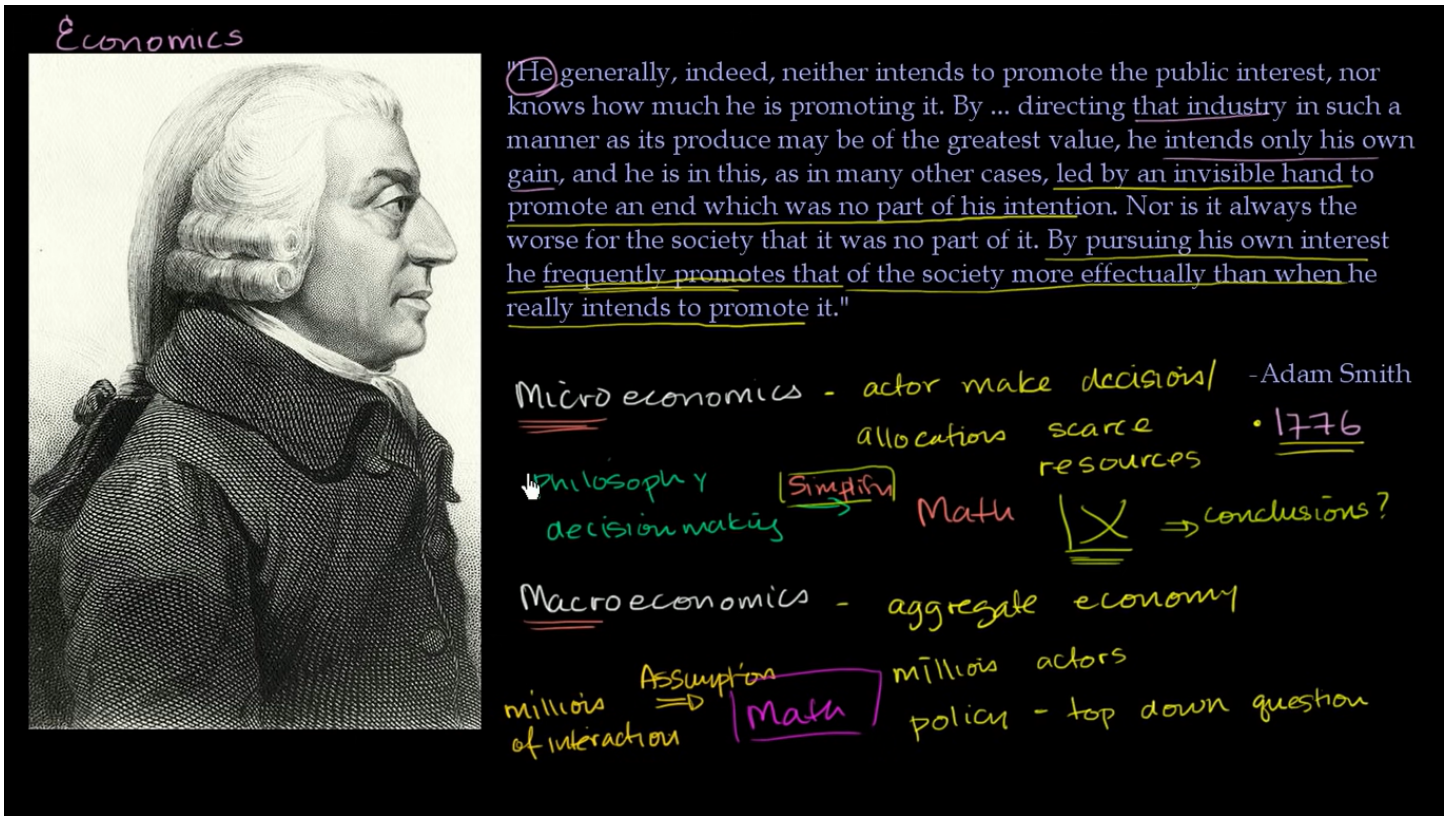
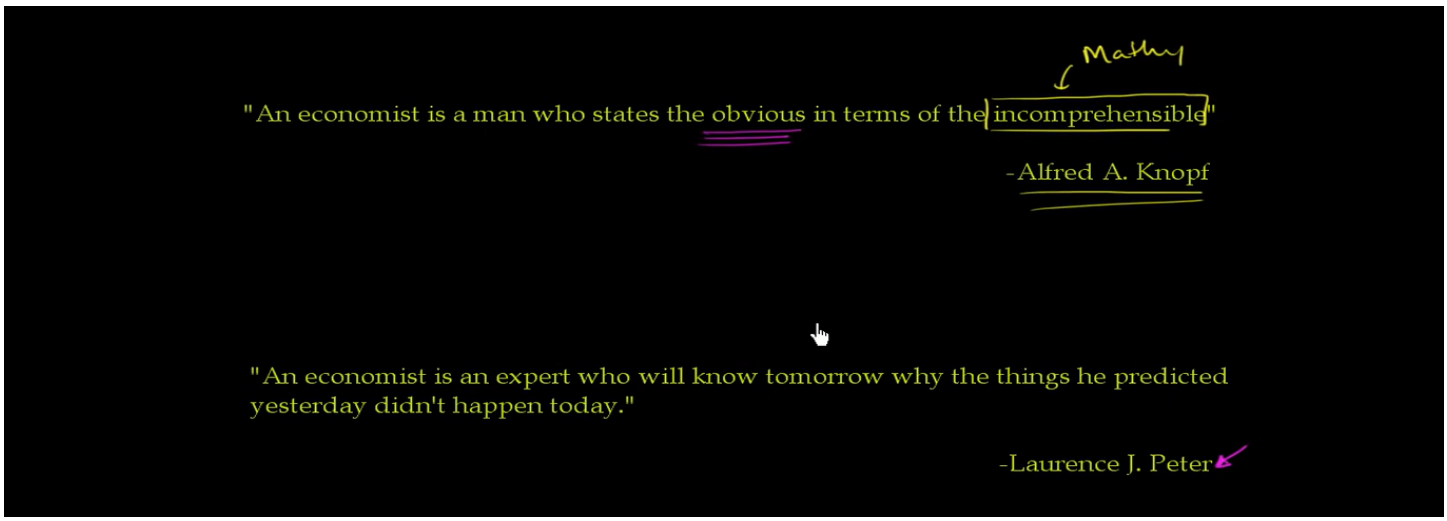
Macroeconomics

