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## Guest editorial

## Structural models of optimization behavior in labor, aging and health

This collection of papers grew out of the ‘Conference on Structural Models in Labor, Aging, and Health’ hosted by Donna Gilleskie and Ahmed Khwaja and held at the Fuqua School of Business in Durham, NC in September 2005. About 50 researchers from Canada, Mexico, Europe, and the US convened for the three day conference that featured two invited speakers (Mike Keane and Ken Wolpin) and 12 contributed papers (28 authors and 12 discussants). The original impetus for the conference was to provide an opportunity for researchers solving and estimating structural economic models with applications in labor, aging, and health to discuss their research in person. In particular, our objective was to bring young scholars and leading researchers in the field together to discuss solution and estimation techniques, policy evaluation, and dissemination of research. The papers in this volume speak to each of the conference objectives.

With regard to dissemination, much discussion at the conference centered around Mike Keane’s key note address, which highlighted potential reasons for the apparent disfavor in the profession of applied work based on explicit solution and estimation of dynamic structural models of economic behavior. Keane’s careful elucidation of the contributing factors points to a perceived conflict between different approaches to empirical economic research. His opinions are laid out in the introductory paper of this volume entitled “Structural vs. Atheoretic Approaches to Econometrics”.

In an effort to engage a broader set of views in this discussion, comments were solicited from several applied economists who have championed a particular empirical approach to answer an economic question. Comments from those who chose to respond are included in this volume. John Rust and Richard Blundell describe their perspective on the empirical approaches Keane discusses. In “Comparing IV With Structural Models: What Simple IV Can and Cannot Identify,” Nobel prize-winning economist James Heckman and co-author Sergio Urzua provide additional examples of how using the structure of an explicit economic model to motivate, inform, and specify estimation can lead to different empirical findings from an atheoretic analysis of the data. It should be noted that the discussion provided by each of these contributors emphasizes the value that different empirical techniques may have in addressing an applied topic. That is, the appropriate technique depends on the question being asked. Structural and atheoretic approaches may each have merit. One objective of this volume is to inform all researchers, irrespective of their preferences for either of these approaches, of the differences and similarities between these.

A great asset to this volume is a 2009 update to the well-known 1989 survey article by Zvi Eckstein and Ken Wolpin on the specification and estimation of dynamic discrete choice models

and the subsequent reviews in the 1990s.<sup>1</sup> In “Dynamic Discrete Choice Structural Models: A Survey,” Victor Aguirregabiria and Pedro Mira review recent developments on the estimation of structural single agent models, competitive equilibrium models, and dynamic games.

While there were several ways to organize the papers in this volume, we have chosen to distinguish them by their empirical application. The categories include labor, aging, health and human capital, discrimination, and migration.

An application of the structural modeling and estimation approach to labor market behavior is provided by Donhoo Lee and Ken Wolpin in “Accounting for Wage and Employment Changes in the US from 1968–2000: A Dynamic Model of Labor Market Equilibrium”. Individual decision making regarding labor supply decisions is discussed by Sarit Cohen–Goldner and Zvi Eckstein in “Estimating the Return to Training and Occupational Experience: The Case of Female Immigrants”.

Structural models are commonly used to understand decisions facing individuals as they age. In “Health, Economic Resources and the Work Decisions of Older Men,” John Bound, Todd Stinebrickner and Timothy Waidmann explicitly model the preferences, constraints, and expectations of males nearing retirement with a focus on the health information available to the individual as well as the researcher. In the application to aging that follows, “Estimating Willingness to Pay for Medicare Using a Dynamic Life-Cycle Model of Demand for Health Insurance,” Ahmed Khwaja uses a dynamic random utility model of demand for health insurance in a life-cycle human capital framework with endogenous production of health to calculate the individual willingness to pay (WTP) for Medicare.

Health capital investment is modeled by Donna Gilleskie in “Work Absences and Doctor Visits during an Illness Episode: The Differential Role of Preferences, Production, and Policies among Men and Women” in order to understand the behavior of workers during episodes of short-term illness. Raquel Bernal and Mike Keane focus on human capital production in “Quasi-Structural Estimation of a Model of Child Care Choices and Child Cognitive Ability Production” in order to evaluate the effect of using child care.

The next section of the volume includes a paper entitled “Prejudice and Gender Differentials in the US Labor Market in the Last Twenty Years,” where author Luca Flabbi develops and estimates a search model of the labor market with matching, bargaining, employer’s prejudice, and worker’s participation decisions in order to evaluate the role of discrimination in explaining the recent slowdown in convergence of earnings between men and women. Tom Ahn, Peter Arcidiacono, Alvin Murphy, and Omari Swinton

<sup>1</sup> Eckstein and Wolpin (1989), Rust (1994a,b), Pakes (1994) and Miller (1997).

also explore the role of discrimination as it relates to both wages and employment of black and white teenagers in “Explaining Cross-Racial Differences in Teenage Labor Force Participation: Results from a Two-Sided Matching Model”.

We conclude the volume with two papers that apply structural models to migration behavior. Haiyong Liu, Thomas A. Mroz, Wilbert van der Klaauw model location and maternal employment decisions that depend on school and labor market characteristics and that impact cognitive outcomes of children in “Maternal Employment, Migration, and Child Development”. John Kennan and James R. Walker estimate a structural model of migration decisions influenced by state welfare benefits in “Wages, Welfare Benefits and Migration”.

In each of these ten papers, which span many areas of decision making over time, the solution and estimation of the optimization problem facing the individual (or both sides of the market in those that provide an equilibrium analysis) allow for the introduction and evaluation of alternative policies that may not exist in the data. Examples include a policy of national standardized welfare benefits, of restricted access to medical care during the initial days of illness, and of removing the possibility of early social security benefits. Others include a reduction in the proportion of prejudiced employers and the elimination of employer search that targets potential employees by race or age. Such analyses would not be possible using estimation approaches that do not recover the primitive (or policy-invariant) parameters of the individual's (or firm's) optimization problem. Doing so allows for the evaluation of behavior and outcomes, under counterfactual policies.

Finally, we are grateful to Cheng Hsiao for supporting this volume and to Ron Gallant for serving as supervising editor. We greatly appreciate the constructive comments of the many referees that participated in the review of submitted papers. We value the contributions and patience of the authors throughout the process. We are grateful for the enthusiastic involvement of the conference presenters, discussants, participants, and organizers.

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