

Economics 102: Problem Set 1

Due date: September 4 (Friday), 2009.

Note: you can either give your homework to Professor Wang right after class or put it in the box outside my office (Heady 469) before 5:00pm.

Consider a market for computer programmers. Suppose the total number of programmers demanded by the software companies are determined by

$$D(W, r) = 100 - W - 100r$$

where W is wage paid to an employed programmer, r is the rate of interest at which the software companies can borrow to finance their working capital.

Suppose the supply of programmers is determined by the following supply function:

$$S(W, c) = 10 + W - 10c$$

where c is the cost of obtaining a training in computer programming.

In this model, r and c are exogenous variables. Specifically, suppose it is given that $r = 0.05$ and $c = 1$.

(1) (2 points) What is the equilibrium wage and what is the equilibrium number of programmers employed in the software industry?

(2) (2 points) Suppose suddenly the Federal reserve bank decides to increase interest rate from 0.05 to 0.1. What will happen to the equilibrium wage and employment in the software industry? What happens if the Federal reserve cuts the interest rate from 0.05 to 0.04?

(3) (2 points) Suppose the cost of education is growing up and suppose that increases c . How does this affect the equilibrium wage and total number of programmers employed?

(4) (2 points) Suppose now the specific values of r and c are not given. Solve for the equilibrium wage and the number of programmers employed as a function of r and c .

(5) (2 points) What happens if c increases? If the government wants to keep the equilibrium number of programmers employed constant after an increase in c , what should the government do to r ?