EC1B5 | Chapter 9

Employment and Unemployment

Additional Practice Questions:

Book Question 5

Suppose Construire Construction Firm makes a special window frame that it sells for €20. The following table shows the number of window frames that can be produced from a given number of labor hours. Assume that the company cannot hire labor for a fraction of an hour.

Hours of Labor	Quantity
0	0
1	40
2	75
3	100
4	120
5	145
6	150
7	152

a. Find the marginal product (in window frames) and the value of the marginal product (in euros), of each hour of labor.

b. If the wage paid to workers in Construire Construction's plant is €450/hour, how many hours of labor should the firm employ? How many hours will be employed if the wage decreases to €350/hour? Explain.

c. How many hours will be employed if the wage is €450/hour, but the price of a bracket rises to €25?

Answer:

a. The relevant figures are provided in the following table:

Labor Hours	Quantity	MPL	VMPL
0	0		
1	40	40	800
2	75	35	700
3	100	25	500
4	120	20	400
5	135	15	300
6	140	5	100
7	142	2	40

b. Recall that a firm will keep hiring hours of labor as long as the additional revenue that an additional hour produces is at least as great as the wage the additional hour earns. If the wage paid for each hour of labor is €450, then the firm will hire 3 hours of labor to make the window frames. The fourth hour generates €400 in additional revenue (VMP_L) but costs the firm €450. If the firm hires a fourth hour, Construire Construction would lose €50 on that hour. However, if the wage decreases to €350/hr., then Construire Construction will hire for 4 hours. The fifth hour generates €300 in additional revenue but costs the firm €350, so the firm will not hire that fifth hour.

c. If the price of a bracket is now €25 instead of €20, the value of the marginal product of labor must be recalculated. The results are shown below:

Hours of Labor	Quantity	MPL	VMPL
0	0		
1	40	40	1000
2	75	35	875
3	100	25	625
4	120	20	500
5	135	15	375
6	140	5	125
7	142	2	50

Given the higher values for the value of the marginal product of labor, four hours will be employed. The fifth hour now generates €375 in additional revenue but will cost the firm €450. Hence, it will not be hired.

Book Question 8

Countries around the world have faced a youth unemployment crisis in recent decades. According to a report by the International Labour Organization, the global youth unemployment rate in 2016 was 2.9 times higher than the global adult rate

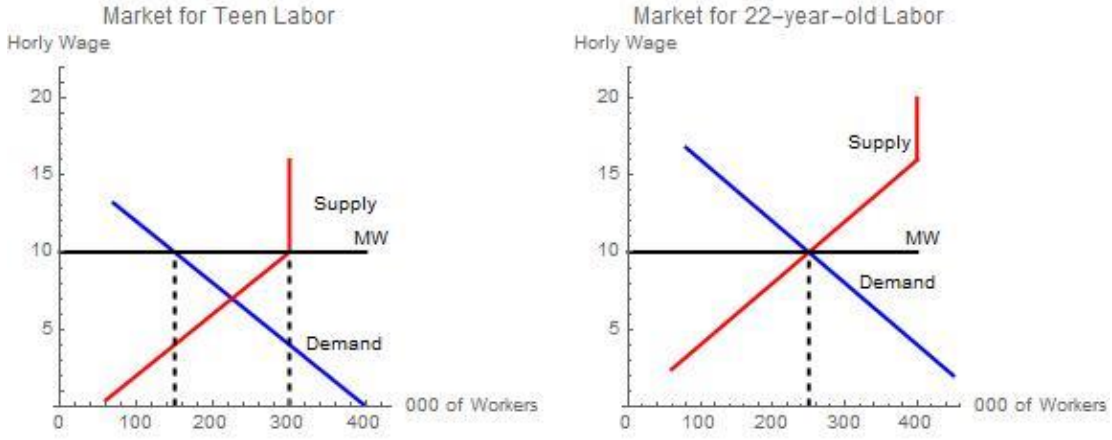
a. In Exhibit 9.10 we compared the curves for two types of labor, low-skill and high-skill. Suppose that the curves show the labor market for workers over the age of 22, with a minimum wage of $10. Use new graphs to demonstrate two ways in which the youth labor market might feature greater structural unemployment at the same minimum wage.

b. How would you distinguish between the two different explanations you proposed in part a: what kind of data would you need to test these different explanations?

c. Some countries, like the UK, have attempted to reduce youth unemployment by implementing a lower minimum wage for workers under the age of 20. Discuss how this might influence youth unemployment, linking your answer to the two explanations discussed in parts a and b as well as to the different types of unemployment discussed in this chapter. Do you think efforts to reduce youth unemployment by setting lower minimum wages for young workers is likely to be effective?

