

Econ152 – Wage Theory and Policy

Problem set #6

– Due Friday 12/7/2007 –

- 1.** Suppose a worker's skill is captured by his efficiency units of labor. The distribution of efficiency units in the population is such that worker 1 has 1 efficiency unit, worker 2 has 2 efficiency units, and so on. There are 100 workers in the population. In deciding whether to migrate to the United States, these workers compare their weekly earnings at home (w_0) with their potential earnings in the United States (w_1). The wage-skills relationship in each of the two countries is given by:

$$w_0 = 700 + 0.5s,$$

and

$$w_1 = 670 + s,$$

where s is the number of efficiency units the worker possesses.

- (a) Give a definition of "positive selection" and "negative selection" in migration flows.
- (b) Assume there are no migration costs. What is the average number of efficiency units among immigrants? Is the immigrant flow positively or negatively selected? Why? Support your argument with a graph. Is this consistent with the hypothesis of a "brain drain" from the source country to the US?
- (c) Suppose it costs \$10 to migrate to the United States. What is the average number of efficiency units among immigrants? Is the immigrant flow positively or negatively selected?

- 2.** Suppose Nick and Jane are married. They currently reside in Minnesota. Nick's present value of lifetime earnings in his current employment is \$300,000, and Jane's present value is \$200,000. They are contemplating moving to Texas, where each of them would earn a lifetime income of \$260,000. The cost of moving is \$5,000 per person.

- (a) Based on their joint well-being, should they move to Texas? Is Jane a tied mover or a tied stayer or neither? Is Nick a tied mover or a tied stayer or neither?
- (b) Assume that in addition, Nick very much prefers the climate in Texas to that in Minnesota, and he figures that the change in climate is worth an additional \$50,000 to him. Jane, on the other hand, prefers Minnesota's frigid winters, so she figures she would be \$50,000 worse off because of Texas's blistering summers. Do their climatic preferences change the couple's migration decision?

- 3.** Suppose years of schooling, s , is the only variable that affects earnings. The equations for the weekly salaries of male and female workers are given by:

$$w_m = 500 + 100s$$

and

$$w_f = 300 + 75s.$$

On average, men have 14 years of schooling and women have 12 years of schooling.

- What is the male-female wage differential in the labor market?
- Using the Oaxaca decomposition, calculate how much of this wage differential is due to discrimination?
- Can you think of an alternative Oaxaca decomposition that would lead to a different measure of discrimination? Which measure is better?

4. Suppose the firm's production function is given by

$$q = 10\sqrt{E_w + E_b},$$

where E_w and E_b are the number of whites and blacks employed by the firm respectively. It can be shown that the marginal product of labor is then

$$MP_E = \frac{5}{\sqrt{E_w + E_b}}.$$

Suppose the market wage for black workers is \$10, the market wage for whites is \$20, and the price of each unit of output is \$100.

- How many workers would a firm hire if it does not discriminate? How much profit does this non-discriminatory firm earn if there are no other costs?
- Consider a firm that discriminates against blacks with a discrimination coefficient of .25. How many workers does this firm hire? How much profit does it earn?
- Finally, consider a firm that has a discrimination coefficient equal to 1.25. How many workers does this firm hire? How much profit does it earn?

5. Suppose that the country Wombasia has 10 million inhabitants and that the population can be divided in three groups: employed, unemployed, and individuals out of labor force (OLF). In any given month the transition probabilities between the three groups are given by

		Moving to		
		Employed	Unemployed	OLF
Moving from	Employed	0.93	0.03	0.04
	Unemployed	0.25	0.65	0.10
	OLF	0.06	0.04	0.90

This means that in any month 3% of employed workers become unemployed, and 4% of employed workers leave the labor force, etc. Assume that the Wombasian economy is in equilibrium, which means the same fraction of the population is employed, unemployed or OLF in each month. What is the steady state unemployment rate in Wombasia?