How Are Heterogeneous Time Preferences Identified When Short Panel Data Meet Experimental Resources? Theory and Its Application to Health Checkup Decisions

Hiroki Saruya*

April 19, 2015

Abstract

In this paper, I investigate the conditions for nonparametric identification of dynamic discrete choice models with unobservably heterogeneous time preferences, and seek to find an identification strategy with general applicability. I obtain two interesting results. First, it turns out that the model is identified with some assumptions which are not so restrictive compared with those necessary to identify traditional dynamic discrete choice models. In addition, type-specific choice probabilities and type distribution are recovered under some conditions, which enables convenient two-step estimation approaches. This is true even when you have only the shortest (two-period) panel data. As a second contribution, I bring together two kinds of seemingly distant approaches: researches utilizing short panel data and those based on some kind of experiments. It is found that data on stated time preferences offer two advantages by (i) allowing direct identification of standard discount factor and (ii) providing information on the distribution of unobserved heterogeneity. With the insights obtained from these theoretical considerations, I conduct an empirical analysis to estimate parameters governing the health checkup decisions, using short panel data collected in Japan. The estimation results show that the majority of individuals are time-inconsistent and these "biased" preferences lower the checkup compliance rate by about 5 to 9 percentage points.

*Graduate School of Economics, University of Tokyo.