

10^{ème} SEMINAIRE ACTUARIAT – FINANCE
ISFA Lyon & IRA LE MANS
Mardi 5 novembre 2019
IRA Le Mans, salle de conférence

9h30 – 9h45 : ACCUEIL – CAFÉ

9h45 – 10h25 : François LANGOT (IRA, Le Mans Université)
Paying the Price: Accounting for Cross-country Health Status and Expenditures

10h25 – 11h05 : Romain GAUCHON (ISFA, Université Lyon 1)
Optimal prevention strategies in the classical risk model

11h05 – 11h20 : PAUSE CAFÉ

11h20 – 12h00 : Rym SALHI (IRA, Le Mans Université)
Mean-Field Forward-Backward SDEs with jumps and storage problem in smart grids

12h00 – 13h45 : DÉJEUNER (Restaurant l'Assiette)

14h00 – 14h40 : Frederic KARAME (IRA, Le Mans Université)
One-step Online Maximum Likelihood for linear state-space representations

14h40 – 15h20 : Claire MOUMINOX (ISFA, Université Lyon 1)
Licensing effect and Insurance Fraud

15h30 – 16h : Clôture de la journée & Discussion des projets de recherche

Durée de la communication : 40mn (35mn d'exposé + 5 mn de discussion)

ABSTRACTS

Romain GAUCHON (ISFA, Université Lyon 1)

Title : *Optimal prevention strategies in the classical risk model*

Abstract : The Cambridge dictionary defines prevention as « the act of stopping something from happening ». Changing « something » in « a risk » shows how natural prevention could be for an insurer : it can be viewed as a powerful risk management tool, allowing to reduce the risk taken by a company efficiently. However, there is no model studying prevention with an insurantal point of view. The goal of this presentation is to present a modification of the classical compound Poisson model in order to take into account a prevention parameter. It is then possible to define an optimal prevention strategy, giving some hints for how an insurer can propose in practice a prevention plan.

Frederic KARAME (IRA, Le Mans Université)

Title : *One-step Online Maximum Likelihood for linear state-space representations*

Abstract : State-space models can be difficult to estimate by maximum likelihood due to the usual numerical problems (size, slow calculations, local solutions, ...). The one-step online approach has the double advantage of circumventing the usual numerical problems and providing efficient estimators. Nevertheless, these properties have been obtained for rather simple models and not for more complex models like linear state-space representations. The aim of the paper is to extend this online estimation method to linear state-space representations. An efficient and fast estimation of these models represents an important breakthrough, especially if it can be implemented transparently for a user. The first part of the paper presents the theoretical proof. The second part is devoted to some Monte Carlo experiments. In the third part of the paper, the method is implemented to macroeconomic and mortality models. This talk is based on joint work (very preliminary version) with Alexandre Brouste (IRA, Le Mans).

François LANGOT (IRA, Le Mans Université)

Title : *Paying the Price: Accounting for Cross-country Health Status and Expenditures*

Abstract: In this paper, we quantify the contributions of price distortions on the health market to explain cross-country differences in health expenditure as a share of GDP and health status. To this end, we extend a general equilibrium framework à la Aiyagari (1994) by including health production à la Grossman (1972). The model relies on two wedges to explain health expenditures as a share of GDP and health status: (i) TFP wedge measuring the relative economic development, and (ii) health service wedge capturing inefficiencies on the health service market. We estimate structural parameters as well as country-specific wedges using a method of simulated moments approach on aggregate and micro data from eight countries. The US health price appear 1.4 times larger than in Europe. Cross-country dispersion in health price distortions is the main driver for cross-country differences in health expenditures and health outcomes. Inefficiencies in the health service market have sizable aggregate welfare consequences: if the U.S. were to switch to the average European price of health services, their cost-of-living would be reduced by 45%. This effect is larger for high-income agents than for low-income agents.

Claire MOUMINOUX (ISFA, Université Lyon 1)

Title : *Licensing effect and Insurance Fraud*

Abstract: Licensing effect is defined as a subconscious phenomenon of people allowing themselves to make bad choice (e.g. immoral) after engaging in a positive behavior (e.g. moral) first. In insurance, it could appear when an insured has paid premium for years, without declaring any sinister, and has suddenly the opportunity to over-report the amount of a claim (i.e. fraud behavior) in order to cover

previous spending. Customers do not necessarily consider insurance policy as a service proposed by a company to redistribute the risk and, at the end of the annuity, they usually think having paid a sufficient price for nothing. Indeed, the amount of the insurance premium is seen as a dead-loss, not as the price for risk coverage. In this paper, we propose an original experiment to identify potential licensing effects on insurance claims. The aim is to study fraud behavior in a paradoxical context, looking at the actions of “good insured”, those designed as honest. Couldn’t these honest insured be suddenly tempted to fraud, especially since they are comforted by their good reputation? Results highlight the underlying dynamic of honesty and dishonesty in an insurance context and provide a valuable insight: the honesty is not a stable characteristic over time. This talk is based on a joint work with Caroline Bayart and Jean-Louis Rullière (ISFA, Université Lyon 1).

Keywords: Behavioral Insurance, Fraud, Licensing Effect, Experimentation, Dynamic choices.

Rym SALHI (IRA, Le Mans Université)

Title: *Mean-Field Forward-Backward SDEs with jumps and storage problem in smart grids*

Abstract : In this talk, we study the existence and uniqueness of the solution of a coupled Mean-Field Forward-Backward SDE system with Jumps. Then, we give an application in the field of storage problem in smart grids, studied by Alasseur, Ben Taher and Matoussi (2018) in the case where the production of electricity is not predictable due, for example, to the changes in meteorological forecasts.

Organisation :

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Anis MATOUSSI, Professeur, Directeur de l’IRA, Responsable du Master Actuariat, Le Mans Université
Marine BROCARD (ISFA) & Sandie OUVRARD (IRA)