

Scarcity and Production Possibilities

Economics 120: Global Macroeconomics

Goals and Learning Objectives

- Goals:
 - Understand definition and goal of macroeconomics.
 - Understand scarcity and production possibilities.
- Learning Objectives
 - Learning Outcome (LO) 1: Apply the model of the production possibilities curve to illustrate the concepts of scarcity, choice, opportunity cost, and economic growth.
 - General Education Learning Outcome (GELO) 2: Enhance knowledge and abilities concerning critical and creative thinking.

Relevant Reading

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- Introduction to Economics: Module 1
- Production possibilities: Module 3

What is economics?

- Economics is the study of the allocation of scarce resources.
- **Resource**: broadly defined as anything that is used in production or is consumed.
- **Scarcity**: a resource is considered scarce when there is not enough to satisfy everyone's wants at a zero price.
- Microeconomics (ECO 110) studies how individual agents in the economy (consumers or producers) make choices with scarce resources.
- Macroeconomics studies how scarce resources move among groups of economics agents.

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Factors of production

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- Factors of production: scarce resources that are used in the production of goods.
- **Land:** any natural resource (such as land, forest, oil) that is used for production.
- **Capital:** equipment or machinery used in production of goods.
 - The process of producing or purchasing new capital goods is called investment.
- **Labor:** time people spend employed in producing goods, as well as the physical and mental talents of people.
 - **Human capital:** Mental talents of people used in production of goods.

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Types of Efficiency

- **Productive Efficiency:** a good is produced at the lowest possible cost.
- **Allocative Efficiency:** the economy is using its scarce factors of production to produce the most of what its people want to consume.
 - This takes into account impact of current decisions on future production possibilities.
 - "Want to consume" is a broad term that can include things like enjoyment of a clean environment, protection of the world's species, etc.
- **Pareto Efficiency (aka Pareto optimal):**
 - When no one else can be made better off without making someone worse off.
 - This is a weak measure of efficiency.
 - However, Pareto improvements should always be addressed.

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Production possibilities

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- Many of the same factors of production can be traded between productions of alternative goods.
- Factors of production are scarce.
- Production possibilities: trade-off when producing two or more different goods.
- Assumptions:
 - Full employment and efficient use of all resources.
 - Single period in time → fixed resources and fixed technology.
 - Two goods. Not an essential assumption, just makes it easy to draw.

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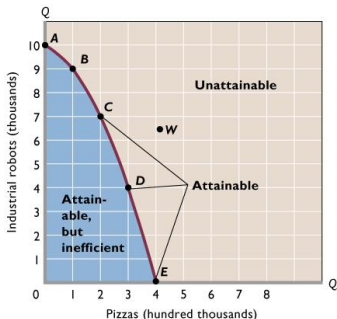
Production possibilities

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TABLE 2.1

Production Possibilities of Pizzas and Robots with Full Employment and Productive Efficiency

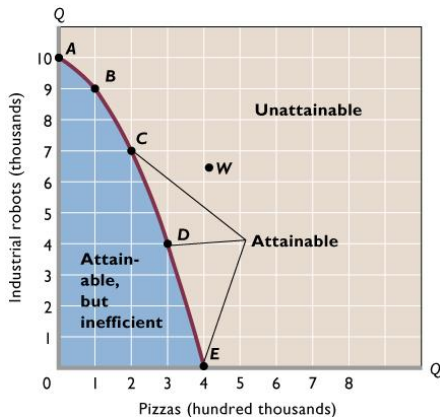
Type of Product	Production Alternatives				
	A	B	C	D	E
Pizzas (in hundred thousands)	0	1	2	3	4
Robots (in thousands)	10	9	7	4	0



- Production possibilities table: pairs of quantities of two goods that can be produced.
- Production possibilities frontier: graph of production possibilities.

Opportunity costs

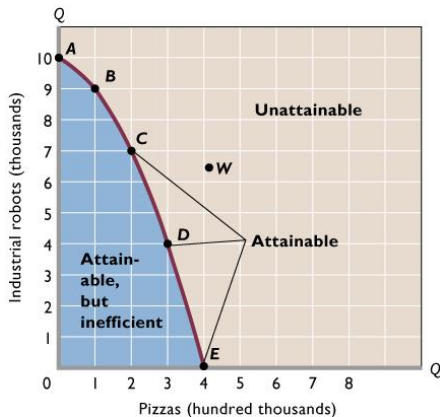
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- Opportunity cost: amount of production of one good that must be given up to produce another good.
- Compute opportunity cost of pizzas.
- Is it always the same?

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Opportunity costs

- **Law of increasing opportunity cost:** as you increase production of a good, the opportunity cost of producing the good increases.
- Slope of the curve is equal to the opportunity cost of the good on the x-axis.
- Increasing opportunity costs give the PPF the bowed outward shape.

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Future PPFs

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- If technology or quantity of resources change, the PPF will shift.
- Improvement in technology.
 - Shift PPF outwards.
 - Changes in technology can also change opportunity cost (and therefore the slope).
- Discovery of oil.
 - Shift PPF outwards.
 - May also change opportunity cost?
- Destruction of resources (eg: natural disasters, war).
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Example

- Suppose Florida can produce the following combinations of Oranges and Grape Jelly if it uses all its resources efficiently:

Oranges	Jelly
0	30
2	28
4	24
6	18
8	10
10	0

- Graph the PPF. Label what is possible, but inefficient, efficient, and not possible.
- Does it bow outward, inward, or is it a straight line?

Example continued

- What is the opportunity cost of Oranges at each given level?
- What is the opportunity cost of grape jelly at each given level?
- Is the movement of opportunity costs consistent with the shape?
- Show what would happen if there was an excellent farming season that made all fruit crops very productive.
- Show what would happen if there was an overnight freeze that destroyed many orange crops.
 - Would Florida produce less oranges?
 - Would Florida produce less grape jelly?

- Read 2002 WSJ Article: “Makeshift Cuisinart Makes a Lot Possible in Impoverished Mali” .
- Next topic: Supply and Demand
 - Learn how agents in an economy collectively “decide” how much of a good to produce, and how prices are determined.
 - Reading: Modules 5, 6, and 7.