Comparative Advantage

AP Microeconomics | Unit 1 | specialization, terms of trade, and gains from trade

Running example (output per day):

	wheat (tons)	cars
Avalon	30	10
Brava	20	4

1. Absolute vs comparative advantage

Two kinds of advantage

Absolute advantage: can produce *more* of a good with the same resources.
Comparative advantage: can produce a good at a *lower opportunity cost*.

Avalon has the absolute advantage in both goods. Comparative advantage, not absolute advantage, decides who should produce what, and nobody can have a comparative advantage in everything.

2. Finding the opportunity cost

$$\text{Avalon: } 1 \text{ car} = \frac{30 \text{ wheat}}{10 \text{ cars}} = 3 \text{ wheat} \qquad \text{Brava: } 1 \text{ car} = \frac{20 \text{ wheat}}{4 \text{ cars}} = 5 \text{ wheat}$$

$$\text{Avalon: } 1 \text{ wheat} = \tfrac{1}{3} \text{ car} \qquad \text{Brava: } 1 \text{ wheat} = \tfrac{1}{5} \text{ car}$$

Avalon has the comparative advantage in **cars** ($3 < 5$); Brava in **wheat** ($\frac{1}{5} < \frac{1}{3}$). Each specializes in the good it makes at the lower opportunity cost.

Output table or input table?

Output (how much is made in a fixed time): more is better; cost of X = other good ÷ X ("other goes over").
Input (hours or workers needed for one unit): fewer is better; cost of X = hours for X ÷ hours for the other good ("it goes over").

3. Terms of trade

Avalon will sell a car only for more than 3 wheat (its own cost). Brava will buy a car only for less than 5 wheat (what it would cost to make one itself).

Mutually beneficial terms of trade

Any price **between the two opportunity costs**: here between 3 and 5 wheat per car.

At 4 wheat per car, Avalon receives 4 for a car that cost it 3, and Brava pays 4 for a car that would have cost it 5.

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4. The gains from trade

Avalon without trade	5 cars and 15 wheat (a point on its own PPC)
Avalon with trade	makes 10 cars, sells 5 for $5 \times 4 = 20$ wheat: 5 cars and 20 wheat

That point lies *outside* Avalon's PPC. Trade does not change what a country can produce; it changes what it can *consume*. Brava gains in the same way.

5. When costs change

Comparative advantage follows opportunity costs, so it can change with productivity. If new technology doubles Brava's car output (20 wheat or 8 cars), a car costs Brava $\frac{20}{8} = 2.5$ wheat, less than Avalon's 3: Brava now has the comparative advantage in cars and Avalon in wheat, and wheat has become dearer for Brava ($0.2 \to 0.4$ car per ton). With identical opportunity costs neither side has a comparative advantage and trade brings no gains.

A price exactly at one side's opportunity cost gives that side nothing: at 3 wheat per car Avalon gains nothing and Brava saves 2; at 5 the reverse. Both gain only strictly between the two costs.

With increasing opportunity costs (a bowed-out PPC) each extra car costs more wheat, so as a country specializes further its cost rises toward its partner's and the gains from further specialization diminish.

Where students lose points

1. Using absolute advantage to decide who specializes.
2. Reading an input table as if it were output (fewer hours is better).
3. The opportunity-cost ratio upside down.
4. Terms of trade outside the two opportunity costs.
5. Saying trade shifts the PPC: it moves consumption beyond it.

Now practise it

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