ECO101: Principles of Microeconomics
Gains from Specialization & Trade

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The Big Picture

1. Recall Key Concept I: Opportunity Costs
   - Opportunity Costs = Answer to question "What do I have to give up in order to do this?"
   - It's not the time, it's what you could have done with that time ...
2. Our first model will show: Differences in opportunity costs $\longrightarrow$ gains from trade for both
   - Even if one of the agents better at everything.
3. Why this is important ...

Billy Rose: almost everything we need to know . . .

Preliminary: Thinking more broadly about "prices"

What is the price (i.e., cost) of a kilo of coffee?

Buying 2 kilos of coffee for $60

What if buying 2 kilos of coffee for $60 means I must spend $60 less on steak, buying 6 fewer kilos of steak?

A Model of Katya and Andreas

- Each has 10 hours in a day
- 2 products: beer and chips. Have to produce 'em to consume 'em.
- Production
  - **Katya:** 3 ounces of beer/hour; 3 ounces of chips/hour.
  - **Andreas:** 1/2 ounce of beer/hour; 1 ounce of chips/hour.
- Before trade (Point **A** on graphs)
  - **Katya:** 15 ounces of beer; 15 ounces of chips.
  - **Andreas:** 4 ounces of beer; 2 ounces of chips.

Absolute Advantage

- **Katya:** 3 ounces of beer/hour; 3 ounces of chips/hour.
- **Andreas:** 1/2 ounce of beer/hour; 1 ounce of chips/hour.

Definition

- A person/firm/country has an absolute advantage in an activity if "agent" requires fewer inputs per unit of output than another "agent"
  - $\leftrightarrow$ more output for the same inputs

Our Example:

Calculating Opportunity Cost

- **Katya:** 3 ounces of beer/hour; 3 ounces of chips/hour.
- **Andreas:** 1/2 ounce of beer/hour; 1 ounce of chips/hour.

Insights

1. (Opportunity) cost of beer$=\frac{\text{chips}}{\text{beer}}$
2. (Opportunity) cost of chips$=\frac{\text{beer}}{\text{chips}} = \frac{1}{\text{(Opportunity) cost of beer}}$

