Introduction to Microeconomics

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ECO 1001

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Admin Item

- Reading for next class – either one of two articles in the "Marginal Costs and Benefits" tab on Blackboard.

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Opportunity Cost

Opportunity cost is the value of the next best alternative.

- Every choice has an opportunity cost.
- Opportunity costs exist everywhere and are the result of scarcity.

Depending on context, it makes sense to represent opportunity cost in dollars or in terms of the next best alternative (i.e., what you would have done instead)

- If you buy a pizza for $10, the opportunity cost of buying the pizza is $10.
  - At the same time, you might've been deciding between a pizza for $10 or a burger for $10. In that case, you could say that the opportunity cost of buying the pizza was the burger.
- For other choices, it is clear that the cost is not (only) monetary. The opportunity cost of attending college includes the money you spent as well as the activities you ended up not doing because you are going to college, such as the hours you could be working but are not because you are in class.
  - The opportunity cost of going to college includes lost earnings (if working is what you would be doing with your time otherwise)

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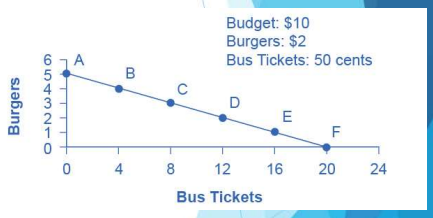
Consumption: Budget Constraint

- Consumers all have a limited amount of money. Producers have a limited amount of resources.
- Economists use models (graphs, math equations) to describe economic concepts in the world. Budget constraints and production possibilities frontiers are two fundamental ones.
- Budget constraint: The boundary between the combination of goods that someone can afford, given the prices of goods, and what they cannot.
  - The budget constraint is made up of all points that fall on the budget line →
  - The slope of the budget constraint is the ratio of the two prices: $^{price_x}/_{pric\ y}$

    In this case, $^{price_x}/_{price_y} = {}^{0.5}/_{2} = 1/4$

  - Anything inside or on the budget constraint is affordable.
  - Anything outside the budget constraint is unaffordable.



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Consumption

In general, people will consume somewhere in the middle of their budget constraint. Why?

Law of diminishing marginal utility - as a person receives more of a good, the additional (or marginal) utility from each additional unit of the good declines.

- **Utility** - satisfaction, usefulness, or value one obtains from consuming goods and services. This is an abstract concept and difficult to compare between people. Think of it as the happiness you get from consuming one more item.
- **Diminishing marginal utility**: the first burger eaten brings more satisfaction than the sixth. The first bus ride (if you rank all the bus rides you would like to take within your budget) brings you more utility than the 12th.
  - Note: don't think of the bus rides in terms of the order that you take them, but from the one that is most important to you to the least.

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Production Side: Factors of Production (a.k.a. "Resources")

- Land: stands for all natural resources
- Labor: physical actions and mental activities by people
- Capital: all machinery and tools used in the production of goods
- Entrepreneurship: initiative (and risk) to combine the other three resources

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The Production Possibilities Frontier

- **Production Possibilities Frontier or Production Possibilities Curve (PPF/PPC):** the boundary between those combinations of goods and services that can be produced and those that cannot.
  - Production is limited by the resources we have (i.e., among of land, labor, and capital) and by technology

The book goes way too fast in the first two chapters (e.g., just telling you that the PPC is curved, and that people specialize) so we'll take some steps back

- To illustrate the PPC, we will focus on two goods at a time and hold the quantities of all other goods and services constant
  - *Ceteris paribus*= holding everything else constant

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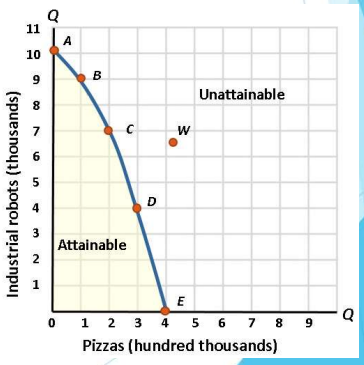
The Production Possibilities Curve

Illustrates the trade-off between devoting resources to the production of one item or another.

Imagine a *model* where only 2 goods can be produced – pizza and robots.

