6

THE MARKET FOR RESOURCES

Up until this point, we have primarily discussed product markets, the markets in which we sell goods/services. However, if you recall our circular flow model from Chapter 1, firms also need to buy resources in order to produce the goods/services purchased by households. In this chapter, we will focus on the resource market—the buying and selling of the factors of production.

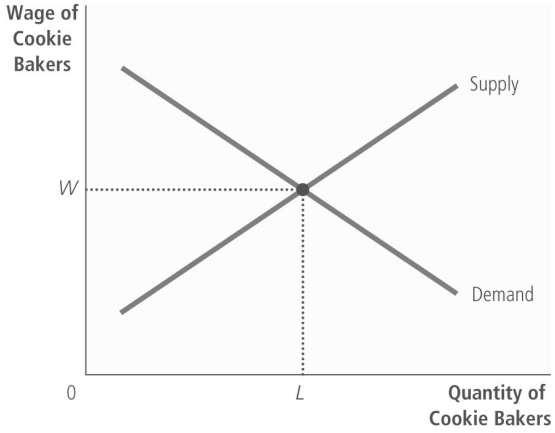
THE RESOURCE MARKET

(*Principles of Economics* 5th ed. pages 391–407/6th ed. pages 375–389)

Recall that the factors of production are the inputs used by firms to produce goods and services that are sold in the market. Land, labor, and capital are the three most important factors of production, although entrepreneurial ability is an important one as well. In our discussion of resource markets, we will focus on the labor market because it is a bit different from the market for land and capital (although we will address both at the end of the chapter as well).

The demand for labor is different from demand in the product market. The demand for labor is a **derived demand**, meaning that *it is dependent upon the product market demand*. It is very important for you to remember that, in the circular flow of the economy, there are two markets: the **product market***, where businesses supply* goods and services to households, who demand the goods and resources produced by businesses, and the resource market, where households supply their resources (mostly labor, but land and capital as well) in order to help businesses to produce the goods and services sold in the product market and businesses demand the resources provided by households. Suppose that a firm produces cookies in a competitive labor market. The cookie producing firm needs to decide how many

workers to hire and what wage to pay. In order to determine how many workers to hire and what to pay, the firm looks to the cookie *product market*—if there is a steadily increasing demand for cookies by cookie consumers, it is more likely that the cookie firm will hire more laborers to work in its kitchen since there is demand for cookies. This illustrates the point that labor market demand is derived from demand in the product market. The resource market graph looks very similar to a product market graph, but remember, a key difference is that in the resource market, businesses demand the resources (such as labor) provided by households. Refer to the following graph to see the market graph for workers in the cookie industry. Note that, instead of price on the y-axis and quantity on the x-axis, wages are on the y-axis because wages are the price/cost of labor and quantity of laborers is on the x-axis. The equilibrium wage rate is determined by the demand for and supply of laborers in the market.



AP Tip

Students often mislabel their resource market graphs. Remember that the cost of the resource goes on the y-axis while the quantity of the resource goes on the x-axis. It is very important to label your graphs accurately for the AP Microeconomics exam. Always check your textbook for the correct labeling of graphs. No labels = No points.

We assume, for now, that this particular cookie producing firm exists in a competitive resource market—that is, there are many other cookie producing firms looking to hire cookie laborers in the industry. Similar to the competitive product market, this means that cookie-producing firms in this resource market must take the resource market wage rate. Firms' demand for labor depends on how productive its workers are in comparison to the revenue that the firm receives from the sale of cookies, so the firm will look at the marginal product of labor and the product price in order to determine its labor demand. Recall from our discussion in Chapter 4 that the marginal product is the additional product produced with the hiring of one more worker. The demand for labor is also known as its **marginal revenue product**

(MRP),[1] *the extra revenue that each additional laborer adds to total revenue*.

The MRP = Marginal product of labor × Price of the product
= MP_L × P

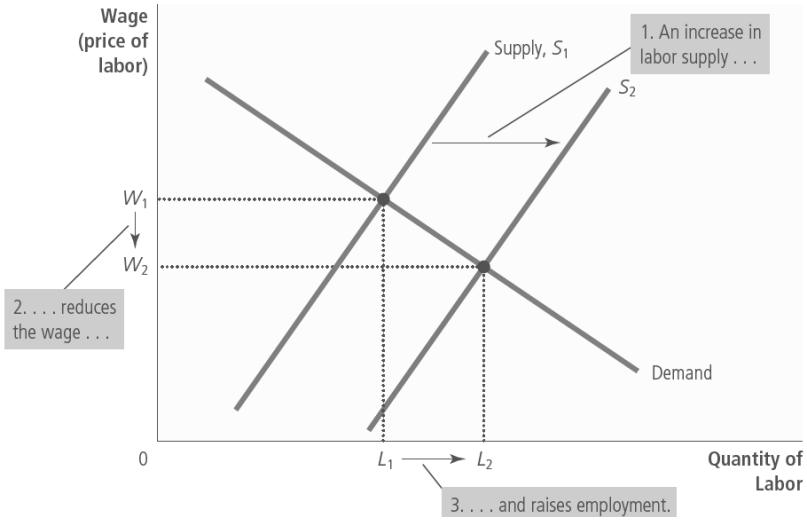
Marginal revenue product is also known as the "value of the marginal product."

