

Microeconomics

6th edition

R. GLENN

HUBBARD

ANTHONY PATRICK

O'BRIEN



Microeconomics

SIXTH EDITION

Chapter 2

Trade-offs, Comparative
Advantage, and the Market
System

**Modified by Yulin Hou
For Principles of Microeconomics
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Production Possibilities Frontiers

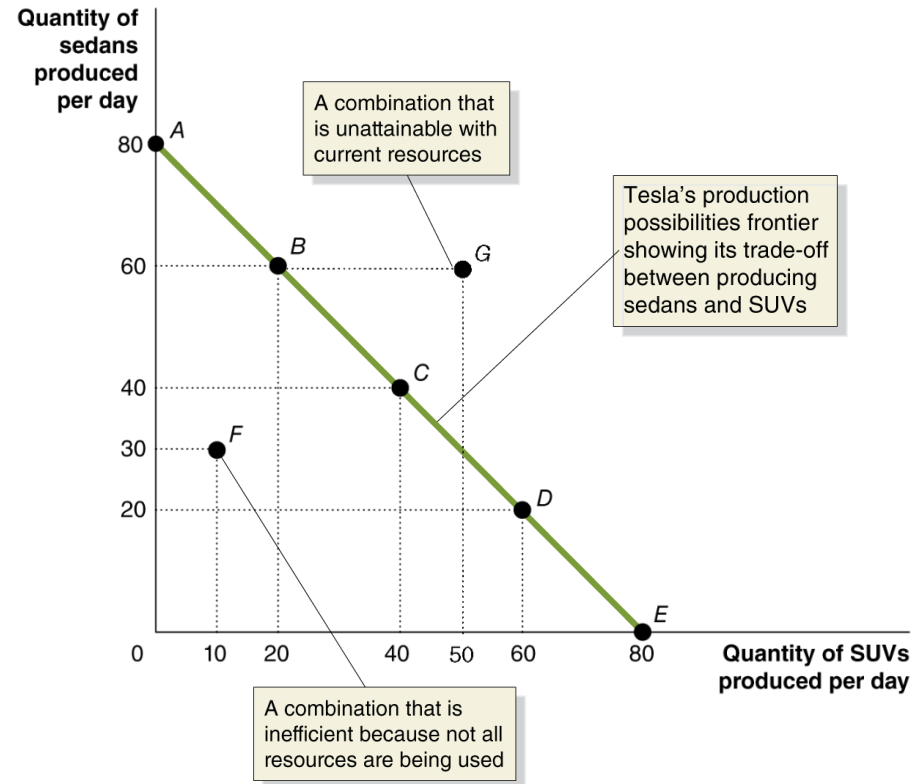
A **production possibilities frontier (PPF)** is a curve showing the maximum attainable combinations of two goods that can be produced with available resources and technology.

Example: Tesla's production possibilities frontier

Tesla can produce sedans and/or SUVs. If it wants to produce more sedans, it must reduce the number of SUVs.

Tesla's Production Choices at Its Fremont Plant		
Choice	Quantity of Sedans Produced	Quantity of SUVs Produced
A	80	0
B	60	20
C	40	40
D	20	60
E	0	80

- Points on the PPF are **attainable and efficient** for Tesla.
- Points below the curve are **attainable but inefficient**.
- Points above the curve are **unattainable** with current resources.



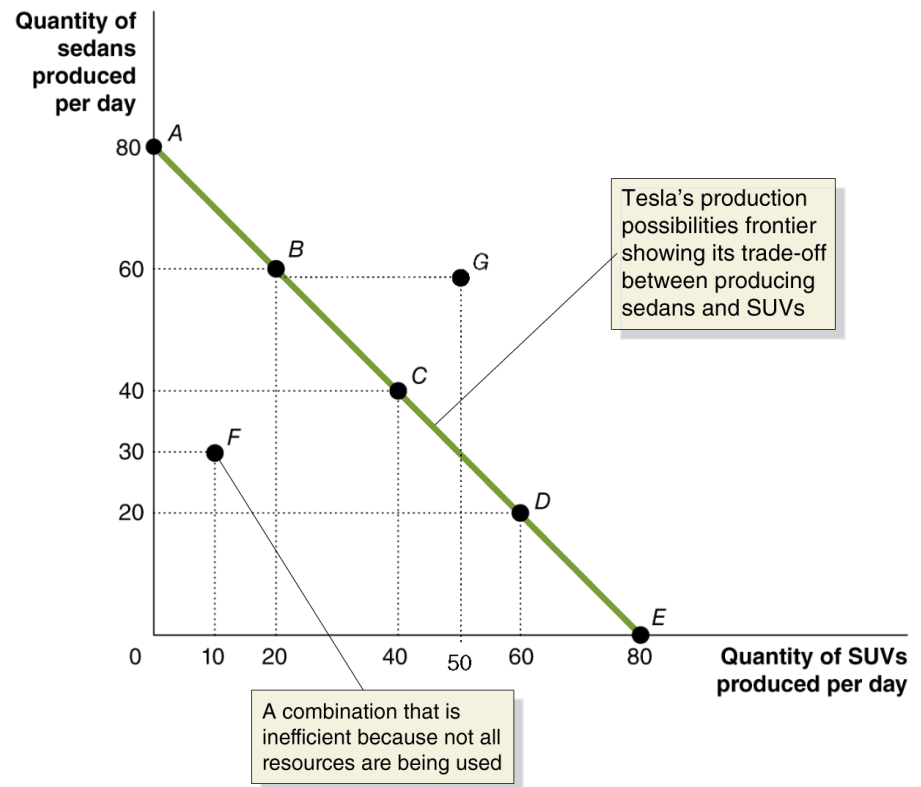
Constant marginal Opportunity cost

To produce 20 more SUVs (e.g. moving from A to B), Tesla must produce 20 fewer sedans.

