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What Should “Actuaries of the Future” Focus on?

PASSING THE TORCH: AOF EXECUTIVES INTERVIEW SERIES

By Cassie He and Linda Liu

This year, the Actuary of the Future (AOF) Section of the SOA has introduced a project called “Passing the Torch.” The goal of this new project is to get perspectives on what the top actuarial leaders think about the profession and how they have developed their careers.

In this issue, **Cassie He** and **Linda Liu** had the honor to invite Dave Pelletier and Mark Freedman to share with us their professional experience and their insightful views on the actuarial profession.

Dave Pelletier is chair of the Actuarial Standards Board (ASB) and serves on the board of Equitable Life of Canada and RGA Life Reinsurance Company of Canada. Mr. Pelletier is also a past president of the Canadian Institute of Actuaries.



Dave Pelletier

LINDA:

Can you tell us about how you chose actuarial science, how you got to where you are now, and run us briefly through your career?

DAVE:

First off, about how I originally chose actuarial science—it was pretty much an accident. I was taking math at McGill. In the previous summers, I’d worked in the States, selling

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Council's Corner

By AOF Council

As actuaries of the future we are always looking to the ideas, techniques and tools that will help us meet the needs of an expanding world of customers and clients, enhancing the value that we provide to them. To the 2013 council, this meant refocusing on ways we can connect and guide our membership with people and ideas that will help you in the future and to innovate, identifying new ideas, ways of thinking and ways of applying our own thinking to broaden our experience and opportunities. We have a number of exciting programs underway to meet these goals. We hope you have heard of them by now through our website, our LinkedIn group and through the SOA. Just in case you have not, here are some of the things we are working on.

CONNECT AND GUIDE

We started the year out with the appointment of our 2013 section council intern, Cassie He. This is our third year appointing a section council intern and the decision was difficult—we had so many great candidates. In fact, Cassie has convened a committee of these bright and enthusiastic candidates to further our goal of connecting you, our membership, to leaders within the SOA as part of the “passing the torch” program. Cassie, Linda Liu, Kabeer Jhaveri and others will network with actuarial leaders to gather their valuable insights and advice and share this with you. In this issue of the newsletter, Cassie and Linda share the conversations they had with former CIA President Dave Pelletier and SOA President-Elect Mark Freedman. For more interviews, check out our LinkedIn group “SOA Actuary of the Future Section.” You can also use the discussion group to let us know what you think, ask the questions you have for these leaders or volunteer to help out with this valuable program.

Looking to network better and find mentorship within and outside of the actuarial community? Steven Chin helps to guide you in his article on “Networking for the Past, Present and Future” by relating his own experiences.

INNOVATE

Innovation is often incremental—small changes to existing ways of thinking and doing or repurposing of a different way of thinking to meet the needs of the problem at hand. We at the Actuary of the Future Section want to lead the way in exploring new ways to apply our actuarial skills and to provide the risk management and business insights that our clients, current and potential, can benefit from. By understanding and studying the past and exploring and examining present ways of doing things both in the actuarial realm as well as within the broader world, we can design future solutions and concepts that will continue to grow our value to our employers. We are always looking at new ideas while reviewing lessons of the past.

In this issue, Evan Borisenko looks at previous challenging environments for the life insurance industry and how the industry adapted and innovated to find solutions and persevere. This introspection is important as we look to the future. By the time you read this issue, our Delphi study on the future of actuarial practice will be in full swing thanks to the hard work of Mark Ma and the project oversight group and task force he

leads. Actuaries are definitely experienced at estimating future mortality, investment returns and movements, and policyholder behavior. Our study focuses on predicting the future of the actuaries. What is the next big thing for the profession? Not sure what a Delphi study is? Look for project updates on our LinkedIn group! We would also love for you to share your ideas there as well.

Our goal is to also provide our members with the information, tools and skills to make the transition to more nontraditional applications of actuarial thinking and practice. In developing these ideas we continue our partnerships with other sections, including Technology and Forecasting & Futurism, to expand actuarial practice through the efficient use of technology and of insights from disciplines such as complexity science. To increase our scope of practice will require us to think more broadly and to be exposed to concepts from “other” disciplines—only then can we find the technologies and thinking that will augment those we currently have allowing us to innovate.

In this issue, David Januszewski ponders the development and adoption of open source actuarial software. He asserts that open source software has the advantage of speedy development and increased accessibility and notes that open source software can and does easily coexist with proprietary software. Each has its purpose. Studying and learning is a great way to think differently. For those interested in deeper studies, we hear from Jimmy Poon on the relative merits of graduate school. He tries to help guide you on how to figure out if it is for you.

Up for some creative and innovative ideas? We are working on a few contests this year. By the time you read this, we will have the results of the Speculative Fiction contest co-sponsored with the Technology and Forecasting & Futurism sections. Be sure to look at the stories! They are always innovative and interesting. We are also working on a contest that will allow you to use your actuarial thinking in a non-insurance (and non-finance) context. Be sure to look out for that one and to participate.

Of course, we also have exciting and informative educational sessions planned for this year starting with the Life & Annuity Symposium to be held soon. We will also work on webcasts and podcasts that are designed to expose you to new ideas, new ways of working and new tools. Our goal is to bring you the programming you crave, so be sure to make requests.

In closing, we hope you enjoy this issue of our newsletter and will share your comments, feedback and ideas with us through our LinkedIn group. We would love to hear what you have to say so that we can provide you with all you need to be the Actuary of the Future!

Sincerely,

Your AOF Council
Ashwini Vaidya, Chairperson
Ben Wadsley, Vice Chairperson
Jeffrey E. Johnson, Treasurer

Connect with us at aof@soa.org or at our LinkedIn page: <http://www.linkedin.com/groups/SOA-Actuary-Future-Section-3937414>! ☆

dictionaries door to door and on construction. I didn't know what I wanted to do in the coming summer, and my father used to work at Manulife in the 1930s and 1940s. He was an agent, and said, “I wonder if insurance companies hire people who are good at math.” He wrote a letter to someone he knew in Manulife, saying that I would be calling this person, and wondering if I could get an interview. So I called this person—this guy was not an actuary—and he said there's a profession called “actuary,” and I decided I would like to give it a try. That's what I ended up doing that summer.

My career history, very briefly—I worked for three summers at Manulife, and then six years afterwards in different areas of Manulife. Manulife was a great experience and a great place to work. However, after a while I was starting to rise through the ranks, but I felt that managing was not what I wanted. I preferred to use my communication and technical skills, and felt that I would be better off as a consultant than in a big company. I decided to take a look at consulting. By fluke, someone contacted me at that time, and I joined Towers Perrin, Toronto, in the pensions consulting area. I was there for four years. Ironically, it turned out that while I joined Towers to do less of management, they put me in charge of the support staff along with my consulting work, so I ended up managing regardless. After that, an opportunity came up in Towers Perrin in Brazil. I went down for five years, where I was a regular consultant in the first year, and for the next four, I was consulting and managing the office. Again, it turned out that management was following me everywhere. After a while, Towers Perrin was looking to open up an office in either Italy or Singapore. I like to ski, so I chose Milan. I was in Italy for four years, where I opened and ran the office. After Italy, I came back to Canada to run the life insurance consulting operations of Tillinghast, a division of Towers Perrin, for 3 1/2 years. Then one of my reinsurance clients—the Canadian arm of Reinsurance Group of America—called to ask if I knew anyone who could do

marketing for them in Canada, and I said I might take a look at it myself. One thing led to another and that's where I went. I was with RGA for about 10 1/2 years in Canada, the last three as the CEO. At that time, RGA was trying to develop a reinsurance admin system for implementation worldwide, and the worldwide board wanted someone from the business side to run that, which I did for a year before deciding not to continue. After that, I stayed with RGA for a few more years, working on client-oriented projects in Asia, the United States, and Canada.

I retired in mid-2010, but I'm still almost as busy as I was before. I'm the chair of the Actuarial Standards Board in Canada. I'm the chair of the Actuarial Standards Committee for the International Actuarial Association, and we're developing international actuarial standards, perhaps analogous in the long run to what the International Accounting Standards Board does for accounting. I'm on the board of RGA Canada and Equitable Life. I'm an advisor to the Financial Supervisory Services of Korea, and I'm doing some other consulting as well, as well as taking on a new role as part-time advisor to Samsung Life Insurance Co.

CASSIE:

Wow, that sounds busy! As an industry leader with such an extensive background, what do you think actuaries do well in general, and where do we have room for further improvement?

DAVE:

First of all, we have an understanding of the real financial underpinnings of insurance, pensions, health care, social security, workers' compensation and other financial security systems. We understand these like nobody else does, and we have skills and knowledge that no other profession does. Secondly, the analytical techniques we have are unique to us, and give us a big advantage.

In terms of future improvement, I think we need to be able to communicate more clearly. We have this deep understanding of the underpinnings of financial security

THE ANALYTICAL TECHNIQUES WE HAVE ARE
UNIQUE TO US, AND GIVE US A BIG ADVANTAGE.



systems, but we aren't always good at communicating that. Too often, when actuaries communicate, they act as if they're communicating to other actuaries rather than to users of the financial information. Actuaries focus too much on the mechanics. I think we need to focus more on communicating the consequences and what our results mean rather than how we've done what we've done.

