, combines art and science, relying on a mix of objective and subjective decision-making based on actuaries' professional judgment and professional guidance.

Key among available resources for actuaries are the actuarial standards of practice (ASOPs), which

help actuaries to weigh decisions such as appropriate data sources, the appropriate risk classifications to use, and credibility of the data; however, it is the responsibility of each actuary to ensure appropriate application of the ASOPs.

The American Academy of Actuaries' Health Equity Committee wrote this article to raise awareness of health equity considerations that actuaries may want to incorporate into their day-to-day work. Through a quality metrics lens, the Committee seeks to highlight how inherent biases in program development and modeling processes can contribute to health disparities and point to how existing guidance in the ASOPs can be leveraged to help identify and mitigate those disparities.



In an effort to improve quality measures across populations, health plans may use algorithms to help identify members who will benefit most from an intervention program, such as disease management, aimed at improving health status.

Health Plan Quality Metrics Example

Quality metrics are used to evaluate different kinds of health plans on quality of care provided, patient outcomes, and improvement efforts, which may influence plan enrollment and revenue. For example, the National Committee for Quality Assurance, an accrediting body for providers and plans, issues an annual report card on ratings for commercial, Medicare, and Medicaid plans based on “the quality of care patients receive, how happy patients are with their care and health plans’ efforts to keep improving.”

Quality metrics are generally measured across the entirety of the enrolled population that qualifies for the metric. In an effort to improve quality measures across populations, health plans may use algorithms to help identify members who will benefit most from an intervention program, such as disease management, aimed at improving health status. Employing programs focused on overall efficiency and improving members’ outcomes will often result in improvement in associated quality metrics. If the algorithm is using data that include an inherent bias, however, the identification process may miss entire groups of members who would otherwise be eligible for and benefit from the program.

Similarly, an actuary may be tasked with utilizing historical intervention data to identify which members experienced the greatest improvement in health status and thus improved the plans’ quality metrics when included in the intervention program. Actuaries look for similarities in the members where the intervention was most effective. An actuary may find that members in a certain geographic area respond better to the intervention. However, it is possible that members in the given geographic area respond better because of better access to services or more stable communication methods.

Actuaries informing the health quality metric definition may consider adjustments to the metric measurement that increase alignment of quality program incentives and program health equity goals.

Whether in support of algorithm development or in developing data sets, it is critical to ensure that the data tell the right story. It may, in fact, be necessary to modify an intervention's approach in other geographic areas to better address member needs. In this example, intervention methods that target certain geographies (explicitly or implicitly via other model variables) may be the result of, and further contribute to, health inequities.

Discussion

The example illustrates how certain geographic areas and the members living in that area may be adversely affected by social determinants of health (provider access or communication stability). With that in mind, actuaries tasked with improving health quality metrics for health plans might consider expanding their consideration to factors influencing the risk classification implied by their models and whether they are in alignment with the intended purpose.

Actuaries informing the health quality metric definition may consider adjustments to the metric measurement that increase alignment of quality program incentives and program health equity goals. For example, stratifying the health quality metrics by certain member attributes such as race (if available) or geography may provide more equitable access to interventions aimed at improving the health of the members.

While social determinants of health and equity are not explicitly included, careful consideration of relevant ASOPs can guide actuaries as they contemplate the actions above. For example, ASOP No. 12, *Risk Classification (for All Practice Areas)*, states that "The actuary should select a risk classification system that is appropriate for the intended use." Are the attributes used in the actuarial model or financial metrics consistent with the intended use of the model? Are there latent attributes that are influencing the model in an unintended fashion?

ASOP No. 56, *Modeling*, states that an actuary should understand "limitations of the data or information, time constraints, or other practical considerations that could materially impact the model's ability to meet its intended purpose." Many public and private health care organizations have explicit references to health equity objectives. Could the models mentioned above be enhanced to further these objectives?

Conclusion

As professionals who understand both the detailed statistical nuances of model development and implications of financial policy, actuaries have a unique opportunity to be at the forefront of developing health care models, metrics, and financial policy that could potentially reduce health disparities. As noted, this article is meant only as a starting point to raise awareness of health equity considerations that actuaries may want to consider in their day-to-day work and how the ASOPs help guide the actuaries work in this area. ▲

IAN McCULLA, MAAA, FSA, is a principal and consulting actuary with Milliman. McCulla primarily consults with Medicaid state agencies on topics such as capitation rate development, provider payment, and alternative payment models. McCulla is an active member of the American Academy of Actuaries and Society of Actuaries work groups and committees, including those focused on Medicaid and health equity issues.

Definitions

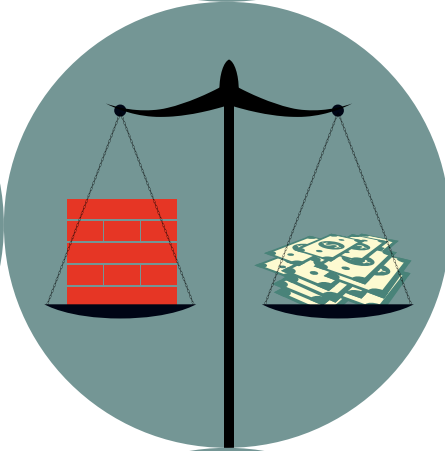
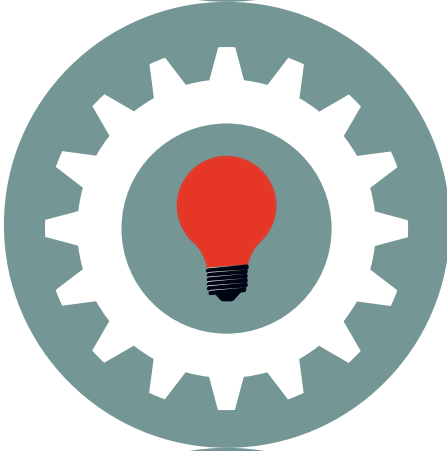
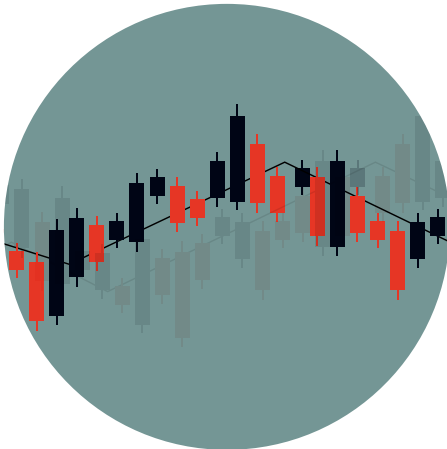
The committee refers to the following definitions in its work:

- Health equity means that everyone has a fair and just opportunity to be as healthy as possible. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care.
- Health disparities are differences in health or its key determinants that adversely affect marginalized or excluded groups. Disparities in health and in the key determinants of health are the metric for assessing progress toward health equity.
- Social determinants of health are nonmedical factors such as employment, income, housing, transportation, childcare, education, and the quality of the places where people live, work, learn, and play that influence health.

