Dynamic Decision Making and Nonclassical Measurement Error

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Sequential decision making or choices made over time under uncertainty appears naturally in economic problems. Modeling the phenomenon often requires dynamic models, which accommodate persistent effects of individuals' decisions and states. My first paper presents a dynamic model of the joint employment and health insurance decision to investigate job mobility. The model is motivated by lacking work on modeling how health insurance decision affects health status. My second paper proposes an alternative estimator for nonclassical measurement error models. My third paper provides a solution to identification and estimation of nonlinear panel data models.

1 A Dynamic Model of Employer-Provided Health Insurance and Job Mobility (job market paper)

This paper examines degrees of potential labor market distortions, job lock and job push. The model is based on a Markov decision process in which a hedonic wage approach provides an economic rationale for the different choices and health insurance serves as an input to the health production process. Including health transitions in the model helps us to understand how the availability of EPHI (positive job characteristic) and holding EPHI (the wage-health insurance tradeoff) enter into the individuals' decisions. The results show that the "pure" effects of holding EPHI are negligible, the "full" effects of EPHI are significant, and the measures of the inefficiency vary between 14% and 25% across different states.

2 Two-Step Sieve Estimator for Nonclassical Measurement Error Models

Many structural econometric models can be stated in the form of operators. I show that a two-step sieve estimator based on infinite conditional moment conditions derived from operators is consistent under the sup metric. Under the Fisher metric and additional assumptions, the sieve estimator is further consistent with a rate faster than $n^{-1/4}$ and asymptotically normal. The results are illustrated with nonclassical measurement error models, which are identified and estimated in Hu and Schennach (Econometrica, 2008).

3 Identification and Estimation of Random Effect Nonlinear Panel Data Models (in progress)

Dynamic panel data models are typically specified as the conditional distribution of the dependent variable, y_{it}, conditional on lagged values of y_{it}, a set of possibly time-varying explanatory variables x_i, and an individual unobserved variable v. I show that the conditional distribution $f_{Y_t|Y_{t-1},X_i,V}$ is identified from the observed distribution $f_{Y_{t+1},Y_t,Y_{t-1},Y_{t-2}|X_i}$ by the unique eigenvalue-eigenfunction decomposition of an integral operator associated with joint densities under assumptions. A sieve maximum likelihood estimator can be obtained through the observed distribution.