Economics 1
Principles of Economics

Interdependence and Gains from Trade
(Chapter 3)

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Look for the Answers to These Questions:

- Why do people—and nations—choose to be economically interdependent?
- How can trade make everyone better off?
- What is absolute advantage?
- What is comparative advantage?

  -How are these concepts similar?

  -How are they different?

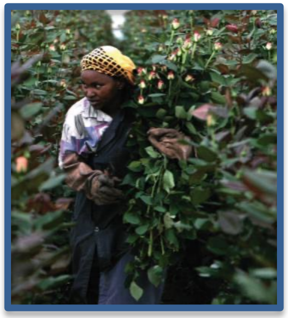
I. Interdependence

- One of the Ten Principles from Chapter 1:
  Trade can make everyone better off.

- We now learn why people—and nations—choose to be interdependent, and how they can gain from trade.

II. Markets Link the World

1. Roses are grown in Kenya.



(sent to)

2. Flower markets in Holland.

(packed and sold, flown to major cities)

3. Florists.

4. You.

How long does the process take?

About 72 hours!

III. Markets Link to One Another

Example: Oil and Candy Bars -Brazil

- Ethanol is a fuel that can be made from e.g., corn or sugar cane.
- Brazil is the largest producer of sugar cane in the world.
- Q: When the price of oil increased, what do you anticipate happened in Brazil?

III. Markets Link to One Another

1. The price of oil rose.
2. Brazil shifted sugar cane into ethanol production (rather than table sugar).
3. As a result, table sugar got more expensive.
4. Fuel costs were held down.

By how much has Brazil reduced gasoline consumption?

By about 40%!

III. Markets Link to One Another

Example: Housing Boom and Price of Milk.

- Q: What did the end of the housing boom in 2007 do to the price of milk?

The downturn in housing construction reduced the demand for lumber.

↓

Less sawdust available.
Note: Sawdust is used for bedding the cows!

↓

Higher sawdust prices (they actually doubled).

Higher milk prices!

IV. Comparative vs. Absolute Advantage

- Recall that:
- Def: Comparative Advantage = the ability to produce a good at a lower opportunity cost than another producer

- Def: Absolute Advantage = the ability to produce a good using fewer inputs than another producer.

V. Detailed Example

- Trade between two individual producers (a cattle rancher and a potato farmer) and two goods (meat and potatoes).

	Minimum time needed to make 1 oz of:		Amount produced in 8 hours.	
	Meat	Potatoes	Meat	Potatoes
Farmer	60 min/oz	15 min/oz	8 oz	32 oz
Rancher	20 min/oz	10 min/oz	24 oz	48 oz

V. Detailed Example 2 of 6

- Without trade, for each individual consumption = production.

	Meat	Potatoes
Farmer	8 oz	32 oz
Rancher	24 oz	48 oz

- It appears the rancher is doing better for the same 8 hours of work, i.e., the rancher has an absolute advantage in both goods.

V. Detailed Example 3 of 6

- Q: How to determine the opportunity cost?
- A: Compute the slope of the respective PPF.
  - Farmer: (0,8) and (32,0)

    → slope = $\Delta y/\Delta x$ = 8/32

    = 1/4 (meat/potatoes)
  - Rancher: (0,24) and (48,0)

    → slope = $\Delta y/\Delta x$ = 24/48

    = 1/2 (meat/potatoes)

V. Detailed Example

	Opportunity Cost of 1oz Meat	Opportunity Cost of 1oz Potatoes
Farmer	4 oz potatoes	1/4 oz meat
Rancher	2 oz potatoes	1/2 oz meat

The farmer is the low-cost producer of potatoes.

The rancher is the low-cost producer of meat.

They are inverse of each other!

V. Detailed Example 5 of 6

- Q: What trade strategy would benefit them both?
- A: Choose any value between the two opportunity costs.

	1oz Meat	1oz Potatoes
Farmer	4 oz potatoes	1/4 oz meat
Rancher	2 oz potatoes	1/2 oz meat

For example, they can trade 3 oz of potatoes for 1 oz of meat, or 15 oz potatoes for 5 oz of meat, etc.

V. Detailed Example

Gains from Trade

	Farmer		Rancher	
	Meat	Potatoes	Meat	Potatoes
Production	0 oz	32 oz	18 oz	12 oz
Trade	Gets 5 oz	Gives 15 oz	Gives 5 oz	Gets 15 oz
Consumption	5 oz	17 oz	13 oz	27 oz
Consumption Without Trade	4 oz	16 oz	12 oz	24 oz
Gains from Trade	+1oz	+1 oz	+1oz	+3oz

Assumptions: The farmer spends 8 hrs/day producing potatoes while the rancher spends 6hrs/day raising cattle and 2 hrs/day growing potatoes.

VI. Unanswered Questions…

- We made a lot of assumptions about the quantities of each good that each country produces, trades, and consumes, and the price at which the countries trade wheat for computers.
- In the real world, these quantities and prices would be determined by the preferences of consumers and the technology and resources in both countries.
- We will begin to study this in the next chapter.
- For now, though, our goal was merely to see how trade can make everyone better off.

Summary

- Interdependence and trade allow everyone to enjoy a greater quantity and variety of goods & services.
- Comparative advantage means being able to produce a good at a lower opportunity cost. Absolute advantage means being able to produce a good with fewer inputs.
- When people—or countries—specialize in the goods in which they have a comparative advantage, the economic “pie” grows and trade can make everyone better off.

How to Make Toaster from Scratch

- It takes an entire civilization to build a toaster. Designer Thomas Thwaites found out the hard way, by attempting to build one from scratch: mining ore for steel, deriving plastic from oil ...This TED talk is a parable of our interconnected society, for designers and consumers alike. Click below to watch. (10:52 minutes)

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