

# Studies of Household Behavior with Dynamic Macroeconomic Models

Yuki Uemura

Graduate School of Economics  
Kyoto University

## Abstract

This dissertation consists of three studies on household behavior with dynamic macroeconomic models. The first two studies focus on household job search behavior, and the third study focuses on household decisions on labor supply, child care, and the number of children.

Chapter 1, titled “Job Search Intensity and Wage Rigidity in Business Cycles,” examines the cyclical job search behavior of unemployed workers. Search intensity, as well as the aggregate economic condition, is an important factor that determines unemployed workers’ success in job searches. Their search intensity is predicted to be procyclical in standard search and matching models with endogenous search intensity. However, several empirical studies show that search intensity is countercyclical. Motivated by the inconsistency between the canonical models and the empirical evidence, we examine the job search behavior of unemployed workers over business cycles using a search and matching model that incorporates wage rigidity and a generalized matching function. The proposed model can generate both procyclical and countercyclical search intensities, unlike previous studies. In particular, search intensity becomes countercyclical when wages are sufficiently sticky. Intuitively, unemployed workers increase their search efforts in response to an economic downturn as the relatively high wages and low job-finding rates caused by wage stickiness raise the benefit of being employed. We then calibrate the model to the U.S. economy and provide various impulse response analyses. The numerical exercises show that the model successfully and simultaneously reproduces countercyclical search efforts and sizable labor market fluctuations.

Chapter 2, titled “Comprehensive Analysis of Joint Search Behavior of Heterogeneous Households,” examines the job search behavior of heterogeneous workers along the extensive and intensive margins. We first extend a one-sided job search model by incorporating the heterogeneity of marital status, asset holdings, and unemployment insurance (UI) benefits eligibility. In the

model, non-employed individuals decide whether to participate in the job market and if so, they decide their search efforts and target wages. We then calibrate the extended model to the U.S. economy and use the model to examine the possible effects of generous UI on the job search behavior of heterogeneous workers and their labor market outcomes. The quantitative results show the following: both an increase and extension of UI benefits decrease search efforts and increase target wages, thus reemployment wages by lowering the benefits of finding a job and the costs of choosing higher target wages. In addition, both raise the aggregate participation and employment rates, but the mechanisms differ: the increased UI benefits raise these rates mainly by increasing the value of being unemployed, and the extended UI benefits by prolonging the unemployment duration. The effects on individual workers are heterogeneous, quantitatively, and sometimes qualitatively. Because of the mutual effects in married couples, married workers respond to generous UI benefits differently from single workers. In particular, for married workers, the positive effects of increased UI benefits on target wages are partly offset by the income effects, which are caused by their spousal increases in participation rate and earnings; thus, the effects of increased UI benefits on reemployment wages are smaller among married workers than single workers.

Chapter 3, titled “The Impacts of Family Policies on Labor Supply, Fertility, and Social Welfare,” quantitatively examines the impacts of family policies on labor supply, fertility, and social welfare in a heterogeneous agent overlapping-generations (OLG) economy. We extend a standard incomplete-market OLG model with married and single households by incorporating parental decisions regarding the number of children, child care, education spending, and time allocation between market work, parental care, and leisure. Households in the model economy are heterogeneous in terms of marital status, the number of children, age, education type, labor productivity, and asset holdings. The resulting model successfully reproduces labor supply patterns according to marital status, gender, education level, and the presence of dependent children. The model also reproduces labor income over lifecycles and fertility patterns according to maternal education type. Finally, we use the extended model to examine the possible impacts of four major family policies: child subsidies, child care subsidies, education subsidies, and income tax deductions for dependent children. The results of all four policies suggest a tradeoff between fertility rates and female labor supply, although the individual effects of each policy on households and the macroeconomy differ significantly. Child care subsidies raise female labor supply but depress fertility rates. By contrast, child subsidies, education subsidies, and income

tax deductions reduce female labor supply but raise fertility rates. Child care subsidies improve overall welfare the most among the four policies. This is because increased labor supply and a decrease in the number of children raise the consumption level in the long run, while lowering policy costs.