- The 20 fewer sedans is the *opportunity cost* of producing 20 more SUVs.

Question: What point on the PPF is best?

Tesla's Production Choices at Its Fremont Plant		
Choice	Quantity of Sedans Produced	Quantity of SUVs Produced
A	80	0
B	60	20
C	40	40
D	20	60
E	0	80

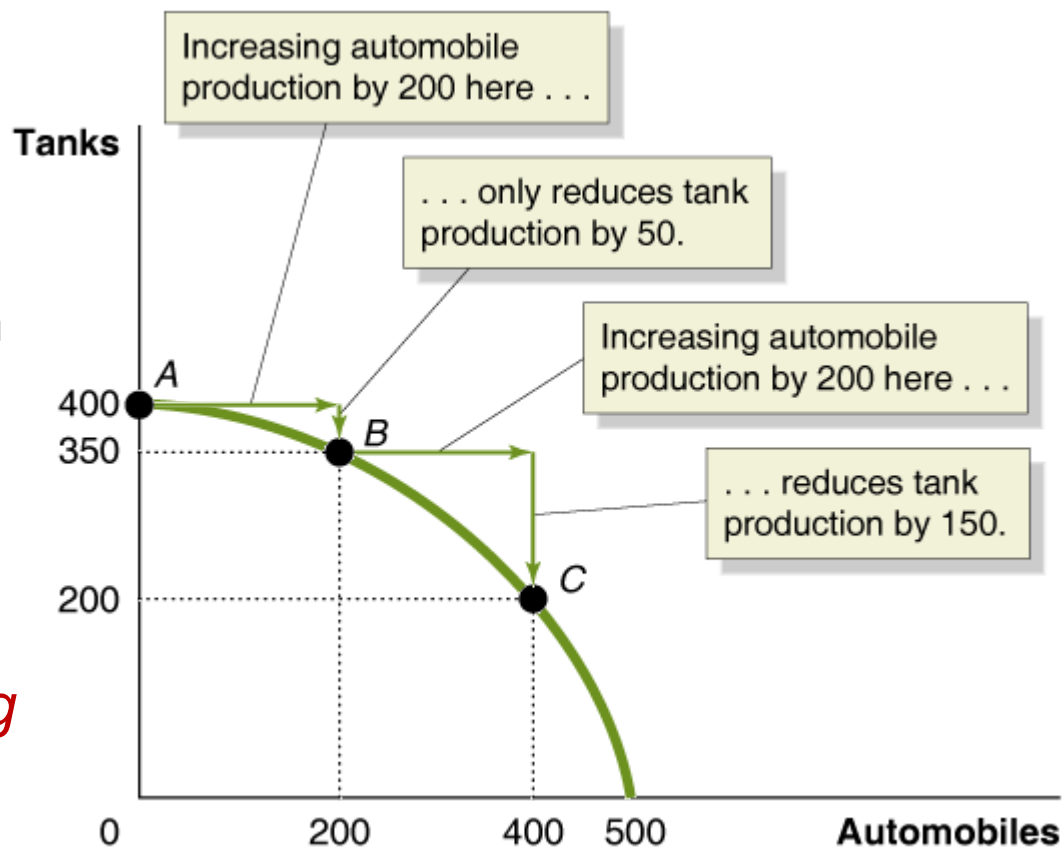


Increasing marginal opportunity costs

The opportunity costs are often increasing.

Why? Some resources are better suited to one task than another.

The more resources already devoted to an activity, the smaller the payoff to devoting additional resources to that activity.