The MRP, or the demand for labor, is downward sloping and shifts when: (1) there is a change in the price of the product (the output price), (2) there is technological improvement, and (3) there is a change in the supply of other factors. Since the MRP is determined by the MP_L and product price, which is also the market value of the output produced by that labor, holding all else constant, when the output price changes, the MRP changes as well—that is, when P increases, MRP should also increase and vice versa. A technological improvement can either increase or decrease MRP. Technological improvement can improve the marginal productivity of labor, but if the technological improvement acts as a substitute for labor, then the marginal productivity of labor will decline. This means that, in the case of a technological improvement, you need to read the AP question carefully in order to determine whether the technology *helps* labor productivity or *hurts* labor productivity by taking over the work of laborers. The supply of other factors may also affect the demand for labor because it can limit how many workers you can hire. For example, if there is a decrease in the number of ovens available to bake chocolate chip cookies, you will not be able to hire as many bakers for your chocolate chip cookie business.

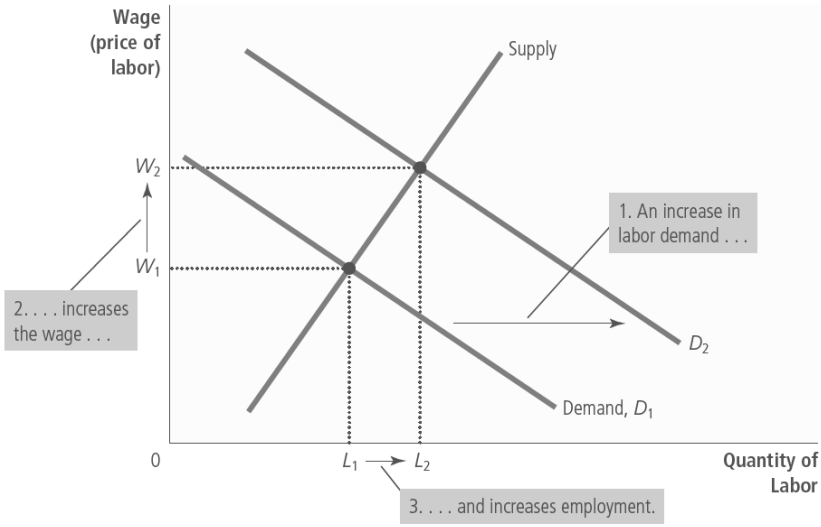
The supply of labor is an upward sloping curve and shifts when: (1) there is a change in work preferences, (2) there is an increase/decrease in the availability of alternative revenue-generating opportunities, and (3) there is a change in the number of people looking for work. More women may prefer to work in comparison to 50 years ago, which reflects a change in attitudes/preferences regarding work. When there are many other job alternatives, there will be a decrease in the supply of labor available for a specific resource market. Immigration usually leads to an increase in the labor supply because there are more people looking for work within specific markets. These are all examples of how the supply of labor can shift.

In order to determine the market equilibrium wage rate, let's take a quick look at how labor demand and labor supply work together using our cookie business example. Holding all else constant, suppose that there is a large immigration increase. This leads to an increase in the supply of workers looking for work as cookie bakers, but the demand for workers remains constant. The market wage rate falls and the number of cookie bakers employed increases. Refer to the graph below to see the result on the equilibrium wage rate.

[1]Note that in the *Principles* text, Mankiw refers to the MRP as the *value of marginal product*. This is the same as the MRP. The AP exam uses *marginal revenue product*.



Suppose, instead that the price of cookies has increased, holding all else constant. Since the demand for labor is a derived demand (dependent on the product market), the demand for labor (or the MRP) increases. The supply of labor remains unchanged, the wage rate increases, and the quantity of cookie bakers hired in the market increases. Refer to the following graph to see the result on the market.



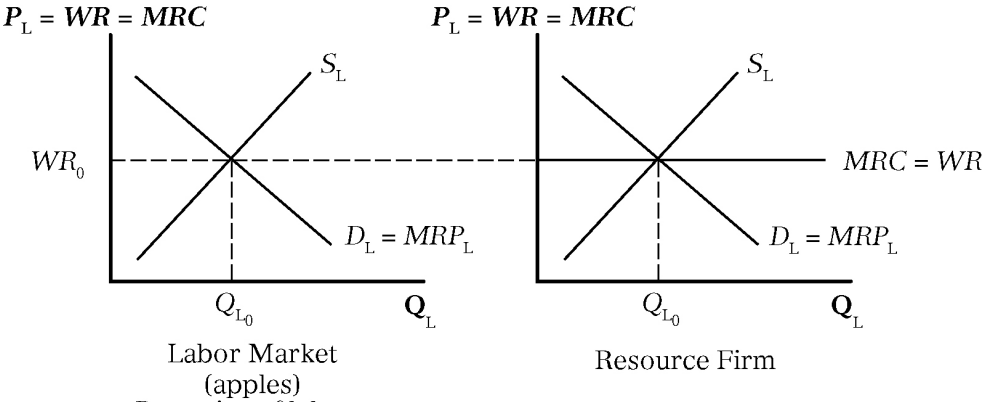
FIRMS IN THE RESOURCE MARKET

(*Principles of Economics* 5th ed. pages 395–398/6th ed. pages 377–389)

