Economics 460: Labor Economics
Department of Economics, Finance and Legal Studies
University of Alabama

Problem Set #3

1. What assumption from the perfectly competitive model must *not* hold if unemployment is to be positive?

2. In the perfectly competitive model, what is the effect of an increase in labor productivity on L^*, w^*? What is unemployment before and after the change? What happens to the size of the labor force before and after the change?

3. Use the perfectly competitive model of wage determination to predict the effects of repealing immigration laws on the level of employment and the equilibrium wage in the United States? What is the effect on unemployment?

4. Evaluate the following claim:

   "Two local politicans are campaigning for office. One politician advocates a payroll tax of $\$s/hr$ payable by firms, the other politician advocates a payroll tax of $\$s/hr$ to be deducted from the paychecks of workers. As a result, one would expect workers to favor the former and firm owners to favor the latter politician."

5. During a recession, the government agrees to pay a firm $\$s/hr$ for each worker employed. What effect does this policy have on the level of employment, the size of the labor force, the equilibrium wage rate? Is the new wage greater than, smaller than, or equal to the old wage plus the employment subsidy (i.e., $w^{*'} \gtreqless w^* + s$)? Why?.

6. Evaluate the following claim:

   "Two firms are completely identical in every respect except that one firm uses a more complicated computer system that requires a longer training period for new workers. However, after the training is complete, workers are equally productive at both firms. Thus, one would expect the wages paid by the two firms to be identical."

7. Suppose all workers have the same preferences represented by

$$u = \sqrt{w} - 2x$$

   where w is the wage and x is the proportion of the firm's air that is composed of toxic pollutants. There are only two types of jobs in the economy, a clean job ($x = 0$) and a dirty job ($x = 1$). Let w_0 be the wage paid by the clean job and w_1 be the wage paid by the polluted job. If the clean job pays $16 per hour, what is the wage in the dirty job? What is the compensating wage differential?

8. Consider a competitive economy that has four different jobs that vary by their wage and risk level. The table below describers the four jobs.

Job	Risk (r)	Wage (w)
A	1/5	$3
B	1/4	$12
C	1/3	$23
D	1/2	$25

All workers are equally productive,but workers vary in their preferences. Consider a worker whose values his wage and the risk level according to the following utility function:

$$u = w + \frac{1}{r^2}$$

(a) Where does the worker choose to work?

(b) Suppose that the government regulates the workplace and requires that all jobs to have a risk factor of 1/5 (that is, all jobs become A jobs). What wage would the worker now need to earn in the A job to be equally happy following the regulation?