2017

University of Piraeus
Department of Statistics & Insurance Science

http://unipi.gr/stat/executive-seminar

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Executive Seminar
Actuarial Science - Risk Measures

Date: Friday, 20th of October 2017   **Time** 8:45 am

Invited Speakers

- **Christian Hipp** *(University of Karlsruhe)*

- **Enkelejd Hashorva** *(University of Lausanne)*

- **Konstantinos Zografos** *(University of Ioannina)*

- **Jose Garrido** *(Concordia University)*

- **Agnieszka Izabella Bergel** *(University of Lisbon)*
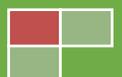
Sponsored by the

Department of Statistics and Insurance Science
& University of Piraeus Research Center

Organizing Committee

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Venue: University of Piraeus Conference Room

Date: 20 October 2017

Opening Time: 8:30 am

Free Admission

Front-desk Registration

University of Piraeus | 80 Karaoli & Dimitriou Str.

Program

Christian Hipp
University Karlsruhe, Germany
9:00-9:45
Stochastic control in insurance: classical and new concepts

We consider stochastic control problems in insurance such as optimal investment, reinsurance and dividend payment in the most simple stochaastic insurance models, where the objective ist he ruin probability or the value of the company. There, the classical approach with Hamilton-Jacobi-Bellman (HJB) type equations is appropriate and successfull. More realistic models and objectives ask for alternative concepts and methods. Wes shall present such methods for

- a) the bivariate objective ruin probability and value of the company, for which HJB seems to be too complex for numericak solutions, and
- b) for the case with classical objective in mixture models in which the HJB has a multivariate state variable.

Numerical examples and a list of open problems are given.

Enkelejd Hashorva
University of Lausanne, Switzerland
09:45-10:30
Aggregation of Light-tailed Dependent Risks

Risk aggregation is an important topic in (re)insurance pricing, reserving and risk management. In particular, of interest is the extremal behaviour of the aggregated risk. The case of heavy-tailed risks has been dealt with extensively in the literature. This talk focus on the aggregation of light-tailed dependent risks. For such risks, the principle of a single big jump does not hold. We shall discuss the classical case of independent risks, and proceed further to the analysis of dependent light-tailed risks with tractable dependence structure.

Konstantinos Zografos
University of Ioannina
10:30-11:15
Divergence of probability measures, some properties and applications:
The case of local divergence

The concept of the distance is of fundamental importance in each field of science and engineering. The same concept plays a fundamental role in probability theory and mathematical statistics. Metric divergences between two probability measures or between the respective probability distributions introduce a broad family of statistical distances. Divergence measures have been established and used in several disciplines and contexts to develop statistical inference and model selection methods, to mention a few. This talk will focus on statistical distances in a local setting, that is, it will concentrate on pseudo-distances between two probability distributions on a specific area of their common domain. The introduced local divergences will be used to develop tests of statistical hypothesis, in a local setting.

COFFEE BREAK
11:15-11:45

Jose Garrido
Concordia University, Montreal, Canada
11:45-12:30
Bayesian Credibility for GLMs.

We revisit the classical credibility results of Jewell (1974) and Bühlmann (1969) to obtain credibility premiums for a GLM severity model using a modern Bayesian, computational approach. Here prior distributions are chosen from out–of–sample information, without restrictions to be conjugate to the severity distribution. Then we use as a loss function the relative entropy between the "true" and the estimated models, without restricting credibility premiums to be linear. A numerical illustration on real data shows the feasibility of the approach, now that computing power is cheap, and simulations software readily available.

Agnieszka Izabella Bergel
University of Lisbon Portugal
12:30-13:15
An approach to the Individual Claims Reserving method

The calculation of the mathematical reserves is one of the most important activities that general insurance companies need to perform to maintain adequate capital and meet future liabilities. Most of the literature in loss reserving is based on claims data aggregated over run-off triangles with two coordinates: accident year and development year. Traditional examples are the Chain Ladder and the Bornhuetter-Ferguson methods, which are widely used by companies in practice. However, there is much more information available for each claim, such as the reporting delay, closing date, payment dates and the amount of each payment, which is not considered by the traditional loss reserving methods. The purpose of Individual Claims Reserving is to use that information to obtain reserve estimates with smaller reserve errors and higher precision. We propose an approach to Individual Claims Reserving, stochastic in essence, performing simulations of the number of claims and their amounts to give estimations of the IBNR and the RBNS claims. We test our method on real data from European insurance companies and compare our results against the more traditional loss reserving methods.

Entrance: University of Piraeus
Conference Room

+Free Admission (Είσοδος Ελεύθερη)

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