

# ECO100: Introductory Economics

## 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 What we are going to show today: Differences in opportunity costs → 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

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

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

# Katya and Andreas: Graphically

PPF: Production Possibility Frontier

PPF

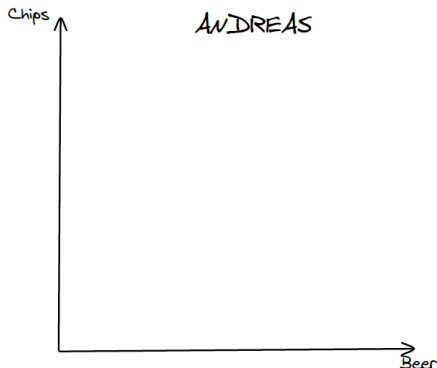
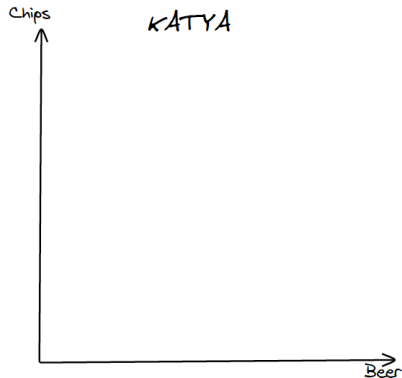
Feasible

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.

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## Opportunity Cost

1 oz. beer

1 oz. chips

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Katya

Andreas

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# 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 than 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?
- Instance of more general rule of “value” creation: move good from “low cost” to “high value”
- 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.

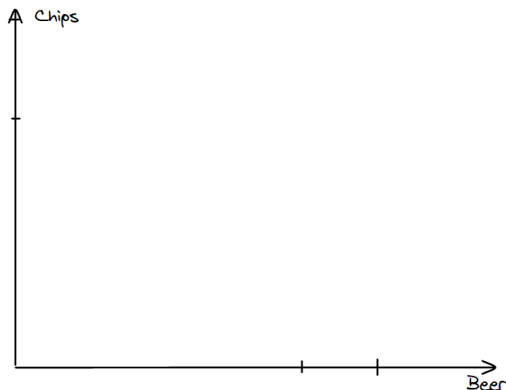
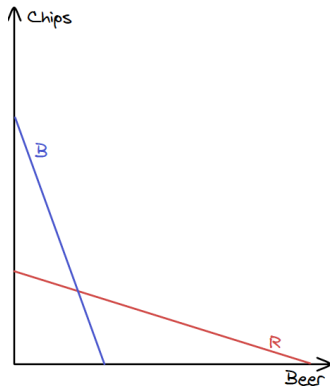
# PPFs/PPCs

## Production Possibility Frontier/Curve

- Previous Assumption: Constant opportunity cost
  - $\leftrightarrow$  PPF is a straight line
  - Why?
- More general assumption: Opportunity cost need not be constant

# Agregating Production: 2 producers $\rightarrow$ 1 “economy”

$|\text{slope}_{\text{PPP}}| = \text{opportunity cost of horizontal-axis good}$



# 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