

Answers to Homework # 9

1. If an input is highly specialized and used in one industry only, will the supply curve be relatively elastic or inelastic? Explain why.

Inelastic. The input would not have other industries in which to find employment, so the supply curve of the input to the economy and the supply curve of the input to the industry are the same.

2. Suppose computer programmers work in two industries --the computer industry and the machine tool industry. The supply curve of computer programmers is upward sloping. What are the effects of each of the following events on the employment of computer programmers in each industry and on the wages of computer programmers in each industry?

a. The demand for computers falls.

The price of computers falls when the demand for computers falls, which shifts the demand for computer programmers in the computer industry to the left. This generates a leftward shift of the total demand for computer programmers and a decline in the wage rate. Some programmers leave the market, while others leave the computer industry and go to the machine tool industry. The end result is fewer programmers in the entire market, fewer programmers in the computer industry, and more in the machine tool industry, with all making lower wages.

b. There is an influx of computer programmers from abroad.

The total supply of programmers shifts outward, reducing the wage rate in both industries. More programmers are hired in both industries at the lower wage.

c. A third industry starts using computer programmers.

Total demand for programmers increases and wages increase. Some programmers move from the computer and machine tool industries to the new industry, and some people enter the market as programmers who had not been working as programmers before.

d. Firms in the machine tool industry increase their purchases of capital equipment.

Assume capital and labor are compliments. Increased capital in the machine tool industry makes labor in the industry more productive. The demand curve for labor in the machine tool industry shifts to the right. The rest of the analysis is identical to that in Figure 16.8 on page 472 of the textbook, with the machine tool industry as industry B.

e. One-third of the computer programmers are drafted into the military.

Opposite of part b above.

3. Robots are being introduced into American manufacturing to perform routine, repetitive tasks previously performed by some types of labor. Suppose there are two types of labor, L_A and L_B , such that L_A and robots are substitutes while robots and L_B are compliments. What will be the effects on the wages and employment of the two types of labor?

Less L_A will be used in the industries that begin to use robots. This results in wages for L_A falling. L_B is complementary to robots, so the introduction of robots shifts the MPP curves of L_B outward. This results in higher wages for L_B . Robots must be produced, so the effect on L_A will be attenuated if the robot manufacturers use L_A in the production process. If they use L_B too, wages will increase even more for these workers.