Also, traditionally, the whole focus of what actuaries do was on the expected values, and not enough on variation around expected values and the degree of risk. It's gotten a lot better, but at times I think we still focus a lot on that. I'm hoping that the new education methods will make this better.

Something else that I get concerned about is how actuaries rely a lot on the black boxes of the software. Sometimes we put the parameters in and get an answer, and we tell the boss "here it is." The boss, whether an actuary or not, may come back immediately and say, correctly, even if not knowing why, "This is wrong." The actuaries involved have not looked at what popped out of the black box. There's too much reliance on the black boxes, and not enough on checking, verifying and asking if the results make sense.

One other concern I have, and this is more on the side of the whole profession rather than individual actuaries, is that we try to fight too hard for reserved roles and using regulations to justify the existence of actuaries—we're doing this because the regulators say we have to. I would want CEOs, governments, clients, and other potential users to use actuaries because they want to use actuaries, not because they have to use actuaries. Any actuary should be able to justify the value he or she brings, with

regard to abilities and communication, which is meaningful to the end users.

LINDA:

With 38 years of work experience, what is the greatest challenge(s) that you've faced? And how did you overcome this?

DAVE:

One big one is that when I went to Brazil, I was supposed to go into Towers Perrin as the third actuary. However, the two guys down there had just decided to go off and establish their own firm in competition with us. All of a sudden, from working with two guys who knew what they were doing, I was it. And this was an environment where I didn't know the language, the clients, the regulatory environment, and the inflation was 100 percent per year and moved shortly to 200 percent per year. It was an amazing situation, but we (we recruited an American actuary to join me down there and we also got some good support from the rest of Towers Perrin) ended up doing fine. We went head-to-head with our competitors for every existing client and lots of new ones, since it was a time when pension plans just started to develop in Brazil. I had to learn Portuguese immediately because some of the clients expected me to deal with them in Portuguese right from the start. Some of the people in the head office in New York ended up being very surprised that we did as well as we did.

The second one was in Italy. The reason why Towers Perrin wanted to open an office in Italy was that there was an increasing recognition of the need for private pension plans in Italy. Three weeks after I got there, the government changed the rules for social security. So instead of social security pensions being based on only part of your earnings, they were based on the whole of your earnings with a declining formula. It meant that the need of private pension plans was not the same, and it took away the impetus for the growth of the office. In spite of that, we ended up doing fine. We ended up doing

CONTINUED ON **PAGE 6**

work in certain niches of pensions, in the compensation and group benefits areas, and we also started the Tillinghast practice for life and P&C insurance consulting. It was quite a challenge having arrived right before they changed the rules.

The third one was back in Canada, with the Tillinghast life side. I hadn’t worked in life insurance for 13 years, and I was out of Canada for nine years. All of a sudden, I was in charge of life insurance consulting, and this was just when the PPM valuation method came into play in 1992. We got an assignment immediately when I got back to do the embedded values and appraisal values for a foreign insurance company looking to get its Canadian operations sold. Embedded value was pretty new back then, and I knew nothing about it. Fortunately, I got really, really good support from the existing staff (well, actually, they taught me). By the time we were done a few months later, I actually looked like I knew what I was doing.

LINDA:

What are the general lessons that you have learned from those challenges?

DAVE:

First of all, being willing to take the plunge, and going in with a positive attitude. A lot of people would never have gone to Brazil, Italy, and would never go from the security of knowing what they are doing in one area (geographic or actuarial specialty) to another.

These days, people seem to get themselves into a narrow specialty almost too early, and I think it’s unfortunate. A lot of what we do as actuaries can be used across a wide variety of things, and we should be willing to take the plunge, to use the skills we’ve been developing and try them in more areas.

A second thing is to always work on understanding the principles and underlying logic. That’s true when studying for exams and true for issues you deal with at work. If you think “that’s the way it has always been,”

or “that’s the way it has to be,” you won’t be able to move from one area to another because you’re used to memorizing information and using what you’ve memorized rather than figuring out the logic. If you can figure out the logic, it makes you better if you move into a new environment, as you can understand what’s going on, and think about how to blend the logic you’ve learned before with the new logic you’re faced with.

One other thing, as I’ve said before, is communication. I like to use small words, not big ones. I keep it informal, use short sentences and bullets, and try to make things clear to the recipient.

CASSIE:

If you could go back in time and change one thing about your career, what would it be?

DAVE:

I think the only thing I might not have accepted was the job change in RGA, when I went from CEO of Canada to being in charge of the global admin system IT role. In retrospect, it wasn’t the most sensible thing to do. My focus to that point had always been client-focused, with Manulife, Towers Perrin, Tillinghast, and then RGA. It was great dealing with clients, and it was fun trying to get clients, being involved with the selling process, the marketing process, trying to understand what the client needs, and coming up with a solution. When I took over the CyberRe—the name of the system—it was a very internal job. I began to realize really soon that I missed the external client-focused, selling-focused, meeting-client-need-focused position.

However, indirectly, I’m glad I did it. It gave me a whole new perspective because it was so different from what I’d done before. Also, after a year, it got me back into international stuff in Asia, and led me to much of what I’m doing now. It worked out fine.

LINDA:

What are some changes and challenges that you feel are

imminent within the profession, and how do you see these changes impacting the profession?

DAVE:

One is the decline of the defined-benefit (DB) plans in pensions. It hasn't hit the employment of the consulting firms yet; but in the long run, we don't need the same level of actuarial involvement in defined-contribution (DC) plans. Even though there are things around the edges that actuaries can be involved in with DC plans, it's not to the same depth as DB plans, and that's going to be a challenge for the profession.

Secondly is the low interest rate environment, and that affects both life insurance companies and pension plans. On the life insurance side, companies try to match assets and liabilities. Because liabilities are so long, it's difficult to find assets to properly match them. As interest rates go down and stay down, there is a lot of stress on these companies.

The demographer David Foot said back in the 1990s that demographics explained two-thirds of everything. He said that interest rates were going to come way down, and sure enough he was dead right. It took a while, partially because the population was much younger in the '60s to the '80s, when people were buying houses, mortgaging and spending money on possessions. Nowadays there are a lot of old guys like me who aren't borrowing, who are saving, and who don't buy a lot of stuff. All of these things tend to drive the rates down, which was what Foot predicted, and it could stay this way for a long time. So this will pose a problem to both life insurance and pensions.

I think another one is the fact that the profession continues to be over-fragmented in the United States, and I believe there is a lot of time, energy, and money wasted in the existence of five distinct actuarial societies. Now, as a Canadian living next door to the elephant, I can sympathize with the Casualty Actuarial Society (CAS), as it is a smaller organization than the SOA. At the same time,

in the long run, I believe that the profession does itself a disservice in having all these separate units, and I really hope that somehow the U.S. profession will find a way to unify itself, and do it in a way that CAS, in particular, will be comfortable with. Otherwise, we are not as strong as we could be, and there is too much effort wasted on coordinating the five organizations instead of solving the underlying problems.

Another area that I think is important is getting known as the experts in risk. Right now, we're patting ourselves on the backs because we have the CERA designation, but how well is the designation known outside the actuarial profession? Something else that I'm on the board of is the Global Risk Institute, which is an organization in Ontario trying to become a bigger player in risk in the financial services area—identifying and managing risk—worldwide. A staff member contracted by GRI did a 59-page report on organizations active in risk and credentials, and the word "actuary" did not appear once in the first draft of that report. So maybe the actuarial profession thinks it is making good progress with the CERA designation, but it was concerning to me that the word "actuary" did not even show up in the first draft. We have some challenges in figuring out how to gain a bigger profile in risk. Simon Curtis, the president of the Canadian Institute of Actuaries, wrote a very good article and made the point that we should think a little harder on what we're trying to do in risk, and perhaps focus on becoming the experts in some aspect of risk—for example, risk measurement, and perhaps in just certain sectors—instead of all aspects of risk. In other words, we should pick a spot in risk where we are the experts, figure out what we actually do bring to risk, and make a push to grow our reputations there, instead of unduly spreading our efforts across all areas of risk and maybe not achieving what we want to achieve.

CASSIE:

If you can challenge and change one stereotype or public opinion of the actuarial profession, what would it be?

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DAVE:

I’m not sure if I would challenge any one prevailing stereotype, because frankly I think some of these stereotypes are probably right.

However, I would change the one I mentioned about communication. I think the actuary needs to improve his or her ability to communicate from the perspective of the recipient of the message rather than from the perspective of an actuary. The actuary can blather on about what he or she thinks is important because that is the way he or she did something. The recipient of the message probably doesn’t care. The recipient wants to know the outcomes, the results, the consequences, the impacts, the uncertainties and so on, not how it was done. So communicating from the perspective of the recipient is the biggest thing we need to improve.

LINDA:

What’s your opinion on what the SOA, CIA and all other organizations can do in the development of new ASAs and FSAs?

DAVE:

First of all, as I’ve mentioned earlier, is the unification of the profession within the United States in a way that CAS, in particular, will be happy. I liked the fact that Brad Smith tried to take it forward, and somehow it has to be done in a way CAS will be comfortable with. I don’t know how it should be done, or who can pull it off, but I do think it needs to be done.