Source: Braveman P, Arkin E, Orleans T, Proctor D, and Plough A. "What Is Health Equity? And What Difference Does a Definition Make?" Princeton, NJ: Robert Wood Johnson Foundation, 2017.

The Dynamics of Market Forces

SETTING THE STAGE BY CARLOS FUENTES



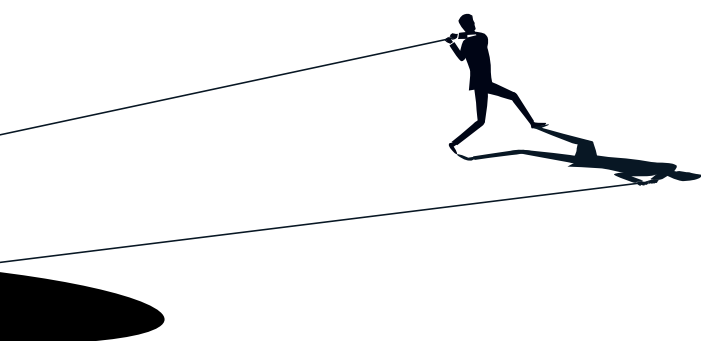
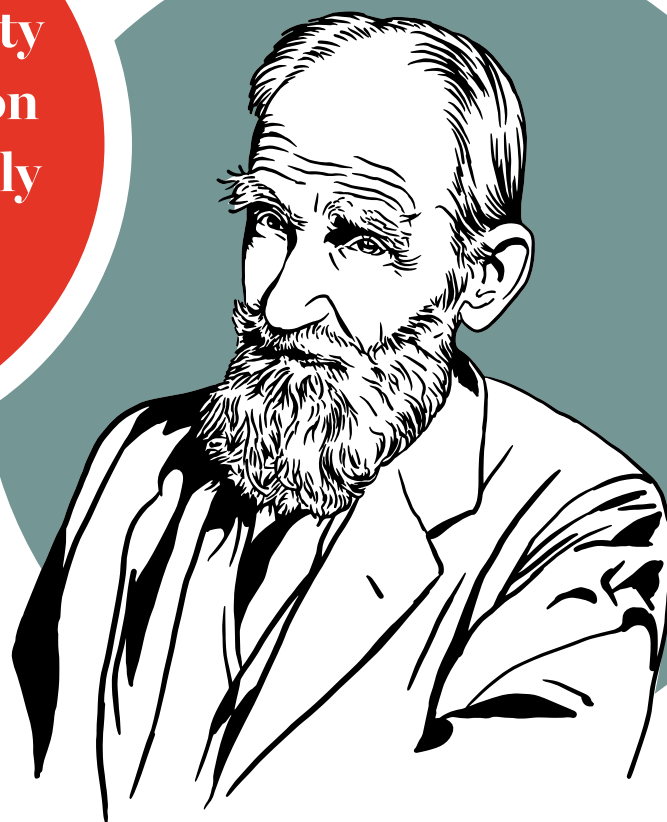
The historical development of utility, supply, and demand concepts in the 19th century enables us to better understand the current dynamics of market forces.

Editor's Note:
This is the first of a two-part series examining the dynamics of market forces that govern the economy, which is the stage in which actuaries operate.



**“The price of ability
does not depend on
merit but on supply
and demand.”**

—George Bernard Shaw



The dynamics of market forces have long intrigued economists and thinkers alike. This article delves into the historical development of the concepts of supply and demand, shedding light on how these forces shape the pricing of goods and services. It examines the perplexing questions of why certain essential goods are inexpensive while some superfluous items command high prices, and touches upon other issues such as government intervention in markets.

Through a historical lens, the article explores the fundamental principles of utility, demand, and supply, offering readers a deeper understanding of the complex mechanisms that govern our economy. It highlights the contributions of Adam Smith, Karl Marx, David Ricardo, Carl Menger, and William Stanley Jevons, and covers topics such as usury, the legitimacy of wages and prices, rent (a term often misunderstood), and capital, emphasizing the roles of labor, utility, and marginal utility. This sets the stage for the great synthesis accomplished by economist Alfred Marshall in the upcoming second and final article, which will focus on fundamental economic questions and illustrate how supply and demand concepts are used to price products and services.

Understanding market dynamics and economic pricing allows actuaries to make informed judgements about competitive markets. For example, in competition-based health insurance, actuaries need to consider the supply of insurance services and the demand for insurance coverage. Grasping the interplay of these factors and their associated assumptions allows actuaries to form solid opinions.

Key Takeaways

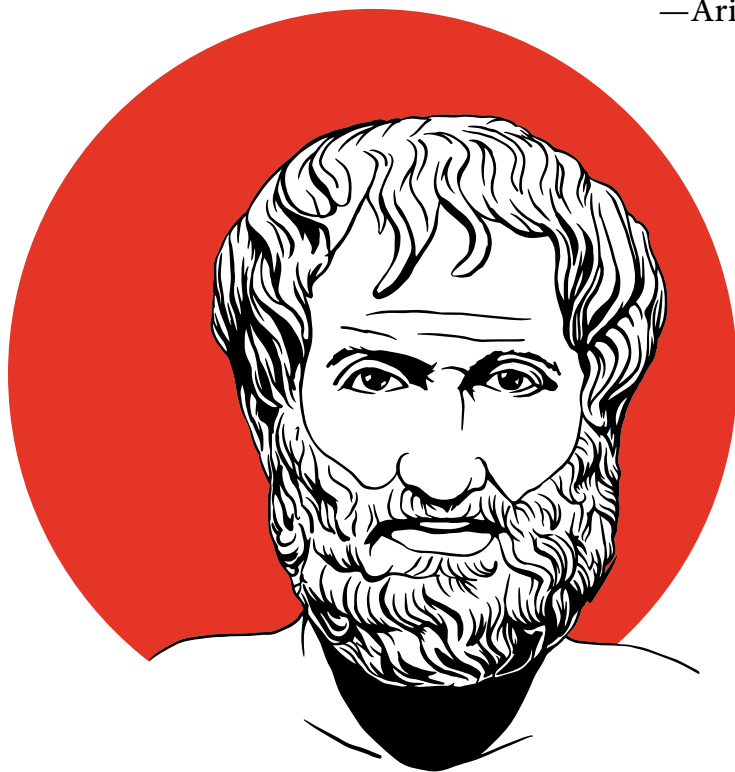
- This article summarizes the history of supply and demand pricing, also known as economic pricing, through the end of the 19th century.
- The development of supply and demand concepts over millennia highlights their counterintuitive nature and helps explain why the limitations of supply-demand pricing are often misunderstood.
- There may not be a better way to appreciate the power and limitations of economic pricing than by reviewing the conundrums faced by economists and their solutions to these challenges.
- Although actuarial pricing is typically performed on a cost-plus basis, there are situations where the practicing professional can benefit from an understanding of supply-demand pricing (also known as economic pricing), such as in competition-based health insurance.

In the Beginning...