Answer:

a.



The graph was drawn so that the $10 minimum wage would be binding in the teen labor market but not the 22-year-old labor market. At this level, only teen workers experience structural unemployment due to the minimum wage. At that wage, 300,000 teen workers wish to work, but employers will hire only 150,000. Because the labor supplied at the minimum wage is greater than the demand, structural employment exists. At $10, the minimum wage is not binding on 22-year-old workers. All of these workers have acquired skills sufficient to earn $10 or more. There is no structural unemployment in this market.

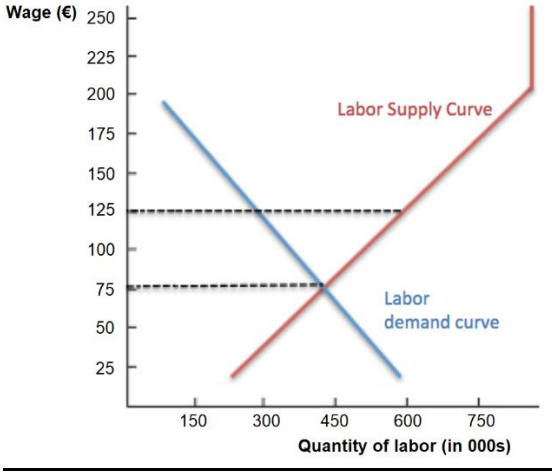
If the wage increases to $12 per hour, no additional teen workers enter the market because all the workers who wish to work are already employed. As the minimum wage increase, the demand for teen workers continues to fall. The higher minimum wage at $12 is binding in the market for 22-year-old labor. Structural unemployment has entered a new market.

b. A researcher might conduct a natural experiment such as that conducted by Card and Kreuger, but using data on the minimum wage experienced by workers, their age, and unemployment rates, again by age. High levels of unemployment among teens relative to 22-year-olds suggests that the minimum wage is more binding. Similar rates of unemployment generated by higher minimum wages, say $10 vs. $15, suggest that the minimum wage is on the vertical portion of the supply curve.

c. If the minimum wage were on the vertical portion of the teen labor supply curve, a lower minimum wage might move down the supply curve to the positively sloped portion. It would also reduce the gap between the supply of labor and the demand, which is the structural unemployment. There is a danger. Because teens have few skills and experience low wages, their wage is closer to their opportunity cost of not working than a highly skilled worker who would have a higher wage. Reducing the minimum wage would increase the demand for teen labor but teens might not wish to work at the lower wage.

Book Question 9

The following graph shows the demand for and supply of labor in a market with a minimum wage set at €125 per month. Use the graph to answer the following questions.



a. How many workers will be unemployed due to the minimum wage? What kind of unemployment is this?

b. Give an example of a minimum wage rate that would not affect the quantity of labor demanded nor supplied. Explain.

c. Do you think all current employed people would benefit from the minimum wage rate?

d. What is the difference of the impact of the minimum wage rate on unemployment between developed and developing countries?

Answer:

a. At a wage of €125 per month, the quantity of labor supplied is 600, but the quantity of labor demanded is only 300. Hence, there will be *structural unemployment* of 300 workers in this market as a result of the minimum wage.

b. Any minimum wage that is set below the equilibrium wage in the market, which is €75 per month, will not affect the quantity of labor demanded and supplied. For example, if the minimum wage rate is set at €50 per month because the market is already paying wages that are higher than the minimum wage, the minimum wage law will have no impact on the labor market.

c. Currently employed workers who keep their jobs would benefit from the minimum wage rate if that is what they are being paid and if these are the workers who would have been willing to work at the lower market-clearing wage. On the other hand, many workers could lose their jobs due to the lower demand from firms, which would now have to pay higher wages. Therefore, not all current employees would benefit and many could become unemployed as a result of the minimum wage rate.

d. Most likely, in developed countries, the minimum wage rate would not have an impact on unemployment as the majority of workers already make more than the minimum wage. However, it would be a different story in developing countries, where the vast majority get paid less than a newly implemented minimum wage rate. As a result, the unemployment rate would increase.

