AECO601 Fall 2005

Macroeconomics I

Assignment 6

(1) Using the reservation wage equation from class:

$$u(w^*) = u(b) + \frac{\alpha}{r+\lambda}\int_{w^*}^{\bar{w}} u(\eta) - u(w^*)dF(\eta)$$

derive the comparative statics of w^* with α, r, λ, b. Consider the effect of a first-order stochastic shift in F. What happens to w^* if there is a mean-preserving spread in F? (You can use examples for the latter two parts.)

(2) Consider the basic search model in which F is degenerate. That is, whenever someone is employed it is at the same wage $w > b$. However, to receive wage offers unemployed workers must incur a cost c each period. That is, they can choose not to look for work and continue to get b. If they choose to look for work they get $b - c$. For a given value of w and b derive an expression for the critical value of c at which workers are just indifferent between looking for work and permanent unemployment.

(3) Consider the basic search model in which F is degenerate at $w > b$. Suppose the government ran an unemployment insurance scheme which took τ from employed workers and gave z to unemployed workers. If the objective is to maximize average welfare, W where

$$W = n_u V_u + n_e V_e$$

show that whenever workers are risk averse optimal policy leads to $w - \tau = z + b$. When workers are risk-neutral, show that welfare is unaffected by the choice of τ as long as the budget is balanced. Budget balance requires

$$n_u z = n_e \tau$$

(4) Consider the Diamond Cocoanut model with constant returns to matching in the trading island. Suppose that α, the probability that a producer finds a tree with a nut, is inversely related to the number of people on the island. That is replace α by $\alpha(n_P)$ where $\alpha' < 0$, $\alpha(0) = 1$, $\alpha(1) = 0$. Are multiple steady-state equilibria possible? You might want to use an example, e.g. $\alpha(n_P) = 1 - n_P$ or $\alpha(n_P) = (1 - n_P)^2$. Give intuition for any answer you find.