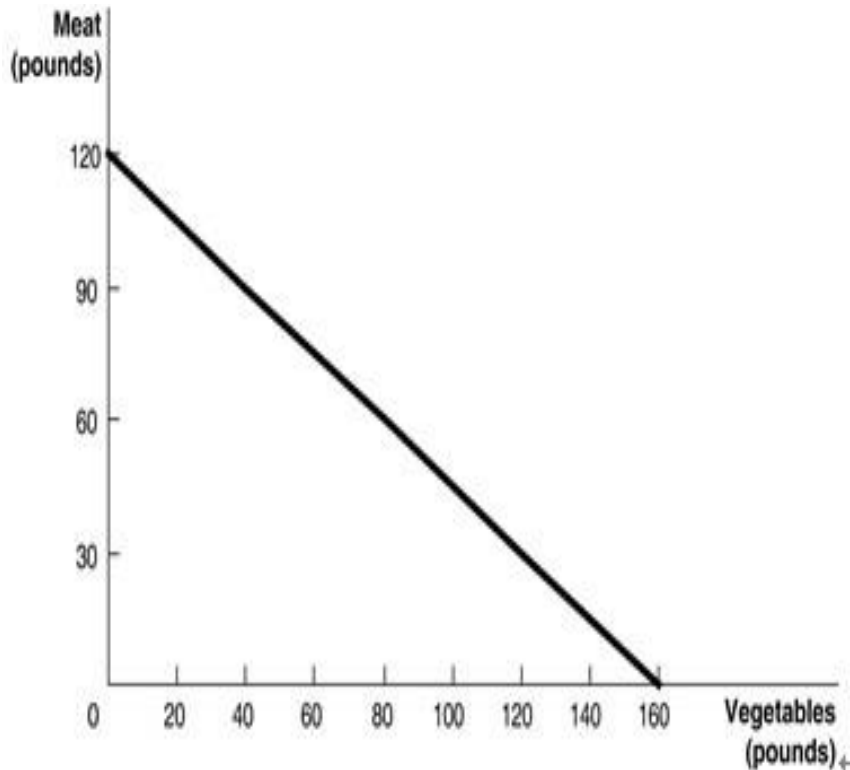


Examples of increasing Marginal opportunity costs

1, The more funds a firm has devoted to research and development during a given year, the smaller the amount of useful knowledge it receives from each additional dollar spent-and the greater the opportunity cost of using the funds in that way.

2, The more funds the federal government spends cleaning up the environment during a given year, the smaller the reduction in pollution from each additional dollar spent-and the greater the opportunity cost of using the funds in that way.

Practice



The left figure shows the PPF for country A that produced two goods, meat and vegetables.

What is the opportunity cost of one pound of vegetables?

- A, $\frac{3}{4}$ pound of meat
- B, 1.2 pounds of meat
- C, $\frac{4}{3}$ pounds of meat
- D. 12 pounds of meat

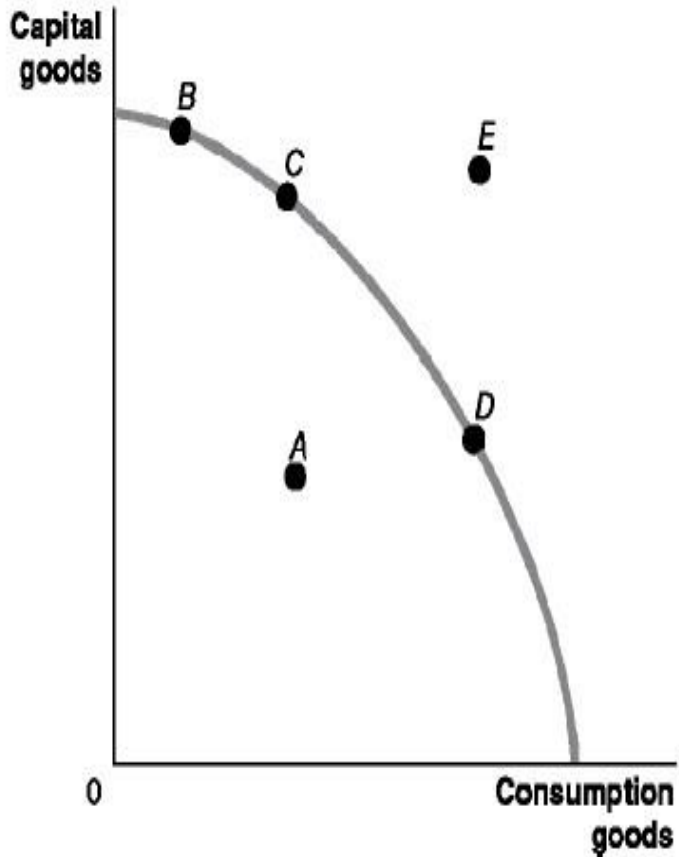
Practice

Assume an economy consists of only two individuals: the farmer and the hunter. Both produce and consume two goods: wheat and meat. The only factor of production employed is their own labor, of which they have ten hours per day available. They can produce the following quantities of each good (measured in ounces) per day.

Goods	Farmer	Hunter
Wheat	40	20
Meat	20	30

- 1, Draw a diagram showing the daily production possibility frontiers of the farmer and the hunter. Put wheat on the vertical axis and meat on the horizontal one.
- 2, What are the opportunity costs of meat in term of wheat for the farmer and for the hunter?

Practice



Use the left production possibilities frontier for a country to answer the questions.

a, Which point or points are unattainable? Explain why.

