

Classroom Activity: Efficiency vs. Fairness

By: Erin Kaplan

Supplies: A variety of fun-size candy bars. In small classes (30 or less) I recommend buying enough for every student to have one plus 20% extra. The exercise still works in larger classes where there is not enough candy for everyone to have a piece.

Time Required: 15-30 minutes

Instructions

1. Write the definition of Pareto Efficiency on the board or include it in your slides.
(Optional) Discuss what the definition implies about inefficient outcomes.

Definition: An outcome is Pareto Efficient if no one can be made better off without making someone else worse off.

When an outcome is inefficient, it is possible to make someone better off without making anyone else worse off.

2. Take out candy.

Tell the students exactly how many pieces of candy you have and how many students are present.

3. Explain the exercise.

In this exercise, the students in the class are a "society" that is tasked with determining how its resources (the candy) should be distributed. Also, point out that you will function as a facilitator, and any leftover candy has no value to you.

4. Ask the students for suggestions. Write them on the board.

Common suggestions

- *Give everyone one piece (basically always the first suggestion when there is enough candy for everyone to have one piece). You can prompt them to continue by saying "what should we do with the remaining candy"?*
- *Cut the candy so that everyone has the same amount.*
- *Distribute the candy randomly*
- *Ask students who wants the candy the most.*
- *Give the candy to students who answer questions / do well / offer as an incentive.*
- *Auction the candy off to the highest bidder.*

5. Point out the innate desire for fairness that your students have displayed.

To explain the difference between efficiency and fairness, I ask the students two questions.

- *Can you think of an allocation that is efficient but unfair?*
Give all of the candy to one person. Some students will not see right away why this is efficient, so you should reiterate the definition.
- *Can you think of an allocation that is fair but inefficient?*
Give everyone one piece (or nothing), and throw the rest away. Efficiency is important because inefficient outcomes are a waste of valuable resources.

6. Distribute the candy however you like. Tell the students not to eat it yet.
7. (Optional) Ask the students to rate their satisfaction with the candy on a scale of 1-5. If you have time, you can then ask them to report their rating and sum over the entire class.
8. Allow the students to trade.

Encourage the students by asking if anyone wishes they had a different type of candy? In a small class you can help facilitate these trades.

Point out that everyone who traded voluntarily is necessarily at least as happy now as they were before. Consequently, the original allocation was not pareto efficient, and trade can only increase efficiency.

Efficiency requires that the people who end up consuming a product are those who value the product the most.

9. (Optional) Ask the students to rate their satisfaction with the candy once again on the same scale. Summing over the class, will show that total satisfaction has increased with trade.