Similar to the competitive product market, the competitive resource market also consists of many buyers and sellers. The key difference is that the firms are buying resources, such as labor, instead of output. Firms within a competitive resource market are wage-takers, meaning that since there are so many firms in the market, no single firm can influence the wages paid to workers and, therefore, each firm in the competitive resource market must *take* the market equilibrium wage rate. The wage rate (WR) is also the firm's **marginal resource (or**

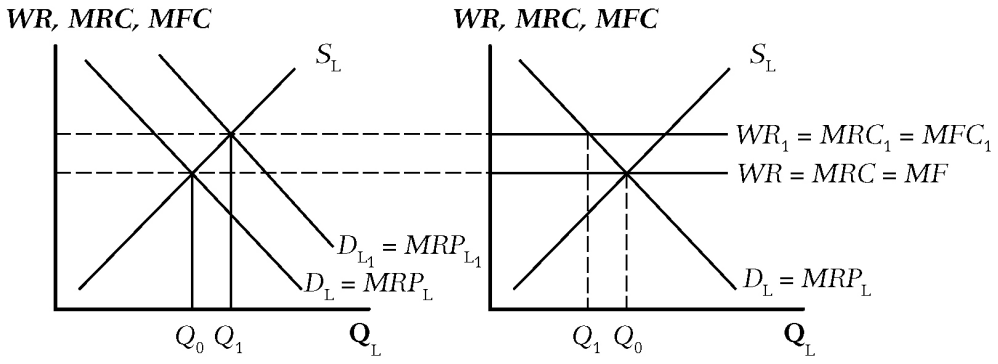
factor) cost (MRC or MFC), *the extra cost associated with the hiring of an additional worker*. The firm in the resource market, your apple farm for example, will choose to hire the number of workers where the demand for labor is equal to the marginal resource cost of labor. In other words, you will hire where the **marginal revenue product (MRP) = marginal resource cost (MRC)**. All profit-maximizing resource firms want to hire where MRP = MRC because this maximizes their profit.

Note that this is very similar to the MR = MC rule in the competitive product market, but this is also very different, because we are talking about *resource* revenue and costs. Refer to the following graph to see side-by-side graphs of the resource market and the firm in equilibrium. You do not need to include all three labels on the y-axis. We have included these options to show what you may include, but any one of these options will do. Note that, where MRP = MRC, the resource firm maximizes its revenue per worker hired.



P_L = price of labor
WR = wage rate
MRC = marginal resource cost
$P_L = MRP_L$ = marginal revenue product

Remember that a perfectly competitive resource market is similar to the perfectly competitive product market in that there are many buyers and sellers, it is easy to enter and exit, and it produces an identical product. The key difference is that, in the resource market, businesses are buying the resources sold by households and the labor skills offered are identical. The behavior of any firm that exists in this type of perfectly competitive resource market is therefore highly dependent upon the activities in the resource market. Suppose that we have a perfectly competitive resource market for unskilled labor. When the demand for unskilled labor increases in the resource market, the equilibrium wage rate paid for unskilled labor increases. Any firm hiring unskilled workers must take (or pay) the higher wage to its workers, thus decreasing the number of unskilled workers it hires. Refer to the following graph to see the changes in the wage rate and quantity of unskilled laborers hired.



Unskilled Labor Market

Firm Hiring in Unskilled Labor Market

Please note that, when the market equilibrium wage rate increases, the firm's MRC will also increase. This is because the firm must take and pay the industry wage rate, which means that its marginal resource cost increases. Refer to the above side-by-side graphs to see the firm's response to a market wage rate change. The firm faces a higher MRC and therefore, hires fewer workers at this higher wage rate.

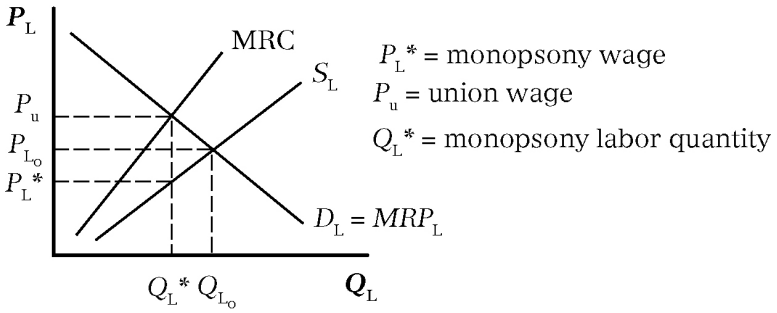
AP Tip

The AP Microeconomics exam emphasizes both the product market and the resource market. It is important for you to know how to graph side-by-side resource firm and market graphs and how a change in the product price may affect both the resource firm and the market.