Aristotle^[1] in the fourth century BCE, along with other philosophers before and after him, examined the question of fairness in price. Because slavery was accepted in Ancient Greece and because production was confined to what households could manufacture, considerations on interest, wages, and labor costs were not part of the economic discussion. Prices were derived in one way or another from production costs, and production costs were not a visible function in the slave-owning household. Even so, there were questions that puzzled thinkers for thousands of years, particularly the following: Why are some of the most useful things the least valuable in the market, while some of the least useful command high prices?

“It is the mark of an educated mind to be able to entertain a thought without accepting it.”

—Aristotle



Theologians and philosophers expressed strong opinions on topics that in current terms could be referred to as political economics^[2] such as the legitimacy of prices (including how much should be paid for the satisfaction of vices^[3]), usury^[4] (what we now call interest on loans), and population growth (its effect on the depletion of resources^[5]). Although their views may appear quaint to readers today, their relevance cannot be denied.

Adam Smith^[6]

Advances in economics were slow.^[7] In 1776, Adam Smith published his famous work, *The Wealth of Nations*, in which he postulates that value, what he called natural price, was the sum of the costs of production. The worker transforms raw materials purchased by the capitalist using equipment owned by the capitalist. The worker is paid by the hour for his labor (wages) while the capitalist is paid by the amount of capital^[8] and the length of time in the production process. When production involves the use of land, a third component must be included in the price of production: the rent^[9] of the land. Anything the capitalist purchases from other capitalists is in essence labor, profit, and rent. By far, the most important component is labor, so much so that economics (or microeconomics, as we would say today) and theory of value were considered synonyms of labor theory of value.

Smith next tackled the problem of income distribution: When a product is sold, how much of the sale price should go to the workers, the capitalists and, if land is involved, the landlords? According to Smith, wages can be quantified by the workers' and their families' costs of subsistence, which determine the minimum wage. This idea gave rise to the subsistence theory of wages, which was to be further developed by other economists. With clear insight, Smith reasoned that wages cannot be much higher than the minimum due to the disparity in bargain power between the worker and the capitalist (and the landlord), except when labor was scarce, but this situation is only transitory as higher wages attract more workers.^[10]

Smith struggled with the natural rate of rent (landlord's profit) and the natural rate of profit (capitalist's profit). He reasoned that since value is ultimately the



“It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest.”

—Adam Smith

result of labor, the capitalist must extract a portion of the value produced by the worker. The lower the wages the more surplus^[11] the capitalist can extract. This observation would become a major source of the revolutionary indignation to Karl Marx and a much more potent catalyst for social action than Marx’s economic theory, which most critics believe was obsolete by the time the first edition of *Das Kapital* went to print. About 100 years later,^[12] Milton Freeman proposed a somewhat similar idea in *The Social Responsibility of Business is to Increase Its Profits*,^[13] an article that appeared in the Sept. 13, 1970 issue of *The New York Times*.

Smith understood that his theory could not explain why some nearly essential things in life are free or almost so while others that are unimportant command high prices. He attempted to solve the puzzle by making the distinction between value in use—what has been explained above—and value in exchange. Understanding the baffling value in

exchange had to wait over a century for the introduction of the idea of marginal utility, which is based on the concept of derivative.

Karl Marx^[14]

According to Marx, in early economies, sales occurred only to facilitate later purchases. The cycle was Commodity-Money-Commodity (*C-M-C*) and the nature of the transaction was barter. Capitalism introduced a variant, *M-C-M*, a cycle in which money was advanced by the capitalist with the object of recovering it, not with the purpose of purchasing a good. Since the capitalist aimed at profit, capitalism transformed the cycle to *M-C-M'*, where *M* is the capitalist’s original monetary outlay, *m* is the transaction’s profit, and $M' = M + m$. This profit (*m*), Marx labeled surplus value. Marx assumed that labor was the unique commodity capable of creating value. Because only labor created value, the workman was entitled to the whole

product of his labor. Actually, he received only that portion of his labor necessary for his subsistence and reproduction. The remainder, surplus value, comprised profits, interest, and rent.

The sum of necessary labor time and surplus labor time constituted the working day. The longer the day, the greater the surplus values produced. Therefore, it was in the employer's interest to increase the working day as much as possible and in the workman's interest to shorten it. When the capitalist was thwarted in his efforts to increase the working day (e.g., by legislation that shortened the working day), he shifted his attention to the creation of surplus value generated with reduced amounts of socially necessary labor time. Such is the explanation of greater mechanization, improved technology, and persistent efforts to cheapen food.

Whereas Ricardo believed that the owners of machinery deserved a reward for employing it, Marx believed that the machine could do no more than transfer the value in it, the hours of socially necessary labor time consumed by its creation to the finished product.

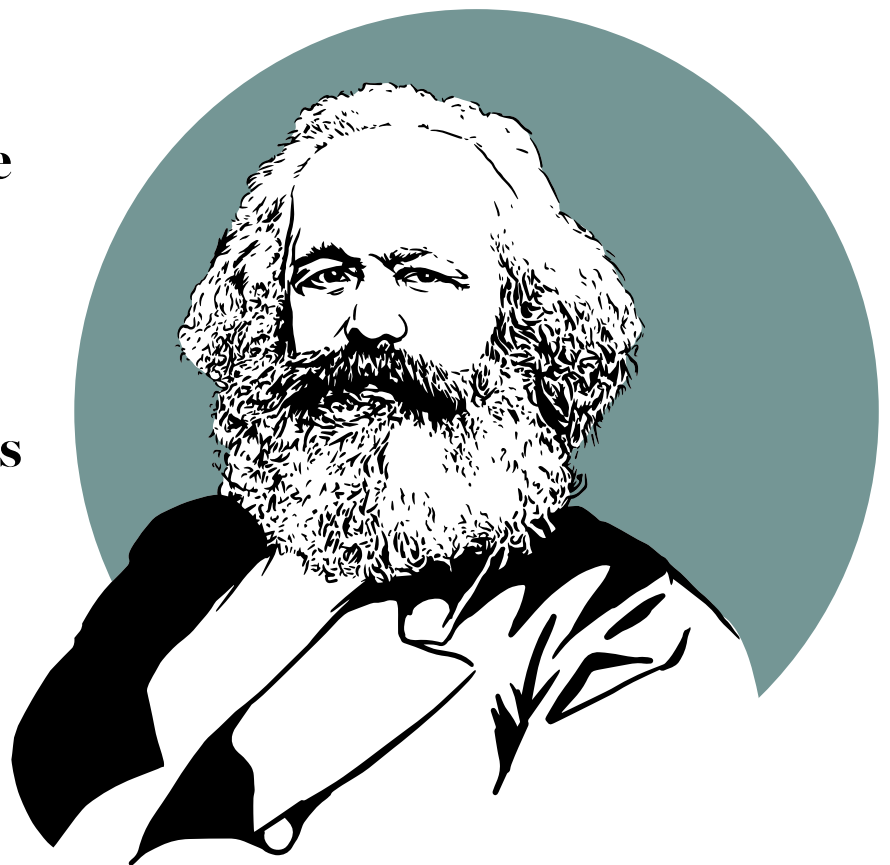
Machinery demanded a disciplined work force and central factory control. One day, workers could employ their training to overthrow their employers. For this day of deliverance, strikes were a preparation and their bloody repression a lesson in class consciousness.