Second, I think it will be to make better use of university education in the earlier part of our training. The rest of the world has done better in this than we have. Take Australia and the United Kingdom, for example—they are recognized as very strong actuaries, but they make better use of the universities in their credentialing process than North America has until now. I’m glad that Canada has decided to do this (FEM), and I’m glad that CAS supports it, but I really hope that the SOA comes on board as well. Doctors, lawyers, engineers, pharma-

cists, accountants, architects, nurses, and more all make heavy use of university training, and do not re-examine the knowledge after students have graduated, so it is not clear to me why the SOA thinks actuaries are different from all these other professions.

Another thought would be to find a way to introduce into the syllabus how things are done in other countries. There is so much about U.S. and Canadian regulations, but it will be useful for younger actuaries to understand that things are done differently in other countries. It can help open their minds so that they are not locked into U.S. and Canadian approaches. It may also help them understand the logic better, so that they can contrast and understand why there are different approaches in different countries. I remember, for example, that there was someone from Britain working for me in Brazil. In the second week there, he made a comment: “Gee, why don’t they do it the way we do it in the UK?” It was clear that his mindset was locked into the environment he was brought up in, instead of understanding that the world was different and things could be done in different ways. I think somewhere in the syllabus, something on practices in other countries would be worthwhile.

Finally, more on communication—I’m not sure how this can be worked into the syllabus because you cannot teach this from a book, but more on finding ways to improve communication.

CASSIE:

In addition to IFRS, ERM, Basel III, and Solvency II, what other buzzwords do you think we’ll hear a lot of in the coming years?

DAVE:

I’m not sure. I think one will be ORSA (Own Risk and Solvency Assessment). This started off as part of Solvency II, and the focus is to get companies to go beyond mere regulatory requirements and figure out themselves if they are properly solvent. ORSA is being

taken up in the United States in some form, and Canada is looking into it as well. In some ways, ORSA is an extension of the DCAT (Dynamic Capital Adequacy Testing) in Canada, but ORSA has taken it to the next level. I think this will be a meaningful word for companies in the future.

Another one, but I wouldn't call it a buzzword, is low interest rates. Actually, one buzzword that I've heard somewhere else is "low for long," meaning "low interest rates for a long time." If so, what is that going to do with the financial securities institutions we are all involved with?

LINDA:

Lastly, one fun question—if you weren't an actuary, what other professions would you have been a part of?

DAVE:

I don't know. Possibly I would have ended up as an accountant. Hopefully, again, I would be in one of those public accounting firms where the focus is on clients. Another possibility is a math professor, but I don't think I would have liked that.

As I think about this, the actuarial career is really good for someone with a business orientation and good mathematical analytical skills. I am glad that I fell into this by accident, and I'm not sure what I would have done otherwise, but it wouldn't be nearly as much fun.

One thing I forgot to mention about what every aspiring actuary should try to develop is to have a genuine interest and curiosity for the clients' business. Having a genuine interest in what the clients do, what they want, what their business does, and what their problems are, means that you're asking more questions and having better discussions. You could end up being a successful salesman because you are able to tailor what you can do for them since you recognize what their needs are. I think this is one of the most important attributes of a good consultant, salesperson, or indeed anybody in business trying to help others solve problems.

Mark J. Freedman is president-elect at the Society of Actuaries (SOA), who currently works as a principal of Ernst & Young, one of the "Big Four" accounting firms with a large actuarial consulting practice.



Mark J. Freedman

LINDA:

How did you get to where you are now? Can you briefly run us through your career history?

MARK:

I grew up in the Philadelphia area and majored in math at the University of Pennsylvania. My father always wanted me to join him in his electrical supply business, and my mom did not care what I did, as long as I stayed in the Philadelphia area. One summer in high school, my dad enticed an electrician, who was his customer, into hiring me as an electrician's helper. I had no interest or aptitude in this type of work, so after a few weeks of watching how bad I was at it, the electrician fired me. The straw that broke the camel's back was when I forgot to put his ladder into his truck from a job that was over 25 miles away.

I knew I wanted to do something with my math degree, but I did not know what. My dad realized that my passions were different from his, so he got the idea of the actuarial profession after talking to his insurance agent. This agent introduced me to an actuary, who sold the actuarial career to me by explaining how the career is a good mix between math and business, and I would progress by passing actuarial exams.

As a junior, I took a few exams at school. It never crossed my mind in those days to consider working as an actuarial intern in the summer. My job in the summer of my junior year was to collect tickets from people entering a Fun House on an amusement pier in Atlantic City.

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After I graduated, I applied for jobs. Even though I knew I was somewhat introverted, I was interested in consulting, because I liked the idea of working on a variety of projects and working with different clients. Of course, I wouldn't have had anything to consult about, since I knew nothing, but it sounded like fun. I didn't get a consulting offer, but both Philadelphia Life Insurance Company and a property-casualty insurer offered me a job. I took the life insurance job, mainly because there were more people there who were my age, even though the other job was for another \$1,200 per year. On a side note, the person who referred me to Philadelphia Life was my college roommate's father, and interestingly, my college roommate's son, Rob Barg, works with me today as an FSA at Ernst & Young.

Philadelphia Life was a small insurer, so I had an opportunity to work on just about everything during my five-year tenure there. I did life and health product development, statutory and GAAP valuation, annual statement work, and even became an enrolled actuary and signed off on their customers' small pension plans.

Mark Golab, an actuary I worked with at Philadelphia Life, left for another insurer and I kept in touch with him. He referred me to a co-worker, Jack Ladley, who had just left Mark's new company for Huggins, a small insurance and pension consulting firm in Philadelphia. I was still interested in consulting, so I jumped when they offered me a job as a consulting actuary on the life insurance side of things. I've been there ever since in a way. Saatchi and Saatchi, an advertising firm in the United Kingdom, bought Hay, Huggins' parent. They sold the life insurance actuarial practice to Ernst & Whinney, an accounting firm with a lot of insurance clients, so we fit in extremely well. Ernst & Whinney merged with Arthur Young and became Ernst & Young and that's where I am today.

After a short time at Huggins, I started volunteering by writing and speaking. I enjoyed the challenge and I always felt good about helping the profession. Eventually,

Barry Shemin from Hancock, who was the Financial Reporting Section Council chair, coaxed me into running for that section council. When I was on the council, Mike McLaughlin, my colleague at Ernst & Young back then, mentored me into how I could ultimately become chair of that council. This worked and I became their chair. Around this time, I also became a co-author of the SOA book on Generally Accepted Accounting Principles (GAAP) for Life Insurers. Anyway, fast forward all of this a bit more and here I am.

I am very grateful that my employer always encouraged volunteering, and I'm especially grateful that they're allowing me to do what I'm doing now for the SOA.

CASSIE:

As an industry leader—a principal of Ernst & Young and president-elect of the SOA, you have been involved in a broad span of actuarial work. What do you enjoy the most about the actuarial career?

MARK:

I've enjoyed too many things in my career to just pick one.

In my early career, I enjoyed the technical work and analysis the most. Since the day I started consulting, I found that my favorite and most challenging part of that job was to deal with clients. Clients tell me what their problems are and then I try to find solutions and communicate the solutions to them in a simple manner. Maybe I should have been a psychiatrist.

Another thing I've really enjoyed throughout my commercial and volunteer career is teaching. As an example, one day Brad Smith of Milliman talked me into doing GAAP teaching sessions with him, and I ended up doing those sessions for several years. I am a picky teacher, though, because I only like teaching people who really want to learn. I want people to think for themselves and I'm always happy to push them in the right direction without totally spoon feeding them an answer.

I have also thoroughly enjoyed traveling, especially internationally, throughout my commercial and volunteer career. Many times, I wish I could go back in time and pay more attention in my foreign language classes. Being in a country where hardly anyone speaks English is a very humbling and interesting experience. Once when I was in Japan, Peter Duran, a colleague in Japan at the time, gave me what he thought were very simple directions to walk a few blocks to a Starbucks to meet him. Meanwhile, Takeko Uemota, a Japanese colleague from Philadelphia, did not think I would be able to figure it out, so she wrote out instructions in Japanese for me to give to a taxi driver. I tried to do it myself and walk to a Starbucks, but it was the wrong Starbucks. I tried to explain to the security guard in the building where I wanted to go. He seemed perplexed, so I handed him the instructions that Takeko gave me. The guard then instructed me very slowly how to get there, but in Japanese. I thanked him and we both smiled. I then walked back to my hotel and handed Takeko's paper to a taxi driver, who took me to my Starbucks that was one block away.

The most unique part of my background is that although I travel extensively, I have always lived in a concentric circle of about a 15-mile radius. And this includes college.

LINDA:

What do you think contributes the most to your successes? And how should every aspiring actuary develop these skills/traits?

MARK:

Over the years, I have learned to appreciate a number of things I never learned in school.

First, I learned that I do not need to be the smartest person in the room. There are a lot of smart people in the actuarial profession. Also, I hate to break the news, but there are a lot of smart people in other professions, too. Our work does not usually require workers to build the

CERN particle accelerator to solve our problems. But, even if it does, it is not sufficient to say that an answer is correct, just because it comes out of complicated machinery.

It is more important to see the big picture and estimate your answer first by using a simple model. Then, you should think about developing a more complicated model if you really need a more refined answer. But, only develop it in a manner where you can analyze the differences between the simple and complex model. Walk before you can run. And once you can analyze the results, you need to be able to communicate them in a simple manner. Understand, analyze and communicate.