MONOPSONY

(*Principles of Economics* 5th ed. page 406/6th ed. page 389)

Up until this point, we have built our analysis of labor markets on the assumption that they are competitive (that there are many buyers and sellers in the market so that each buyer or seller cannot effectively influence the wage rate). It is possible, especially in remote areas, that a single firm is the only source of employment. *A resource market in which there is a single buyer of labor* is called a **monopsony**. Similar to the monopoly in the product market, the monopsonist hires fewer workers than the competitive firm and pays a lower wage. The following graph illustrates the monopsony's resource maximizing decision:



Monopsony

The marginal resource cost (MRC) is steeper than the labor supply curve because, in order to hire more workers, the monopsonist must increase wages for *all* workers. This rationale is very similar to why the marginal revenue (MR) curve is steeper than the demand curve for a monopoly. Since the monopsonist faces an upward sloping labor supply curve, the firm must offer a higher wage to hire an additional worker. The monopsonist cannot wage discriminate (offer different employees different wages for the same work), so in order to hire enough workers, the monopsonist must increase wages for all workers so that every worker is paid the same for the same work. This increases the marginal resource cost (MRC) and explains why it is steeper than the labor supply curve. The monopsonist, similar to the competitive resource firm, still hires where MRP = MRC. The difference is that, since the monopsonist is the sole *demander* of labor, it can pay a lower wage, P_L*, and hire fewer workers, Q_L*, than the competitive resource firm (who hires at P_{L0} and Q_{L0}). Unless there is a union to negotiate on behalf of the workers, the monopsonist will pay the lower wage. We have included a potential union wage, P_U, to illustrate the maximum wage a union might help to negotiate for workers in a monopsonist market.

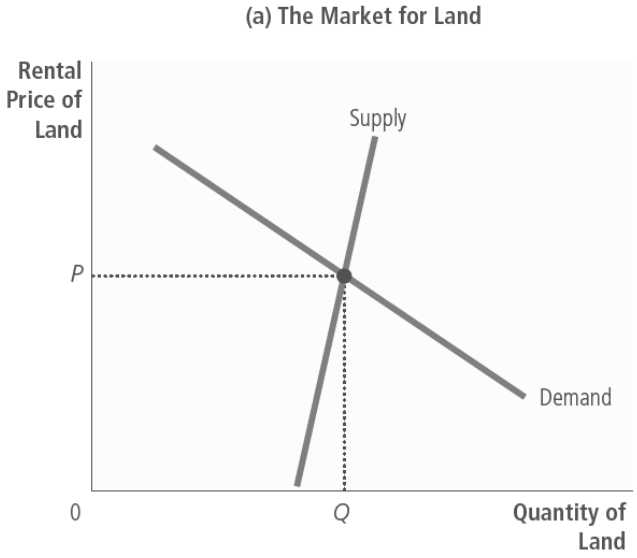
AP Tip

While not generally on the AP Microeconomics exam, the monopsony did show up as a free-response question on the most recent exam, so it would be helpful for you to study the monopsony graph on page 173.

OTHER RESOURCES: LAND AND CAPITAL

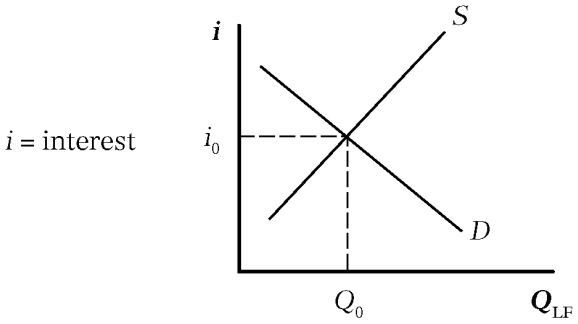
(*Principles of Economics* 5th ed. pages 405–410/6th ed. pages 389–393)

Now that we understand how firms determine how much labor to hire and how much to pay its workers, we will move our discussion to other factors of production, land and capital. The markets for land and capital are very similar to the market for labor. The following is a graph of the market for land.



Note that the supply curve is very inelastic. This is because the quantity of land is limited. In some cases, the supply of land may even be perfectly inelastic. The price paid for the use of land is called **its rental price**. Recall our circular flow model in Chapter 1. Firms buy factors of production (land, labor, capital, and entrepreneurial ability) from households while households receive wages, interest, rent, and profit in return. Wages are paid in exchange for labor. Rent is paid in exchange for land. Interest is paid in exchange for capital. Profit is paid in exchange for entrepreneurial talent. The rest of the land market graph is familiar—a downward sloping demand curve and quantity of land on the x-axis.

The market for capital (recall that capital is the equipment or structures used to produce goods and services) is also very similar to the labor market. The following is a graph of the market for capital.