David Ricardo^[15]

The next important event in the history of economic value as described in this article is the publication of labor theory of value in which its author, David Ricardo, did two things. First, he identified the role of usefulness (utility): "If a commodity were in no way useful—in other words, if it could in no way contribute to our gratification—it would be destitute of exchangeable value." Ricardo then explained in his famous work, *Principles of Political Economy and Taxation*, that utility (demand) alone does not determine value; instead, it must be combined with the second element, supply: "He^[16] certainly has not a correct notion of what is meant by value when he contends that a commodity is valuable in proportion to its utility. This would be true

“Money is the alienated essence of man’s labor and life; and this alien essence dominates him as he worships it.”

—Karl Marx

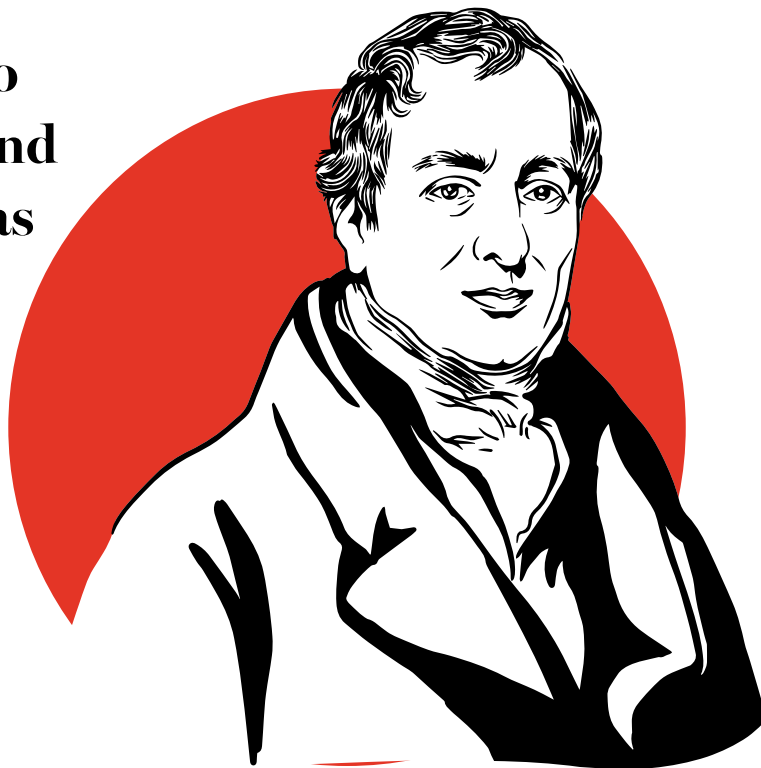


“Nothing contributes so much to the prosperity and happiness of a country as high profits.”

—David Ricardo

if buyers only regulated the value of commodities; but the fact appears to me to be that the buyers have the least in the world to do in regulating price—it is all done by the competition of the sellers.” He further asserted that the value of exchangeable products^[17] comes from scarcity or from the quantity of labor required to obtain them. The market determines the relative wages of different types of labor (e.g., accounting and actuarial science) with sufficient precision for all practical purposes; they depend on the comparative skills of the laborer and the intensity of the labor performed. The scale, once formed, is liable to little variations.

In a passage greatly quoted, known as the iron law of wages, Ricardo defines wages as “the price which is necessary to enable the laborers, one with another, to subsist and to perpetuate their race, without either increase or diminution.” In modern lingo, the iron law is the equilibrium price of labor, which includes “conveniences that become essential to [the worker] from habit.” In other words, wages support the conventional standard of living, but such conventions depend on factors such as country of residency. In an excerpt that remains relevant to public policy, Ricardo stated that “when, however, by the encouragement which high wages give to the increase of population, the number of laborers is increased, wages again fall to their natural price, and indeed from a reaction sometimes fall below it [...] Like all other contracts, wages should be left to the fair and free competition of the market and should never be controlled by interference with legislature.”



Carl Menger^[18]

Carl Menger is renowned for founding The Austrian School of Economics.^[19] His seminal work, *Principles of Economics*, published in 1871, introduced the concept of marginal utility which revolutionized economic thought. Menger argued that the value of a good is determined by its marginal utility, which is the additional satisfaction or benefit derived from consuming one more unit of the good. Menger’s theory states that value is subjective and depends on the individual’s assessment of the additional utility gained from the last unit consumed. This subjective theory of

“There is no better means of reducing a fallacious variety of thought to absurdity than to let it live itself out completely.”

—Carl Menger

value emphasized that value is not inherent in goods but is determined by individual preferences and the context of consumption.

Menger’s work laid the foundation for the marginalist revolution in economics, which shifted the focus from labor and production costs to individual preferences and utility. His contributions also influenced the development of the theory of price formation and market processes. Menger’s insights into

the role of information and knowledge in economic decision-making further enriched the understanding of market dynamics.

William Stanley Jevons^[20]

Jevons independently developed the theory of marginal utility around the same time as Carl Menger. Jevons’ major contribution to the theory of supply and demand includes his formulation of the law of diminishing marginal utility. Jevons introduced the concept of the equation of exchange, which describes the relationship between the quantity of goods and their prices in a market. His work helped to formalize the mathematical analysis of economic behavior and contributed to the development of the marginalist revolution in economics. In his book, *The Theory of Political Economy*, published in 1871, Jevons emphasized the importance of utility in economic analysis and laid the groundwork for the marginalist approach. He also explored the often-ignored role of time and uncertainty in economic decision-making, highlighting the dynamic nature of markets.

Jevons’ contributions extended beyond the theory of supply and demand, as he made significant advancements in the fields of statistics and econometrics. His work on index numbers^[21] and the measurement of economic variables provided valuable tools for empirical analysis.

“Fertility of imagination and abundance of guesses at the truth are among the first requisites of discovery.”

—William Stanley Jevons



“I am like any other man. All I do is supply a demand.”

—Al Capone

Final Remarks

Grasping the basic concepts of economic pricing is essential for professionals, including actuaries, who operate in the financial sector because such notions offer valuable insights into how pricing mechanisms operate in broad economic contexts. The slow development of utility, supply, demand, and related ideas is due in part to certain counterintuitive aspects

that surrounds them and to complexities that were addressed with assumptions whose validity is seldom questioned. It is not surprising, therefore, that many economic beliefs are unfounded and that predictions are seldom confirmed within a reasonable range of validity.

