

**Human Resources**  
**Homework 3**  
**Suggested Answer**

2/10/2005

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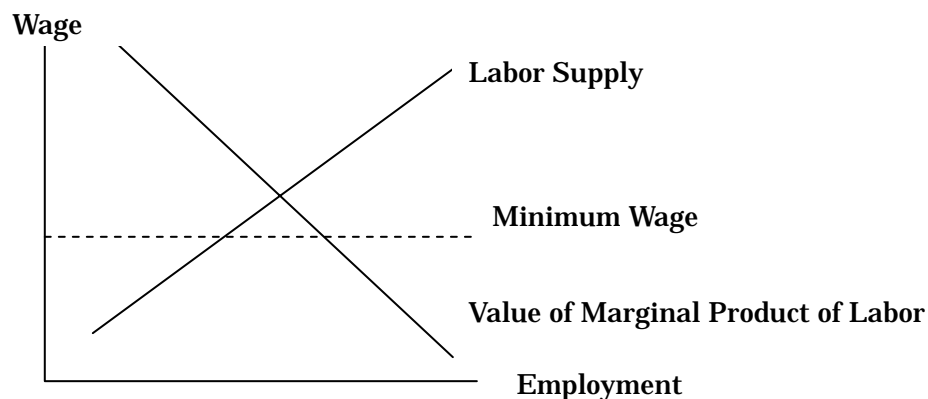
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Answer following questions on separate sheets of A4 papers. Answer should be in English. You may discuss questions with your friends, but you have to submit your own answer. Just copying your friends' answer will be harshly punished. **The due date is 2/10/2005.** You must submit your answer in the class.

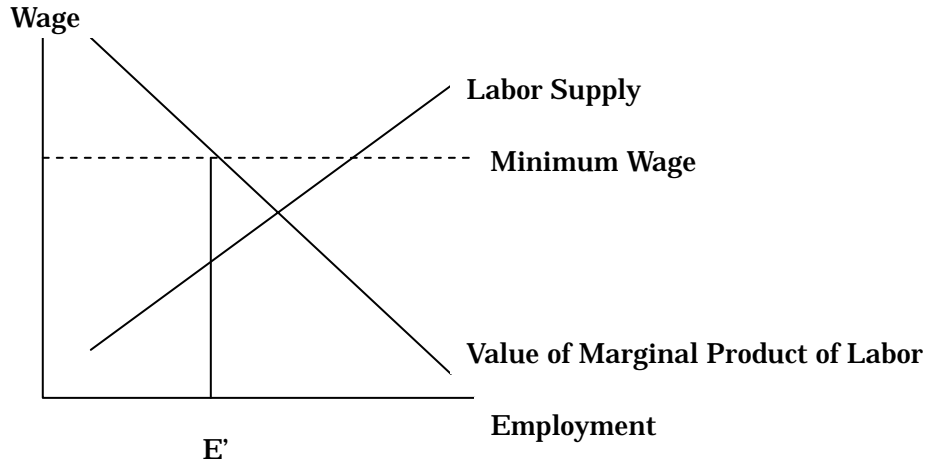
1. Borjas, 3rd edition, p. 203, Problem 5 (2pts)

Suppose a firm is a perfectly discriminating monopsonist. The government imposes a minimum wage on this market. What happens to wages and employment?

If the imposed minimum wage is below the intersection of labor supply curve and the value of marginal product, employment does not change but wages increase. If the imposed minimum wage is above the intersection, employment declines and wages increase.



In the case above, those workers who received wage below the minimum wage enjoy higher wage and no one lose his/her job.



In the above case, the employment after the imposition of minimum wage is reduced to  $E'$ . All the workers who keep their jobs enjoy higher wages.

2. Borjas, 3rd edition, p. 203, Problem 8 (3pts)

Chicken Hut faces perfectly elastic demand for chicken dinners at a price of \$6 per dinner. The Hut also faces an upward-sloping labor supply curve:

$$E = 20w - 120$$

Where  $E$  is the number of workers hired each hour and  $w$  is the hourly wage rate. Thus, the Hut faces an upward-sloping marginal cost of labor curve given by:

$$MC_E = 6 + 0.1 E.$$

Each hour of labor produces 5 dinners. (The cost of each chicken is \$0 as the Hut receives two-day-old chickens from Hormel for free.) How many workers should Chicken Hut hire each hour to maximize profits? What wage will Chicken Hut pay? What are Chicken Hut's hourly profits?

The optimal amount of employment is calculated by equating the marginal cost of employment and the value of marginal product of labor. The value of the marginal product of labor is 30 dollars because adding one worker increases output by 5 units and each unit is sold at 6 dollars. The optimal employment is obtained by solving the following problem:

$$30 = 6 + 0.1 E.$$

By solving the equation, we obtain  $E^*=240$ . The wage paid to workers is determined on the labor supply curve, so we can determine the wage by solving the following equation:

$240 = 20w - 120$ .

The wage is 18 dollars.

The Chicken Hut's profit per worker per hour is  $30 - 18 = 12$  dollars. Because the Hut hires 240 workers, the Hut earns  $12 * 240 = 2880$  dollars per hour as a profit.

3. Borjas, 3rd edition, p. 205, Problem 12 (5pts, 2pts for medical reason, 3pts for economic reason.)

In the United States (also in Japan), some medical procedures can be administered to a patient only by a doctor while other procedures can be administered by a doctor, nurse, or lab technician. What might be the medical reasons for this? What might be the economic reasons for this?

A medical reason is that some procedure can be administered by a doctor because only doctors have knowledge to implement some procedure, while some other procedure may be less complicated and may be implemented also by nurse or lab technician.

A economic reason is that a doctor is a scarce resource in the society because it is costly to train doctors and accordingly there are not so many doctors compared with the number of nurses or lab technician. Thus doctor should concentrate on the procedure that can only be administered by doctors and leave the procedure that can be administered by nurses or lab technicians to them. This resource allocation maximizes the production of medical service and patients can benefit from this. This allocation is attained by price mechanism: Doctors salary become high reflecting their scarcity while nurses and lab technicians salary become low reflecting their abundance. Hospitals that attempt to maximize its profit choose the socially optimal allocation of job among doctors, nurses and lab technicians.