A second thing I learned is how important it is to keep in touch with people I've worked with over the years. When I went to my first SOA meeting at Banff in Alberta, Canada, I only knew one person. Now when I go to these meetings, I run into many people I know. This is not because I am overly extroverted, because I am not. It is because I have consciously made an effort to stay in touch with my friends. That is not difficult at all; it's fun. And it pays big dividends.

Jack Taylor, Philadelphia Life's chief actuary when the company hired me, left Philadelphia Life for another company. We talked from time to time after he left. When I joined Huggins, word got around to him and in my first week there, he called me up and gave me a consulting assignment that lasted about three months or so. A large portion of my clients over the years were friends.

Hopefully, this is good advice for those of you not only in insurance consulting jobs, but also in any job. Not many actuaries stay in one job, so having a network of people whom you can talk to when you want or need to change jobs is invaluable. And if you want to run in an SOA or other election, knowing people comes in handy, too.

CONTINUED ON PAGE 12

An equally important trait I've developed is that I gain people's trust by talking straight and to the point. I am not afraid to tell a client that it might not be worth their while to hire us in a particular situation. If someone asks me a question, I will answer it if I can instead of spinning an answer to attempt to sell something else. Although others may disagree with me, most selling, whether it's to your boss or to a client, occurs by being really good at answering questions, once you gain people's trust.

LINDA:

What is the greatest difficulty/challenge you have faced as an actuary? How did you overcome this difficulty?

MARK:

Consulting is a strange job. It takes a long time to get to the point of feeling that one is in control of one's life. In the beginning, I craved billable hours, because I figured I could store them up like a squirrel stores up nuts when the work would get dry. But, I still became very insecure after a large consulting assignment ended. Where would I find my next job? What if I could not ever find my next job? After a while, I came to the realization that, one way or another, work tends to come in, and I found that worrying about it was a gigantic waste of time. This mindset worked for me for years.

And then came Enron and an even more serious challenge. Before Enron, as a consulting actuary in an accounting firm, one source for consulting revenue was to leverage off our audit relationships. Enron changed all of that. Auditor independence became a much larger issue. We had to change our focus, by emphasizing audit work for audit clients and consulting for non-audit clients. Although our revenue initially dropped, in the long run we improved tremendously by implementing this new strategy.

NOT MANY ACTUARIES STAY IN ONE JOB, SO
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JOBS IS INVALUABLE.

CASSIE:

What would you like to achieve as SOA president? What's your future outlook on the SOA or the actuarial profession?

MARK:

My FSA credential is my most important asset. I want this credential to be the world's most prestigious actuarial credential. In order to make that happen, the SOA must concentrate on the needs of our current members, create new markets for the actuarial profession and become a more global organization. I'm hoping to help make a good dent in these items during my tenure as SOA president.

Last year, before I ran for president-elect, I chaired the SOA's strategic planning task force. I think that both the SOA and actuarial profession will be in great shape as long as we follow that plan for the next four years. Some of the early thinking of that task force was contained in something called a "change agenda," and I'm going to discuss some of its elements for my crystal ball of the future.

As a profession, actuaries will not only increase relevance and demand in traditional markets, but we will open up new markets. We will move from being widely perceived as technical experts to highly sought-after risk professionals with both business acumen and technical expertise. Perspectives of actuaries will inform public opinion and policy in areas such as public pension plans, health insurance and Medicare and social security reform.

The SOA will move from having a predominantly North American membership to an organization that attracts and serves members in sustainable actuarial communities around the world. We will move from attracting math-oriented individuals aspiring primarily to technical excellence to attracting the best and brightest representing a variety of skills and aspirations from technical excellence to senior business and policy leadership. On the research front, we will not only advance actuarial



knowledge, but we will expand the boundaries of actuarial science, strengthen practice and inform public policy.

LINDA:

In your opinion, what innovation can be introduced in the SOA and the Canadian Institute of Actuaries (CIA) to improve the education/development of new ASAs and FSAs?

MARK:

I will answer this from the SOA's perspective, since I'm not a member of the CIA.

In the old days, most continuing education for actuaries occurred at on-site meetings. This is changing for a variety of reasons. First, employers are being more frugal in allowing people to attend conferences. Second, members of the SOA need a substantial amount of hours in order to satisfy continuing education requirements. They find that they can satisfy their requirements more efficiently by going to a large meeting, such as

the SOA annual meeting. This is causing attendance to drop at our smaller meetings and teaching sessions. Third, webcasts are becoming a popular option. Fourth, our growing membership outside of North America is not as interested in North American events. Fifth, our younger members are comfortable with technology as a prime conduit of education, and we need to recognize that preference.

Over the last few years, the SOA has developed e-courses for continuing education. We currently have 20 of them. They run from 1 to 7.5 hours and are relatively inexpensive. They have not yet caught on, but if we figure out how to do these correctly, they will become very popular and will solve some of the issues I talked about. I do not think the combination of webcasts and e-courses will ever replace the large on-site meetings, but they could easily replace many of the smaller ones.

CASSIE:

Looking longer term, what do you think will be the challenges and opportunities for actuaries in the next three years? Five years? Ten years? How do you think we should get ready to meet these challenges?

MARK:

The actuarial profession has many challenges.

Some of our traditional markets, such as life insurance in North America and defined-benefit plans, are either static or shrinking. The health insurance market for actuaries in the United States is at risk if there is ever a single payer system for health insurance. Outsourcing of actuarial work from North America to foreign countries is increasing.

At the same time, there are many opportunities.

First, there will be opportunity from evolving regulations over the next three to five years, such as health reform, principle-based reserving in the United States, and changes in GAAP and IFRS accounting for insur-

CONTINUED ON PAGE 14

ance contracts and pension plans. Some of these could generate a “full employment act” for actuaries, as is currently the case in Europe with Solvency II conversions for insurance companies. In order to be ready for these opportunities, the SOA needs to arm our members with more pointed research and education.

There is a challenge, however, from these opportunities, and that is how we can create sustainable work after we complete the conversions. In the longer term, we need to focus on business needs of our employers and clients and not just their regulatory needs.

A second opportunity is that insurance is growing tremendously in emerging markets, such as China. In order to take advantage of this growth, we have to continue to develop our membership in these countries by providing these members more focused research and education.

A third opportunity relates to risk management. Actuaries have been successful so far in risk departments of insurance companies, and many have assumed the roles of

chief risk officers. We need to increase this trend with a goal of having an SOA member as the chief risk officer of every traditional actuarial employer.

A related challenge (and opportunity) will likely occur at some point, although it is difficult to determine when. During the recent financial crisis, the actuarial profession was largely silent. We wondered why nobody asked us what we thought. We will likely have another chance.

What impact will a long period of low interest rates have in the markets we serve? What if, instead, interest rates and inflation rates increase sharply? How will this impact people who own defined pension benefits or life or long-term health insurance policies? What can our employers and clients do to help their customers? What can they do to help themselves? I do not necessarily have answers to these questions, but we should start trying to as a profession. The point is that where there is risk, there is opportunity for actuaries.

LINDA:

Nowadays, the actuarial profession is trying to expand into more non-traditional fields. Is there a particular field that you think will be in huge need of actuarial talents in the near future? Where do you see the profession is going?

MARK:

I think there are three fields that have strong potentials for success for our members.

The first is risk management. As I discussed earlier, actuaries have been successful so far in risk departments of insurers. But, we have had limited success so far with respect to risk departments in other industries, even though that work should be a natural to us.

The second is business analytics. The new buzz word in businesses today, including in our traditional employers, is “big data.” For those of you who either read or saw



the movie *Moneyball*, you will know what I'm talking about. The SOA recently had a strategic initiative in this arena and created a substantial amount of research and educational material.

The third is banking. In some other countries, such as Australia and South Africa, actuaries have moved into banking. The question is whether we can replicate these successes in other parts of the world.

The SOA has undertaken a number of initiatives in the past with the goal of expanding opportunities for actuaries. There is a new initiative called "non-traditional roles strategy," where we will develop a general strategy around all of these efforts to ensure that actuaries have new ways to apply skills in both traditional and non-traditional markets.

CASSIE:

Which area(s) do you think actuaries need to put more efforts in so as to justify the value of the profession?

MARK:

Many employers criticize our profession as being in the weeds with not enough communication skills. We do not need to train every actuary to be a CEO. But, we do need to ensure that every actuary, no matter how much he or she works in the back room, can communicate. And generally, the actuary will do a better job when he or she sees the big picture.

The SOA has started to assist our members with this issue.

We have a Decision Making and Communication module as part of our fellowship requirements. There are a few e-courses on this subject on the continuing education side. We have also had a recent seminar on business skills.

We are going in the right direction, but we need to do even more in this regard. We need more general business topics, including communication, so that our members

develop more business acumen. We are very good at adding every technical topic on the face of the earth to our basic and continuing education syllabus, so we have to be equally as good about adding more of these softer topics.

LINDA:

How should someone looking to take on a leadership role at SOA go about doing so?

MARK:

In the past, there have generally been two ways. The first is to enter through the educational area. Usually, this means one grades an exam and then builds oneself up to becoming an exam committee chair. The other way is to go down the section council route, like I did. One starts out writing and speaking and networking with people, and eventually running for a section council and then becoming a section council chair.

Other routes are possible, though. For example, I believe that a well-known actuary in a senior position might potentially bypass these traditional routes and run directly for the board. This is not common, but I think it is doable.