Types of Product	A	B	C	D	E
Pizzas (in hundred thousands)	0	1	2	3	4
Robots (in thousands)	10	9	7	4	0



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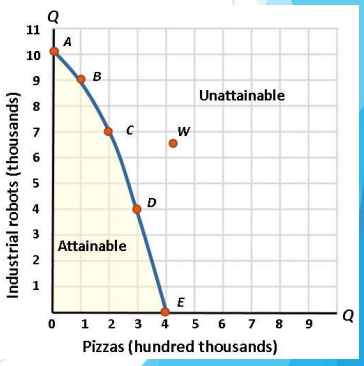
The Production Possibilities Curve

- Anything inside or on the curve (left and down) is attainable
- Anything outside the curve (right and up) is unattainable – there is scarcity!
- Anything *on* the curve is efficient

Types of Product	A	B	C	D	E
Pizzas (in hundred thousands)	**0**	**1**	**2**	**3**	**4**
Robots (in thousands)	**10**	**9**	**7**	**4**	**0**



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Budget Constraints and the PPF

- Both the budget constraint and the PPF can be used when thinking about an individual or a society
  - How many haircuts and pizzas can you afford?
  - How many undergraduate and graduate degrees can Villanova produce?
  - How many airplanes and tractors can the US afford?
  - How much healthcare and education can the US produce?
- And for both the budget constraint and the PPF, the slope represents an opportunity cost
  - The opportunity cost of buying one more of the x-variable in terms of the y-variable
  - The opportunity cost of producing one more of the x-variable in terms of the y-variable

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The Production Possibilities Curve – Concepts

- Productive efficiency: reaching a point of production where we cannot produce more of one good without producing less of some other good
- Inefficiency: producing fewer goods or services than we could given the resources we have
- Resource misallocation: inefficiency as a result of using resources in a way for which they are not the best match
  - Using pizza chefs to produce robots and using engineers to make pizza
  - Using land that is best for potatoes to grow apple trees, and growing apple trees in land better suited for potatoes
- Unused resources: inefficiency as a result of not employing all of the resources available
  - Leaving some pizza ovens off
  - Not farming all of the plots we have

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PPFs and Gains from Trade – why is the PPF curved anyway?

First, some terms:

- Absolute advantage: a person has absolute advantage in an activity if that person can perform that activity more productively than anyone else
  - Comparing productivity
  - E.g., How many loaves of bread can I make in 1 day vs how many loaves of bread can you make in 1 day.

- Comparative advantage: a person has comparative advantage in an activity if that person can perform the activity at a lower *opportunity cost* than anyone else
  - So, comparing opportunity costs
  - E.g., (Breads I can make in 1 day)/(Tires I can change in 1 day) vs

    (Breads you can make in 1 day)/(Tires you can change in 1 day)
  - Note: With two people and two activities, if one has a comparative advantage on one activity, the other necessarily has a comparative advantage on the other activity.

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Specialization - Example

Joe's Smoothie Bar

- In an hour, Joe can produce 6 smoothies or 30 salads.
- Joe's opportunity cost of producing 1 smoothie is 5 salads.
- Joe's opportunity cost of producing 1 salad is 1/5 smoothie.
- If he needs to make an equal amount of the two items, in every hour Joe will spend 10 minutes making salads and 50 minutes making smoothies.
  - This way, he can produce 5 smoothies and 5 salads an hour.

TABLE 2.1 Joe's Production Possibilities

Item	Minutes to produce 1	Quantity per hour
Smoothies	10	6
Salads	2	30

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Specialization - Example

Liz's Smoothie Bar

- In an hour, Liz can produce 30 smoothies or 30 salads.
- Liz's opportunity cost of producing 1 smoothie is 1 salad.

TABLE 2.2 Liz's Production Possibilities

Item	Minutes to produce 1	Quantity per hour
Smoothies	2	30
Salads	2	30

Checkpoint:

Who has an absolute advantage in smoothie production?

What is Liz's comparative advantage? Smoothies or salads?

What is Joe's comparative advantage? Smoothies or salads?

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Specialization - Example

TABLE 2.2 Liz's Production Possibilities

Item	Minutes to produce 1	Quantity per hour
Smoothies	2	30
Salads	2	30

Liz's Smoothie Bar

- In an hour, Liz can produce 30 smoothies or 30 salads.
- Liz's opportunity cost of producing 1 smoothie is 1 salad.
- Liz's opportunity cost of producing 1 salad is 1 smoothie.
- If she had to make an equal number of both, she would spend 30 minutes making smoothies and 30 minutes making salads every hour.
  - She produces 15 smoothies and 15 salads an hour.