Unit 1: Basic economics concepts

Lesson 1: Introduction to Macroeconomics

Introduction to Economics





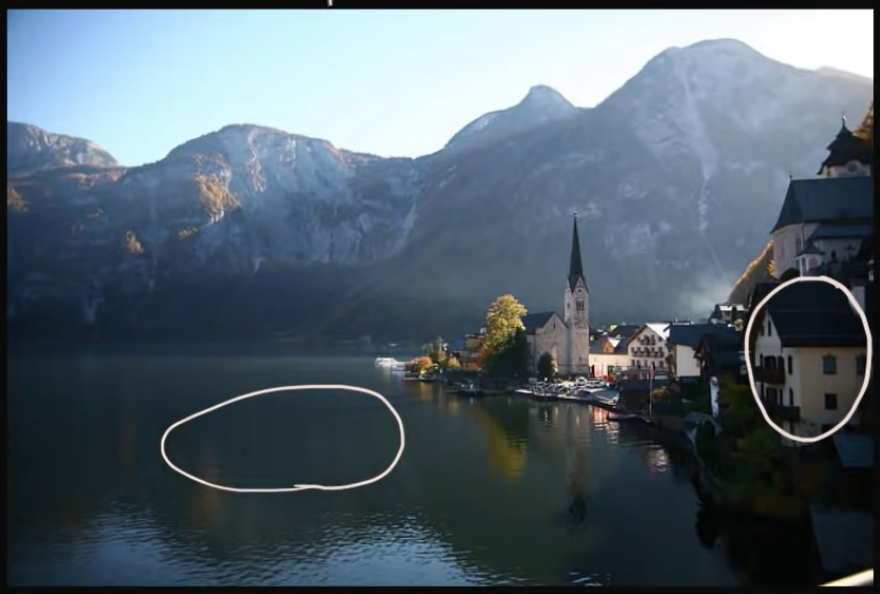
Scarcity


Scarcity
scarce resources vs. free resources


Scarcity
scarce resources vs. free resources
Labor

Scarcity

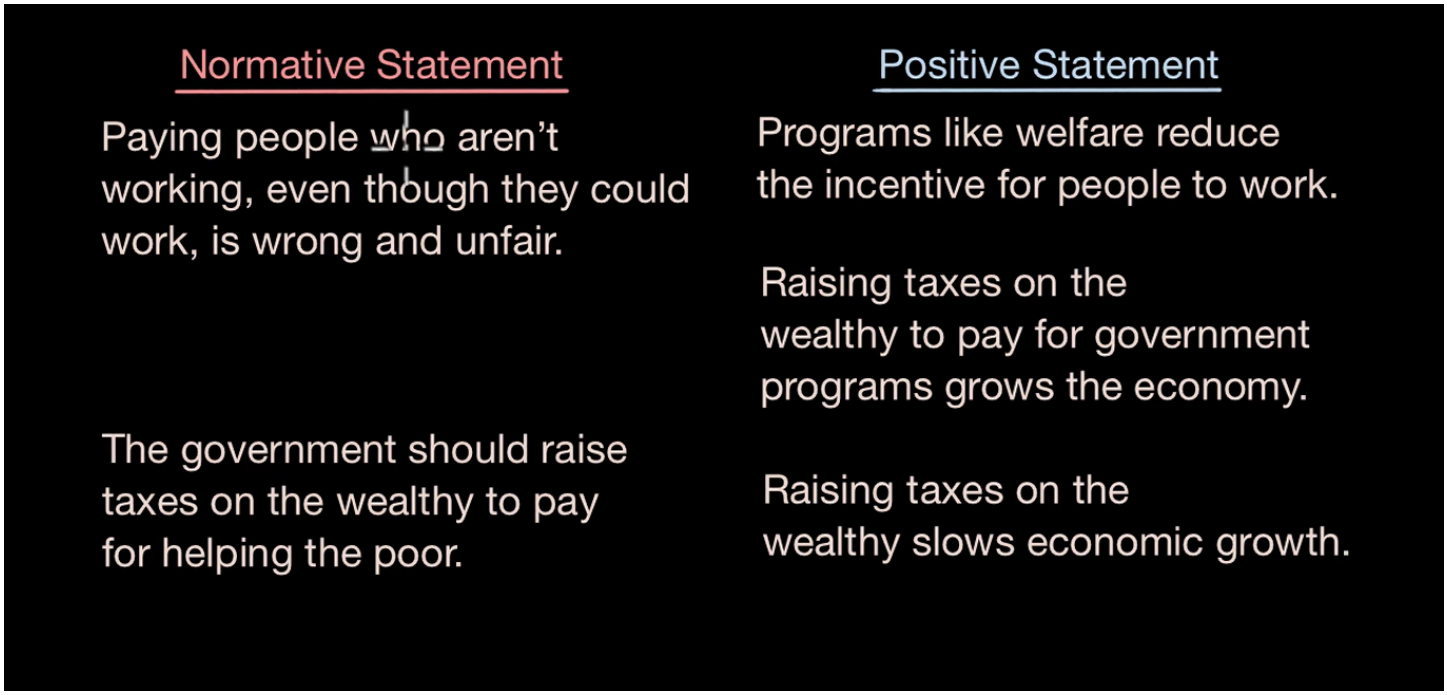
scarce resources vs. free resources



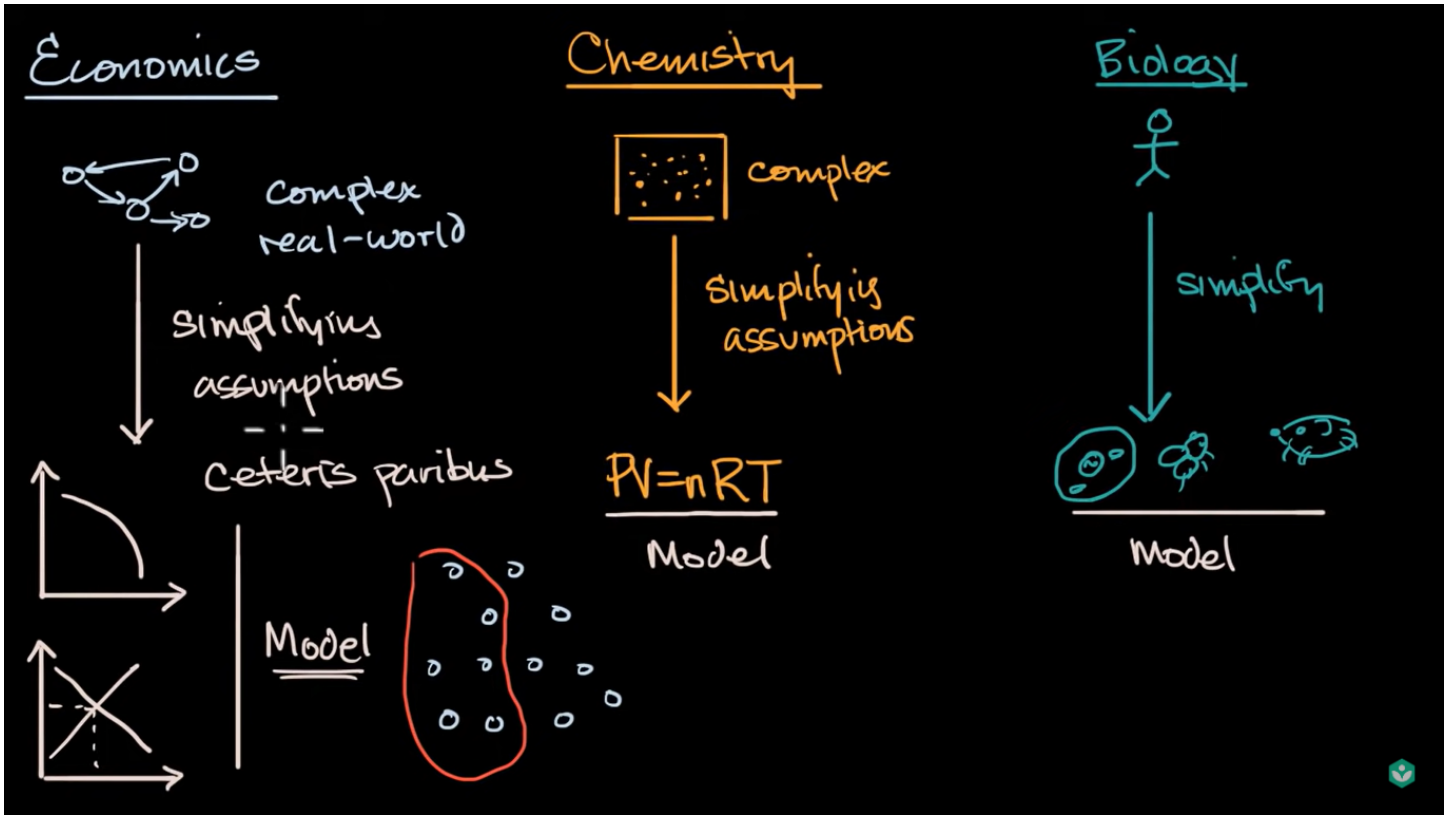
Scarcity

scarce resources vs. free resources

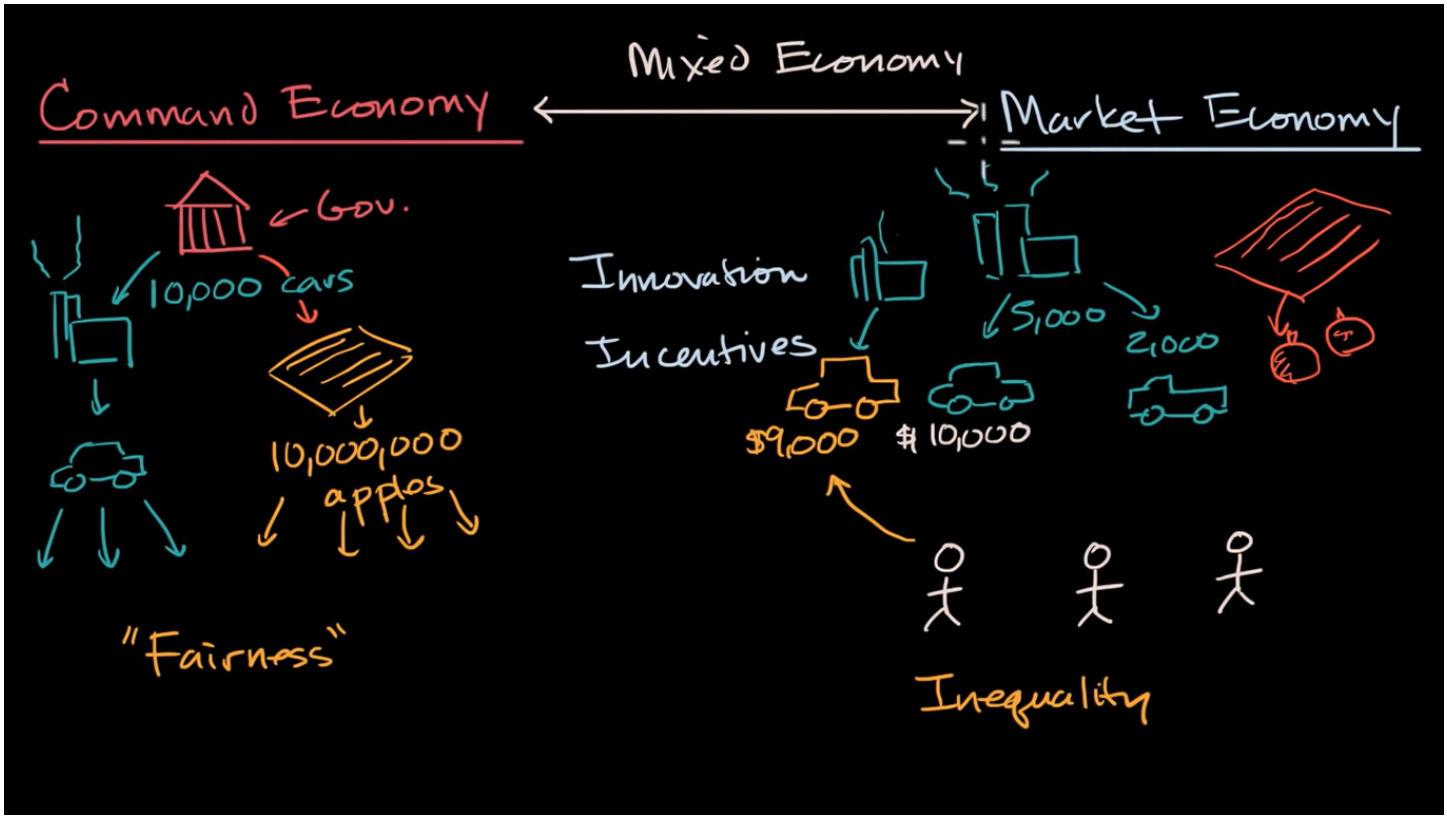
Normative and positive statements



Economic models



Command and market economies



If you want to sum up what economics means, you could do so with the following statement:
Individuals and societies are forced to make choices because most resources are scarce.

Economics is the study of how individuals and societies choose to allocate scarce resources, why they choose to allocate them that way, and the consequences of those decisions.

Scarcity is sometimes considered the basic problem of economics. Resources are scarce because we live in a world in which humans' wants are infinite but the land, labor, and capital required to satisfy those wants are limited. This conflict between society's unlimited wants and our limited resources means choices must be made when deciding how to allocate scarce resources.

Any economic system must provide society with a means of making choices that answer three basic questions:
What will be produced with society's limited resources?
How will we produce the things we need and want?
How will society's output be distributed?