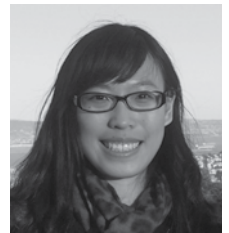
The key is to build a strong network of friends who will vote for you once they see you running for a position.

CASSIE:

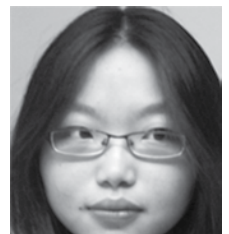
You've made a comment on the actuarial profession being largely silent during the last financial crisis. Can you make some additional comments on why this is so?

MARK:

During the recent financial crisis, the actuarial profession wondered why the public did not ask us for an actuarial viewpoint. This was largely because the public tends to view us as experts in insurance and pension liabilities. If we want more attention, we need to find a way to speak up more.



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CONTINUED ON PAGE 16

We need to become major contributors to the discussions on issues we have expertise in. There are tough decisions to be made on many financial issues, including health care and Medicare reform, social security, public pensions, and accounting and capital changes. The profession needs a comprehensive approach, from research

to forming a viewpoint to delivering our message to the public. The SOA has a major role in this, but we should also connect with other actuarial organizations, where appropriate. By seizing this opportunity, we will dramatically expand our visibility, enhance our brand, and create new opportunities for actuaries. ☆

Coming soon:

In the next interview from the *Passing the Torch Series*, Cassie He and Kabeer Jhaveri invite Michael Frank, a health, accident and life actuary with 24 years of experience, to kindly share with us his professional experience and views on the actuarial profession.

HERE IS A SNEAK PEEK:

KABEER:

Michael, can you run us through why you chose actuarial science as a career?

MICHAEL:

I found the actuarial profession by accident. I had changed my major several times and decided to be a math major since that was my best subject. In my junior year at the University of Michigan, I enrolled in a course called Business Mathematics and Insurance (Interest Theory) since I thought it would be a good course to take before I went out to the work force. The school assigned me an advisor—Donald Jones, a professor who was also an actuary. I thought that the career was interesting because it gave me an opportunity to use my math and finance background. That summer, I obtained an internship at Mercer, and upon graduation, took a full-time actuarial position at Prudential Life Insurance Company. That year Prudential hired five students from our program.

KABEER:

Would you recommend students nowadays to do a degree in Actuarial Science? Or would you recommend something more generic, such as Statistics or Computer Science?

MICHAEL:

A lot of it is going to be very individually based. If you're very interested in the mathematical side and the financial side, actuarial science is not a bad route.

To be continued.

The full interview will be posted soon to our LinkedIn group page and will be available in the next issue of the newsletter. Please come check it out and share with us any comments you have in the discussions!



LIVING to 100

SOCIETY OF ACTUARIES
INTERNATIONAL SYMPOSIUM

Living to 100 Symposium

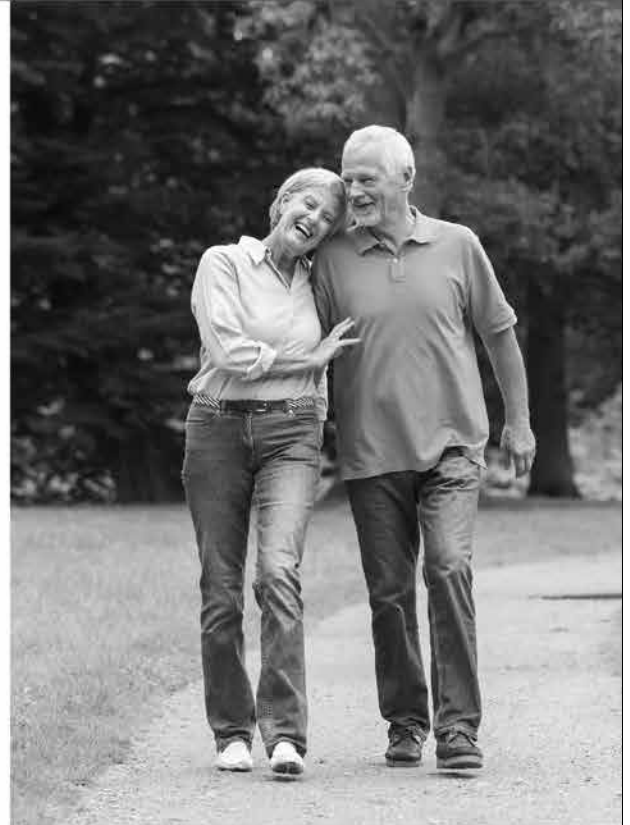
The international Living to 100 Symposium will be held Jan. 8–10, 2014 in Orlando, FL. Thought leaders from around the world will once again gather to share ideas and knowledge on aging, changes in survival rates and their impact on society, and observed and projected increases in aging populations.

With the support of more than 50 organizations from around the world, past symposia brought together thought leaders from as many as 17 countries including a diverse range of professionals, scientists, academics, and practitioners. These professionals are expected at our prestigious 2014 event to discuss the latest scientific information.

The outcome of each Living to 100 Symposium is a lasting body of research to educate and aid professionals and policymakers in identifying, analyzing and managing the potential needs and services of future advanced-age populations. Questions may be directed Ronora Stryker, SOA research actuary, at rstryker@soa.org.

Visit livingto100.soa.org to learn more.

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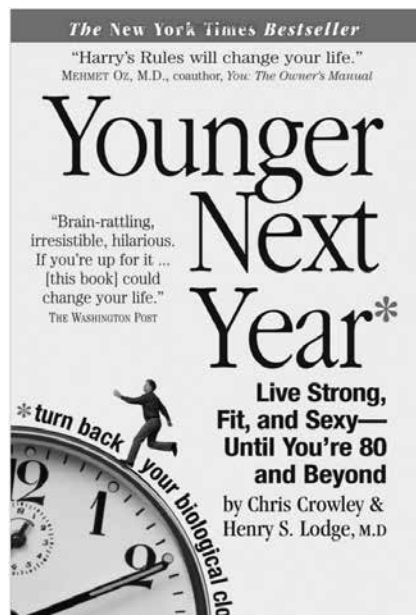
More than 30 distinguished organizations are already supporting this Symposium. Check out our site to view the list of sponsors: livingto100.soa.org.

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Book Review: Younger Next Year by Chris Crowley and Henry Lodge, M.D.

Review by Dave Snell



Why would you bother to read a book about a non-actuarial topic? And how does it tie into the Actuary of the Future Section? Good questions! I'm so glad you asked.

A friend of mine looked at the picture I have been using for my various SOA articles, and asked me why I am still using that fat-faced picture when I have lost about 35 pounds over the last four years. Reflecting upon that, I am pleased to say that my blood pressure and my

cholesterol readings are similarly improved, and I feel a lot better than I did four years ago.

Obviously, and I do mean this seriously, my involvement in volunteer activities for the SOA, through the Actuary of the Future and the Forecasting & Futurism sections, has been a beneficial factor. The opportunity to give back to a profession I have enjoyed for many years is a neat self-actualization experience.

The authors of *Younger Next Year—Live Strong, Fit, and Sexy—Until You're 80 and Beyond*, stress the benefits of social networks and a continual learning experience. They also stress the benefits of exercise, eating sensibly and other items which we probably know but sometimes need to read again every so often as a reminder.

The basic premise of the book is that the cells in our bodies are always in a process of decay or regeneration, and that to a large extent we get to choose which process takes precedence!

In that light, they make reading the book a pleasant experience that is both educational and entertaining. Actuaries, like most people, like to be entertained; and Chris Crowley entertains us with his anecdotal stories of the benefits of following some simple and somewhat intuitive guidelines. He also has a penchant for eye-catching phrases and lead-ins for his chapters and subchapters ("Play Like a Dog," "Cuddle or Perish," "Don't Retire at All") that keep the reader engaged. But an occupational hazard of being an actuary is the need to find the substance behind the hype ("substitute facts for appearances, and demonstrations for impressions"—John Ruskin) so his coauthor, Henry (Harry) S. Lodge, M.D., gives us the scientific facts behind the anecdotal impressions from Chris. The interplay between the two authors—Chris and Harry, usually alternating chapters—makes a nice balance of form versus substance.

Now, I don't wish to oversell the premise of our control over aging. Chris devotes a chapter ("The Ugly Stick and Other Curiosities") to tell us about some things we can't change about the aging process. I was somewhat disappointed that my fitter, thinner, more energetic, and mostly better body still looks older. It wasn't just an aberration of the camera that my new picture may not look like an improvement to you. But substituting facts for impressions, my biological statistics are a lot better than four years ago; and I do feel a lot happier.

OK, I've told you why I think this is a more enjoyable and effective way of learning; but where are the equations? What is the CTE (conditional tail expectation) and how does this fit into actuarial work? The only remote connection to the Greeks (μ , β , α , ρ , λ , σ^2 ...) may be high marks for the Mediterranean diet. I think the answer is that a large part of our actuarial focus is on modeling of longevity improvements; but perhaps not enough actually improving longevity. We know how to construct, project and dissect mortality tables; but sometimes we overlook the fact that we can change some of our own longevity factors.

Younger Next Year is a catalyst for change. Chris has gone on to write a sequel (*Thinner Next Year*, coauthored with Jen Sacheck, Ph.D.) and lots of spin-offs with Harry (a *Younger Next Year for Women*, a *Younger Next Year Journal*, an audio book, DVD versions, etc.); but the basic idea suggested by this 78-year-old retired lawyer and active cross-country skier and his doctor, Harry, is

that, to a large extent, we have control over how we age.