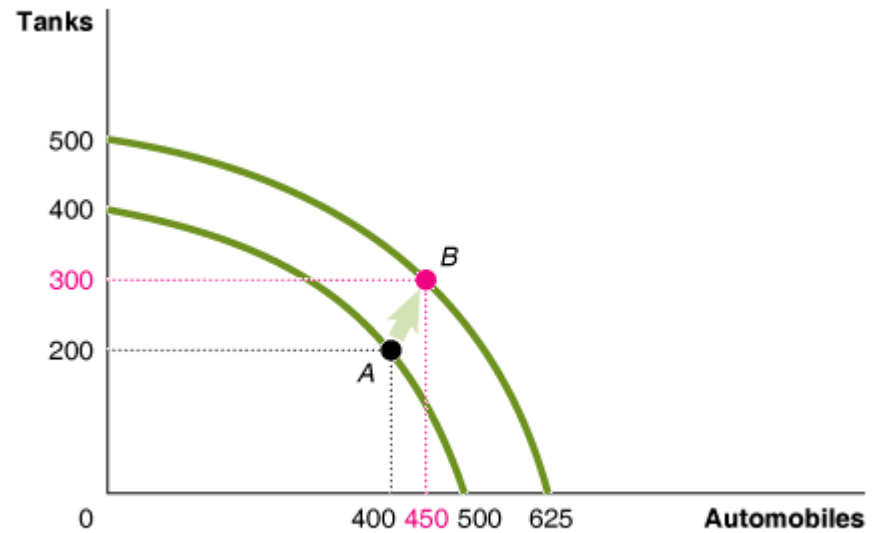
b, Which point or points are efficient? Explain why.

c, Which point or points are inefficient? Explain why.

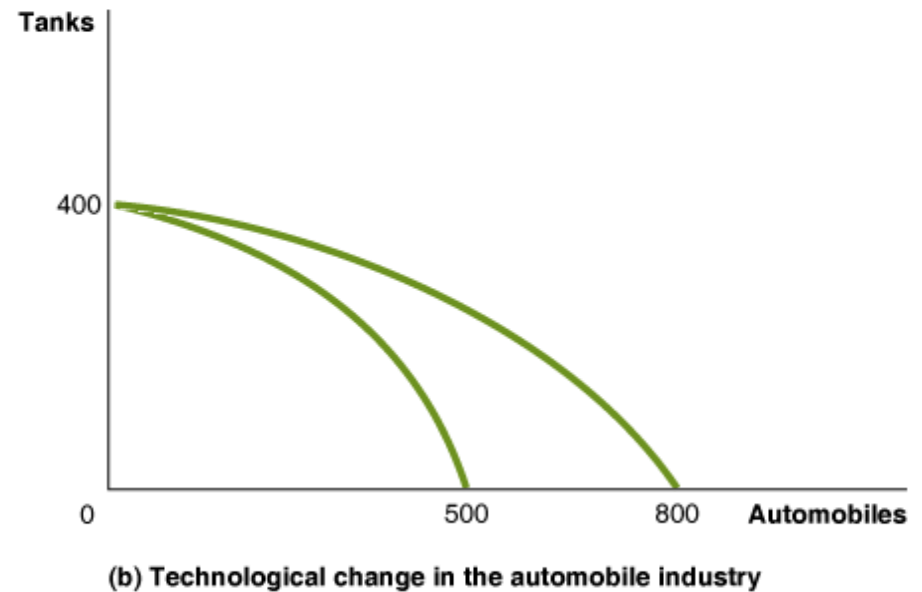
As more economic resources become available, the economy can move from point *A* to point *B*, producing more tanks and more automobiles.

Shifts in the production possibilities frontier represent *economic growth*.

Economic growth: the ability of the economy to increase the production of goods and services.



(a) Shifting out the production possibilities frontier



This panel shows technological improvement in the automobile industry. The quantity of tanks that can be produced remains unchanged.

Practice: True or False?

- 1, Any output combination outside a production possibilities frontier is associated with unused resources.
- 2, An increase in the labor force shifts the PPF inwards over time.
- 3, If additional units of a good could be produced at a constant opportunity cost, the PPF would be bowed outward.
- 4, Any output combination along a PPF is associated with fully utilized resources.
- 5, On a diagram of a PPF, economic growth is represented by the slope of the PPF.

Absolute advantage and Comparative advantage

Absolute advantage: The ability of an individual, a firm, or a country to produce more of a good or service than competitors, using the same amount of resources.

Comparative advantage: The ability of an individual, a firm, or a country to produce a good or service **at a lower opportunity cost** than competitors.

Example

Assume there are two countries. Both produce computers and cellphones. The following table shows the output per day (measured in thousand) of two countries.

Goods	Country A	Country B
Computers	100	80
Cellphones	50	20

- A) Country A has an absolute advantage in making both products.
- B) Country B has an absolute advantage in making both products.
- C) Country A has an absolute advantage in making computers and Country B in making cellphones.
- D) Country A has an absolute advantage in making cellphones and Country B in making pogo computers.

Example

Goods	Country A	Country B
Computers	100	80
Cellphones	50	20

- 1, What is country A's opportunity cost of producing one computer?
- 2, What is country A's opportunity cost of producing one cellphone?
- 3, What is country B's opportunity cost of producing one computer?
- 4, What is country B's opportunity cost of producing one cellphone?
- 5, Country A has comparative advantage in the production of ?
- 6, Country B has comparative advantage in the production of ?

Practice: True or False

1, It is possible to have an absolute advantage in producing a good or service without having a comparative advantage.