Key Terms:

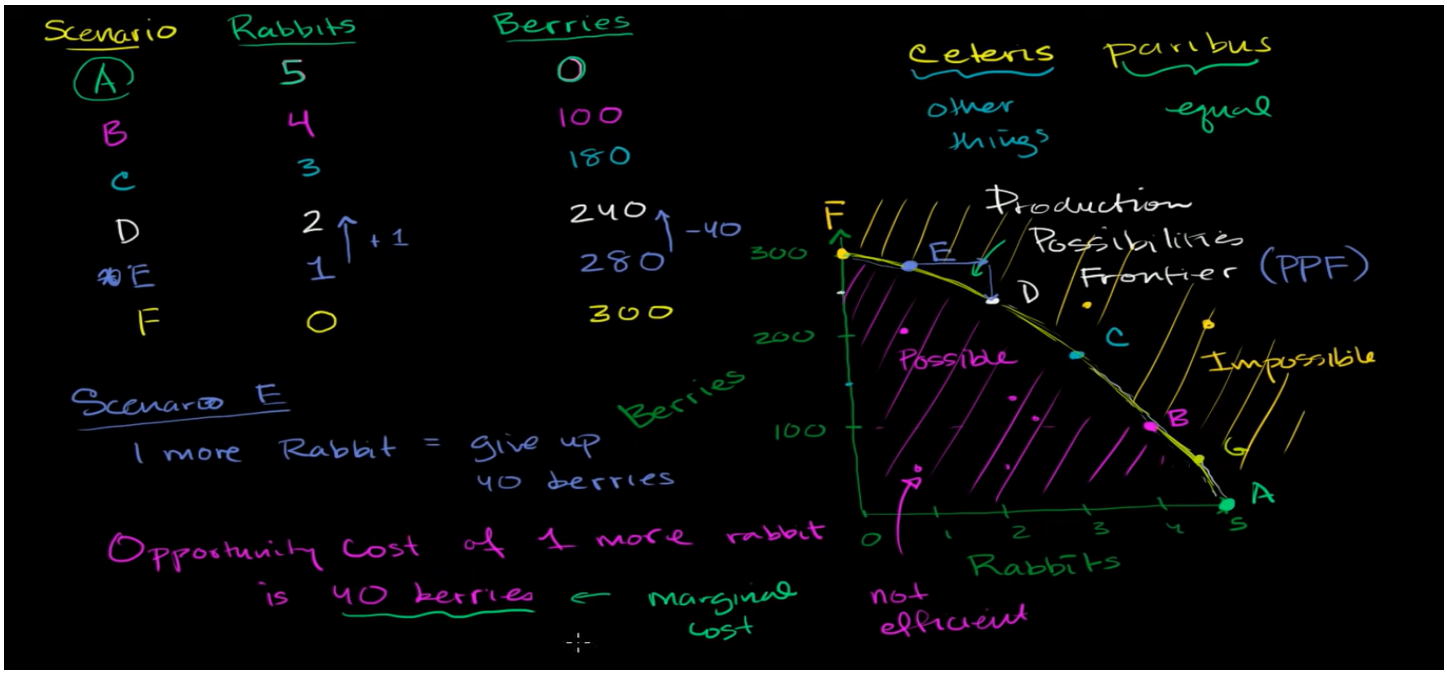
1. **Economics**
    - the study of how individuals and societies choose to allocate scarce resources.

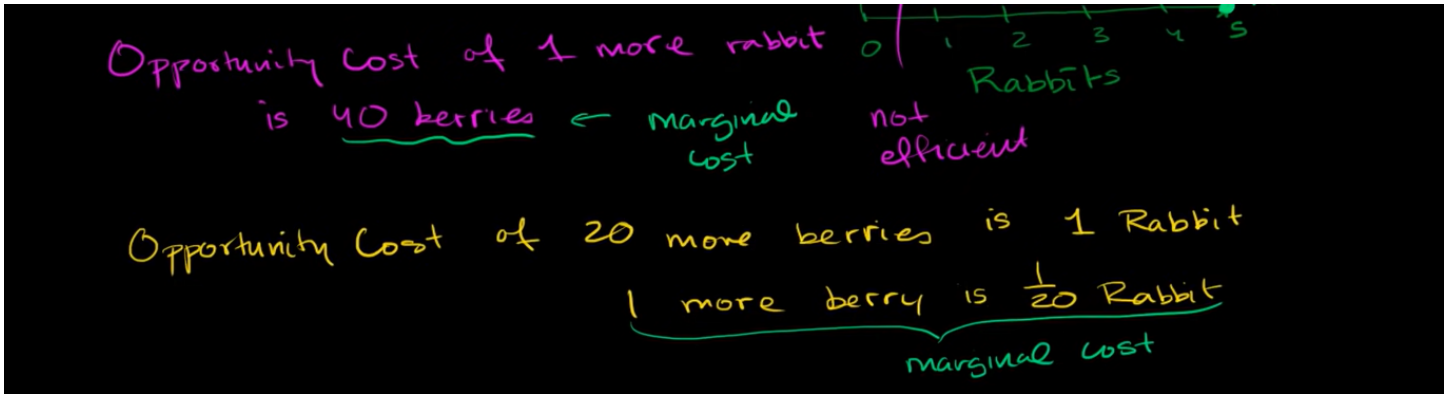
2. **scarcity**
    - the fact that there is a limited amount of resources to satisfy unlimited wants.
3. **economic resources**
    - also called the factors of production; these are the land (natural resources such as minerals and oil), labour (work contributed by humans), capital (tools, equipment, and facilities), and entrepreneurship (the capacity to organize, develop, and manage a business) that individuals and businesses use in the production of goods and services.
4. **models**
    - graphical and mathematical tools created by economists to better understand complicated processes in economics.
5. **ceteris paribus**
    - a Latin phrase meaning "all else equal".
6. **agent**
    - some entity making a decision; this can be an individual, a household, a business, a city, or even the government of a country
7. **incentives**
    - rewards or punishments associated with a possible action; agents make decisions based on incentives..
8. **rational decision making**
    - an agent is "rational" if they use all available information to choose an action that makes them as well off as possible; economic models assume that agents are rational.
9. **positive analysis**
    - analytical thinking about objective facts and cause-and-effect relationships that are testable, such as how much of a good will be sold when a price changes
10. **normative analysis**
    - unlike positive analysis, normative analysis is subjective thinking about what we should value or a course of action that should be taken, such as the importance of environmental factors and the approach to managing them.
11. **microeconomics**
    - the study of the interactions of buyers and sellers in the markets for particular goods and services
12. **macroeconomics**
    - the study of aggregates and the overall commercial output and health of nations; includes the analysis of factors such as unemployment, inflation, economic growth and interest rates.
13. **economic aggregates**
    - measures such as the unemployment rate, rate of inflation, and national output that summarize all markets in an economy, rather than individual markets; economic aggregates are frequently used as measures of the economic performance of an economy.