You are the Actuaries of the Future. Make your future “*Strong, Fit, and Sexy—Until You’re 80 and Beyond.*” ☆



Dave Snell, ASA, MAAA, is technology evangelist with RGA Reinsurance Company in Chesterfield, Mo. He can be reached at dsnell@rgare.com.

Networking for the Past, Present and Future

By Steven Chin



Steven Chin is a senior at the University of Illinois Urbana-Champaign majoring in Actuarial Science and Economics and will be graduating in May 2013. He can be reached at schin721@gmail.com.

There's this general misconception that knowledge is obtained and developed through literature and academia. However, by listening to another person's experiences, we can gain a better understanding of how others have approached situations similar to ours. An example suited for actuaries is to consider how we price insurance premiums through a credibility methodology. The more data an insurance company collects on a specific line of business, the greater understanding they have of what future losses might look like. The modeling of claims becomes more accurate and the risk of the policy is better reflected in the premium. The same applies to networking—the more information you can collect from people about their experiences, the better understanding you can have about your situation. That's where networking comes in.

Webster's dictionary defines networking as the exchange of information among individuals, groups or institutions. My favorite place to watch others networking is at career fairs. Some eager students run around the room trying to collect as many business cards as they can without any recollection of the individuals they talked to or handed their resume to. This was me in my early years of undergrad. I thought this was what they meant by "networking" with people. I would go back to my dorm room wondering if anyone would email me back or remember who I was. Months passed with no reply.

One day after class, I found a book someone left behind on the floor titled *The 7 Habits of Highly Effective People*, by Stephen Covey. I read through a few pages and continued in great interest. He defined empathic listening as the intent to understand from all points of reference: feeling, meaning, behavior, senses, intuition, etc. My favorite quote from Covey was how he believed empathic listening was so powerful because of how it gives you accurate data to work with.

This reshaped who I am as a person and how I listen to others. I started to frame my questions to get a better

understanding of the people I was talking to. I learned how to be engaged with recruiters and company representatives and to show my passion for becoming an actuary. I started to learn from people's experiences and their reasons for choosing a certain field and particular company. All this gave me insight on which field I wanted to pursue and how should I go about getting an internship. I started to network with the intent to gain words of wisdom versus to gain a business card.

During my summer internship, I saw a whole new light on how networking can affect one's life. There were many opportunities to meet successful individuals in every area of business. However, one encounter stood out most to me. Currently, he's a partner in the investment division of the firm. While talking to him, he explained to me how he started out primarily as a retirement consultant and transitioned to the investment side in the latter part of his career. Where we connected most was how he attended the same university as I did, and he even lived in the same dorm that I did for three years. It was uncanny how similar our college years were and how well my career goals align with his experiences. I caught a small glimpse into what I want to be the blueprint of my career. Ultimately, what this encounter gave me was the inspiration if I continue to work hard and study for exams, there are no limits to where I can be one day.

Fast forward to the present: I am a few months away from graduation. Yet, the networking doesn't stop here. I am still trying to meet people and to ask questions on how I should approach my future. What are FAP modules? Should I rent an apartment or condo? How does ObamaCare affect corporate pension plans?

My college education has taught me the technical skills I will need in the real world. However, networking has taught me what being an actuary is all about. I gained the knowledge, learned how to interact in a business setting and how important communication is. Still, I have much more to learn.



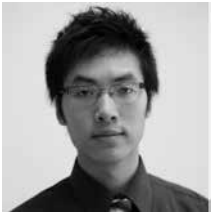
Soon I will be leaving the college world and entering the real world. Catching early morning train rides, contributing money to my 401(k) plan, and reading client emails are all on that business casual horizon. I am nervous about if I will succeed in this new world, but I know as long as I have my networking skills in one hand and my trusty TI-BA II Plus in the other, I will be able to continue to learn and to calculate annuity payments.

In the end, I wonder though: Was Stephen Covey really an actuary in disguise? ☆

CATCHING EARLY MORNING TRAIN RIDES, CONTRIBUTING MONEY TO MY 401(K) PLAN, AND READING CLIENT EMAILS ARE ALL ON THAT BUSINESS CASUAL HORIZON.

Graduate School: Is It for You?

By Jimmy Poon



Jimmy Poon is a graduate student in actuarial science at Simon Fraser University in Vancouver, Canada. He can be reached at jmp7@sfu.ca.



Many of you may be thinking whether to go to graduate school or not. You may be an undergraduate student who is about to graduate and is split on continuing school or joining the workforce. If this is you, this article may interest you.

I personally entered into a two-year graduate program immediately upon the completion of my undergraduate degree. These two years have been full of challenges and rewards, and the end of my program has finally arrived. The following are some thoughts that I would like to share with you on the subject of graduate school. Entering a graduate program is an important decision that should not be taken lightly. It is good to have a clear understanding of advantages and trade-offs of your decision. I do not regard myself to be an expert on this subject, but I certainly hope that this could be helpful to you. When discussing what a graduate degree can offer, one may think of it as a necessity to launch a career in academia. While this is indeed a compelling reason to pursue graduate school, there are also many other benefits to doing so.

THE ABILITY TO EXPLORE TOPIC(S) OF INTEREST IN DEPTH

In graduate school, there is the opportunity to learn about different subjects thoroughly that an undergraduate degree can only touch on. In a thesis-based program, the thesis allows the student to study, apply and innovate on a topic of interest with the assistance of an experienced mentor. On the other hand, in a course-based program, there are many advanced courses to choose from, such as financial economics and predictive modeling. Note that it is not necessary to limit options to programs in actuarial science; programs in finance or statistics are very relevant to actuarial responsibilities too.

NEW CAREER OPPORTUNITIES

Nowadays, the fields of practice of actuaries are becoming wider and more complex. There are positions for which a graduate degree is required or preferred, such as model vetting and predictive modeling. A program or research topic that has a focus in the areas that employers value can definitely help in getting into those practices.

IMPROVE TECHNICAL AND SOFT SKILLS

It is not hard to see that there are extensive opportunities to hone your technical skills in a graduate degree. Projects involving technical skills such as applications of theory, computing and analyses are too frequent to recall. On the other hand, there are also plenty of opportunities to showcase your leadership and communication skills. For example, there are abundant opportunities for teaching appointments, report writing and presentations. Teamwork and time management skills are called into action with group projects and increased workload.

TRAVEL OPPORTUNITIES

Graduate schools are everywhere, and it is a great way to experience a new location or culture. There are many students who relocate to another location for study and even stay to work. Also, there may be meetings and conferences abroad that you can attend.

With benefits there are drawbacks. The most significant drawback is, of course, opportunity costs. Although scholarships and other sources of funding can help, there are additional expenses such as tuition fees and an accompanying loss of income. Also, the time for a typical graduate program may not be a long time in the long run but it is still a delay for those who desire to start their career early.

It is certain that the opportunity costs are not negligible. To this, here is some advice that I have compiled.

KNOW CLEARLY WHAT YOU WANT

One of the professors I have talked to says this best. It is arguably most important of all to have goals and know what you want to achieve with a graduate degree. Perhaps you may want to pursue a specific field of work. Then, it is necessary to know what knowledge and skills are valued by employers and enroll in a relevant graduate program. Perhaps you may be interested in a career in academia. Then, it is recommended to have survey topics that you will truly enjoy working with.

GRADUATE SCHOOLS ARE EVERYWHERE, AND IT IS A GREAT WAY TO EXPERIENCE A NEW LOCATION OR CULTURE.

SEEK AS MUCH INFORMATION AND ADVICE AS POSSIBLE

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A Qualitative History of Previous Challenging Environments for the Life Insurance Industry

By Evan Borisenko



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The current economic environment of low interest rates, market instability and regulatory uncertainty dominates actuarial thinking in life insurance companies today. For many young actuaries, these bleak circumstances have persisted for the entirety of their careers, making it difficult to imagine a more favorable climate. Seeing light at the end of the tunnel feels a lot different when your trip began inside the tunnel, as many have in the past few years. But the crisis of this generation follows a long history of such periods, all of which have frustrated, challenged, and eventually succumbed to the resilience of our industry. These periods include the Great Depression, the Great Inflation of the 1970s, and the influenza pandemic of 1918. These past events should be studied to learn the effect of economic conditions on life insurer solvency, as well as to identify the actions that helped firms navigate these conditions. For young actuaries, these events should offer hope, and serve as a lesson in accepting and overcoming adversity.

Beginning with the stock market crash of October 1929, the U.S. economy entered a period of severe stagnation and deflationary pressure. Although these

conditions resulted in spiking unemployment and low profits across most industries, the life insurance sector was relatively resilient. Between 1929 and 1938, failing insurers accounted for only 2 percent of total industry assets. This positive performance can be explained by a number of factors. First, major life insurers in this period were generally not heavily invested in public equity, which allowed them to avoid significant portfolio losses. Instead, insurers held high concentrations of real estate and high-quality bonds. Some evidence shows that equity assets held by insurers experienced low turnover during this time, suggesting prudent managers did not panic-sell along with other market participants. Second, regulatory forces played a role in protecting the industry from adverse economic conditions. In addition to investment restrictions that applied to insurers and not banks, legislation was passed in 1933 that prevented payment of cash value and policy loans. The purpose of this regulation was to insulate insurers from excessive use as financial intermediaries by the public while the banking system was under strain, and this objective was achieved.