Book Question 11

Assume that half of all workers are White and the other half Black. All workers are equally productive. Draw a graph of the labor market for White and then Black workers. Include the equilibrium wage and quantity of workers hired. How do the equilibrium wage and quantity compare in each market?

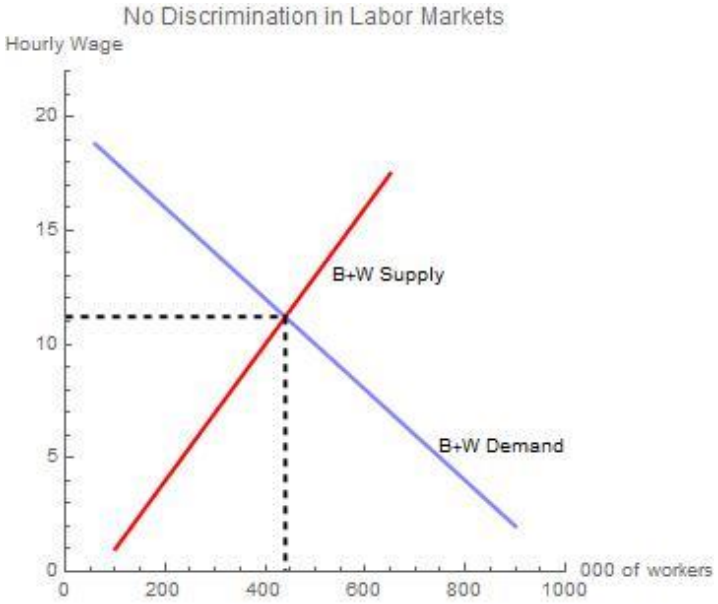
a. Now assume that employers believe that Black workers are less productive than White workers. Add a new demand curve to the market for Black labor that reflects the belief. How does it affect the demand for labor for both White and Black workers? What happens to the equilibrium wage and quantity hired?

b. Does discrimination affect structural unemployment?

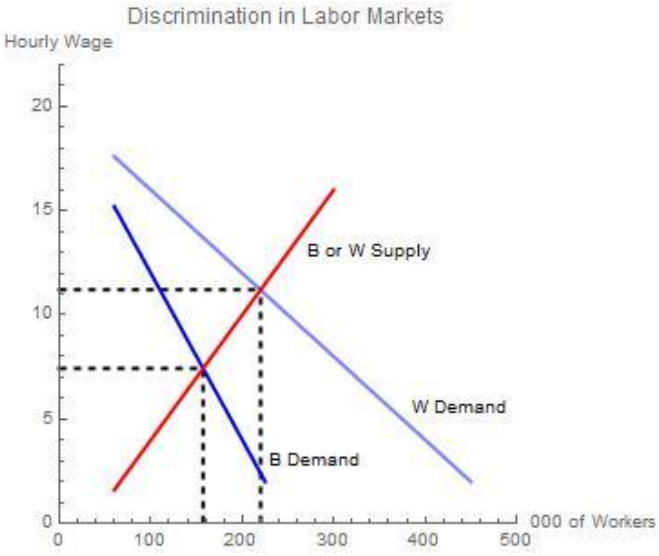
c. Assume that some employers correctly measure the productivity of Black workers and some do not. If you are a Black worker, how can you avoid a lower wage from discrimination?

d. Why is the added job search still a cost of discrimination?

Answer:



It may be able to precisely read points off the axes. Answers may vary. At the equilibrium point, 440,000 workers will be hired at $11.20 per hour. Half of the workers will be White, and half, Black.

a. 

The demand for White labor is half the original demand. The equilibrium is 220,000 White workers are hired at $11.20 per hour; the employment of White workers and their wage has not changed. The Black demand will have a more steep slope and will lie under the White demand. In equilibrium, 157,150 Black workers are hired at a wage of $7.42 per hour. The number of Black workers has fallen by 62,850 and their wage by $3.78.

b. In equilibrium, structural unemployment has increased to 62,850 workers, all Black. The direct cost of discrimination can be measured on an hourly basis. The workers who would have been employed if discrimination did not exist lost $11.20 per hour. The remaining Black workers still are employed so they are not structurally unemployed, but they do earn $3.78 per hour less than they would in a world without discrimination.

c. Black workers can avoid lower wages by seeking out employers who correctly measure productivity. The avoidance is not free. Black workers will have to search for non-discriminating employers. Note that the cost of incorrectly measuring productivity has reduced the profits of these employers.

d. Search takes time and time is money as measured by forgone wages.