Lesson 2: Opportunity Cost and the Production Possibilities Curve

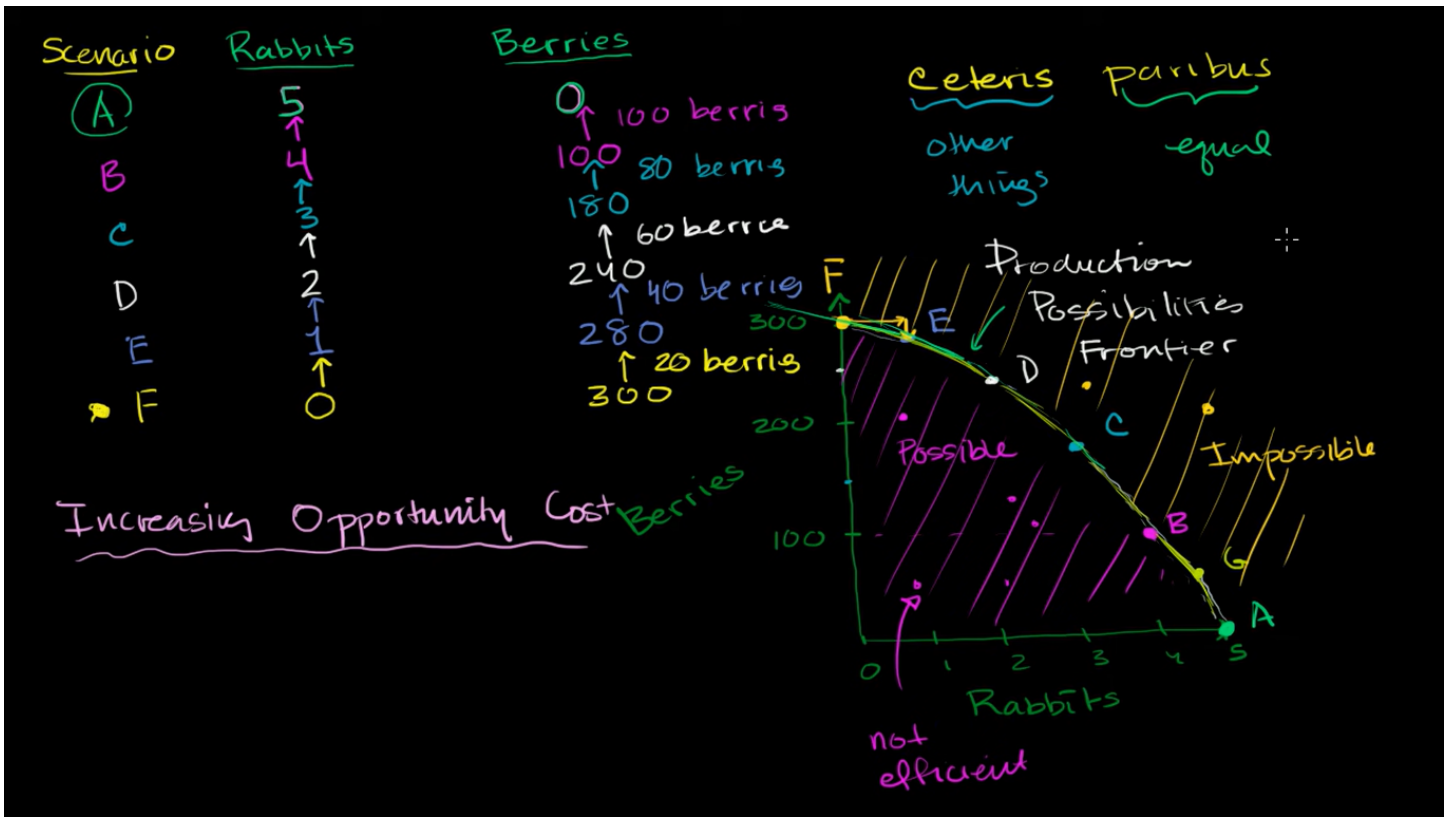
Production possibilities curve

Opportunity cost

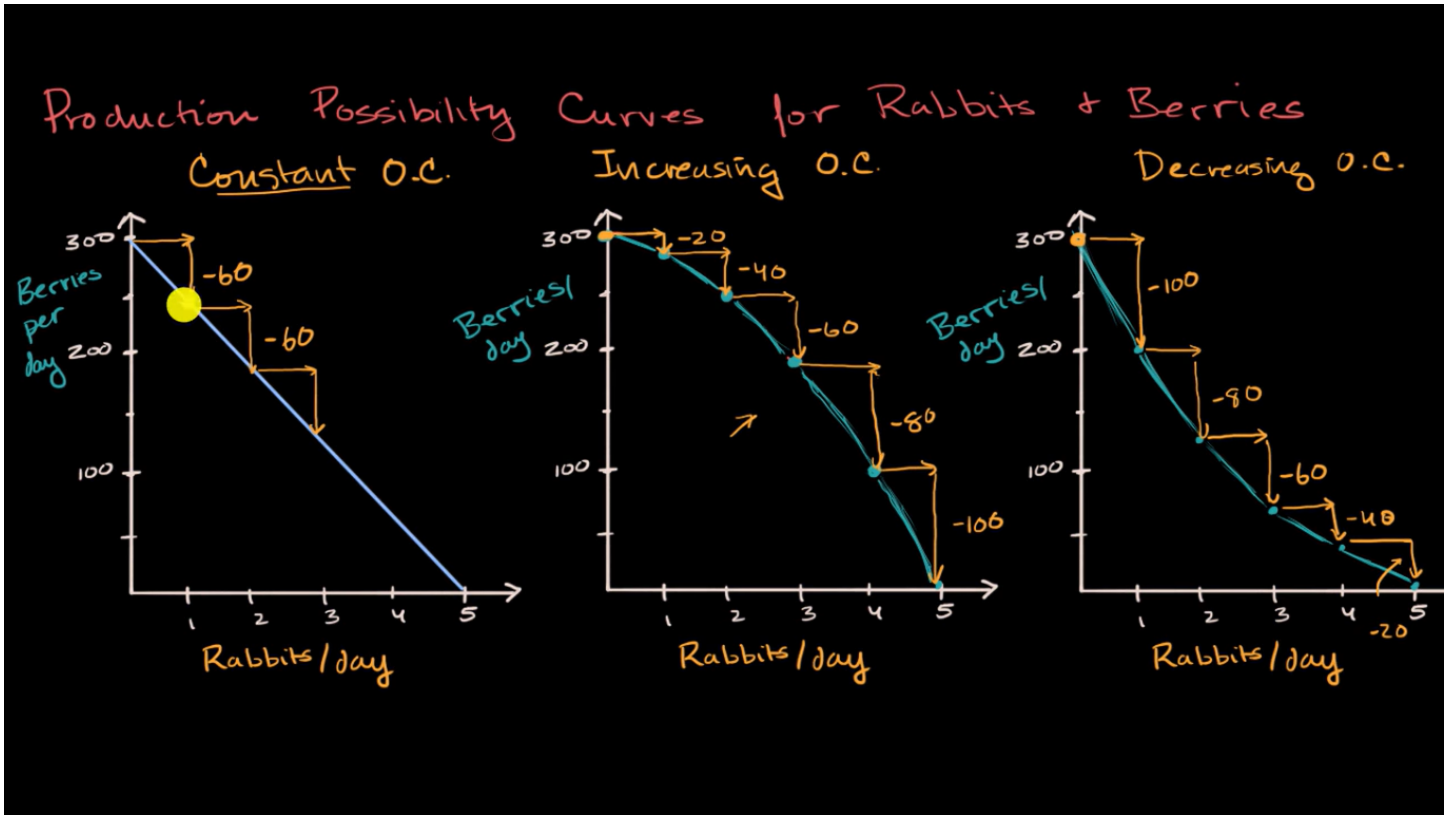




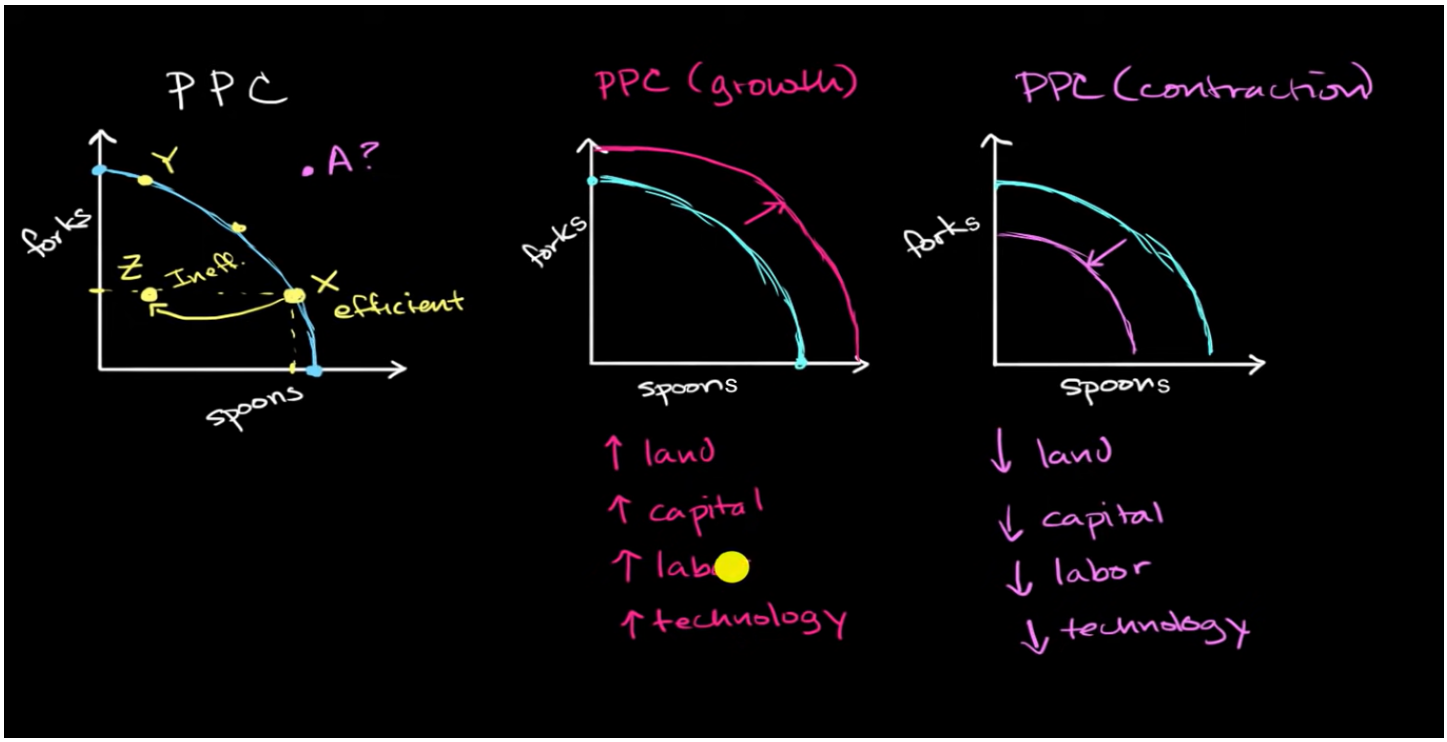
Increasing opportunity cost



PPCs for increasing, decreasing and constant opportunity cost



Production Possibilities Curve as a model of a country's economy



The **Production Possibilities Curve (PPC)** is a model used to show the tradeoffs associated with allocating resources between the production of two goods. The PPC can be used to illustrate the concepts of scarcity, opportunity cost, efficiency, inefficiency, economic growth, and contractions.

For example, suppose Carmen splits her time as a carpenter between making tables and building bookshelves. The PPC would show the maximum amount of either tables or bookshelves she could build given her current resources. The shape of the PPC would indicate whether she had increasing or constant opportunity costs.

Key terms:

1. **production possibilities curve (PPC)**
    - (also called a production possibilities frontier) a graphical model that represents all of the different combinations of two goods that can be produced; the PPC captures scarcity of resources and opportunity costs.
2. **opportunity cost**
    - the value of the next best alternative to any decision you make; for example, if Abby can spend her time either watching videos or studying, the opportunity cost of an hour watching videos is the hour of studying she gives up to do that.
3. **efficiency**
    - the full employment of resources in production; efficient combinations of output will always be on the PPC.
4. **inefficient use (under-utilization) of resources**
    - the underemployment of any of the four economic resources (land, labor, capital, and entrepreneurial ability); inefficient combinations of production are represented using a PPC as points on the interior of the PPC.
5. **growth**
    - an increase in an economy's ability to produce goods and services over time; economic growth in the PPC model is illustrated by a shift out of the PPC.
6. **contraction**
    - a decrease in output that occurs due to the under-utilization of resources; in a graphical model of the PPC, a contraction is represented by moving to a point that is further away from, and on the interior of, the PPC.
7. **constant opportunity costs**
    - when the opportunity cost of a good remains constant as output of the good increases, which is represented as a PPC curve that is a straight line; for example, if Colin always gives up producing 2 fidget spinners every time he produces a Pokemon card, he has constant opportunity costs.
8. **increasing opportunity costs**
    - when the opportunity cost of a good increase as output of the good increases, which is represented in a graph as a PPC that is bowed out from the origin; for example, Julissa gives up 2 fidget spinners when she produces the first Pokemon card, and 4 fidget spinners for the second Pokemon card, so she has increasing opportunity costs.