However, certain pressures on the industry during this time are worth noting. First, cash disbursements such as cash value surrender and policy loan activity spiked up. In 1932, aggregate insurance in force fell from \$108.8 billion in January to \$103.7 billion in December. The reason behind this behavior was an increase in need for cash, rather than savings, which could not be provided by the banking system. Policyholders drew down their investments in life insurance in order to pay for day-to-day needs. This action contributed to strain on insurers' reserves and resulted in some liquidation of assets at a loss, until regulators intervened to provide some relief. Most likely, the existence of Federal Deposit Insurance Corporation (FDIC) insurance and the Federal Reserve as lender of last resort should reduce this pressure in future crises. Second, although life insurance sales remained low in 1931 to 1933, contributing to the effects described above, an initial increase in insurance sales took place by individuals attempting to preserve their estates after the stock market collapsed. This behavior produced an untimely surplus strain in early 1930. But



despite these adverse effects, the life insurance industry remained stable throughout the Great Depression, contributing to the recovery that followed.

In the late 1970s and early 1980s, a crisis with a different source tested the life insurance industry. A combination of oil price volatility and loose monetary policy resulted in an increase in inflation from 4 percent in the early 1970s to 13 percent in 1980. This fueled nominal interest rates to rise to a record high 15 percent in 1981, presenting several challenges for the life insurance industry unlike any before. First, the large existing block of assets held by insurers to fund policyholder benefits could not compete with the new money rates offered elsewhere in the market. With average portfolio rates in 1980 at 8 percent and average new money rates at 12 percent, a mass exodus of policyholder funds through cash value surrender ensued. During the 20-year period ending in 1985, life reserves fell from 7 percent to 3 percent of total household assets. In addition, guaranteed fixed rates on policy loans, which were mandated by regulation, resulted in an increase in loan utilization from 4 percent to 22 percent of general account assets. Both of these effects caused reserve strain, liquidity pressure and realized capital losses across the life sector. A second issue arising from this interest rate environment was an increasing relative tax rate. The 1959 Life Insurance Company Tax Act prescribed a tax rate which was a function of the difference between the portfolio rate and promised rate on policies (known as the Menge formula). This formula allowed investment income to avoid heavy taxation for almost two decades. But as the difference between portfolio rates (lifted by high new money rates) and promised rates (fixed in existing contracts) grew, so did the tax outflow, producing further pressure on insurers' earnings at this time.

The life industry responded to these challenges by developing innovative products and practices, as well as lobbying for equitable policy reform. The most noteworthy product shift resulting from this period was the growth of universal and variable life products. Both of these

AS THE TRADITIONAL INSURER PRACTICE OF INVESTING LONG AND ILLIQUID WAS PROVING INADEQUATE FOR THE CIRCUMSTANCES, ASSET MANAGERS BEGAN PURCHASING HIGHER QUANTITIES OF LOWER DURATION, LIQUID, AND SECONDARY MARKET TRADED SECURITIES.

products had the ability to separate policyholder credited investment income from the portfolio earnings of the insurer, keeping insurance offerings competitive with new money options. As a share of new premium, these products expanded dramatically from 3 percent in 1981 to 42 percent in 1985, permanently altering the market for life insurance. Adaptation was taking place within the asset management side of the business during this time as well. Spiking interest and surrender rates resulted in realized asset losses from disintermediation, as well as liquidity pressures. As the traditional insurer practice of investing long and illiquid was proving inadequate for the circumstances, asset managers began purchasing higher quantities of lower duration, liquid, and secondary market traded securities. To illustrate this, from 1981 to 1985, the proportion of T-bills and commercial paper held in portfolios increased from 3 percent to 5 percent, and the proportion of intermediate and long U.S. government securities increased from 3 percent to 11 percent. This environment produced greater appreciation of the practice of asset liability management across the industry. Finally, policy relief helped the industry overcome the challenges presented in this period as well. First, tax reform in 1982 and 1984 eliminated the Menge formula described above, resulting in a more reasonable tax structure. Second, regulation prescribing fixed rate loans was removed, providing insurers flexibility in designing this element of their policies. Unlike other financial institutions, insurers were able to remain profitable throughout this period thanks to effective crisis management and innovative thinking.

A catastrophe of a different nature occurred in the years following the World War I. An outbreak of the Spanish influenza affected a reported 28 percent of the U.S.

CONTINUED ON PAGE 26

population, taking the lives of 600,000 of these. A particularly devastating characteristic of this pandemic was its impact on middle-aged adults; about 50 percent of victims were between 16 and 40 years of age, in contrast to more conventional influenza strains which disproportionately affect children and the elderly. As middle-aged adults are the primary holders of life insurance, the severity and concentration of illness in this group caused significant losses for the industry. In total, \$100 million of influenza-related benefits were paid out between 1918 and 1919. To illustrate the magnitude of loss, benefits paid in October 1918 were greater than the sum of all benefits paid throughout World War I. But although three-quarters of insurers cut dividends during this period, only the youngest and smallest firms failed or applied for state assistance. In fact, the greatest damage inflicted on the industry may have been employee work absence and other logistical problems arising from the pandemic.

Several explanations exist for the industry's overall resilience to the combination of challenges posed by the Spanish flu. First, financial loss was limited due to the overwhelming popularity of burial insurance at this time, which was characterized by low death benefits. The concept of life insurance as a replacement for lifetime earnings potential, carrying more substantial death benefits and thus greater mortality risk, was not yet an established driver of sales. Second, a large block of insurance in force at this time had been sold through a government agency called the War Risk Bureau. Approximately \$36 billion of face had been issued by this organization, providing some support to the private sector during the influenza pandemic. Finally, the outbreak had a minimal impact on the investment portfolios of insurers. Default rates did not increase noticeably and the stock market remained steady, with the Dow Jones Industrial Average hovering above 80 throughout late 1918. With these supporting conditions, the insurance industry not only survived the influenza pandemic, but emerged with a strong reputation and enjoyed record sales in subsequent years.

While each event described above challenged the life insurance industry in a unique way, each event also

stimulated an equally unique solution. Through market turmoil, mortality shocks, inflation, deflation or interest rate volatility, insurance professionals have consistently persevered through economic adversity. The crisis of our generation may one day approach these events in notoriety, and the solutions we propose as actuaries should rise to the same level. In this way, we fight to repeat history.

REFERENCES

- Buley, Carlyle R. 1953. *The American Life Convention: 1906-1952 A Study in the History of Life Insurance*. Appleton-Century-Crofts. New York Public Library.
- Keir, Jack C. 1966. Cash Flow and Solvency of Life Insurance Companies: Comment. *Journal of Risk and Insurance* 1966 (Vol.33, No.1, pp. 139-143). American Risk and Insurance Association. Retrieved from: <http://www.jstor.org/discover/10.2307/250971?uid=3739832&uid=2134&uid=4577113457&uid=2&uid=70&uid=3&uid=4577113447&uid=3739256&uid=60&sid=21101585221323>.
- Patch, B.W. 1933. Life Insurance in the Depression. *Editorial Research Reports* 1933 (Vol. I). Washington, D.C.: CQ Press. Retrieved from <http://library.cqpress.com/cqresearcher/cqresrre1933051900>.
- Stracke, Andrea, and Winfried Heinen. Influenza Pandemic: The Impact on an Insured Lives Life Insurance Portfolio. Retrieved from: <http://www.soa.org/library/newsletters/the-actuary-magazine/2006/june/pub-influenza-the-impact-on-an-insured-lives-life-insurance-portfolio.aspx>
- Warshawsky, Mark, and Timothy Curry. 1986. Life Insurance Companies in a Changing Environment. *Federal Reserve Bulletin*. Board of Governors of the Federal Reserve System (U.S.), July, pp. 449-460. Retrieved from: <http://fraser.stlouisfed.org/download-page/page.pdf?pid=62&id=298638>.
- Weisbart, Steven. 2006. Pandemic: Can the Life Insurance Industry Survive the Avian Flu? *Insurance Information Institute*. June. ★



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The Virtues of Open Source

By David Januszewski



David Januszewski, ASA, M.Sc., is an actuarial and Base SAS Certified statistics professional based in Toronto, Canada. He can be reached by email at dave.januszewski@gmail.com or from his LinkedIn page <http://www.linkedin.com/in/davidjanuszewski>.

What do a statistical programming language, a mathematical typesetting system, and a multi-paradigm computer programming language have in common? Answer: They are all licensed under the GPL.

The sources of R, LaTeX and Python are made available to everyone and they are completely free. These languages are licensed under the GNU's Not Unix (GNU) General Public License (GPL)—a very special license that has created a community adherent to the open source philosophy—one that prides itself in making resources available to beginners.

The open source community has been gaining acceptance across many businesses and fields of study. If we take a quick look at TIOBE.com, the website of a company specializing in tracking the quality of software, we could see that Python and Perl are in the top-10 programming languages. Both Python and Perl are licensed under the GNU GPL, which guarantees the end users of the software the freedom to copy, share, study and edit the software. This license was written by Richard Stallman, the same computer programmer who wrote the GNU Manifesto.

