

Is Trade a Zero-Sum Game? The Answer Lies in Candy

Author

Scott Wolla, PhD, Federal Reserve Bank of St. Louis

Standards and Benchmarks (see page 7)

Lesson Description

This simple trading activity demonstrates a key economic idea: Voluntary trade can make both the buyer and seller better off. Students first receive a piece of candy randomly. They then have the opportunity to trade that candy first with “elbow partners” (their borders) and then the whole class (globally). After each trade, satisfaction points are tallied. The video shows a presentation with the same trading activity, but on a larger scale, and explains that trade is not a zero-sum game.

Concepts

Mutually beneficial trade (both sides benefit from trade)

Trade

Objectives

Students will be able to

- explain why people trade;
- identify the costs and benefits of trade; and
- explain why both sides benefit from trade.

Compelling Question

Who benefits from trade?

Time Required

15-20 minutes

Materials

- “Is Trade a Zero-Sum Game?” PowerPoint slides
- Copy of Handout 1 for each student
- Four kinds of candy, enough for each student to have one, with the pieces identical in size and shape so students can’t distinguish between them when selecting a piece
- Opaque bag

Preparation

Put the candy in the bag so that students cannot see what is in the bag. Keep out one piece of each kind to show to students as their potential options.

Procedure

Part 1: Rank Your Favorite Candy

1. Introduce the activity by asking the students, “Is trade like a football or basketball game?” That is, if one side wins or is better off, does that mean the other side loses, or is at least worse off? (*Answers will vary.*)
2. Explain that when one person or group wins something only by causing another person or group to lose something it is called a zero-sum game.
3. Show Slide 1. Explain that you will be conducting an experiment in class to test if trade is a zero-sum game.
4. Show Slide 2. Distribute a copy of *Handout 1: The Costs and Benefits of Trade* to each student, and then show the students the four kinds of candy you will use for the experiment. Ask the students to rank their favorite candy from most favorite “1” to least favorite “4” and record it on the top of Handout 1. It is important that the students write this down before the lesson continues.

Part 2: Receive a Piece of Candy, and Then Quantify Your Satisfaction

5. Distribute candy randomly: Either distribute one piece of candy to each student from the bag yourself or have each student reach inside the bag (without looking) and choose one piece. Tell the students not to eat the candy.
6. After the candy is distributed, have the students complete the “Step 1” statement on Handout 1.

7. Show Slide 3. Ask the students to indicate if they received their first choice, second choice, third choice, or fourth choice by raising their hands when you call each option. For example, “How many of you got your first choice?”
8. Count the number in each category and enter the numbers in the “# of People” column on Slide 3.
9. Multiply the number of students by the multiplier in each row horizontally and enter the results in the “Satisfaction Points” column. Next, add the satisfaction points vertically to calculate the total satisfaction points and enter the total.
10. Have the students calculate their individual satisfaction points and record those and the total classroom satisfaction points in the “Initial” row on Handout 1.

Part 3: Prefer Something Else? Trade with Your Immediate Neighbors

11. Continue the lesson by asking the students if they are totally satisfied with their choice. (*Many students will likely respond that they want the candy that someone else has.*)
12. Show Slide 4. Tell the students that you will give them the opportunity to trade with the people on their “borders.” In this case, they can trade only with people who are directly to their right or left, their “elbow buddies.” They cannot trade with anyone else in the class. Tell the students they have three minutes to conduct their trades.
13. After time has elapsed, ask the students to complete the “Step 2” statement on Handout 1 to indicate whether they have their first, second, third, or fourth choice.
14. Ask the students to raise their hands to indicate their level of satisfaction after the border trades. As before, calculate the results and record them on Slide 4.
15. Have the students calculate their individual satisfaction points and record those and the total classroom satisfaction points in the “After Border Trade” row on Handout 1.
16. Compare the initial satisfaction to the new satisfaction after trade (compare the point totals from Slides 3 and 4). Discuss the following:
 - What happened to total satisfaction after this round of trading? (*Total satisfaction increased.*)
 - Did the number of pieces of candy change? (*No*)
 - Why did satisfaction increase? (*Trade*)

Part 4: Prefer Something Else? Trade Globally

17. Continue the lesson by telling the students that they will have one more opportunity to trade, this time with anyone in the room. They can think of this as “global trade.”
18. Display Slide 5. Give the students approximately 5 minutes to move about the room and trade. Encourage students to get out of their seats and walk to another part of the room to make a trade.
19. After time has elapsed, ask the students to complete the “Step 3” statement on Handout 1 to indicate whether they have their first, second, third, or fourth choice.
20. Ask the students to raise their hands to indicate their level of satisfaction after global trade. As before, calculate the results and record them on Slide 5.
21. Have the students calculate their individual satisfaction points and record those and the total classroom satisfaction points in the “After Global Trade” row on Handout 1.
22. Show Slide 6. Enter the numbers for the initial satisfaction, satisfaction after border trade, and satisfaction after global trade in the “Total Satisfaction Points” column. Discuss the following:
 - What happened to total satisfaction after each round of trading? (*Total satisfaction increased after each round.*)
 - Did the items change? (*No*)
 - Did the number of items change? (*No*)
 - Why did satisfaction increase? (*Trade*)

Closure

23. Show Slide 7. Conclude the activity by discussing the following:
 - Did anyone choose not to trade? (*Some will likely explain that they already had their first choice, so trade could not bring them more benefits.*)
 - Who benefits from trade? (*The people/countries who participate in trade*)
 - Would you trade for something that would make you worse off? (*No, you generally wouldn't voluntarily trade for something that makes you worse off.*)
 - Did both sides of the transaction benefit from trade? (*Yes*)
 - Is trade a zero-sum game? (*No, trade allows both sides of a transaction to benefit at the same time.*)

- Do you think these same principles apply to people in different nations when they trade, not just people trading candy? *(Yes, people in nations benefit from trade in the same way people trading in the classroom do.)*

Assessment

24. Assess key information by discussing the following:

- Why do people trade? *(People trade because they want something they don't have that someone else has. And, they are willing to give up money or something else to obtain the item they want.)*
- Why can we say that in most cases, both sides of a trade benefit from the transaction? *(People generally wouldn't voluntarily trade for something that makes them worse off. Both parties in a trade give up something that they value less [an amount of money or an object] to obtain something that they value more [an amount of money or an object]. So, when trade occurs, both sides benefit, or the trade wouldn't occur.)*

Handout 1: The Costs and Benefits of Trade

Rank the candy based on your preferences.

1. _____
 2. _____
 3. _____
 4. _____
-

Step 1. I got a _____. It is my _____ choice.

Step 2. After trading, I got a _____. It is my _____ choice.

Step 3. After trading again, I got a _____. It is my _____ choice.

Results		
Satisfaction	Individual Satisfaction Points	Classroom Satisfaction Points
Initial		
After Border Trade		
After Global Trade		

Standards and Benchmarks

Voluntary National Content Standards in Economics

Standard 4: Incentives

People usually respond predictably to positive and negative incentives.

- **Benchmarks: Grade 8**

1. Responses to incentives are usually predictable because people normally pursue their self-interest or deviate from their self-interest in consistent ways.

Standard 5: Trade

Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and among individuals or organizations in different nations.

- **Benchmarks: Grade 4**

3. People voluntarily exchange goods and services because they expect to be better off after the exchange. This also may include the more informal exchanges of favors and courtesies.

- **Benchmarks: Grade 8**

2. Free trade increases worldwide material standards of living.
7. Voluntary exchange among people or organizations gives people a broader range of choices in buying goods and services.