Public Abstract
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Title:Two Applications of Lifecycle Models: Teachers' Retirement under Time-varying Pension Rules and the Income-health Correlation in PSID

This study uses two structural models to predict public school teachers' retirement decisions and explore the correlations among people's health, occupational choices, and labor income.

Extensive literature suggests that the early exit of the late career teachers is inefficient. The first chapter uses the option value model introduced by Stock & Wise (1990) to analyze the retirement behavior of public school teachers in Missouri (MO) and simulate the effect of several retention policies. The existing studies failed to consider the sample selection bias of the late career teachers and did not consider the time-varying pension rules. I propose two algorithms that fix the sample selection bias, and I examine the competing theories on teachers' expectation of the time-varying pension rules. My modified model produces an excellent out-of-sample fit to the observed data. Simulations of counter-factual experiments show that the MO pension enhancements lead to earlier retirements, and well-designed retention policies can delay retirements.

The second chapter builds a life-cycle model to explain the widely acknowledged income-health correlation. I explore the dynamic relationships among occupations, health, and earnings observed in Panel Study of Income Dynamics (PSID). The simulations from the calibrated model fit the data well. Several simulation-based counter-factual experiments show that the occupations are mainly decided by education. ``Manual'' occupations lead to faster health deterioration and lower income compared to ``non-manual'' occupations. Given an occupation, people's health affects the labor supplied and labor income. Meanwhile, labor income affects health level through occupational choices, which is the main source for the health-income correlation.

These two applications reveal that life-cycle models can successfully model teachers' retirement and the health-income correlation, which can then help in evaluating the potential policies on retaining experienced teachers, and also help in exploring the correlations among health, occupation, and labor income.