

Social Security Benefit Valuation, Risk, and Optimal Retirement

Steve Taylor from MTSM at NJIT

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Abstract: We develop techniques to estimate the present day value of the future social security benefits of a retiree based upon their chosen date of retirement, the term structure of interest rates, and life expectancy forecasts. These valuation methods are then used to determine the optimal retirement time of a beneficiary given a specific wage history and health profile in the sense of maximizing the present day value of future cashflows. We then examine how a number of risk factors including interest rates, disease diagnosis, and population life table risks impact the current value of future payments. Specifically, we utilize principal component analysis in order to assess interest rate and population life expectancy variation risks. We then examine how such risks range over distinct income and demographic groups and finally summarize future research directions.

Speaker Bio: Stephen Taylor joined the Martin Tuchman School of Management at NJIT after working in the financial industry for seven years as a quantitative research analyst. He has worked at Tudor Investment Corporation, Hutchin Hill Capital, Morgan Stanley, and Bloomberg on a variety of quantitative projects including developing hedging algorithms and implementing risk and performance metric monitoring software. In addition, he was a Technical Staff member at MIT Lincoln Laboratory where he worked on developing radar compression algorithms. His research focuses on the application of non-traditional mathematical and statistical methods to quantitative finance problems with a focus on risk and valuation. He is excited about interdisciplinary collaboration with the mathematics, engineering, and computer science departments, and helping the MTSM's efforts to promote data science and quantitative finance education for business school students.

This talk is part of the MTSM Business Data Science PhD Program Seminar Series