Market for loanable funds

The market for capital is determined by the interest rate in the loanable funds market, which is a macroeconomic concept that we discuss in the Macroeconomics section of this book. Since capital is usually very expensive, firms often need to borrow money in order to purchase the capital necessary for production. Note in the graph that interest, *i*, is on the y-axis, while the quantity of loanable funds, Q_{LF}, is on the x-axis. In both markets, the market for land and capital, the

laws of supply and demand apply—any change to one of the supply or demand determinants will shift the curve and affect the equilibrium price and quantity.

What happens when a firm wants to use more than one resource? What if a firm wants to hire labor and use capital equipment in its production process? How does a firm decide what combination of resources will maximize profit? We know that, if a firm uses one resource, the profit maximizing rule is to hire where MRP = MRC. When a firm uses more than one input in its production process, it wants to hire a combination of inputs where costs are minimized. The **least cost rule** states that *a firm should hire a combination of resources so that the last dollar spent on each resource results in the same marginal product*. Stated another way:

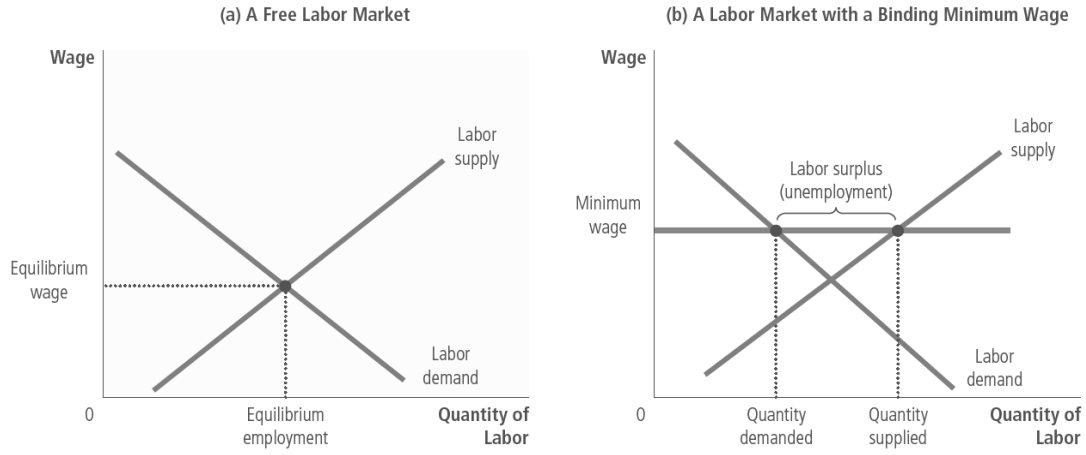
$$\frac{\text{Marginal Product of Labor } (MP_L)}{\text{Price of Labor } (P_L)} = \frac{\text{Marginal Product of Capital } (MP_C)}{\text{Price of Capital } (P_C)}$$

A profit maximizing firm should hire multiple resources so that the marginal product of each resource per dollar spent on each resource are equal.

PUBLIC POLICY AND THE RESOURCE MARKET

(*Principles of Economics* 5th ed. pages 414–429/6th ed. pages 397–411)

The U.S. government does sometimes intervene in the resource market. For example, the government has implemented a policy that all employers must pay their employees a living, or minimum wage. A minimum wage works to increase wages in markets that have a low market equilibrium wage rate. A minimum wage is a price floor—it increases wages, but results in a surplus of laborers (unemployment). Refer to the following graph to see the result of a minimum wage policy on the market.



The graph on the left shows a labor market without government intervention. Suppose the government intervenes and sets a price floor, a minimum wage law, that increases the wage paid to all workers hired in the market. Note that the quantity of workers

demanded at this higher, minimum wage rate decreases while the quantity of workers supplied is higher. The implementation of a minimum wage results in unemployment, which is marked by the difference between the quantity of labor supplied and the quantity of labor demanded.

AP Tip

Remember that, in the resource market, MRP = MRC. MRP stands for *marginal* ***revenue*** *product,* while MRC stands for *marginal* ***resource*** *cost*. Students often confuse these two. Make sure that you know the difference. Another way to remember the resource maximizing rule is this:

MRP = MRC = MFC (marginal *factor* cost)

THE MARKET FOR RESOURCES: STUDENT OBJECTIVES FOR THE AP EXAM

You should be able to:

- Define all key terms in bold
- Graph: side-by-side competitive resource market and firm, monopsony, and land and capital markets
- Analyze resource firms' hiring options

MULTIPLE-CHOICE QUESTIONS

1. The marginal resource cost (MRC) curve of a firm hiring resources in a competitive resource market
   (A) is always more elastic than the resource market supply curve.
   (B) is equal to the resource market supply curve.
   (C) lies below the resource market supply curve because the higher wage paid to an additional worker must also be paid to all other employees.
   (D) is unit elastic.
   (E) lies above the resource market supply curve because the higher wage paid to an additional worker must also be paid to all other employees.