9. **productivity**
    - (also called technology) the ability to combine economic resources; an increase in productivity causes economic growth even if economic resources have not changed, which would be represented by a shift out of the PPC.

Key model:

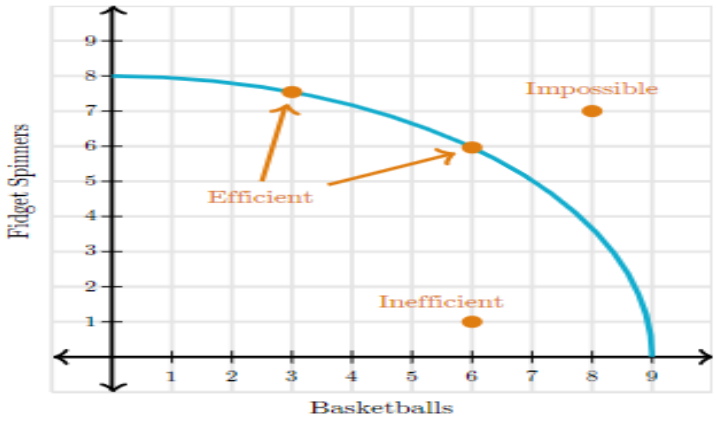


Figure 1: A production possibilities curve that reflects increasing opportunity costs

The Production Possibilities Curve (PPC) is a model that captures scarcity and the opportunity costs of choices when faced with the possibility of producing two goods or services. Points on the interior of the PPC are inefficient, points on the PPC are efficient, and points beyond the PPC are unattainable. The opportunity cost of moving from one efficient combination of production to another efficient combination of production is how much of one good is given up in order to get more of the other good.

The shape of the PPC also gives us information on the production technology (in other words, how the resources are combined to produce these goods). The bowed out shape of the PPC in Figure 1 indicates that there are increasing opportunity costs of production.

We can also use the PPC model to illustrate economic growth, which is represented by a shift of the PPC. Figure 2 illustrates an agent that has experienced economic growth. Combinations that were once impossible, such as 6 iPads and 4 watches, are now on the new PPC, thanks to the increase in resources or technology.

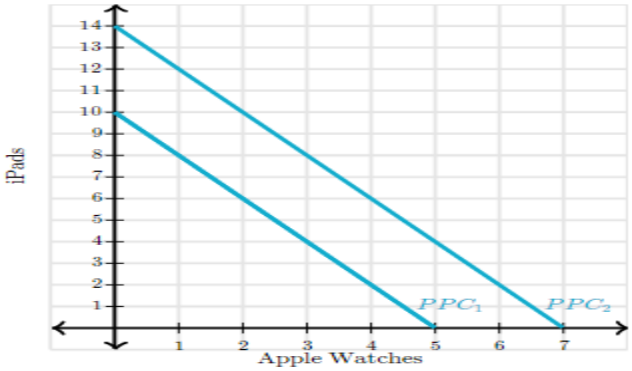


Figure 2: PPC showing economic growth

Key Equations and Calculations: Calculating opportunity costs:

To find the opportunity cost of any good X in terms of the units of Y given up, we use the following formula:
$Opportunity\ cost\ of\ each\ unit\ of\ good\ X = (Y1 - Y2) \div (X1 - X2)\ units\ of\ good\ Y$
For example, suppose we knew that the following table represented all of the possible combinations of iPads and Apple Watches that could be produced.

Number of Apple Watches	Number of iPads
0	5
2	4
4	3
6	2
8	1
10	0

If a producer is producing 6 Apple Watches and 2 iPads, but wants to make one more iPad, they can instead produce 4 Apple Watches and 3 iPads:
$Opportunity\ cost\ of\ one\ iPad = (6 - 4) \div (3 - 2) Apple\ Watches = 2 \div 1\ Apple\ Watches = 2\ Apple\ Watches$

Note that opportunity costs are always expressed in terms of the good that is given up.

We can use the same procedure if given a graph. Figure 3 shows a PPC that has been created from our table. The two points used in this formula are the two efficient points indicated in the graph in Figure 3

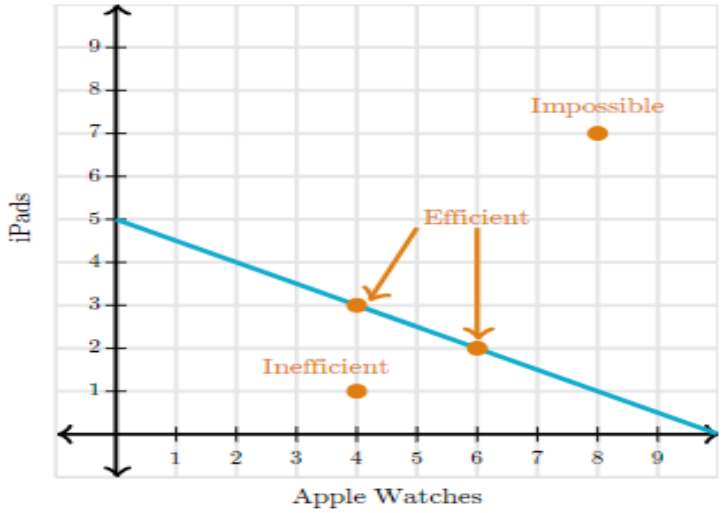


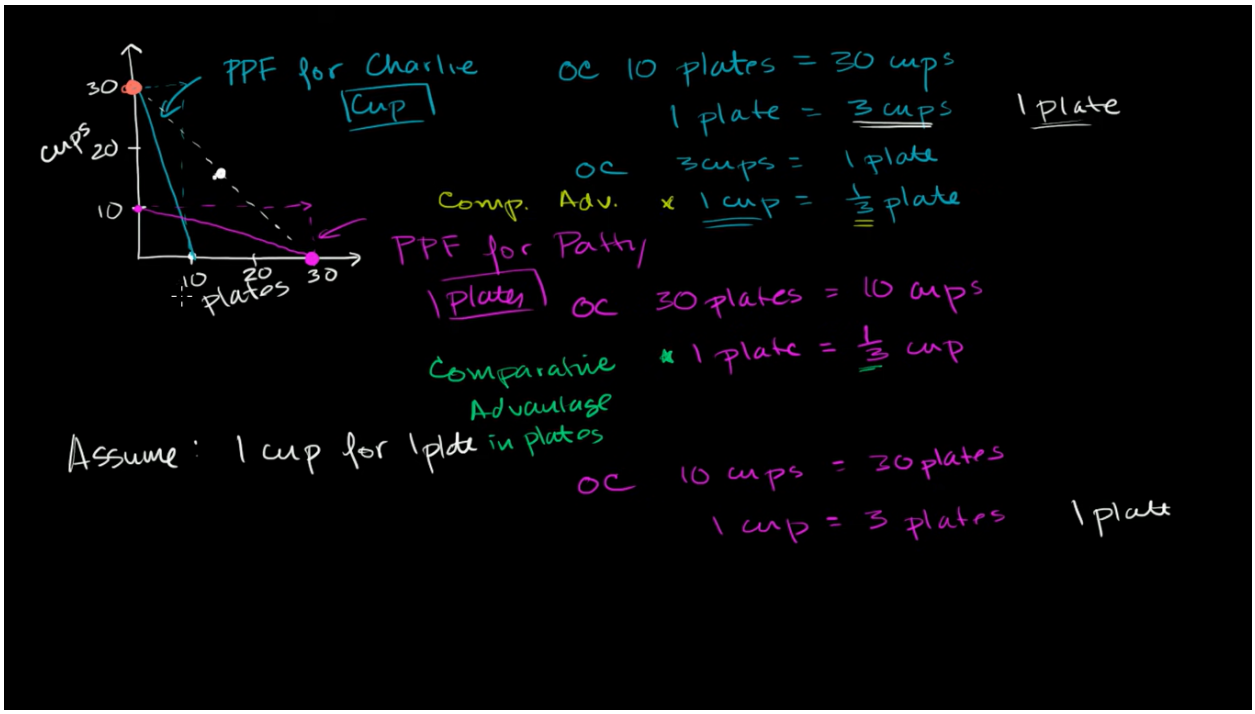
Figure 3: A PPC created from the table showing different combinations of production

Common Misperceptions:

