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An Interview With Hans U. Gerber



Hans U. Gerber, ASA, is professor emeritus in the Department of Actuarial Science at the University of Lausanne, Lausanne, Switzerland. He is an honorary member of the Swiss Association of Actuaries. Professor Gerber is the recipient of many prestigious actuarial distinctions, including several *North American Actuarial Journal* Annual Prizes (1995, 1998, 2000), Halmstad Prizes (1994, 1998, 2000) and the International Actuarial Association Centennial Gold Medal for Outstanding Scientific Achievements Within the Actuarial Profession (1995). He has more than 160 research publications and is known as an excellent teacher and academic adviser.

Q: Tell us about your background. How did you enter the actuarial profession?

A: In some countries, tuition is high and students are away from home. As a consequence, university education is expensive, which is a well-known problem for society. However, there is also a positive aspect to it. If the cost is high, the future students spend

time on the questions of what to study, where to enroll and what the job opportunities after graduation will be. In Switzerland, the situation is different, and many future students don't spend enough time on these questions. I was no exception. Because I loved mathematics in high school, I decided to study mathematics at ETH in my hometown Zürich, without having a clear idea of what I was going to do after graduation. After three semesters, I realized that there were essentially only three job opportunities for a mathematician: actuary, high school teacher or computer specialist (new at that time). I decided to become an actuary, presumably with an insurance company. I was privileged to be Hans Bühlmann's PhD student. Subsequently, I was lucky to spend two years in the United States, at the University of Rochester and at the University of Michigan, both times as a visiting assistant professor. At that time, I had absolutely no academic ambitions. After my return to Switzerland, I started my actuarial career with the largest life insurance company in Switzerland. But then something unexpected happened: I was contacted by the University of Michigan, which was looking for an actuarial professor. My wife and I convinced each other that we should go back to the United States. I passed the first four exams of the Society of Actuaries (SOA) while still in Switzerland. In Ann Arbor, I had to take the fifth exam (which covered also risk theory) three times to become an associate of the SOA (ASA).

Academically, I became an actuary when I started using the symbols λ and δ (instead of α and β) for the Poisson parameter and the force of interest.

Q: Who was an influential person in your professional life, and why?

A: Hans Bühlmann, my PhD adviser, for several reasons. He gave me a really good research topic (which was based on an idea of Bruno de Finetti on dividend payment strategies). For my second year in the United States, I could choose among Columbia–Missouri, Michigan and Yale. Hans suggested Michigan because of their actuarial program. I followed Hans's advice; this decision turned out to be crucial for my subsequent career. My first year in the United States was at the University of Rochester. Julian Keilson (one of the founders of the journal *Stochastic Processes and Their Applications*) gave me intensive lessons in English and mathematics, sometimes on Saturday and often with humor. I always remember the limerick (about the man in Aberdeen and convexity ...) he taught me. Was that perhaps the reason why many years later Olivier Deprez wrote his thesis "On Convex Principles of Premium Calculation"?

All my coauthors (including my PhD students) played an influential role. Writing the SOA textbook *Actuarial Mathematics* with Newt Bowers, Jim Hickman, Don Jones and Cecil Nesbitt was a unique experience. Pedagogical details were discussed extensively. A reviewer of the book reminded us not to forget the self-studying actuarial student in Boise, Idaho. Cecil Nesbitt always gave me good advice. For example, it never hurts to start the title of a paper with the word *On* (reason: the choice between arrogance and modesty). For many years, I shared an office with Don Jones; we had good discussions, not always about actuarial topics Similar exchanges with Arnold Shapiro at research conferences. I am grateful to David Cummins for his extraordinary help with editing my green paperback (*An Introduction to Mathematical Risk Theory*). In his farewell lecture (December 2019), David Dickson stated that he read Hans' book so many times the book fell apart and he had to put tape on it." My final move to the University of Lausanne was due to the vision of Marc-Henri Amsler. Marc Goovaerts was a great visionary. Together with Etienne de Vylder and Jean Haezendonck, he founded *Insurance: Mathematics and Economics (IME)*, today considered to be the top journal in actuarial science. My most important contribution to the success of *IME* was to recruit Elias Shiu as an editor. My two most successful papers ("[Option Pricing by Esscher Transforms](#)" and "[On the Time Value of Ruin](#)") are joint papers with Elias Shiu, both published in journals of the SOA. Thanks to Hailiang Yang and his colleagues, Hong Kong has become my second home for many years. And I truly enjoyed visiting China. But most important, I would like to mention my late wife, Marlis. Without her, my career would not have been possible.

Q: What is your personal philosophy with regard to teaching?

A: Blackboard and chalk (sometimes with jokes), with a microphone if necessary. Such a live event ensures authenticity. In Lausanne, I regularly taught a first-year calculus and linear algebra course in an auditorium of some 300 students. When slides are used, it is important to resist the temptation of "cheating" and speeding. Learning by teaching? Yes, sometimes.

Q: To what extent did professional actuarial exams influence your teaching?

A: The teacher and the student have a common goal. Thus, it is easy to motivate the students for the teamwork.

Q: What is your personal philosophy with regard to actuarial research? Was your approach practical, theoretical or a combination of both, and why?

A: Probably a combination. It is all relative. In the words of Arnold Shapiro, "In the business school I'm viewed as a mathematician. In the math department they consider me a poet."



Q: Looking back, would you have welcomed greater input from or communication with the business community to indicate possible areas of research likely to be of particular value or practical interest to them?

A: Switzerland is a small country. So contact with the business community is natural.

Q: Looking forward, do you feel that members of the business community should be given greater opportunities to familiarize themselves with the latest academic research and to benefit from it? If yes, how do you suggest that it be done?

A: Yes. For that purpose, the Swiss Association of Actuaries created its [International Summer School](#) almost 40 years ago. My colleague François Dufresne, ASA, has successfully organized this annual event for the last 16 years.

Q: What would you tell or advise someone considering entering the actuarial profession?

A: Good choice! Mathematical and computer skills are important. But so are soft skills such as communication. Take the exams and good luck!

Q: Thinking back on your career, what are your biggest accomplishments? Any memories or moments that stand out above the rest? Any disappointments?

A: Receiving the Halmstad Prize three times for joint papers with Elias Shiu and obtaining honorary degrees from the Universities of Leuven, Lyon and Waterloo were very special. In 1985, when I met Elias in Winnipeg, I would never have imagined that one day, a function would be named after the two of us. A French wisdom is that *jamais deux sans trois*. Unfortunately, *jamais trois sans quatre* is not always true.

Q: What might someone be surprised to know about you?

A: I am a fan and friend of the circus. ■