Unit 4, Lesson 21

Activity 1

Diminishing Marginal Returns and the Demand for Labor

The law of diminishing marginal returns states that *as more of a variable resource is added to a fixed resource, the marginal (additional) output from the variable resource will eventually decline.*

What does this mean? If you were making greeting cards and you only had one scissors and two markers, these resources would be *fixed*. But if you could hire as many workers as you wanted, labor would be a *variable* resource. Your output would be the greeting cards. If you add more workers to the fixed number of scissors and markers, soon there wouldn't be enough scissors and markers to go around. Things would get crowded, and worker productivity would fall as you continued to add workers.

The law of diminishing marginal returns has impor-tant implications for business decisions such as how many workers to hire. To see this, look at the following example of a class's greeting card production. Use the information to answer the questions that follow.

1. Number of Workers	2. Number of Cards Produced	3. Marginal Product of Labor	4. Value of Marginal Product (Price = $2)
0	0	---	---
1	4	4	$8
2	9	5	$10
3	15		
4	20		
5	24		
6	26		
7	27		
8	27		

1. The **Marginal Product of Labor** is the additional output from adding one more worker. When there were 0 workers, 0 cards were produced. When there was one worker, 4 cards were produced. Therefore the marginal product of the first worker was 4. When a second worker was added, the number of cards produced went up to nine. The marginal (additional) output from the second worker was 5 (9 minus 4).

A. Use this idea to fill in the rest of the third column.

B. With which worker does diminishing marginal returns first occur?
   _____.

   Hint: diminishing marginal returns set in when the marginal product of labor falls. Use this idea to fill in the rest of the fourth column.

2. The **Value of the Marginal Product** refers to the revenue the business would earn from selling the additional cards made by each worker. Let's say the cards would sell for $2 each. Therefore, the value of the cards produced by the first worker would be $8 ($4 times 2 cards). The value of the cards produced by the second worker would be $10 ($2 times 5 cards).

3. **How Many Workers Should You Hire?** The economic way of thinking says that when you are deciding whether to do something, you should compare the marginal benefits to the marginal costs. If the marginal benefits are greater, do it! If the marginal costs are greater, don't do it. Let's apply this idea to the decision of whether or not to hire one more worker to make greeting cards. Assume that the greeting card firm is interested in making as much profit as possible.

Marginal Cost: Assume that the only cost the business has is paying its workers; everything else has been donated. The cost of hiring each worker for the time period involved is $5. That is, the marginal cost of hiring another worker is $5.

Marginal Benefit: From column four we know the value that each worker would bring to the business if he or she were hired. In this example, the marginal revenue product gives the marginal benefit of hiring each worker.

Thinking at the Margin: The first worker brings in $8 in revenue, and would cost the firm $5. Would the firm hire this worker? Of course. Hiring this worker would add $3 to the firm's profit. Would the firm hire the second worker? Yes: the second worker would bring in $10 in revenue while costing the firm $5, so hiring the second worker would be profitable also. Do this same analysis for additional workers until you reach a point where it is no longer profitable to hire another worker.

- How many workers would the business be willing to hire at the rate of $5? _____