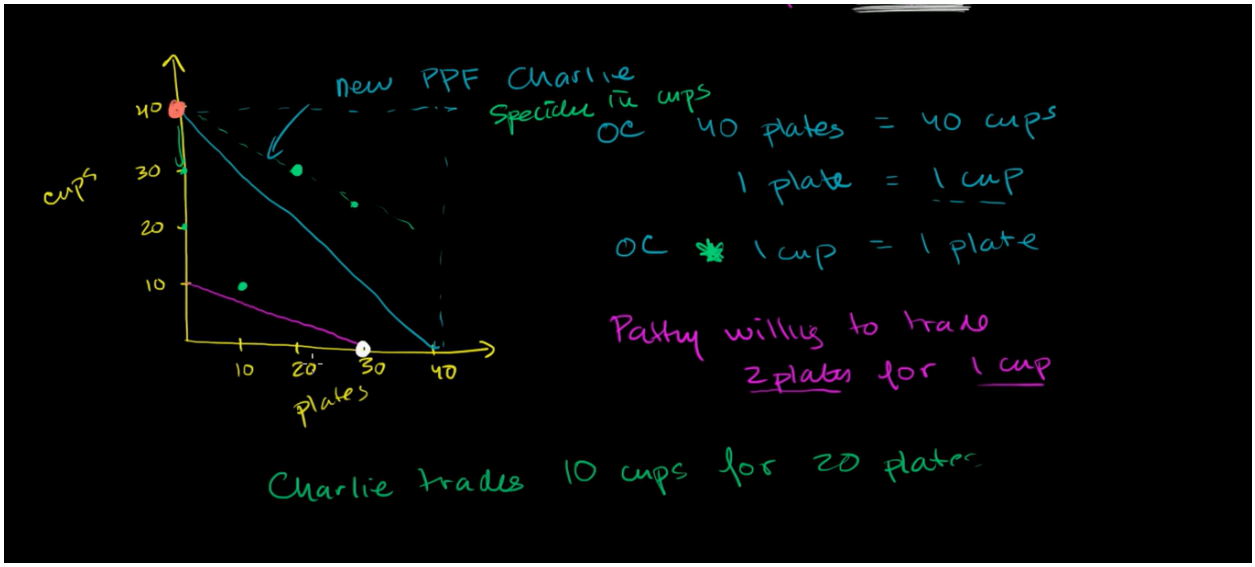
- Not all costs are monetary costs. Opportunity costs are expressed in terms of how much of another good, service, or activity must be given up in order to pursue or produce another activity or good. For example, when you head out to see a movie, the cost of that activity is not just the price of a movie ticket, but the value of the next best alternative, such as cleaning your room.
- Going from an inefficient amount of production to an efficient amount of production is not economic growth. For example, suppose an economy can make two goods: chocolate donuts and cattle prods. But half of their donut machines aren't being used, so they aren't fully using all of their resources. Graphically, that would be represented by a combination of goods in the interior of their PPC. If they then put all of those donut machines to work, they aren't acquiring more resources (which is what we mean by economic growth). Instead, they are just using their resources more efficiently and moving to a new point on the PPC.
- On the other hand, if this economy is making as many donuts and cattle prods as it can, and it acquires more donut machines, it has experienced economic growth because it now has more resources (in this case, capital) available. This would be represented in a PPC graph as a shift outward of the entire PPC curve.

Lesson-3: Comparative advantage and the gains from trade

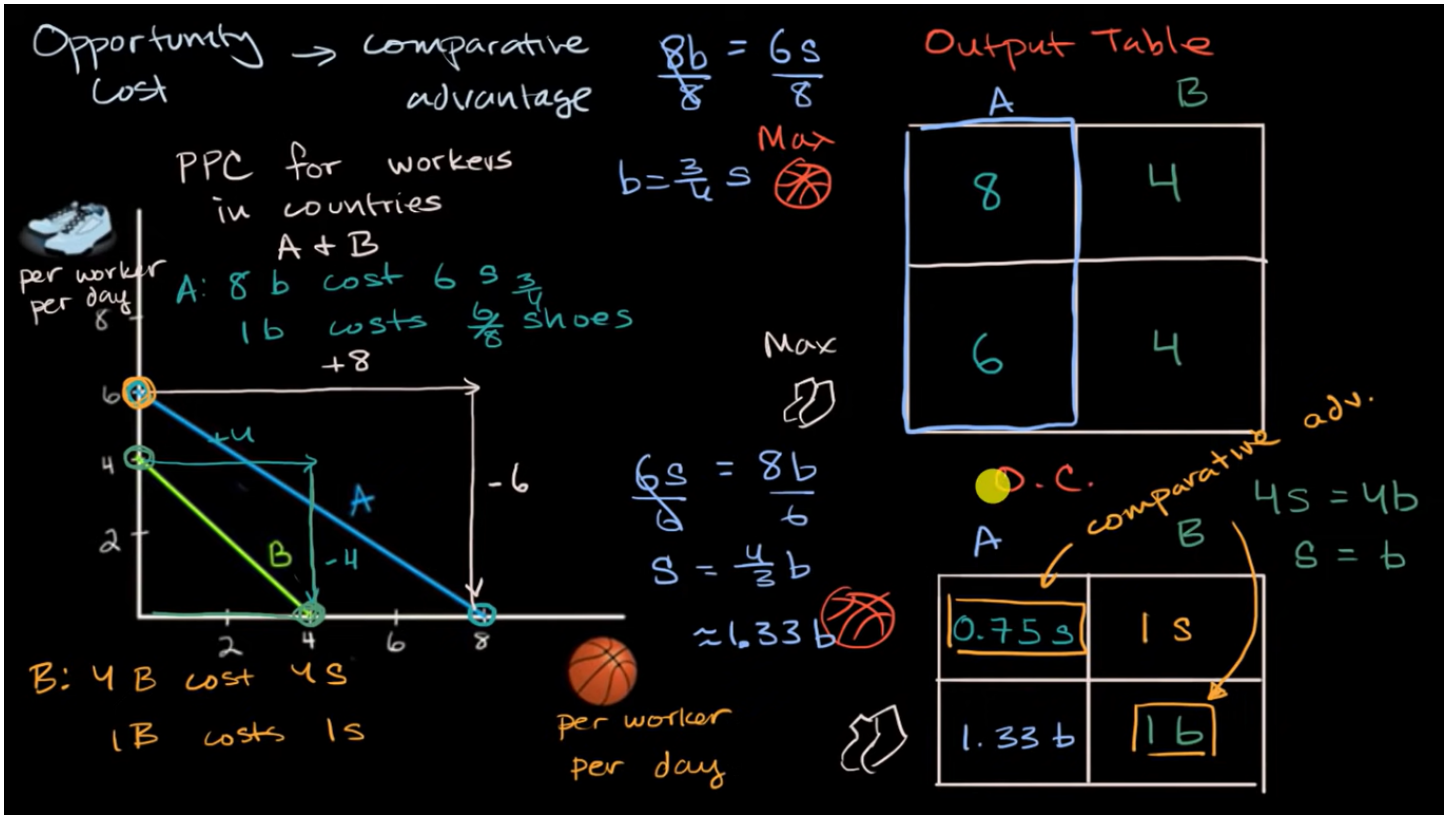
Comparative advantage, specialization, and gains from trade



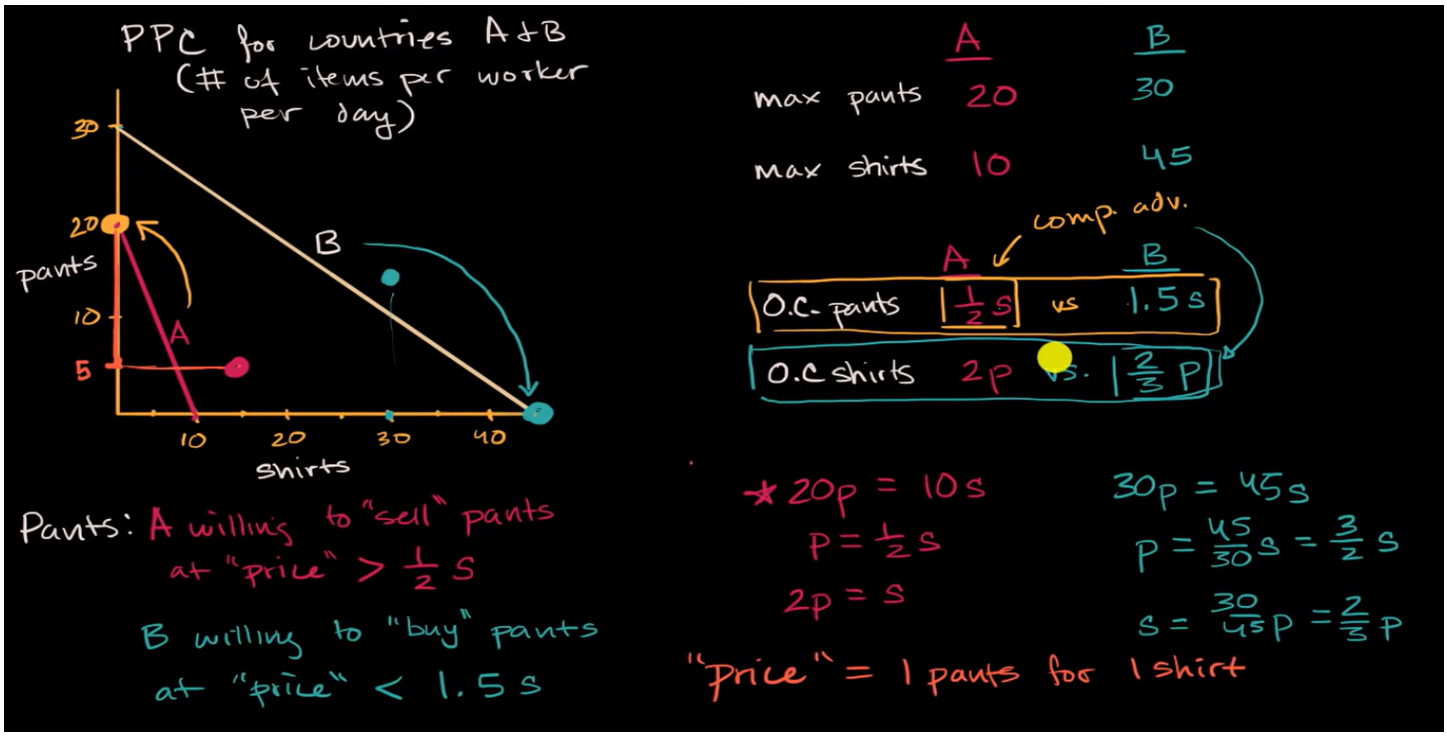
Comparative advantage and absolute advantage



