For favour of posting

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Departmental Seminar

Mr. Jeff T.Y. WONG

Department of Statistics and Actuarial Science
University of Waterloo
Canada

will give a talk
entitled

A TEMPORAL APPROACH TO RUIN PROBLEMS IN LEVY INSURANCE RISK MODEL

Abstract

Under the Levy insurance risk model, evolution of surplus level to an insurance company is modeled by a Levy process. Analysis of continuously observed risk quantities under this model proves challenging due to its surplus process having an unbounded variation. Such infinite activity causes the usual conditioning and renewal arguments to fall apart.

One way to overcome this difficulty is by means of a spatial approximation such that a perturbation is applied to the original surplus process. The problem caused by the infinity activity of the process can therefore be bypassed such that classical conditioning and renewal arguments continue to hold. By taking the limit that the perturbation effect vanishes, risk quantities of interest can successfully be analyzed. This method is popular in the literature, yet the perturbed process often lacks practical interpretation.

As an alternative, we propose to analyze risk quantities using the temporal approximation. Heuristically speaking, an observer looking at the surplus process at Poisson arrival epochs is introduced. While the problem of infinite activity is avoided, our method is in line with industry practice that surplus level is usually intercepted at discrete time points. By taking the limit that the observation frequency is large, the risk quantities of interest can be fully analyzed.

In the first part of the talk, we demonstrate this idea in details by concretely studying the Parisian ruin problem. We also prove how the temporal approximation approach is consistent with the spatial approximation approach. In the second part of the talk, we develop potential measures that are relevant under the temporal approximation scheme. Potential extensions as future research directions will also be discussed if time permits.

on

Monday, January 7, 2019

(Refreshments will be served from 9:15 a.m. outside Room 301 Run Run Shaw Building)

9:30 a.m. – 10:30 a.m.

at

Room 301, Run Run Shaw Building

Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 3917 2466 for parking arrangement.

All interested are welcome