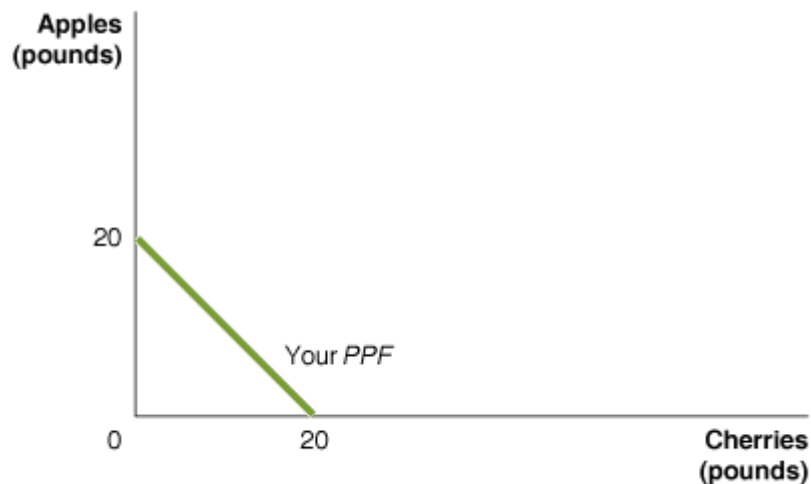
2, It is possible to have a comparative advantage in producing a good or service without having an absolute advantage.

Comparative Advantage and Trade

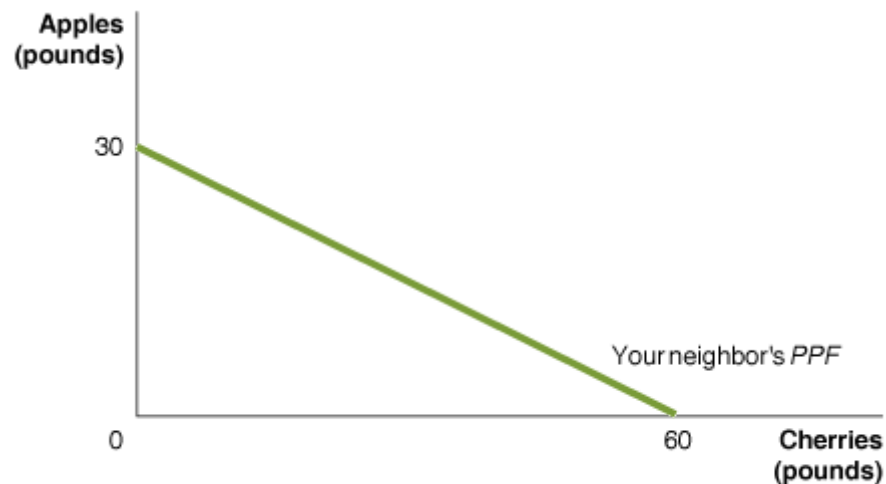
You and your neighbor each have a limited time to pick apples and/or cherries. The table shows the amount of each fruit that you could each pick, by devoting all of your time to that fruit.

	You		Your Neighbor	
	Apples	Cherries	Apples	Cherries
Devote all time to picking apples	20 pounds	0 pounds	30 pounds	0 pounds
Devote all time to picking cherries	0 pounds	20 pounds	0 pounds	60 pounds

Production possibilities for you and your neighbor, without trade



(a) Your production possibilities frontier



(b) Your neighbor's production possibilities frontier

If you spend all of your time picking cherries, you can pick 20 pounds of cherries; or if you spend all your time picking apples, you can pick 20 pounds of apples. Your neighbor can similarly pick 60 pounds of cherries or 30 pounds of apples.

Opportunity costs of picking apples and cherries

	Opportunity Cost of Picking 1 Pound of Apples	Opportunity Cost of Picking 1 Pound of Cherries
You	1 pound of cherries	1 pound of apples
Your Neighbor	2 pounds of cherries	0.5 pound of apples

You had a comparative advantage in picking apples. Your neighbor had a comparative advantage in picking cherries.

The basis for trade is comparative advantage.

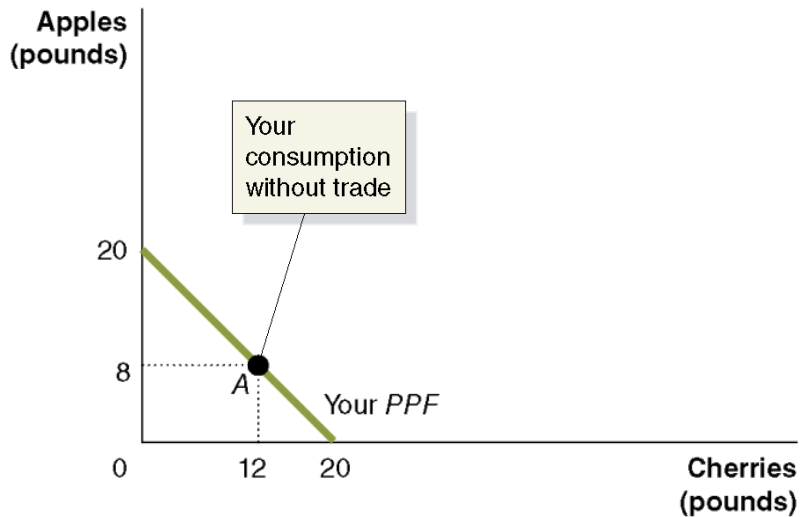
Specialization and trade

Trade: The act of buying and selling.