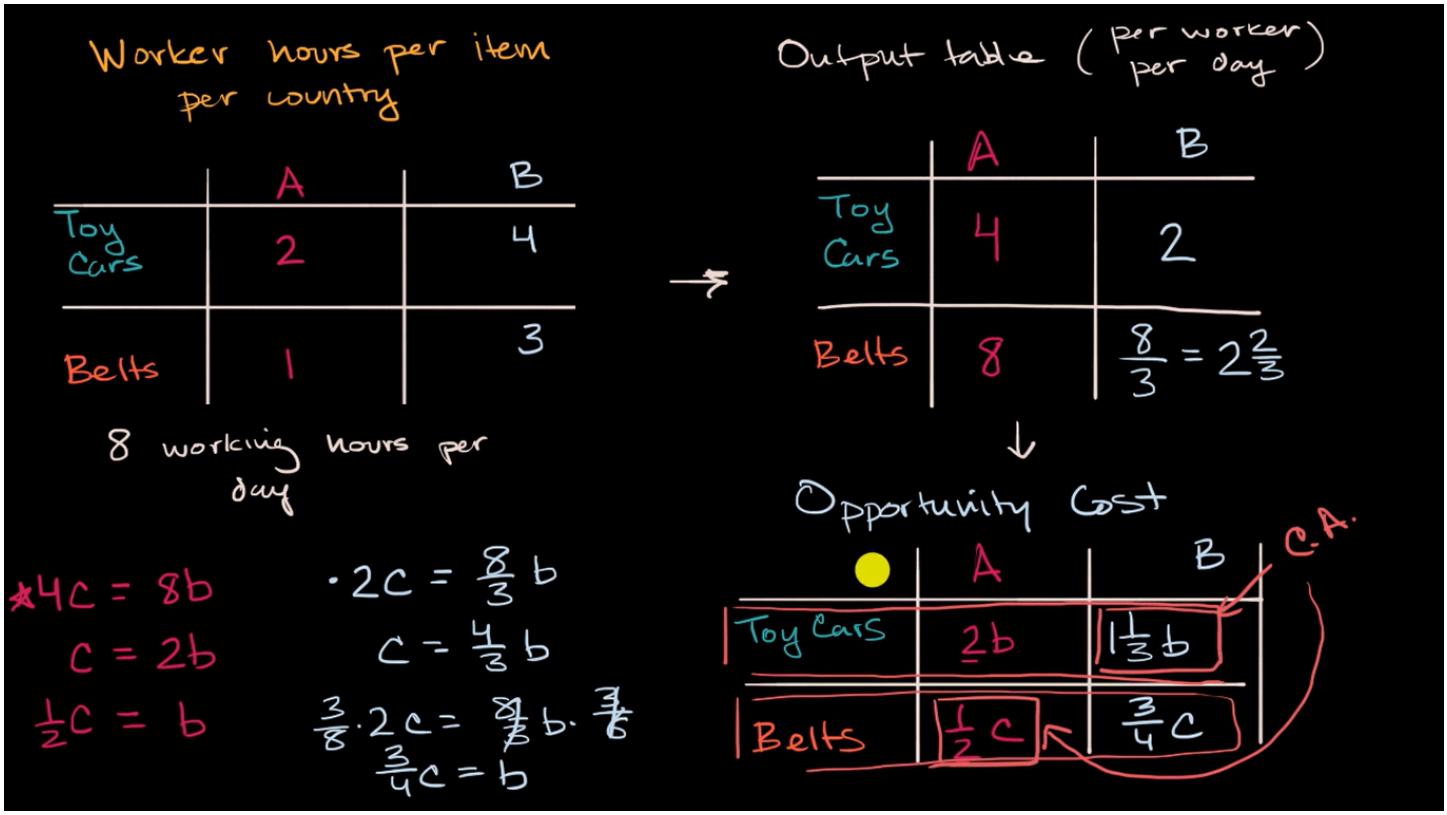
Opportunity cost and comparative advantage using an output table



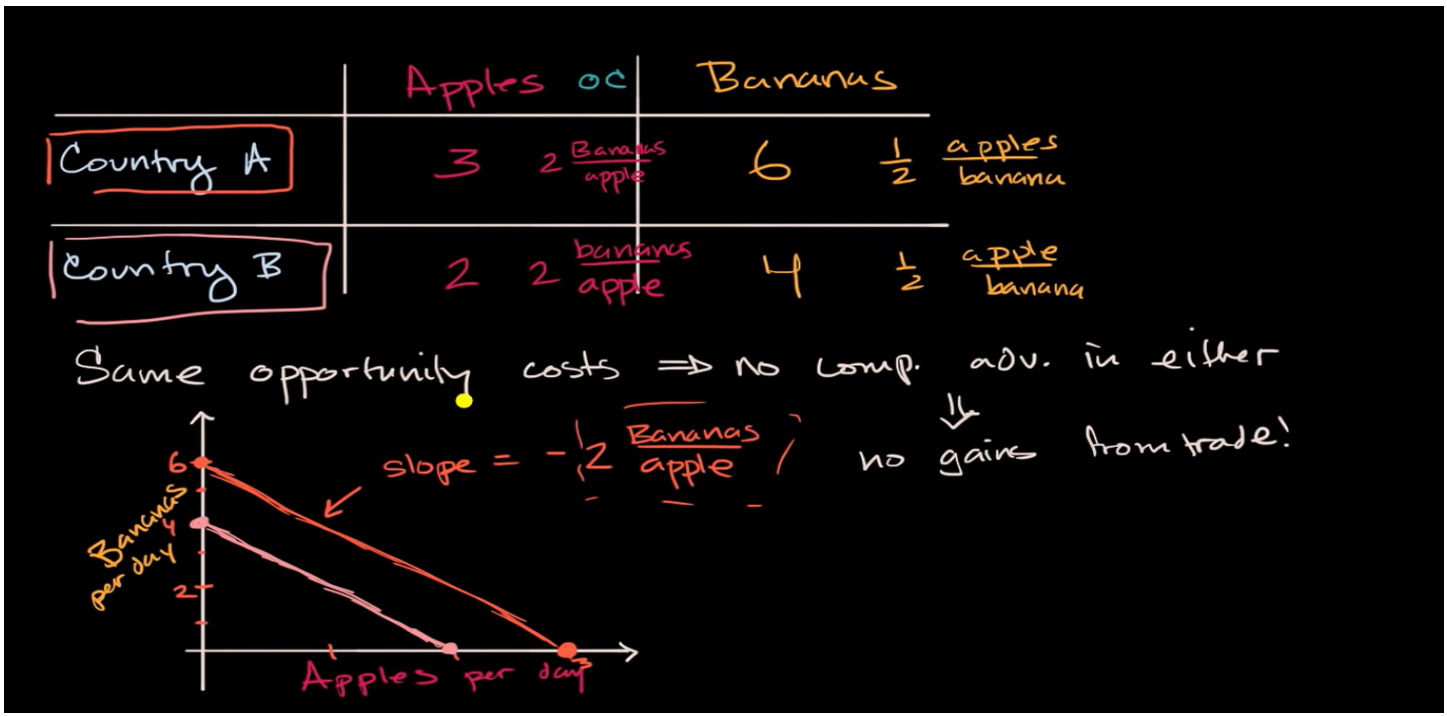
Terms of trade and the gains from trade



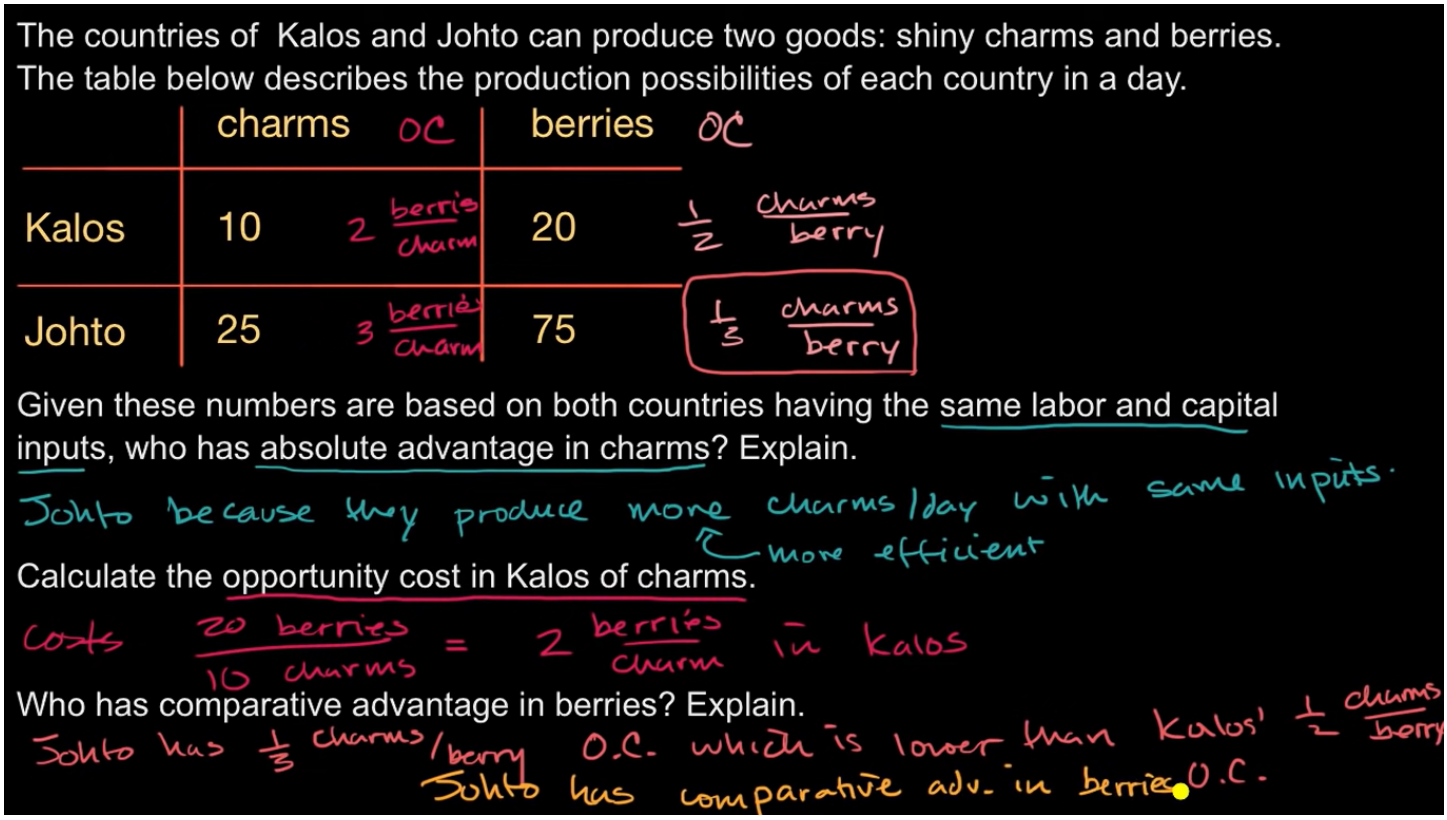
Input approach to determining comparative advantage

