Workshop "In memory of Ermanno Pitacco"
November 24, 2023
Building D, 3° floor, Room 3_A

Ermanno Pitacco was a witty academic in the field of actuarial mathematics, dedicating himself to his work with enthusiasm and diligence. Many of us remember him not only as a scholar with admirable teaching and scientific expertises but also as a dear friend and an outstanding man. Then, the workshop brings together academic and professional figures from the actuarial world aiming to remember Ermanno and cultivate his passion for Actuarial Science.

SPEAKERS: Professors Jan Dhaene, Enrico Biffis, Steven Haberman and Annamaria Olivieri

PROGRAM:

10:30 – 11:00. Workshop opening and greetings

> **Liviana Picech**, *Chair of the Organising Committee*

> **Donata Vianelli**, *Dean of the Department of Economics, Business, Mathematics and Statistics "Bruno de Finetti"*

> **Stefano Visintin**, *Chairperson of the Friuli-Venezia Giulia Regional Committee of Actuaries*

> **Giampaolo Crenca**, *Chairperson of the Actuarial Association of Europe*

11:00 – 12:00. "Decentralized risk sharing"

> **Jan Dhaene**, *KU Leuven*

12:00 – 13:00. "Insurance contract design and endogenous frailty"

> **Enrico Biffis**, *Imperial College of London*

13:00 – 14:30. Lunch

14:30 – 15:30. "Subjective mortality, investment and annuitization over the financial life-cycle"

> **Steven Haberman**, *Bayes Business School*

15:30 – 16:30. "A tour into the research on longevity risk"

> **Annamaria Olivieri**, *Università di Parma*

16:30 – 17.00. Free interventions in memory of Ermanno Pitacco

17.00 – 17.30. Coffee break

17:30 – 19:00. Annual Meeting of the Actuaries of Friuli-Venezia Giulia

> **Stefano Visintin**, *Chairperson of the Friuli-Venezia Giulia Regional Committee of Actuaries*

> **Nino Savelli**, *Università Cattolica del Sacro Cuore*

> **Tiziana Tafaro**, *Chairperson of the National Council of Actuaries*

> **Roberta D'Ascenzi**, *Chairperson of the National Order of Actuaries*

> **Giampaolo Crenca**, *Chairperson of the Actuarial Association of Europe*

Abstract:

- **Jan Dhaene. "Decentralized risk sharing"**
  In this talk, we offer a systematic treatment of risk-sharing rules for insurance losses, based on a list of relevant properties. A number of candidate risk-sharing rules are considered, including the conditional mean risk-sharing rule proposed in Denuit and Dhaene (2012) and the newly introduced quantile risk-sharing rule. Their compliance with the proposed properties is established. Then, methods for building new risk-sharing rules are discussed. The results derived

in this paper are shown to be helpful in the development of peer-to-peer insurance (or crowdsurance). The material presented is joint work with Michel Denuit and Christian Robert.

- **Enrico Biffis. "Insurance contract design and endogenous frailty"**
We study how the design of options and guarantees can shape the exposure to mortality/ longevity risk in life insurance contracts. We develop a model of selective withdrawals driven by exogenous and endogenous risk factors, offering novel insights into traditional approaches to the analysis of surrender guarantees and dynamic adverse selection. We show how the mortality risk profile of policyholders can be represented in terms of a frailty process shaped by the relative attractiveness of different contract benefits in different states of the world. We then outline some applications to dynamic adverse selection testing, demonstrating how a novel measure of mortality divergence can be used to overcome some of the pitfalls encountered by the extant literature. The empirical analysis of a large, proprietary dataset demonstrates the ability of the approach to detect dynamic adverse selection and gauge its severity within and across various policyholder classes and contract specifications. This is joint work with Davide Benedetti (Athora International Services).

- **Steven Haberman. "Subjective mortality, investment and annuitization over the financial life-cycle"**
Evidence from panel surveys of households, collected over several years and in different countries, shows that people's perception about their remaining lifetime deviates from actuarial data. This has consequences for consumption, savings and investment over an individual's financial life cycle, and in particular for retirement planning and the purchase of annuities. We use data from the U.S. Survey of Consumer Finances to estimate subjective survival probabilities at different ages. This relies on two different methods of adjusting survival probabilities from a suitable life table. We implement a life-cycle model where individuals receive stochastic labour income and invest in a risk-free asset and in stocks whose returns may be imperfectly correlated with wages, and where individuals can annuitize their wealth at retirement. We demonstrate numerically that optimal annuitization, under the estimated subjective survival probabilities, is only slightly lower than optimal annuitization according to rational survival expectations. Subjective survival beliefs do not therefore fully explain the "annuity puzzle", i.e. observed lower-than-optimal demand for annuities. This conclusion is robust to variations in risk and time preferences, in pre-retirement income profile, and in the loading factored by insurers in annuity prices.

- **Annamaria Olivieri. "A tour into the research on longevity risk"**
Longevity risk has been a major focus of actuarial research in the latest decades. The unanticipated increases in the life expectancies impacted on post-retirement income costs, requiring innovation with respect to the representation of the mortality dynamics, risk modelling and product design. The purpose of this presentation is to provide a review of the main research topics about longevity risk, with particular regard to risk management solutions. This will be an opportunity to recall Ermanno Pitacco's contributions to this field.

Luogo: Building D, 3° floor, Room 3_A

Promoters: DEAMS – Anna Rita Bacinello, Rosario Maggistro, Mario Marino, Liviana Picech, Gabriele Sbaiz