2. The critical feature of a monopsonistic labor market is that the employer
   (A) faces an upward sloping labor supply curve.
   (B) faces a perfectly inelastic labor supply curve.
   (C) has a perfectly elastic demand curve for labor.
   (D) can hire any number of workers it chooses at the "going" wage rate.
   (E) must also be a monopolist in the product market.

3. Which of the following statements is not correct?
   (A) A firm hiring in a competitive resource market will hire where MRP = MRC.
   (B) A monoposony will hire where MR = MC.
   (C) A purely competitive seller will pay workers a wage rate equal to their MRP.
   (D) An imperfectly competitive seller will pay workers a wage rate equal to their MRP.
   (E) A union will bargain for wages above the equilibrium wage rate.

4. Resource market demand is a derived demand because
   (A) the firms hiring in the resource market take the market wage rate.
   (B) it is dependent upon the demand for output produced by the labor.
   (C) the equilibrium wage in the labor market is determined by the number of firms hiring in the resource market.
   (D) the labor supply curve for the firm is perfectly elastic.
   (E) the market labor supply curve is upward sloping.

5. Labor, capital, and natural resources are all examples of which of the following?
   (A) Public goods
   (B) Inferior goods
   (C) Factors of production
   (D) Output
   (E) Substitutes in production

6. The market demand curve for labor (MRP_L) will shift to the right when
   (A) the number of firms increases.
   (B) the price of output decreases.
   (C) the labor supply curve shifts to the right.
   (D) the labor supply curve shifts to the left.
   (E) the marginal product of labor increases.

7. The relationship between the marginal revenue curve and the demand curve for a monopoly is most similar to the relationship between the marginal resource cost (MRC) curve and what curve for a monopsony?
   (A) Labor demand
   (B) Labor supply
   (C) Marginal external cost
   (D) Total cost
   (E) Marginal cost

8. The value of the marginal revenue product (MRP) of labor always equals the marginal resource cost (MRC) of labor for which type of firm?
   (A) Perfectly competitive resource firm
   (B) Monopolistically competitive firm
   (C) Monopoly
   (D) Perfectly competitive product firm
   (E) Oligopoly

9. When a perfectly competitive labor market is in equilibrium,
   I. firms hiring in the labor market hire where MRP = MRC
   II. firms hiring in the labor market face downward sloping labor demand curves
   III. market demand is derived from the product market
   (A) I only.
   (B) II only.
   (C) III only.
   (D) I and II only.
   (E) I, II, and III.

Use the following data for Questions #10–13:

Number of Waiters	Number of Dinners That Can Be Served
0	0
1	50
2	75
3	97
4	104
5	109
6	110

10. The law of diminishing returns first occurs with the hiring of which waiter?
    (A) The 1st waiter
    (B) The 2nd waiter
    (C) The 3rd waiter
    (D) The 4th waiter
    (E) The 5th waiter

11. Assume that the restaurant owner will employ a waiter for $35/night. If each dinner served costs the consumer $5, what is the marginal revenue product of the 5th waiter?
    (A) $60
    (B) $50
    (C) $35
    (D) $25
    (E) $5

12. Assume that the owner will employ a waiter for $35/night. If each dinner served costs the consumer $5, how many waiters will the owner hire?
    (A) 3 waiters
    (B) 4 waiters
    (C) 5 waiters
    (D) 6 waiters
    (E) An indeterminate number of workers

13. Assume that each dinner served costs the consumer $5. Then the government passes a law requiring that all restaurant workers must be paid a daily wage of $50. How many waiters will the restaurant owner hire?
    (A) 2 waiters
    (B) 3 waiters
    (C) 4 waiters
    (D) 5 waiters
    (E) An indeterminate number of workers

14. If a firm wants to use multiple resources to produce a given amount of output at the lowest possible cost, it should use each resource in such a manner that
    (A) it uses more of the less expensive resource.
    (B) it uses more of the resource with the highest marginal product.
    (C) each resource has just reached the point of diminishing marginal returns.
    (D) the marginal products of each resource are equal.
    (E) the marginal products per dollar spent on each resource are equal.

15. Holding all else constant, if there is an increase in the immigration of unskilled laborers, which of the following labor market changes is most likely to occur?
    (A) The unskilled labor supply curve will shift to the left, increasing the wage rate and decreasing the quantity of unskilled laborers hired.
    (B) The unskilled labor supply curve will shift to the right, increasing the quantity of unskilled laborers hired and decreasing the wage rate.
    (C) The marginal revenue product curve will shift to the right, increasing the wage rate.
    (D) The marginal revenue product curve will shift to the left, reducing employment.
    (E) Neither the marginal revenue product curve nor the supply curve will shift, but the wage will increase and employment will fall.

FREE-RESPONSE QUESTIONS

1. The table below describes the production function for your apple picking business. Suppose that you can hire as many workers as you want to help you pick apples for $75 a day. You can sell your apples for $5/dozen.

Number of Workers	Dozens of Apples Picked
3	60
4	80
5	105
6	125
7	140
8	150

(a) Given the production information above, respond to each of the following:
   (i) Draw a side-by-side market and firm graph showing your firm's demand and supply curve for workers.
   (ii) Explain how you will determine the number of workers to hire.
   (iii) Indicate how many workers you will hire on your graph drawn for part (i) above.
   (iv) In what type of resource market does your apple picking business operate? Explain.