Actuaries who grasp the concepts briefly reviewed in this article are equipped to make better judgments on issues that involve supply and demand, such as health provider

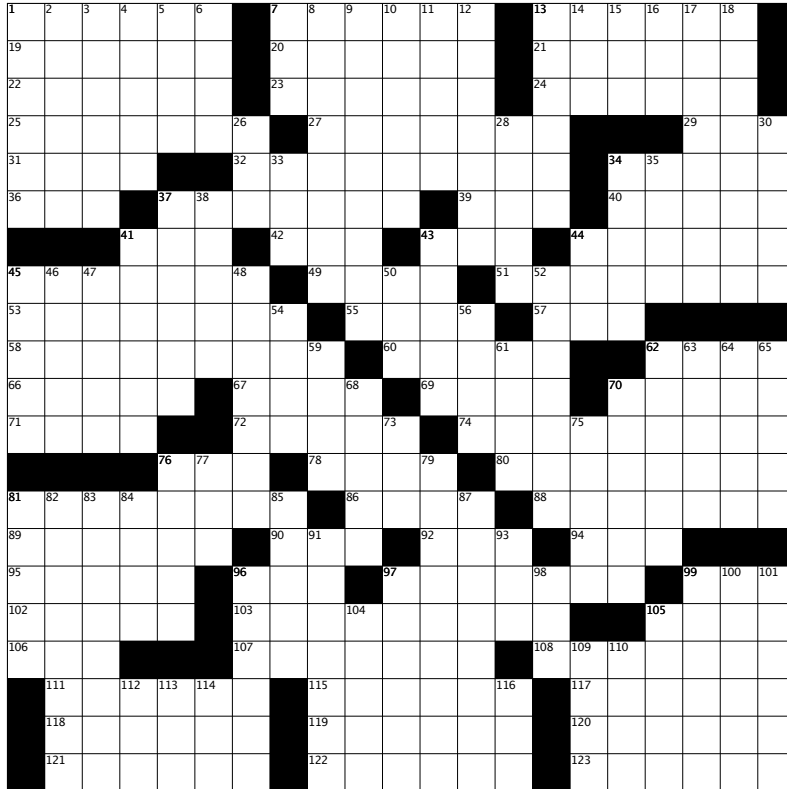
Endnotes

- [1] Aristotle (384–322 B.C.E.) was a Greek philosopher and polymath, a student of Plato and tutor to Alexander the Great. He made foundational contributions to various fields, including ethics, politics, metaphysics, and biology, shaping Western thought and philosophy for centuries.
- [2] Political economics examines the interplay between politics and economics, focusing on how political institutions, policies, and processes influence economic behavior and outcomes. It explores the impact of government actions on economic performance, distribution of resources, and societal welfare.
- [3] Many argue that vices can harm individuals and society, leading to questions about the morality of profiting from them. This perspective emphasizes the duty to promote well-being rather than exploit weaknesses. Others believe that individuals know better than anybody else what they value; consequently, they should have complete freedom in their decisions.
- [4] The Torah explicitly forbids charging interest in some circumstances (Exodus 22:25). This principle is reinforced in various Talmudic discussions, highlighting the moral imperative of helping those in need without exploiting them financially.
- [5] See *An Essay on the Principle of Population* by Thomas Robert Malthus. The subject is relevant once again and it is becoming more so with the passage of time.
- [6] Adam Smith (1723–1790) was a Scottish economist and philosopher, best known for his seminal work, *The Wealth of Nations*. He is often regarded as the father of modern economics, advocating for free markets and the division of labor. His ideas laid the foundation of classical economics and capitalism.
- [7] Important discoveries in physics in the 18th century include Lagrangian mechanics and the conservation of mass. Newton formulated the theory of gravitation in 1687.
- [8] *Economic capital* is a term commonly misunderstood. It refers to assets used in the production of goods and services such as raw material, machinery, means of transportation, and communication. Capital has a number of related meanings in economics, finance, and accounting. In finance, accounting, and in general parlance, it generally refers to financial wealth.
- [9] *Rent*, as originally understood, was caused by the pressure of population on the means of subsistence. Population growth presses cultivation to even poorer land. Such pressure continues until the increasingly desolate soil returns only the minimum necessary for the lives of those who work it; that minimum then determines in a general way the wages of those who work the land. From possession of the better land comes a surplus over cost. This is greater when the land is better and as the population grows. The owner of good land is thus the beneficiary not only of her own good fortune but also of the increasing misery of others. In modern economics, rent is defined as an extension of the concept just described, that is, the difference between the total return to a factor of production (land, labor, or capital) and its supply price.
- [10] Regulations and unions strengthen the bargaining power of workers and distort the free market which depending on the circumstances and the views of the actors involved can be unfair and inefficient, just and socially desirable, or both.
- [11] *Surplus* is the amount of an asset or resource that exceeds the portion that is utilized.
- [12] Milton Friedman (1912–2006) was one of the leading proponents of monetarism and free-market capitalism. A libertarian, he won the Nobel Prize in Economics in 1976 for his research on income and consumption.
- [13] The thesis of the article can be summarized as follows: executives are employees of the owners. They are required to deliver quality service to the employer first before any other party. An entity is not obligated to any social responsibilities unless the shareholders decide otherwise.
- [14] Karl Marx (1818–1883) was a German philosopher, historian, sociologist, and political theorist. His two most famous works are *The Communist Manifesto* and *Das Kapital*. *The Columbia History of the World* called Marx's writings "one of the most remarkable and original syntheses in the history of human intellect."
- [15] David Ricardo (1772–1823) was one of those rare people who achieved tremendous success and lasting fame. After his family disinherited him, Ricardo made a fortune as a stockbroker and loan broker. His most important work is in the fields of labor theory of value, the theory of comparative advantage, and the theory of rents. He, among others, enunciated the law of diminishing marginal returns.
- [16] Jean-Baptiste Say (1767–1832) was a French classical, liberal economist, and scholar. Say's famous law of markets—to which many economists and non-economists adhere—is a foundational concept of classical economic theory; it states that production is the source of demand ("supply creates its own demand"). Like Ricardo, John Maynard Keynes, one of the greatest economists in history, argued that demand, not supply, drives economic activity.
- [17] The idea of exchangeable products is important because it excludes from the analysis non-reproducible commodities such as works of art, and hints at the relationship between supply and demand.
- [18] Carl Menger (1840–1921) was an Austrian economist who contributed to the development of the marginal utility theory and to the formulation of a subjective theory of value.
- [19] *The Austrian School of Economics* emphasizes the importance of individual choice, subjective value, and the role of time and uncertainty in economic decision-making. It advocates for free markets, minimal government intervention, and the significance of entrepreneurship in driving economic growth and innovation.
- [20] William Stanley Jevons (1835–1882) was a British economist and philosopher. He is one of the main contributors to the marginal revolution, which shifted classical to neoclassical economics. He was the first economist to construct index numbers, and had a tremendous influence on the development of empirical methods, and the use of statistics and econometrics in the social sciences.
- [21] *Index numbers* measure the relative changes in various economic variables, such as prices and quantities.

competition, and to understand the innovative solutions economists have devised to address the puzzling problem of value. Actuaries can also incorporate elements of these economic tools to their models, making them more useful. ▲