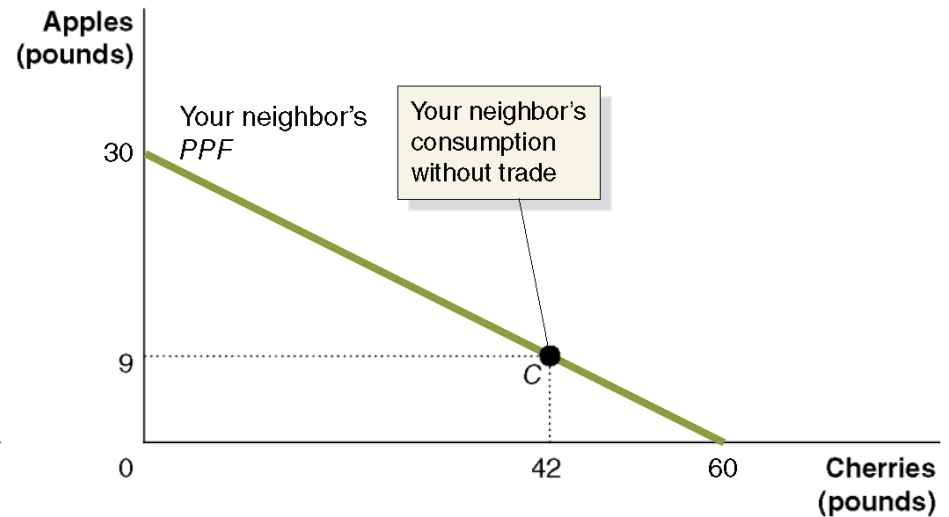
Individuals, firms, and countries are better off if they specialize in producing goods and services for which they have a comparative advantage and obtain the other goods and services they need by trading.

Question: What if you and your neighbor decided to specialize and *trade*?

Gains from trade (1 of 3)



(a) Your production and consumption with trade

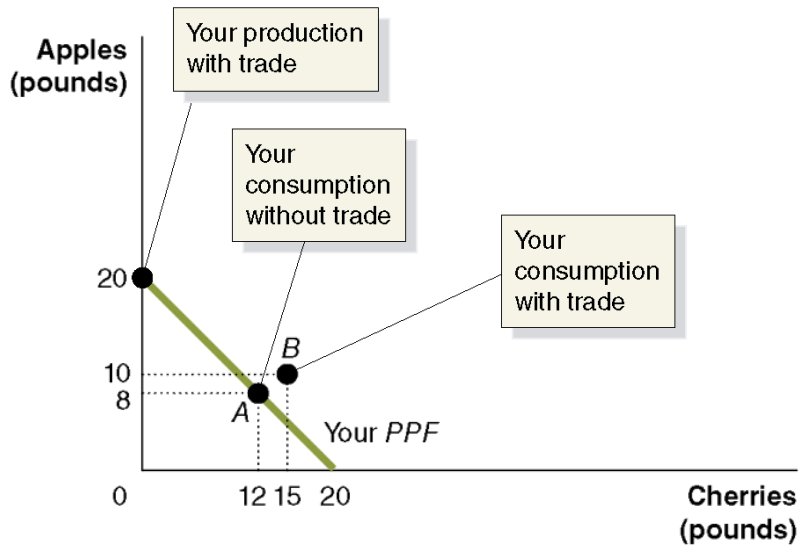


(b) Your neighbor's production and consumption with trade

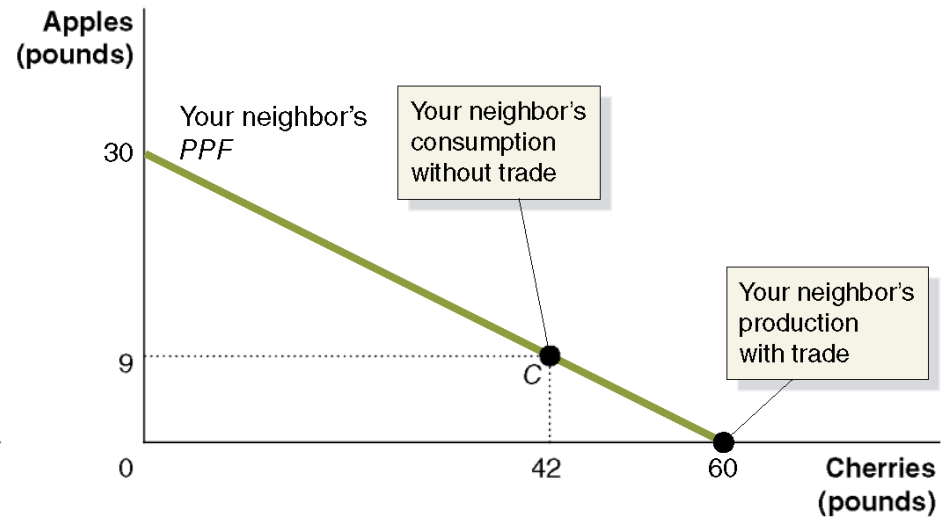
When you don't trade with your neighbor, let's say you pick and consume 8 pounds of apples and 12 pounds of cherries per week—point A in panel (a).

