

# Two-agent discrete choice model with random coefficient utility functions for structural analysis on household labor supply

## PRELIMINARY AND INCOMPLETE

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### **Abstract**

This paper discusses a bargaining model on discrete choices of individual household based on two-agent qualitative choice model. The two-agent qualitative choice model describes discrete choices made through bargaining interactions between two agents. This paper presents a bargaining model of discrete choices on labor force participation of wife and husband of a household.

This paper focuses on employee job opportunity, where employees' hours of work tends to be assigned by the employers. While hours of work is restricted, the choice each of the agents makes will not be continuous but discrete, i.e., a binary choice model of whether each of the agents works or not applies. This model explicitly demonstrates utility maximizing behavior of two interacting agents under such discrete constraint imposed on hours of work, describing both the labor force participating behavior of wife and that of husband endogenously.

As structural equations, an income-leisure preference function of wife and that of husband are introduced in this paper. These functions have random coefficients, which represent taste differences among wives as well as among husbands in population, so that the model gives probabilistic distributions for the outcomes of discrete choices made by husband as well as that made by wife on his or her labor supply.

This paper empirically utilized observations of labor force participating decisions made by Japanese households that consist of only one couple of wife and husband with a child or children under fifteen years old.

**Keywords:** binary choice, bargaining model, employee job opportunity, income-leisure preference function, structural estimation

**JEL Classification Codes:** C35, C82, J20

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