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You Can Count On It



Across

- 1 Euchre relative
- 7 Drives away
- 13 Built a weir
- 19 Zambia or Gambia
- 20 Slowly, to Schubert
- 21 "Oedipe" composer
- 22 Abraded
- 23 Bisque holder
- 24 Snare's neighbor
- 25 Permission paper
- 27 2011 Polanski comedy
- 29 Bethesda org.
- 31 Salon offerings
- 32 Divided into two opposed aspects
- 34 Language of Zimbabwe
- 36 Jr. and Sr.
- 37 "Picture you upon my knee, Just tea for two and ____:" Irving Caesar
- 39 Army ____
- 40 Bryn Mawr attendee
- 41 NYSE symbol for British American Tobacco
- 42 Pursue
- 43 Auburn rival in the SEC

- 44 Bridge element
- 45 What might get the ball rolling
- 49 Lay waste to
- 51 Retton achievement
- 53 Confections
- 55 Emulate a stevedore
- 57 Moppet
- 58 Natural wax used in cosmetics
- 60 E7's seventh
- 62 It's held for questioning
- 66 Dated later
- 67 Tip off
- 69 Atmospheric pressure unit
- 70 Naples gateway
- 71 Some paycheck IDs
- 72 Site of a decisive battle: 301 B.C.
- 74 Holiday pie choice
- 76 WWII agency
- 78 "Beowulf," e.g.
- 80 Type of board
- 81 Quaint emporium
- 86 Caesar's wife
- 88 Fishing spear
- 89 Beowulf, e.g.

- 90 Marks a ballot
- 92 Genesis figure
- 94 Coppers, for short
- 95 Quince and others
- 96 Compass meas.
- 97 Hypothetical weapon used to knock sense into the clueless
- 99 ___/IP
- 102 Beethoven wrote just one
- 103 London's criminal court
- 105 Golfer K.J.
- 106 Parisian possessive
- 107 "The fatal egg by pleasure laid": Cowper
- 108 Local alternative
- 111 Place to bring a suit
- 115 How many audits are conducted
- 117 They call New Zealand "Aotearoa"
- 118 Book with Solomon's accession
- 119 Leaves in a hurry
- 120 Sunflower seed
- 121 Title character for Virgil
- 122 Bill for Pavarotti, so to speak
- 123 Picked up

Down

- 1 What a Rockstar provides
- 2 "What Color is Your Parachute?" subject
- 3 Key rings?

- 4 Cedar Point attractions
- 5 ___ fine line (tread carefully)
- 6 Borders
- 7 Brass ___ (MIT class ring)
- 8 Pedagogue
- 9 Brief worker
- 10 Female adviser in Roman myth
- 11 Encumbrances
- 12 Handel bars?
- 13 Pick up
- 14 Castro's year
- 15 Palindromic Hebrew letter
- 16 3 PM in Denver
- 17 Kind of indicator
- 18 Characteristic of certain genes
- 26 It became Tokyo in 1868
- 28 Contrive
- 30 Daring surfer's cry
- 33 Bean of India
- 34 "Gulliver's Travels" author
- 35 ___ card
- 37 Faithless lover
- 38 Penalty imposer
- 41 Griffin and Lively
- 43 Listed in England?
- 44 Maven
- 45 Elvis and Marilyn, e.g.
- 46 Headlands
- 47 Diadem
- 48 Aristocratic practice
- 50 Kryptonian military man
- 52 "But thy ___ summer shall not fade:" Shakespeare
- 54 Footprint maker
- 56 Destine for trouble
- 59 Programming command
- 61 Junket
- 62 "I Don't Want ___ a Thing:" Aerosmith
- 63 Assemble
- 64 Inspid
- 65 Eye site
- 68 Autoimmune ailment
- 70 Tea cake
- 73 One of two in "boxcars"
- 75 Proust's Odette de ___
- 76 City south of Kyiv
- 77 Paul McCartney or Mick Jagger
- 79 ___ course
- 81 Fin
- 82 Condition for Homer
- 83 Junior, to Senior
- 84 Miss Clairou user
- 85 Edward Snowden, e.g.
- 87 Ball game
- 91 Farthest from the start
- 93 Driver's aid
- 96 Entanglement
- 97 "Downton Abbey" butler
- 98 Easy round
- 99 "___ a Place:" Beatles
- 100 The real part of Euler's formula
- 101 Three sheets to the wind on the Thames
- 104 Noggin in Nottingham
- 105 Namesake of a chronic disease
- 109 Present occasion
- 110 Show impatience
- 112 Bargain place
- 113 Voltaire's donkey
- 114 Famous D.C. museum
- 116 ___ = NAV/[Risk Capital]

Previous Puzzle: Sobriquet



Solvers: Dean Apps, Karl Baker, George Levine, Will Lynch, Jim Muza, Ray Niswander, Gregory Scruton, and Wendy Windsor

Solutions may be emailed to puzzles@actuary.org. In order to make the solver list, your solutions must be received by June 1, 2025.



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Hop, Skip, and a Jump, Reprise

I'm always trying to come up with a novel variety cryptic format. It's not easy. "Chutes and Ladders" from two issues ago may have taken it all out of me for a while. So I'm returning to a format I used a few years ago.

The hop entries go around the circle sequentially, starting in block 1. The skip entries also start at 1, but use only the odd-numbered blocks. The jump entries start at 1 and use every third block. Block 1 is used six times, as the first letter of the three starting words and as the last letter of the three ending words. Word lengths are provided, but the order is left for the solver. (There are hints for those who need them.) As an additional guide, and to orient the filled-in diagram, a few letters have been provided as an anchor.

There are three and a half proper nouns (one is part of a double definition). Everything else is playable in Scrabble, including one obsolete word. Ignore punctuation, which is intended to deceive.

Thanks to Jerry Miccolis for testing and editorial suggestions.

Hop clues

- a) Error-free, Chloe's confused over nothing at university (6)
- b) French composer satiates even though no piece is repeated (5)
- c) Earthy concoctions may be quite filling (6)
- d) United Nation's touch, strangely lacking manners (7)
- e) Who designed the miniskirt? An actuary, maybe? (5)



- f) Dull delivery person starting to tackle employment (6)
- g) Gore's crazy for Shrek and Princess Fiona (5)
- h) In the first place, who controls Flood? (5)
- i) Art's pieces sometimes reread by followers of Haile Selassie (6)
- j) Dole's calling for game birds (4)
- k) Enchanted by New England chant (6)

Jump clues

- a) Undulating kind of headache around the first of October—and ugh (7)
- b) Towel off a little birdie (5)
- c) I need help getting rid of a little bit of odor at the private dining area (4)
- d) Downright articulate (5)

Skip clues

- a) Eton's upset by one? Who would write that down? (5)
- b) Estates with too much food (4)
- c) Who's out of line? Grant? (4)
- d) Say a second person weaves a onesie (4)
- e) Disturbing snore from the Valkyries (5)
- f) Adds more than one brat (4)
- g) Abrasive material found outside embattled microdistillery (5)

TOM TOCE is an FCAS and a seasonal director at KMPG. He is a member of the Jeopardy Hall of Fame. Solutions may be emailed to ttoce@nyc.rr.com. In order to make the solver list, you should send him your solutions by June 1, 2025.