When your neighbor doesn't trade with you, she picks and consumes 9 pounds of apples and 42 pounds of cherries per week—point C in panel (b).

Gains from trade (2 of 3)



(a) Your production and consumption with trade

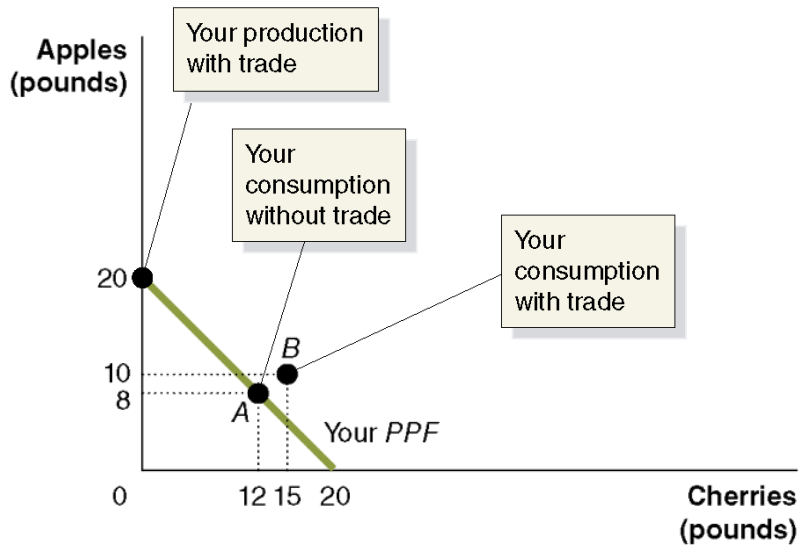


(b) Your neighbor's production and consumption with trade

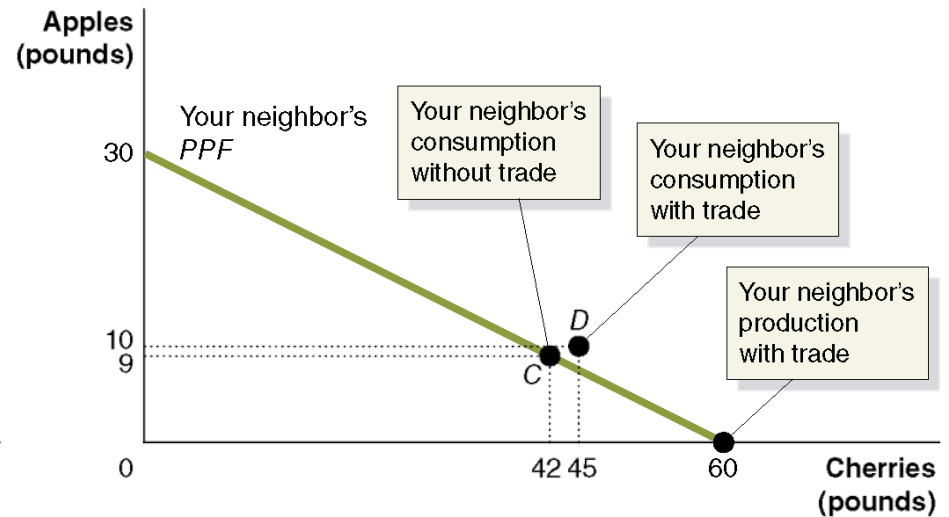
If you specialize in picking apples, you can pick 20 pounds. If your neighbor specializes in picking cherries, she can pick 60 pounds.

If you trade 10 pounds of your apples for 15 pounds of your neighbor's cherries, you will be able to consume 10 pounds of apples and 15 pounds of cherries— point *B* in panel (a).

Gains from trade (3 of 3)



(a) Your production and consumption with trade



(b) Your neighbor's production and consumption with trade

Your neighbor can now consume 10 pounds of apples and 45 pounds of cherries—point *D* in panel (b). You and your neighbor are both better off as a result of trade. **Note that your neighbor benefits from trade even though she could produce more of either fruit than you could.**

A summary of the gains from trade

	You		Your Neighbor	
	Apples (in pounds)	Cherries (in pounds)	Apples (in pounds)	Cherries (in pounds)
Production <i>and</i> consumption <i>without</i> trade	8	12	9	42
Production <i>with</i> trade	20	0	0	60
Consumption <i>with</i> trade	10	15	10	45
Gains from trade (increased consumption)	2	3	1	3

Both you and your neighbor are able to consume more with trade than without.

The Market System

factors of production: eg, labor, capital, natural resources and so on.

factor markets: A market for the factors of production.

Product market: A market for goods and services.

