


复旦大学数学科学学院
数学综合报告会

报告题目：A Problem of Finite-Horizon Optimal Switching and Stochastic Control for Utility Maximization

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时间：2024-05-16 星期四 15:00-16:00

地点：光华楼东主楼1601室

报告摘要：

In this talk we undertake an investigation into the utility maximization problem faced by an economic agent who possesses the option to switch jobs, within a scenario featuring the presence of a mandatory retirement date. The agent needs to consider not only optimal consumption and investment but also the decision regarding optimal job-switching. Therefore, the utility maximization encompasses features of both optimal switching and stochastic control within a finite horizon. To address this challenge, we employ a dual-martingale approach to derive the dual problem defined as a finite-horizon pure optimal switching problem. By applying a theory of the double obstacle problem with non-standard arguments, we examine the analytical properties of the system of parabolic variational inequalities arising from the optimal switching problem, including those of its two free boundaries. Based on these analytical properties, we establish a duality theorem and characterize the optimal job-switching strategy in terms of time-varying wealth boundaries. Furthermore, we derive integral equation representations satisfied by the optimal strategies and provide numerical results based on these representations.

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