

## Marginal Analysis

### Introduction and Description

When you get right down to it, economics is really about how much of something we should do. Because of scarcity, we cannot have everything we want. Therefore, we have to make decisions about how to allocate our time, money, and resources among the many different uses of these limited items. *Marginal analysis* is the tool economists use to make these allocation decisions. The idea of marginal analysis is quite simple: If the *marginal benefit* from another unit of some activity exceeds the *marginal cost* of that unit, you should undertake that extra unit of the activity. If the marginal benefit of the extra unit is less than the extra cost of that unit, do not take on the extra unit. (As a rule of thumb, if the marginal benefit and marginal cost of an extra unit are equal, economists say go ahead with that unit.) This lesson gives students some experience working with marginal analysis. Stress to students that they need to be clear in their answers about the difference between a “marginal” value (such as marginal benefit or marginal cost) and a “total” value (such as total benefit or total cost). This distinction makes a big difference in how well a student performs on the AP Microeconomics Exam.

### Objectives

1. Understand why we all have to make decisions.
2. Define the terms marginal benefit, marginal cost, total benefit, and total cost.
3. Explain that economic decision making often focuses on a comparison of marginal benefit and marginal cost to determine how many units of an activity should be provided.
4. Emphasize the difference between marginal concepts and total concepts.

5. Explain that *the economic way of thinking* results in effective decisions being made.

### Time Required

One class period or 45 minutes.

### Materials

Activity 1-11

### Bell Ringer

Will you do all you can to get an A on your next economics exam?

**Teacher Alert:** Students must understand the difference between marginal concepts and total concepts. If students have this distinction clear in their minds early in the course, your job of teaching the material related to the firm and the factor markets will be easier and much more enjoyable!

### Procedure

1. Ask students, “Who will do all you can to earn an A on your next economics exam?” Count the many hands that will be waving. Ask them why they want an A. What is the benefit of an A over a B or a C? (*Answers will include a better report card, happier parents, and student satisfaction.*) Now ask them what they will have to give up to study the amount of time needed to make an A on their next exam. (*Answers will include time with friends, sleeping, gaming, working at a job, time with family, watching television, and, hopefully, studying for an exam in another course.*) Given the marginal cost of each extra hour devoted to studying for your exam, compared to the marginal benefit of receiving an A rather than a B or a C, ask students how many hours they are *really* willing to devote to your exam.

2. Here's another quick example to demonstrate marginal analysis. Ask which students have a one dollar bill with them. Pick one of those students to stand in the front of the room with you. Give that student an unsealed envelope with \$0.85 in it but do not let the rest of the class know what is in the envelope. Ask the student if he/she will give you the dollar bill for what is in the envelope. Have the student look in the envelope and give you an answer. (The answer should be "No," of course.) Now quietly slip a quarter in the envelope so it contains \$1.10. Ask the student a second time if he/she will give you the dollar bill for what is in the envelope. When the student accepts this offer, take the dollar bill and let the student keep the envelope and the \$1.10. Now get the rest of the class involved. Ask the class why the student rejected the first offer; make them use the economic terms "marginal benefit" and "marginal cost." (*They will say because the marginal benefit was less than the marginal cost.*) Why did the student accept the second offer? (*Because the marginal benefit was greater than the marginal cost.*) Here is where they learn an important lesson on marginal analysis. Ask the volunteer student how much was in the envelope the first time: \$0.85. When you ask the class what the volunteer's marginal benefit would have been if he/she had accepted the first offer, most students will say a loss of \$0.15, or negative \$0.15. But the correct answer is \$0.85 because that is what the student would have received. The marginal cost to the volunteer of getting the envelope would have been \$1.00.

Thus, because the marginal benefit of \$0.85 was less than the marginal cost of \$1.00, the volunteer wisely rejected the offer. But what is the economic name for the loss of \$0.15? It is called the *net marginal benefit (NMB)* because it is the difference between marginal benefit (MB) and marginal cost (MC):  $NMB = MB - MC$ . If the NMB of an activity is negative, a person should not pursue that activity. For the second offer, the MB of \$1.10 was greater than the MC of \$1.00, so the volunteer agreed to the deal. The NMB of the exchange was +\$0.10. If the NMB is positive, a person should say "Yes" to the activity. (This simple example can be used again when you take students into Unit 3 where a firm must decide how many units of output it should produce to maximize its total profit. That answer will come from marginal analysis as the firm compares the marginal revenue with the marginal cost of each extra unit of output. The net marginal benefit in that context will be called *marginal profit*.)

3. Have students complete Activity 1-11. Discuss the answers with them.
4. Ask students if marginal analysis means that they should do all they can to complete an assignment or an activity to the best of their abilities, regardless of the cost? (*They should compare the MB and the MC of each extra unit of the activity. If the MB is greater than [or equal to] the MC, they should undertake the next unit of the activity. If the MB is less than the MC, they should not undertake that unit.*)