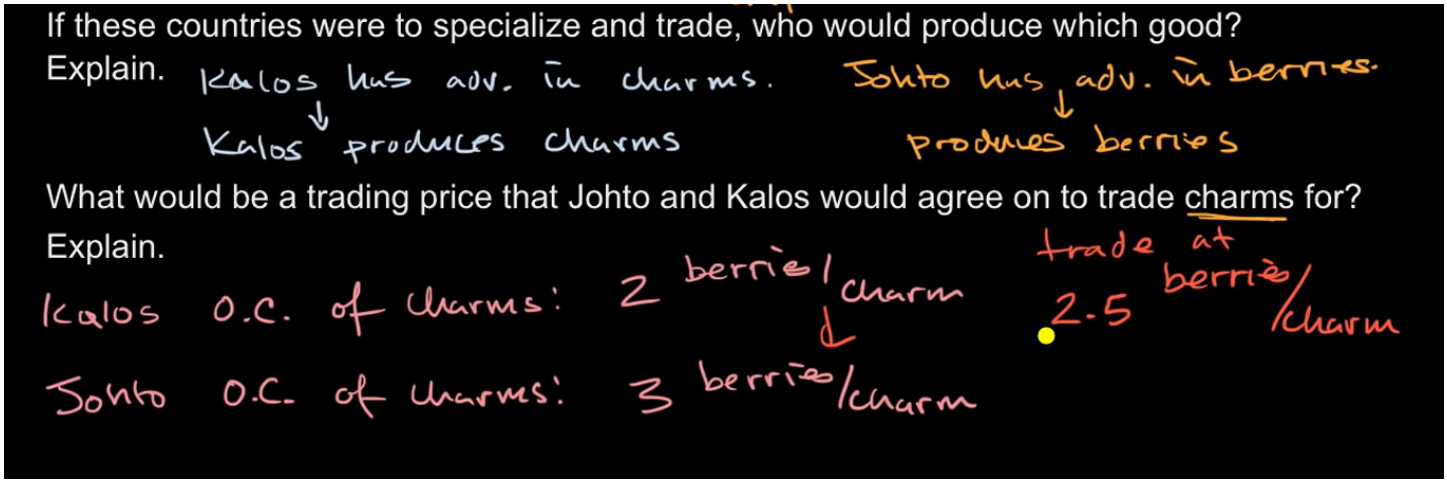


When there aren't gains from trade



Comparative advantage worked example





Absolute advantage describes a situation in which an individual, business or country can produce more of a good or service than any other producer with the same quantity of resources.

The United States, for example, has a skilled workforce, abundant natural resources, and advanced technology. Because of these three things, the US can produce many goods more efficiently than potential trading partners, giving it an absolute advantage in the production of goods from corn to computers, to maple syrup and cars. This does not, however, mean that the US does not benefit from trading for these goods with other nations.

Comparative advantage describes a situation in which an individual, business or country can produce a good or service at a lower opportunity cost than another producer.

For example, because it has an abundance of maple trees, Canada can produce maple syrup at a very low opportunity cost in relation to avocados, a fruit for which its climate is less suited.
Mexico, on the other hand, with its ample sunshine and warm climate. can grow avocados at a much lower opportunity cost in terms of maple syrup given up than Canada.
Specialization

Production specialization according to comparative advantage, not absolute advantage, results in exchange opportunities that lead to consumption opportunities beyond the PPC. Trade between two agents or countries allows the countries to enjoy a higher total output and level of consumption than what would have been possible domestically.

Canada and Mexico can each specialize in the good they have a comparative advantage in and exchange with one another. This lets both countries enjoy more maple syrup and avocados than they could have enjoyed without trade. Mexico will export avocados and import maple syrup; this way Mexicans can enjoy their tasty breakfasts and Canadians will enjoy delicious guacamole!
Comparative advantage and opportunity costs determine the terms of trade for exchange under which mutually beneficial trade can occur.

In order for Canadians to benefit from trade with Mexico, they must be able to import avocados at a lower opportunity cost than it would cost them to grow domestically. Likewise, Mexico must get maple syrup more cheaply (in terms of avocados given up) than it could have produced it for domestically. The terms of trade refer to the trading price agreed upon by two agents, which when beneficial, will allow both countries to enjoy gains from trade.

Key terms:

1. ***Absolute advantage:***
    - The ability to produce more of a good than another entity, given the same resources. For example, in a single day, Owen can embroider 10 pillows and Penny can embroider 15 pillows, so Penny has an absolute advantage in embroidering pillows.
2. ***Comparative advantage:***
    - The ability to produce a good at a lower opportunity cost than another entity. For example, for every pillow Owen embroiders his opportunity cost is 2 scarves knitted, while Penny must forego 3 scarves for every pillow she embroiders, so Owen has a comparative advantage in embroidering pillows.
3. ***Specialization:***
    - When an individual or a country allocates most or all of its resources towards the production of a particular good or service. For example, Sal (an individual) specializes in producing educational videos, and Bangladesh (the country) specializes in producing textiles.

4. ***Trade:***
    - The exchange of goods, services or resources between one economic agent and another

5. ***International trade:***
    - The exchange of goods, services, or resources between one country and another

6. ***Gains from trade:***
    - The ability of two agents to increase their consumption possibilities by specializing in the good in which they have a comparative advantage and trading for a good in which they do not have a comparative advantage

7. ***Terms of trade (also called "trading price"):***
    - The price of one good in terms of the other that two countries agree to trade at; beneficial terms of trade allow a country to import a good at a lower opportunity cost than the cost for them to produce the good domestically, thus the country gains from trade.

Key Graphical Models:

PPCs can be used to determine opportunity costs, comparative advantage, and who should specialize in which good (as in Figure 1).

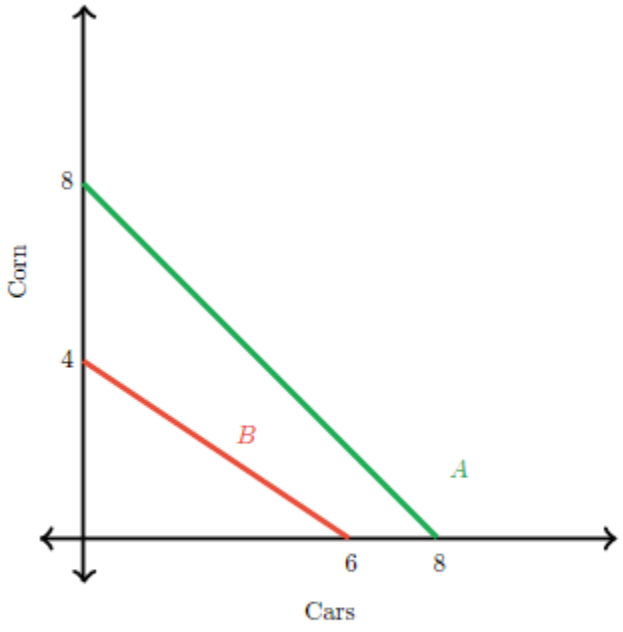


Figure 1: Countries A and B's production possibilities before trade

The gains from trade can be shown in a PPC by drawing a line originating at the point on the axis on which an agent is specializing its production (in the good it has a comparative advantage in) out to a point on the opposite axis beyond what it could have achieved without trade.

Assuming terms of trade are beneficial (e.g. offering each agent a lower opportunity cost than could be achieved without trade) an individual or country will be able to consume at a point beyond its PPC through specialization and trade (as in Figure 2).

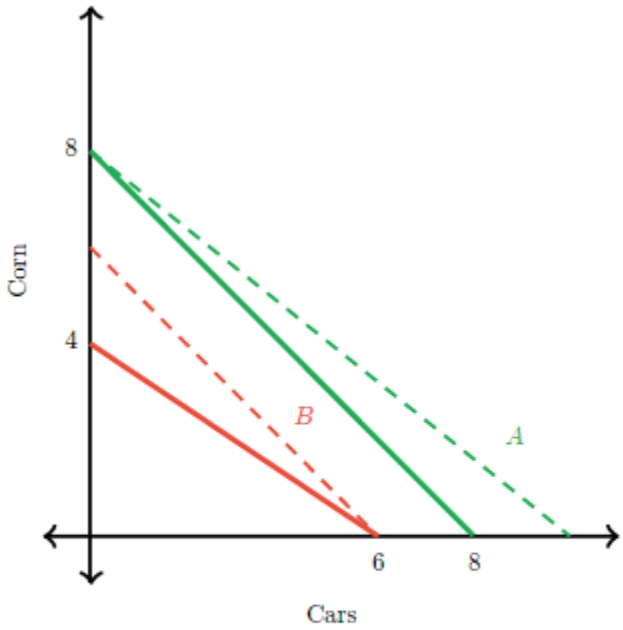


Figure 2: Countries A and B's potential gains from trade

Common Misperceptions

- A country that has an absolute advantage in producing all goods still stands to benefit from trade with other countries, since the basis of the gains for trade is comparative advantage, not absolute advantage.
- It is not possible for an individual or country to have a comparative advantage in all goods. There will be some other individual or country that can produce some things at lower opportunity costs.
- "Self-sufficiency" is not necessarily a trait to be strived for in the global economy. Individuals or nations who try to produce everything for themselves are likely to end up poorer than those that engage in specialization and trade.