Katya and Andreas: Graphically

PPF: Production Possibility Frontier

PPF

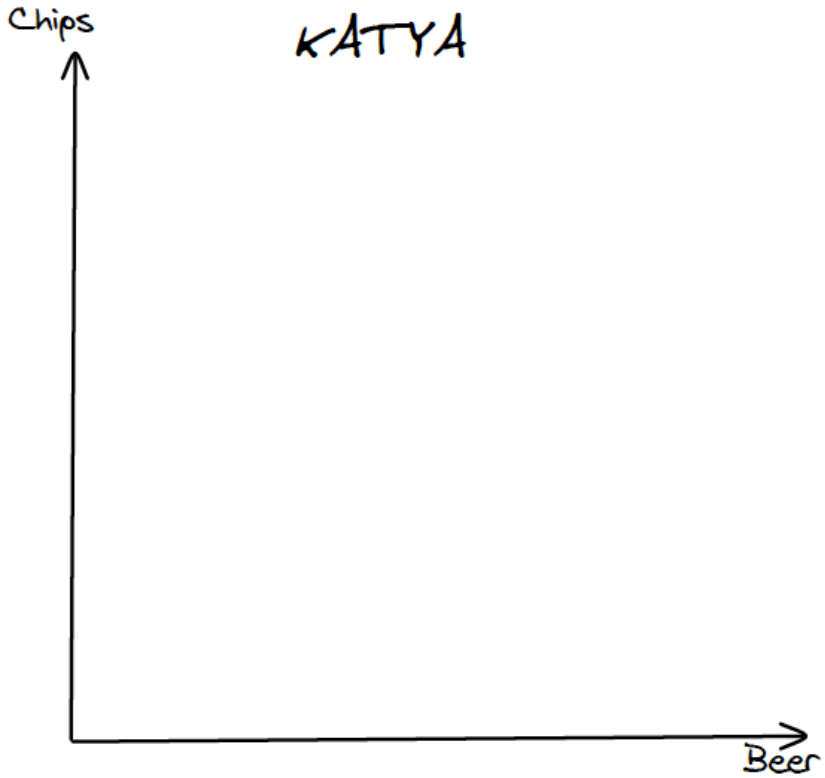
Feasible

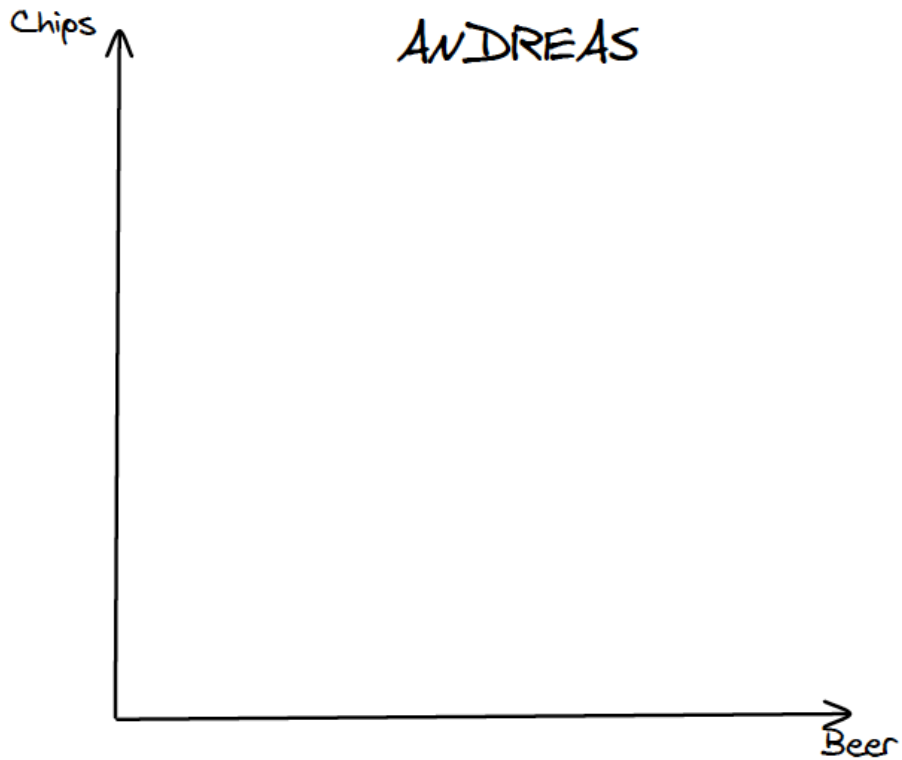
Infeasible

Efficient

Katya and Andreas: Graphically

PPFs: Production Possibility Frontiers





Introducing Trade

- **Katya:** 3 ounces of beer/hour; 3 ounces of chips/hour.
- **Andreas:** 1/2 ounce of beer/hour; 1 ounce of chips/hour.

The Proposed Exchange

Katya makes 5 extra ounces of beer & Andreas makes 8 extra ounces of chips (Point **B** on graphs). Katya exchanges 5 ounces of beer for 8 ounces of chips (Point **C** on graphs).

Analyzing the Proposal

- What does Katya give up?
- What does Andreas give up?
- What does this look like graphically?

Opportunity Cost

Consider two “agents” and two “goods” X and Y

The Result

Unless the two agents have the exact same opportunity cost for good X (and therefore for good Y as well), one agent will have a lower opportunity cost in X and the other will have a lower opportunity cost in Y

The “Proof”

The Key: Differences in Opportunity Costs

How much Y must I give up to get 1 more X?

- **Katya:** 3 ounces of beer/hour; 3 ounces of chips/hour.
- **Andreas:** 1/2 ounce of beer/hour; 1 ounce of chips/hour.

	Opportunity Cost	
	1 oz. beer	1 oz. chips
Katya		
Andreas		

Interpreting the Trade:

Comparative Advantage

The Definition

A person/firm/country has a comparative advantage in producing a good or service if the *opportunity cost* of producing it is lower that agent than for others.

The Implications

- Between any two agents, each has a comparative advantage in something (unless opportunity costs are equal)
- If both items would be produced and consumed by both without trade, then **both** are better off with trade . . .
  - with each (perhaps only partially) specializing in its comparative advantage

A Note on "Prices"

- **Katya:** 3 ounces of beer/hour; 3 ounces of chips/hour.
- **Andreas:** 1/2 ounce of beer/hour; 1 ounce of chips/hour.

Proposed Trade:

Katya's Willingness to Trade:

Andreas' Willingness to Trade:

Voluntary Trade "Price" Range:

One of the most powerful ideas in economics

- Pretty much explains modern life . . .
  - We buy most things we consume.
  - Pattern of “home production”: the idle rich versus the highly compensated
- One of the main determinants of international trade
  - Most misunderstood aspect of international trade?
- In the real world, there may be further gains from specialization.