According to Stallman, all computer users will benefit because:

1. The sources will be available to everyone. So users do not need to contact the owner to make changes. Any available programmer can make changes.
2. Everyone can study the system and its code, and everyone is encouraged to make changes.
3. No one has to worry about who owns the software or what one is entitled to do with it.

Stallman writes "*I consider that the Golden Rule requires that if I like a program I must share it with other people who like it.... Copying all or parts of a program is as*

natural to a programmer as breathing, and as productive. It ought to be as free."¹

As for statistical programming languages, it seems that R has made real advancement beyond academia and into the corporate world in recent years. R has caught up to its commercial counterpart, the Statistical Analysis System (SAS). Both appear to be equally used in business intelligence, data mining, research and many other areas (both hover around the 23rd to 25th most popular programming language as ranked on TIOBE.com).

Dr. Vincent Goulet from the University of Laval has made an interesting actuarial package called "actuar" on the Comprehensive R Archive Network (CRAN). However it seems that there are not too many other packages with actuarial models and functions on the CRAN network. I have not seen open source software sweep across actuarial science like it has with other fields. Nevertheless, I think it is possible for open source software to be used in pricing, valuation and modeling of complex insurance products.

GGY produces AXIS, SunGard produces Prophet, Milliman produces ALFA, and Towers Watson produces MoSes and TAS, but where are the open source competitors? Having an open source financial modeling and insurance valuation system would allow beginners and students to study and analyze the formulas and algorithms that are used in modeling complex insurance products. Actuaries would be able to edit the source code and make modifications based on their own judgment. Such a system would provide a greater exposure of the actuarial profession, it would be a means to validate the results of the commercial software competitors, and it would allow a greater involvement of academia in the profession.

Open source software can and does exist cohesively alongside proprietary commercial software. When looking at open source software vs. commercial software, it is interesting to look at the example of R and SAS.



SAS is a well-established statistical programming language and statistical modeling system that is widely used in many industries. The system was initially developed by Jim Goodnight and Anthony James Barr in the 1970s as a North Carolina State University (NCSU) research project to analyze agricultural data. By 1976, they had over 100 customers and so they decided to create the SAS Institute. Headquartered in North Carolina, the SAS Institute has since grown into the world's largest private software company. They provide comprehensive sets of user guides, study manuals and certification exams for their products. With over 4 million users, 60,000 customer sites, 13,000 employees, and \$2.7 billion in revenue, SAS has become the worldwide leader in business analytics and statistical modeling software.²

R is a functional programming language that is relatively easy to learn, incredibly fast and highly adaptable. R was originally created by Ross Ihaka and Robert Gentleman as an implementation of the S programming language. Currently, the *R Core Development Team* maintains write access to the source of the R language. John Chambers, who had developed the S language while at Bell Labs, is now part of the *R Core Development Team*. The team also creates many manuals for the R language. The open source community has made several integrated development environments (IDEs) and graphical user interfaces (GUIs) that work with R for various purposes (e.g., RStudio, Rattle and the R Commander). Anyone can freely download and install the R programming language as well as the various IDEs and GUIs that provide additional features. Users can also create R packages that add to the base functionality of R and they can make their packages freely available on the CRAN.

In the book *SAS and R: Data Management, Statistical Analysis, and Graphics*, Ken Kleinman and Nicholas J. Horton mention advantages and disadvantages of

both SAS and R. They mention how SAS maintains backwards compatibility and provides customer support to users, which is an advantage over R. Meanwhile, methodologists tend to release R functions to assist them in their work alongside their publication, so R tends to be more up to speed with recent developments in mathematics, statistics and other fields, which is an advantage over SAS. Another advantage of R over SAS is that you can always add more packages to R. In other words, you can always add more functions, algorithms, methods and models to the Base R system. Both R and SAS have a purpose, and I think that they should be used alongside each other.

Some studies have shown that open source software is growing at an exponential rate.³ There are now over 50 free and open-source licenses that have been approved by the Free Software Foundation (FSF). Notable licenses include the GNU GPL, the Affero General Public License, the Mozilla Public License and the Apache License. Open source software hosting sites like SourceForge, GitHub and Launchpad claim to have a user base in the millions. From Web browsers such as Mozilla Firefox, to operating systems such as Ubuntu, to multi-paradigm programming languages such as Python, to Office suites such as Apache OpenOffice and software framework platforms such as Apache Hadoop, the open source software revolution is spreading around the world at an incredible rate.

END NOTES

¹ Sourced from Stallman, R., *The GNU Manifesto*, 1985, The Free Software Foundation. Available online at: <http://www.gnu.org/gnu/manifesto.html>.

² <http://www.sas.com/company/about/statistics.html> (sourced January 2013).

³ Sourced from Deshpand, A., and D. Riehle, *The Total Growth of Open Source*, in Proceedings of the Fourth Conference on Open Source Systems (OSS 2008).

Available online at: <http://dirkriehle.com/publications/2008-2/the-total-growth-of-open-source/>

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Like Liz, many individuals making the career transition after having established a previous career outside the actuarial profession have limited information on study resources, and must finance their own study materials and exam registration fees. Not only can this be a challenge, but it may discourage or prohibit those interested in joining the actuarial profession from doing so. We hope this reimbursement program, in Liz's memory, will serve as a reminder of her commitment and her spirit of helping others achieve their goals.

Guidelines, eligibility requirements and online application for *Actuary—A Career Change*: Elizabeth M. Mauro Reimbursement Program are now available at: www.actuarialfoundation.org/programs/actuarial/ElizabethM.Mauro.shtml



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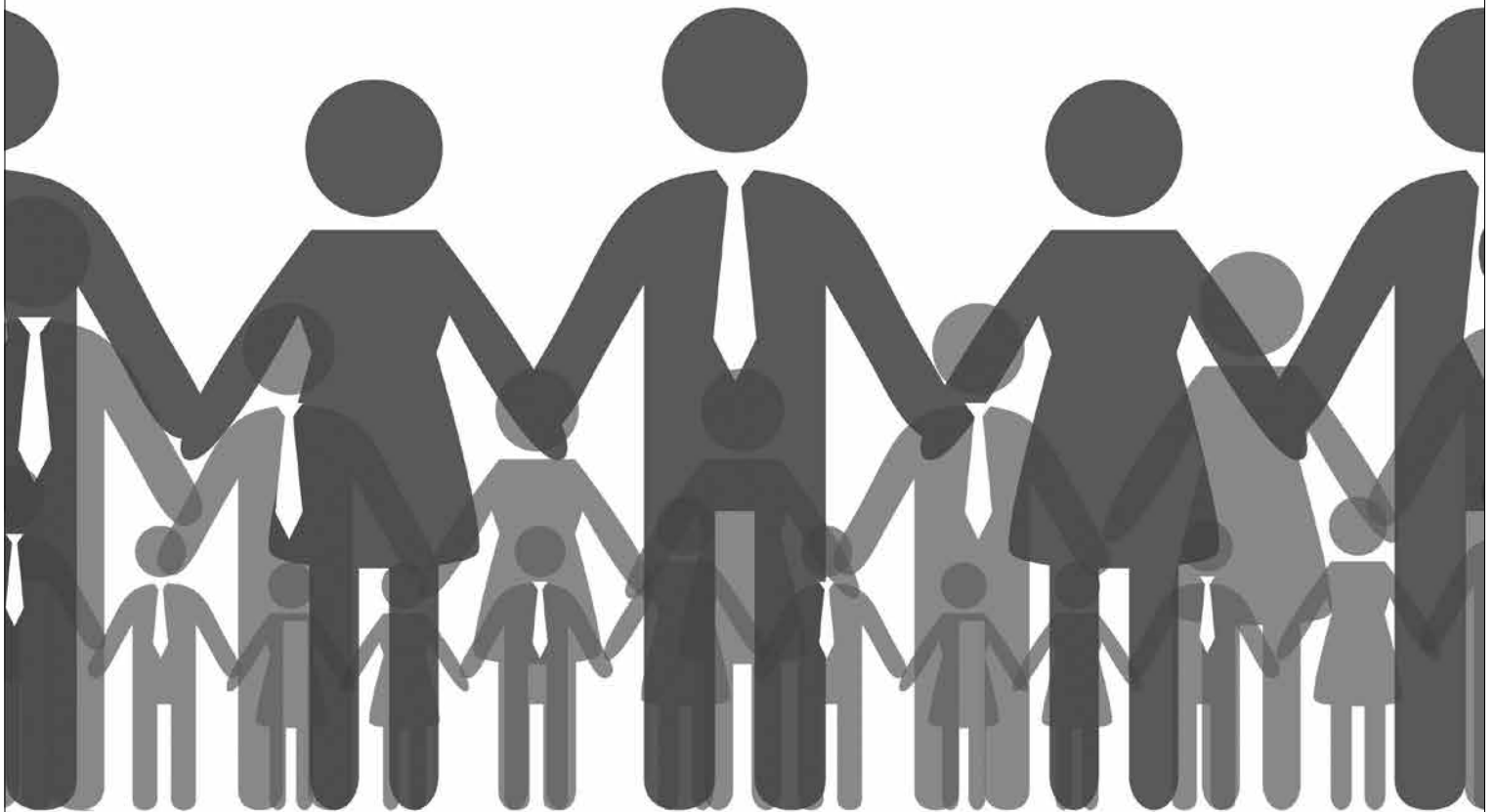
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