(b) Assume that the government imposes a minimum daily wage in the apple market. The new minimum wage rate at which you can hire all the workers you want is now $120/day and the selling price of apples is now $6.

(c) Explain how your demand for workers will change graphically and with words. Please be sure to indicate how many workers you will hire and how many dozens of apples you will sell on your graph.

2. Assume that a small town firm is a monopsony.
   (a) Draw the monopsonist's labor market graph and show the following:
   (i) The number of workers hired by the monopsony
   (ii) The wage rate paid to workers hired by the monopsony
   (b) Using the same graph as in part (a), compare the monopsonist's wage and the number of workers hired to the wage and number of workers hired by the competitive resource market. Explain why there is a difference between the two markets.

Answers

Multiple-Choice Questions

1. **A.** A firm hiring resources in a competitive resource market must take the market wage and therefore, its marginal resource cost (MRC) is going to be the same for every resource unit hired. The firm's MRC curve is perfectly elastic (*Principles of Economics* 5th ed. page 405/6th ed. page 389).

2. **A.** Without an upward sloping labor supply curve, the monopsonist would be able to hire a given number of workers at any wage rate (assuming that the only alternative to an upward sloping supply curve is that there is a perfectly inelastic supply curve). The upward sloping supply curve is the feature that makes the MRC curve steeper than the labor supply curve and determines the number of workers hired and the wages that they are paid in a monopsonistic market (*Principles of Economics* 5th ed. page 405/6th ed. page 389).

3. **B.** All firms hiring in resource markets maximize the use of their resources where MRP = MRC. This means that a

monopsony also hires where MRP = MRC. MR = MC is the profit maximizing production output in the product market, not the resource market (*Principles of Economics* 5th ed. page 405/6th ed. page 389).

4. **B.** The demand for resources depends on the output price, which is determined by product demand and supply (*Principles of Economics* 5th ed. pages 391–399/6th ed. pages 376–383).

5. **C.** Factors of production include: land, labor, capital, and entrepreneurial ability. These are also refered to as inputs or resources (*Principles of Economics* 5th ed. pages 391–392/6th ed. pages 375–376).

6. **E.** MRP = MP × P. When MP increases, MRP increases (*Principles of Economics* 5th ed. pages 395–398/6th ed. pages 380–382).

7. **B.** For the monopoly, the MR is steeper than the D-curve. For the monopsonist, the MRC is steeper than the labor supply curve (*Principles of Economics* 5th ed. page 405/6th ed. page 389).

8. **A.** Of the five options, "wage taking" is the only resource firm. The profit maximization rule in the resource market is where MRP = MRC. All of the other options are product firms, where MR = MC is the profit maximization rule (*Principles of Economics* 5th ed. pages 392–405/6th ed. pages 379–389).

9. **E.** All three statements are true. Firms in a competitive labor market hire where MRP = MRC, but they still face a downward sloping labor demand curve (MRP_L) and have a perfectly elastic MRC = MFC = WR curve since they are wage takers. The resource market demand is derived from the marginal product of the resource and the product price (*Principles of Economics* 5th ed. page 396/6th ed. page 380).

10. **B.** By hiring one waiter, the number of dinners served increases from 0 to 50. When the second waiter is hired, the number of dinners served increases from 50 to 75. Although still increasing, the second waiter's marginal product is 25 in comparison to the first waiter's marginal product of 50 (*Principles of Economics* 5th ed. pages 561–562/6th ed. pages 541–542).

11. **D.** The MP_L of the 5th waiter is 5 dinners. Multiply this by the product price of $5, the MRP_L of the 5th waiter is $25 (*Principles of Economics* 5th ed. pages 395–396/6th ed. pages 380–381).

12. **B.** The MP_L of the 4th waiter is 7 dinners. Multiply this by the dinner price of $5, the MRP = $35, which is also equal to the

MRC = $35 (*Principles of Economics* 5th ed. pages 395–396/6th ed. pages 380–381).

13. **B.** The firm should hire 3 waiters. The MP_L of the 3rd waiter is 22 dinners. The MRP of the 3rd waiter is $110 ($22 × $5). Although this is considerably higher than the MRC of $50, it is better than hiring 4 waiters, where the MRP_{4th} = $35. When MRP does not equal to MRC, you want to err on the side of a higher MRP than MRC, so that you don't lose money. Note that, with a minimum wage law, the restaurant hires fewer waiters, resulting in at least one waiter who is now unemployed (*Principles of Economics* 5th ed. pages 395–396/6th ed. pages 380–381).

14. **E.** This is the least cost rule. A profit maximizing firm should hire multiple resources so that the marginal product of each resource per dollar spent on each resource are equal (*Principles of Economics* 5th ed. pages 391–409/6th ed. pages 375–393).

