

Economics 501
Assignment 8

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Due: November 28, 2006

1. There is a continuum of workers with unit mass. Each worker is risk-neutral and discounts the future at rate $r > 0$. If a worker is unemployed, he or she receives an unemployment insurance benefit of b , and receives a wage offer each period, which is w_1 with probability π_1 and 0 with probability $1 - \pi_1$, where $0 < \pi_1 < 1$. A worker who is employed earning a wage w_1 will suffer a separation during the period with probability δ_1 , and receives the offer of another job with probability π_2 , where $0 < \pi_2 < 1$. This new job pays a higher wage $w_2 > w_1$, but is more risky. A worker employed at wage w_2 will experience a separation with probability δ_2 , where $\delta_2 > \delta_1$. Assume that $0 < b < w_1 < w_2$, and that separation from any job implies that the worker is unemployed.
 - (a) Determine conditions under which a worker employed at wage w_1 will accept the higher-paying job if it is offered, and when he or she will not. Explain these conditions.
 - (b) Determine the steady state unemployment rate, and the fraction of workers employed at high-paying and low-paying jobs, under conditions where workers employed at low-paying jobs will accept high-paying jobs, and under conditions where they will not. Explain your results.
2. Suppose a two-sided search model identical to the one in my notes.
 - (a) Suppose that $\alpha = 0$. Determine the steady state solution in this case, and explain.
 - (b) Suppose that $\alpha = 1$. Again, determine the steady state solution, and explain.
 - (c) Suppose that the matching function takes the form $m(u, v) = uv$. Note that $m(u, v)$ does not satisfy homogeneity of degree zero, but the problem will still be well-behaved. Solve the model, and determine how changes in y and b will affect unemployment and vacancies in the steady state, and explain your results.