A Problem

- **Katya:** 3 hours per ounce of beer; 4 hours per ounce of chips.
- **Andreas:** **X** hours per ounce of beer; 2 hours per ounce of chips.

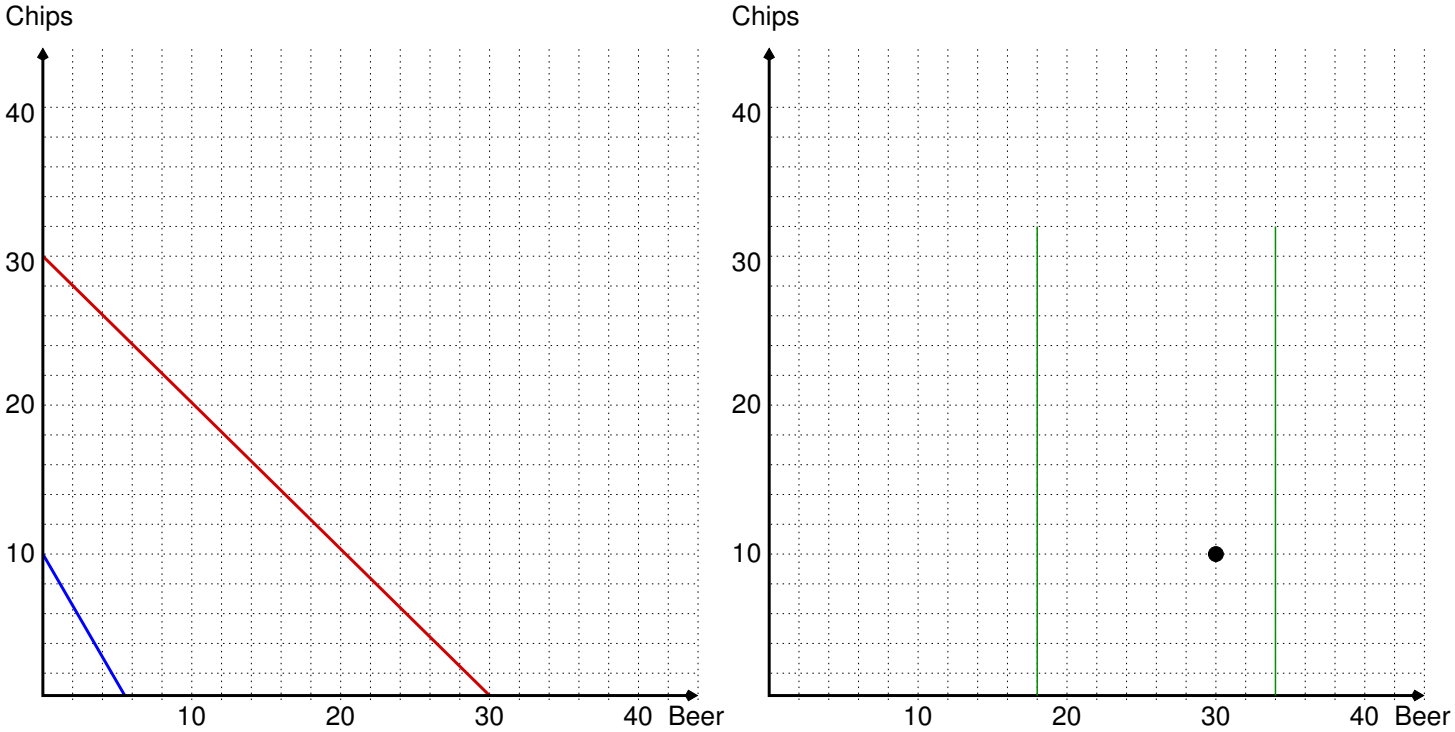
True, False or Uncertain: Andreas has comparative advantage in chips.

PPFs

Production Possibility Frontier

- Previous Assumption: Constant opportunity cost
  - $\leftrightarrow$ PPF is a straight line
  - Why?
- More general assumption: Opportunity cost need not be constant
- **How does this affect the PPF?**
  - Thought process: You are the boss, and Andreas and Katya are your only two workers . . .

Andreas & Katya as 1 economy



- Efficiently produce 18 beers
- Efficiently produce 34 beers

The General Result

The Principle of Increasing Opportunity Cost

To increase production of some “good”, always use the resource with the lowest opportunity cost. Repeat as needed.

Resulting PPF

Individual Decision-Maker Interpretation

Economy-wide Interpretation

Andreas & Katya: The Trade Interpretation