

Instructions: Please double space your answers and write clearly. Your answer will be graded on **both** the economic intuition and technical proficiency you demonstrate.

Consider a married household whose utility function is given by

$$\alpha \ln(c) + (1 - \alpha) \ln(1 - l_m) + (1 - \alpha)\lambda \ln(1 - l_f) + b,$$

where c is the household's consumption, $1 - l_m$ and $1 - l_f$ denote the leisure enjoyed by the husband and the wife, respectively, and b is the bliss from the marriage. The variable $\lambda \geq 1$ governs the value that a couple places on the female's time spend at home. It differs across households. Some households value the female's time at home more (a higher λ) than others. In particular, assume that λ is distributed across households in the society according to some distribution function $\Lambda(\lambda)$. The husband earns the wage w and is taxed at the rate τ . The male always work the fixed amount $l < 1$ in the market. If the woman works, she will earn $w_f < w_m$ and is taxed at the rate $\tau_f > \tau$. The family must decide whether or not the wife should work. If she works, then she also works l . Taxes are used to finance useless government spending, g .

1. Set up the household's decision problem. What determines whether or not the woman will work?
2. How many married women will work in equilibrium?
3. Suppose that the tax rate on the first earner, τ , is raised. What impact does this have on married female labor supply?
4. Suppose the tax rate on the second earner, τ_f , is raised. What impact does this have on married female labor supply?
5. Suppose that a single person's tastes are given by

$$\alpha \ln(c) + (1 - \alpha) \ln(1 - l_s),$$

for $s = f, m$. Assume that a single person, male or female, is always taxed at the rate τ . Imagine that two single people meet and draw a value for marital bliss, b , which may be negative, from $B(b)$. They also draw a value for λ from $\Lambda(\lambda)$. The couple is deciding whether to get married. How is this decision affected by τ_f ?