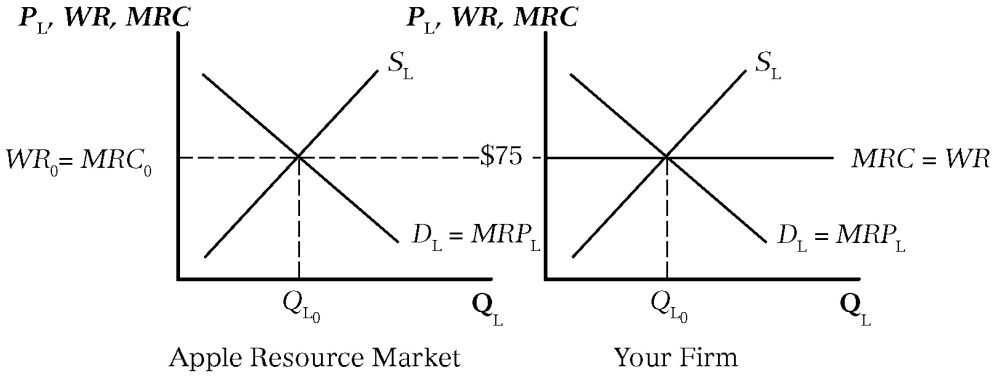
15. **B.** An increase in the number of unskilled laborers will increase the supply of unskilled laborers in the unskilled labor market. This increase in supply will increase the number of unskilled laborers hired in the market and will lower the equilibrium wage rate paid to the workers who are hired (*Principles of Economics* 5th ed. pages 396–405/6th ed. pages 380–389).

Free-Response Questions

1. The MRC = $75 and the output price = $5.
Here is the MP_L for each worker hired:

Number of Workers	Dozens of Apples Picked	MP_L
3	60	
4	80	20
5	105	25
6	125	20
7	140	15
8	150	10

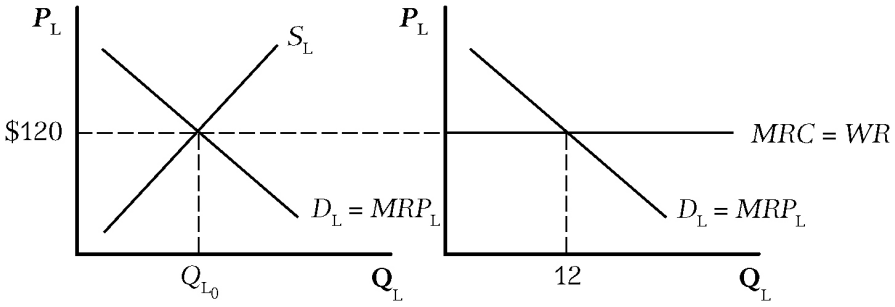
(a) Refer to the following graph.



You will determine the number of workers to hire where MRP = MRC. Since the 7th worker's marginal product is 15, you would hire 7 workers because the MRP = 15 × $5 = $75, which is equal to the MRC of $75. Your apple picking business is a firm in a competitive resource market. You should know this because your firm is always taking the market wage.

(b) The MRC is now $120 and the output price is $6. Since the output price has increased, the demand for labor also increases. You should now hire 12 workers, because the $MRP_{12th\ worker}$ = $120, which is equal to MRC of $120.

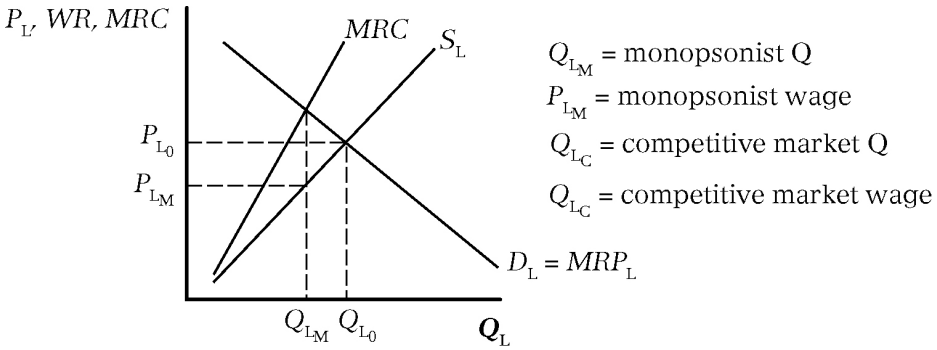
Notice again, that with a minimum wage, you hire fewer workers.



Apple Resource Market Your Firm

(*Principles of Economics* 5th ed. pages 396–405/6th ed. pages 375–389)

2. (a) Refer to the following monopsony graph. The number of workers hired is determined by MRP = MRC and the wage paid is determined by the number hired and the labor supply curve. (The 2011 AP Microeconomics Form B exam asks a similar monopsony question that you can also refer to.)



Monopsony

(b) The monopsonist's wage is lower than a competitive firm's wage. The monopsonist hires fewer workers than a competitive firm. The monopsonist is the sole supplier of jobs and therefore, can pay a lower wage and hire fewer workers. (*Principles of Economics* 5th ed. page 405/6th ed. page 389)