

## Absolute Advantage and Comparative Advantage, Specialization and Trade

### Introduction and Description

Activity 6 introduces *absolute advantage* and *comparative advantage*. Although these concepts are covered in more detail in the international-trade unit in Macroeconomics, they explain economic activities intranationally as well. Students who take the AP Microeconomics Exam will be tested on them.

People trade because both parties stand to benefit when they engage in voluntary exchanges. Comparative advantage is a powerful concept that helps explain how mutual benefits can occur from exchange. A nation and an individual have a comparative advantage when they can make one or more products at a lower opportunity cost than another nation or individual. When producers specialize in the lower-cost product, they can make additional goods, which they can trade to other producers for goods that would have been more costly to make. To determine a comparative advantage, costs must be measured in terms of what other products must be forgone to make a particular product. This relative measure is a subtle, difficult and very important idea for students to understand. A nation's or an individual's comparative advantage will change as the opportunity costs of products made available by different trading partners change.

### Objectives

1. Define *comparative advantage* and *absolute advantage*.
2. Describe and give examples of the law of comparative advantage.
3. Explain how both parties in a trade gain from voluntary exchange.
4. Define *specialization* and *exchange*.
5. Use data to determine absolute and comparative advantage.

### Time Required

One class period or 45 minutes

### Materials

1. Activity 6
2. Visuals 1.4 and 1.5

### Procedure

1. Begin with a discussion about the benefits of trade. Ask the students what life would be like if every person had to be totally self-sufficient and could not specialize and trade. Emphasize the point that individuals, not nations, trade. However, specialization and trade can be accomplished both domestically and internationally. The more we trade, the better off we all are.
2. Use Visual 1.4 to distinguish between absolute advantage and comparative advantage. Provide examples of absolute and comparative advantage. Discuss the two examples on Visual 1.4.
  - (A) What if a lawyer can do word processing faster than any secretary she can hire? The lawyer has an absolute advantage in the practice of law and in word processing. Should she hire the secretary? *Yes, because the opportunity cost of the lawyer's time spent as a secretary is very high, perhaps \$100 an hour or more. She could hire more than one secretary for this amount and still come out ahead.*
  - (B) The doctor/nurse situation is the same as the lawyer/secretary situation.
3. Use Visual 1.5 to illustrate absolute and comparative advantage using outputs. You might calculate the opportunity cost of a CD and of a pound of beef for the students; this is similar to what is done in Activity 6. Show that the comparative advantage for each product

depends on which country produces the product at the lower opportunity cost. The example assumes Canada and Japan have the same resources, since the table contains output. Canada has an absolute and comparative advantage in beef. Neither has an absolute advantage in CDs, but Japan has a comparative advantage.

4. Tell the students that they are now going to do an activity that illustrates the same concept of comparative advantage using inputs (minutes or hours to produce a good) and outputs (number of goods produced per hour or per minute). In either case, the key is that if one party trades the good for which it has the lower opportunity cost for the good for which the other party has the lower opportunity cost, both parties gain.
5. Have the students read Activity 6 through Part A. Then carefully review the examples until they get the math right.
6. Now ask questions such as these to make sure the students understand the concept of comparative advantage:
  - (A) How do you determine who has a comparative advantage in producing a good or service? *The person who can produce the good at the lower opportunity cost has the comparative advantage.*
  - (B) Why is comparative advantage important? *If people trade on the basis of comparative advantage, they will gain by having more goods at the same cost or the same goods at a lower cost.*
  - (C) Why does it matter if Ty and Jessica save 35 minutes by specializing in what they do comparatively better? *They can cut and trim more lawns in a week and therefore earn more income, or they can use the 35 minutes to do something else. They are better off.*
  - (D) Why should Mark and Doreen specialize in what they have a comparative advantage in? *Their output of installations of radios and speakers increases. They earn more income, and consumers obtain more service.*
7. Have the students answer the questions in Part B.
8. Go over the answers to the questions.

## Opportunity Cost and Comparative Advantage

### Part B: Questions

1. What is the difference between comparative advantage and absolute advantage? *Absolute advantage states that a particular individual or country can produce more of a specific commodity than another individual or country using the same amount of resources. Comparative advantage states that a particular country or individual can produce a specific commodity at a lower opportunity cost (in terms of forgone production in an alternative commodity) than another country or individual.*
2. You're given the following information about a newlywed couple and the time it takes each of them to do two different chores: vacuuming a room or washing a load of dishes.

