



The Chinese University of Hong Kong
Department of Statistics

Seminar

Taylor's Law via Ratios, for Some Distributions
with Infinite Mean

By

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Abstract

Taylor's law (TL) originated as an empirical pattern in ecology. In many sets of samples of population density, the variance of each sample was approximately proportional to a power of the mean of that sample. In a family of nonnegative random variables, TL asserts that the population variance is proportional to a power of the population mean. TL, sometimes called fluctuation scaling, holds widely in physics, ecology, finance, demography, epidemiology, and other sciences, and characterizes many classical probability distributions and stochastic processes such as branching processes and birth-and-death processes. We demonstrate analytically for the first time that a version of TL holds for a class of distributions with infinite mean. These distributions and the associated TL differ qualitatively from those of light-tailed distributions. Our results employ and contribute to methodology of Albrecher and Teugels (2006) and Albrecher, Ladoucette and Teugels (2010). This work opens a new domain of investigation for generalizations of TL. This work is joint with Professors Joel Cohen and Victor de la Pena.

Date: August 15, 2018 (Wednesday)
Time: 2:30 p.m. - 3:30 p.m.
Venue: Lady Shaw Building, Room LT3
The Chinese University of Hong Kong

ALL INTERESTED ARE WELCOME !!