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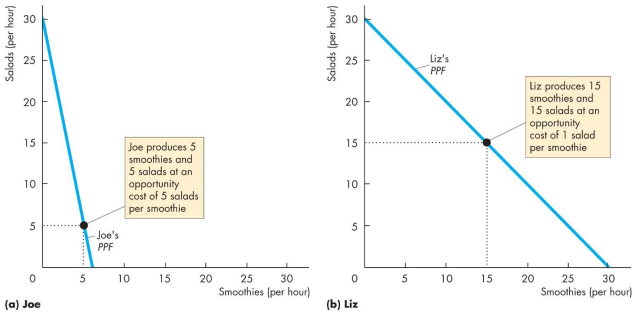
Specialization - Example

- Graphing their production possibilities frontier:



20 smoothies and 20 salads are produced in all.

- Notice that the graph is not curved (though always downward sloping!) since we're assuming all of their labor are the same/ can be allocated to smoothies or salads in the same ratio – the PPF becomes curved because of specialization in the next step.

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What if they Specialize?

- Liz's comparative advantage is in smoothies – what if she spends her whole hour making smoothies?
  - She'll make 30 smoothies
- Joe's comparative advantage is in salads – what if he spends his whole hour making salads?
  - He'll make 30 salads

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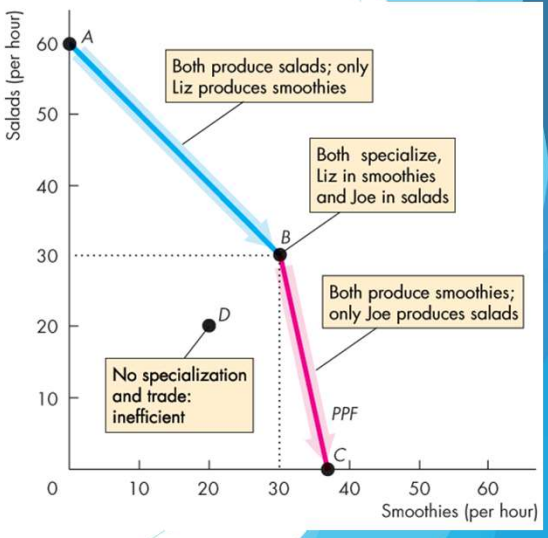
Specialization – the Economy

- The economy made up for Liz and Joe's specialization and trade then looks like this →
- The production possibilities expanded!
- The point at which they produced before (20 sandwiches and 20 smoothies) is inefficient.
- The "kinked" line becomes smoother if we imagine more and more people (and factors of production) specializing and trading



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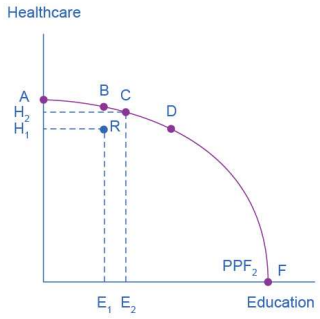
PPF at the National Level

- The same way that individuals within a firm specialize (e.g., one person makes smoothies, and another makes sandwiches – or one person designs cars and another assembles), firms within an economy specialize
- This specialization – combined with trade across firms – creates this same PPF at the national level →



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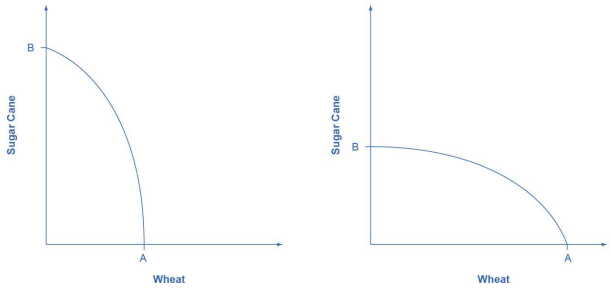
PPF at the National Level



- PPFs will look different for different countries (though always curved!) depend in what their comparative advantage is
- The opportunity cost of producing wheat in the US is pretty low in terms of sugar cane (US land, and perhaps labor and capital is generally better for wheat); for the US, it is high.

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