HINTS

Order of hop clues: a-4th, b-1st, c-6th, d-2nd, e-7th, f-3rd, g-9th, h-5th, i-11th, j-10th, k-8th

Order of skip clues: a-1st, b-7th, c-3rd, d-5th, e-6th, f-2nd, g-4th

Order of jump clues: a-1st, b-2nd, c-4th, d-3rd

Solution to Previous Issue's Puzzle—Does This Sound OK?

ACROSS

- OPIUM PIPE (OPMPIPE)—“I mop up pie” anag.
- STEPS UP—(PET inside PUSS) full rev.
- TRADE—“Tatteredd” reverse letter bank
- SPECIAL EFFECTS (SPECIALFX)—“ET’s cliff escape” anag.
- ICY STARE (ICSTARE)—“scary tie” anag.
- TURF TOE—RUT rev. + (pi)T(ch) inside FOE
- TEMPEST—TEMP + EST
- NEWS AGENCY—“Yes, Gwen can” anag.
- EYE—“I” rebus
- DEVIIOUS PLAN (DVSPLAN)—“unpaved soil” anag.
- RIPOSTE—RIP + (p)OSTE(r)
- VEHICLE—H inside VE(ntr)ICLE [delete NTR]
- TOOTH DECAY (TOOTHDK)—“hot date coy” anag.
- EMPTY PROMISE (MTPROMISE)—“I’m Mr. Poe’s type” anag.
- ATRIA—A(us)TRIA [delete US]
- SINCERE—S(overign) + I(raq) + N(egotiate) + C(urrency) + E(xchange) + R(ate) + E(ntente)
- ARCH ENEMY (ARCHNME)—“cheery man” anag.

DOWN

- OUTFITTED—OUT + FIT + TED
- MEANS—AMENS --> MEANS
- ITERATE—I(TE)RATE
- ENSUE—ENSU(r)E [delete R]
- SWEETENER—[(TEE + W) inside RENE’S] full rev.
- EXIT ROW—EX + IT + ROW [WOR(ker) rev.]

1	O	P	M	P	I	P	E		S	T	E	P	S	U	P	
	U		E		T		N		W		X		P		I	
9	T	R	A	D	E		S	P	E	C	I	A	L	F	X	
	F		N		R		U		E		T		O		I	
11	I	C	S	T	A	R	E		T	U	R	F	T	O	E	
	T				T				E		O		C			
13	T	E	M	P	E	S	T		N	E	W	S	H	N	C	
	E		I					18	Y	E			E		H	
19	D	V	S	P	L	A	N		21	R	I	P	O	S	T	E
			S		A		D			R						C
23	V	E	H	I	C	L	E		24	T	O	O	T	H	D	K
	A		A		T		R		H		S		E		M	
26	M	T	P	R	O	M	I	S	E		27	A	T	R	I	A
	P		E		S		Z		T		I		O		T	
28	S	I	N	C	E	R	E		29	A	R	C	H	N	M	E

- SLOTCHES—S(u)P(p)L(y) O(f) T(h) C (t)H(i)E(f) S(o)
- PIXIE—PIX + I.E.
- MISSHAPEN—MISS + HAP(p)EN(s) [delete P & S]
- TENDERIZE—“tender-ize” pun
- CHECKMATE—“Check, mate” pun
- LACTOSE—“. . . lilac to season”
- PROSAIC—“PROS SAY ICK” homo.
- VAMPS—AMP inside VS
- THETA—THE + TA
- HERON—(t)HERON [delete T]

The name of the technique employed in the puzzle is “grammagram” or “gramogram”. More information can be found at <https://en.wikipedia.org/wiki/Grammagram>.

Solvers: Steve Alpert, Dean Apps, Jack Brauner, Lois Cappellano, Laura Cremerius, Jared Dashoff, Todd Dashoff, Christopher Dickens, Jason Helbraun, David Handelman, Pete Hepokoski, Catharine Hornby and Bruce Harvey, Max Jackson, Ruth Johnson, Paul Kollé, Mike Kosciuk, Ken Kudrack, Ben Lynch, Michael Manos, Jon Michelson, Jim Muza, David and Corinne Promislow, Ram Raman, Jay Ripps, Bob and Shannon Schriver, Bill Scott, Andrew Shewan, Sally Smith, Zig Swistunowicz, T.O.C.E (Josh DenHartog and Sam Donohoe), James and Betsy Uzzell, and Bonnie Veenschoten.

More Odds & Ends

Here is a collection of diverse problems that are either easy and tricky or neither.

■ **Problem 1:** There are 10 different positive integers; exactly five of them are divisible by five and exactly seven of them are divisible by seven. Let M be the largest of these 10 integers. What is the smallest possible value of M ?

■ **Problem 2:** How many positive integers less than 1,000 can be represented as:

- a) The product of two odd numbers?
- b) The product of an odd and an even number?
- c) The product of two even numbers?

■ **Problem 3:** How many two-digit numbers are there whose two neighbors are a prime number and a perfect square? List them.

■ **Problem 4:** There is a 4×4 square that is partitioned into 16 1×1 square cells. From a starting cell you may move only horizontally or vertically to another cell, but you cannot move to a cell next to your current cell nor to a cell you have been to before. What is the maximum number of cells (including your starting cell) that you can reach, if you start with:

- a) One of the four corner cells? Show your path.
- b) One of the eight edge cells?
- c) One of the four center cells?

■ **Problem 5:** You may have heard of blue-footed boobies; they are birds found on the Galapagos Islands. Did you know that there are also red-footed boobies? There is a strange island with exactly nine boobies: some red-footed and some blue-footed. When three of the boobies happen to meet, there is a two in three

chance that none of them is a red-footed booby. How many of the boobies on the island are blue-footed? Explain.

Solutions to Previous Puzzles "Gotta Collect 'Em All"

1. What is the probability that all five cards in a pack are different? There is a $(0.99)^5 = 0.95$ chance that each of the five cards is common. If so, the probability of no duplicates is simply $1 \times (44/45) \times (43/45) \times (42/45) \times (41/45) = 0.795$. Similarly, there is a 0.048% chance that the deck has exactly one rare card, and if that occurs there is an 87.2% chance that all five cards are different. Continuing with this logic and sum-producting the results leads to an overall probability of 79.8% probability of getting five unique cards.
2. What is the mean number of packs needed to get the complete set of 50 cards? Notice that on average one in twenty packs contains a rare card. Using the collector's card theory, it will take $20 \times (5/4) = 25$ additional packs to get your second unique rare card.

After getting two rare cards, the third unique rare card occurs on average in $20 \times (5/3) = 33.33$ more packs. Completing this logic, it takes $20 + 25 + 33.33 + 50 + 100 = 228.33$ packs to get all five rare cards on average. As we will see below it is very unusual not to have the complete set of 45 common cards by this point. So on average it takes around 228.5 packs to get a complete set.

3. How do these answers change if there were no rare cards? The probability of getting five unique cards is now simply $(49 \times 48 \times 47 \times 46) / 50^4 = 81.4\%$. The probability of getting all 50 cards is $1 + 50/49 + 50/48 + 50/47 + \dots + 50/1 = 225$. As there are five cards in a pack, we must divide this answer by 5 to give us a mean answer of approximately 45 packs.