	Mike	Debbie
Vacuum a room	60 minutes	45 minutes
Wash a load of dishes	30 minutes	45 minutes

- (A) What is Mike's opportunity cost of vacuuming in terms of washing dishes?  
*Washing two loads of dishes*
- (B) What is Mike's opportunity cost of washing dishes in terms of vacuuming?  
*Vacuuming 1/2 of a room*
- (C) What is Debbie's opportunity cost of vacuuming in terms of washing dishes?  
*Washing one load of dishes*
- (D) What is Debbie's opportunity cost of washing dishes in terms of vacuuming?  
*Vacuuming one room*
- (E) Who has the *absolute* advantage in vacuuming? Debbie
- (F) Who has the *absolute* advantage in washing dishes? Mike
- (G) Who has the *comparative* advantage in vacuuming? Debbie
- (H) Who has the *comparative* advantage in washing dishes? Mike
- (I) Who should do which chore and why? Base your answer only on the information above and on comparative-advantage considerations. *Mike should wash dishes and Debbie should vacuum. They will finish their chores sooner by specializing according to their comparative advantage. The person with the lower opportunity cost should perform the chore.*

3. Now, you're given the following information about Andy and Hannah and the time it takes each of them to clean an office and clean a jail cell:

	Andy	Hannah
Cleaning offices	60 minutes	20 minutes
Cleaning jail cells	30 minutes	15 minutes

- (A) What is Andy's opportunity cost of cleaning offices in terms of cleaning jail cells?  
*Cleaning two jail cells*
- (B) What is Hannah's opportunity cost of cleaning offices in terms of cleaning jail cells?  
*Cleaning  $\frac{4}{3}$  of a jail cell*
- (C) What is Andy's opportunity cost of cleaning jail cells in terms of cleaning offices?  
*Cleaning  $\frac{1}{2}$  of an office*
- (D) What is Hannah's opportunity cost of cleaning jail cells in terms of cleaning offices?  
*Cleaning  $\frac{3}{4}$  of an office*
- (E) Who has the *absolute* advantage in cleaning offices? Hannah
- (F) Who has the *absolute* advantage in cleaning jail cells? Hannah
- (G) Who has the *comparative* advantage in cleaning offices? Hannah
- (H) Who has the *comparative* advantage in cleaning jail cells? Andy
- (I) Who should do which chore and why? Base your answer only on the information above and on comparative-advantage considerations. *Hannah should clean offices and Andy should clean jail cells, and they will finish sooner. The person with the lower opportunity cost should perform the chore.*
4. Consider the following two countries. Assume they produce only these two goods. *Note that productivity is now measured in how many goods can be produced per hour, the opposite of how we measured it in Questions 2 and 3.*

	United States	Japan
Cars	12	10
Computers	4	6

- (A) What is the United States' opportunity cost of making cars?  
*For every car, it must give up  $\frac{1}{3}$  of a computer.*

- (B) What is Japan's opportunity cost of making cars?  
*For every car, it must give up  $\frac{3}{5}$  of a computer.*
- (C) What is the United States' opportunity cost of making computers?  
*For every computer, it must give up three cars.*
- (D) What is Japan's opportunity cost of making computers?  
*For every computer, it must give up  $\frac{5}{3}$  of a car.*
- (E) Which country has the *absolute* advantage in cars? United States
- (F) Which country has the *absolute* advantage in computers? Japan
- (G) Which country has the *comparative* advantage in cars? United States
- (H) Which country has the *comparative* advantage in computers? Japan
- (I) Which country should produce which good and why? Base your answer only on the information above and on comparative-advantage considerations. *The United States should produce cars, and Japan should produce computers because cars and computers would then be produced by the lower-cost country. The total output of cars and computers will be higher.*
5. Use the law of comparative advantage to explain why self-sufficiency leads to a lower standard of living. *If people and nations do not trade on the basis of comparative advantage, there will be fewer goods and services for people to enjoy. People will be poorer. Less trade or self-sufficiency means a lower standard of living.*