

Labor Economics
Assignment 3
Spring 2004

Consider the following modification of the setup in the Del Boca and Flinn (DBF) paper that was discussed in class. In their paper there existed a “tax” associated with behaving cooperatively, it was shown that there existed a critical value rule such that if 1 minus the tax rate, defined as ξ , exceeded $\xi^*(\Gamma)$, where Γ included $\alpha_1, \alpha_2, w_1, w_2$, and Y , the couple behaved cooperatively. Allowing for “costly cooperation” produced cases in which households optimally choose to behave noncooperatively, which was consistent with only one person in the household working.

Assume instead that $\xi = 1$ in all households. Instead of there being a cost solely paid in the cooperative state, assume that whenever both spouses work someone must be hired to perform household tasks. Let the cost of hiring an individual to perform these tasks be given by γ (note that we have assumed the cost paid is independent of the hours worked by the two spouses). When only one spouse works, consumption is given by

$$w_i h_i + Y,$$

where i is the index of the spouse working. When both work, household consumption is given by

$$w_1 h_1 + w_2 h_2 + Y - \gamma.$$

1. First solve this problem assuming that all households behave noncooperatively, and compare your results with those in Del Boca and Flinn. In particular, determine whether there is a unique noncooperative equilibrium or not for all values of the parameter vector $\tilde{\Gamma} = (\alpha_1, \alpha_2, w_1, w_2, Y, \gamma)$. What is the maximum number of equilibria that could exist in this model?
2. Now consider the cooperative case. Even when there is no “tax” on cooperative behavior as in DBF, is it possible that no cooperative equilibrium may exist that dominates the noncooperative equilibrium(a)? If so, characterize the conditions under which this can occur.
3. Now consider issues in the estimation of household labor supply using this modified model. If we think of γ as being independently distributed across households, with distribution $Q(\gamma; a)$, where a is a scalar parameter completely characterizing the function Q , is it possible to write down the likelihood for this problem? How would you handle the possibility of multiple equilibria? [Note: this is an open research question so don’t expect there to be a “correct” answer.]