Solvers: Rui Gio, Andrew Dean, David Promislow, Jerry Miccolis, Al Spooner, Sam Ellis, Daniel Wade, Anna Quady and Clive Keating. Apologies to David for accidentally not including him as a solver to my previous puzzle.

Ad Index To add your company's name to this list, call Jeff Rhodes, MCI USA at 410-316-9857, or email jeff.rhodes@mci-group.com.

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Solutions may be emailed to puzzles@actuary.org. In order to make the solver list, your solutions must be received by June 1, 2025.

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The Second Hardest Thing I've Ever Done

LONG-TIME READERS MIGHT REMEMBER the similarity between the title of this article and that of my inaugural column, “The Hardest Thing I’ve Ever Done,” which appeared in the September/October 2010 *Contingencies*. That first effort bemoaned the multitude of variables confronting me while designing my financial retirement plan, such as spending levels, investment earnings, inflation, future tax rates, health care costs, etc. Volatile future fluctuations in these unknowns increased my torment, but longevity dwarfed all of them. A panelist at an Enrolled Actuaries Annual Meeting described my dilemma. He said the RP-2000 Mortality Table indicated a 25% probability for a healthy male at my age in 2010 surviving at least 30 years. Yikes!

I needed a financial retirement strategy to be sufficiently conservative to ensure its success over that time span, but not at the expense of an unacceptable standard of living in the interim. Leaving an inheritance for my children was my lowest priority, while grandchildren enjoyed a higher rung on that ladder. Many Excel worksheets were created and discarded while devising a plan that, over the past 15 years, successfully balanced the interplay between these variables and competing priorities.

Managing this plan while I climb a steeper segment of the mortality curve is becoming easier because economic and demographic uncertainties no longer frighten me. However, the retirement roadmap for the rest of my life is no less difficult today than in 2010, thanks to one depreciating resource. Time. How should I allocate this valuable commodity over my remaining lifetime?

International travel remains a high priority for Nancy and me—we both enjoy absorbing a new destination’s unique environment. Volunteering at the local food pantry on Thursdays and cooking Sunday dinner for Asheville’s homeless veterans consume those days. Teaching and taking adult continuing education courses at the Osher Lifelong Learning Institute on the campus of UNC Asheville occupy weeks at a time.

Daily walks and struggling to find a literary agent for my novel complement each other but erode the available time. Maintaining relationships with family, friends, and colleagues-for-life requires



me to set aside time for them. Enjoying musicians, magicians, and actors execute their craft at the Wortham Center for the Performing Arts also nibbles at my wakeful hours.

Writing this column three times a year, though a privilege and a pleasure, involves a significant number of hours to draft, edit, and refine a product consistent with the high standards of *Contingencies*. This issue’s deadline prompted me to review earlier columns in search of a new perspective on a previous piece. Some articles reflected my lifetime fascination with space “Neil Armstrong and Who?” (January/February 2017 *Contingencies*), while others challenged the actuarial profession’s status quo, “Where Are the Women?” (July/August 2019 *Contingencies*). Still others were playful, “Fancy Meeting You Here!” (January/February 2020 *Contingencies*) or pensive “Out on a Limb,” (September/October 2021 *Contingencies*.) Tears flowed when I finished memorializing the Greatest Generation’s greatest accomplishment in “How Did They Do it?” (September/October 2023 *Contingencies*). Hopefully, readers found these 44 prior musings humorous, insightful, or provocative.

I’ve been blessed to work with two

fabulous editors, Linda Mallon and Eric Harding, and have been introduced to a third, Preeti Vasishtha. Linda recruited me with the promise that I could expound on any topic that struck me, as long as it didn’t relate to actuarial science. I took Linda at her word in the September/October 2011 issue of *Contingencies*, “The Envelope, Please.” Eric and I often commiserated over multiple miserable seasons of our respective hometown baseball franchises. We intentionally omitted our 2017 World Series wager of Cleveland pasties against Chicago Italian roast beef sandwiches from “Nuts!” in the September/October 2017 edition of *Contingencies*. The January/February 2024 issue of *Contingencies*, “Editors—Friend or Foe?” explored the complicated relationship between writers and scribes who amend our ledes.

The May/June 2013 *Contingencies* entry, “When Is it Time to Hang up the Holster?” halted my research. That effort reviewed sad instances of outstanding players in professional sports damaging their legacy with subpar performances in their later years. This phenomenon was noted in other settings, like rock stars on reunion tours, surgeons with hand tremors, and aging singers. That commentary, like this one, closed by mentioning a haunting ballad by my favorite chanteuse, Barbara Streisand, “Have I Stayed Too Long at the Fair?”

The answers are “Now,” and “Perhaps.” I’ll miss you. ▲

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American Academy of Actuaries

New Membership Requirements 2026

What are the new requirements?

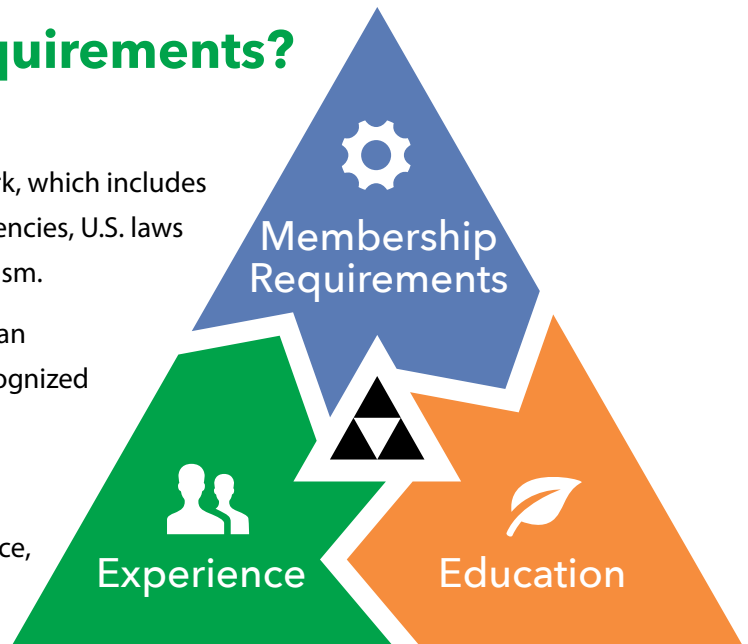
Education

Compliance with the Competency Framework, which includes baseline knowledge of key actuarial competencies, U.S. laws and practices, and U.S. actuarial professionalism.

Achievement of an actuarial credential from an actuarial organization, both of which are recognized by the Academy.

Experience

Three years of responsible actuarial experience, including at least one year of responsible U.S. actuarial experience.



Why it matters

The new requirements will be effective **starting Jan. 1, 2026**, and aim to ensure that the Academy continues to maintain high standards in support of fulfilling its mission to serve the public and the U.S. actuarial profession.

Visit actuary.org/membership-requirements to read our FAQ and learn more.



“With these new requirements, Academy membership will continue to represent the expertise and professionalism expected by our stakeholders in our ever-changing environment.”

—Lisa Slotznick, Academy President (2023-24)

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