Presenter: An Chen

Title: Insurance Decisions under Ambiguity: A Unified View of Optimal State Allocations

Abstract

This talk studies how ambiguity affects insurance decisions. In many actuarial applications, individuals and insurers do not only face risk with known probabilities, but also uncertainty about the probability model itself. This is particularly relevant for mortality, longevity, health transitions, long-term care needs, and model risk in pricing and reserving.

Using smooth ambiguity preferences, we show that ambiguity aversion does not mechanically increase insurance demand. Instead, ambiguity distorts effective beliefs toward utility-worse models and thereby changes the valuation of future states. Since insurance products can be viewed as state-contingent transfer devices, the effect of ambiguity depends on which states a product transfers wealth toward. This mechanism helps explain why ambiguity may reduce demand for life insurance or annuities in some settings, while increasing demand for long-term care insurance when severe bad-health states become more strongly valued.

The talk provides a unified view of optimal state allocations under ambiguity and illustrates the mechanism through applications to life insurance, annuities, and long-term care insurance. It is based on joint work with **Steven Vanduffel and Morten Wilke** on optimal payoffs under smooth ambiguity, with **Shihao Zhu** on optimal consumption under smooth ambiguity, and with **Yichun Chi and Shihao Zhu** on long-term care insurance and informal family care under health uncertainty.