Firms supply goods and services to product markets; Households buy these products from the firms.

The Circular-flow Diagram (1 of 2)

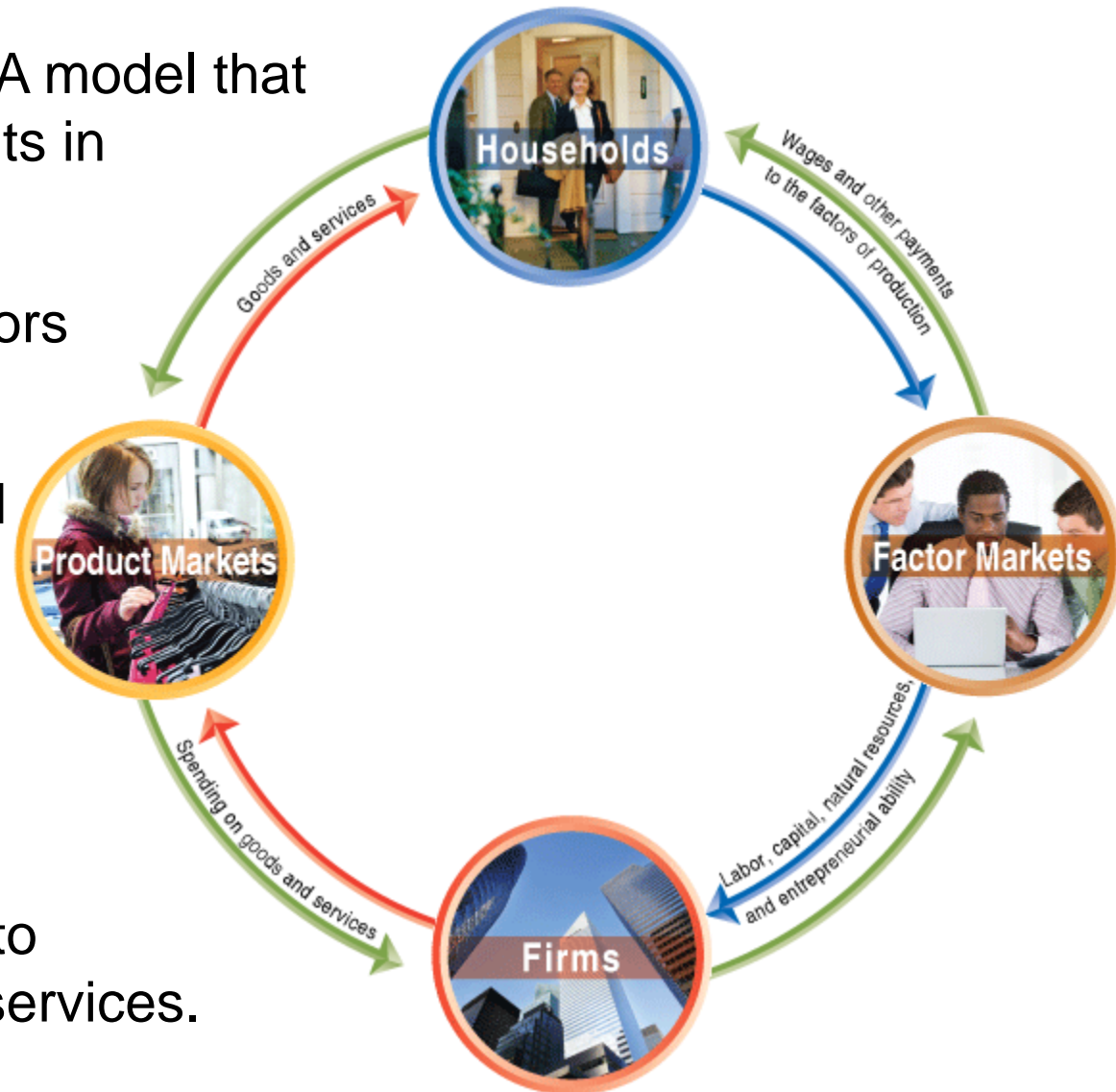
Circular-flow diagram: A model that illustrates how participants in markets are linked.

Households provide factors of production to firms.

Firms provide goods and services to households.

Firms pay money to households for the factors of production.

Households pay money to firms for the goods and services.



The Circular-flow Diagram (2 of 2)

Like all economic models, the circular flow diagram is a simplified version of reality:

- No government
- No financial system
- No foreign buyers and sellers of goods

We will explore these sectors in later chapters.



Practice

Households

- A, have no involvement in the circular flow in a market economy
- B, purchase resources in the factor market
- C, sell goods in the product market
- D, sell resources in the factor market

Practice

When you purchase a new pair of jeans you do so in the

A, factor market

B, input market

C, product market

D, resource market

True or False

- 1, Producers are buyers in the factor market and sellers in the product market.
- 2, Households are neither buyers nor sellers in the input market.
- 3, Producers are buyers in the factor market.
- 4, Households are buyers in the product market.

The gains from free markets

A **free market** is one with few government restrictions on how a good or service can be produced or sold, or on how a factor of production can be employed.

Countries that come closest to the free market benchmark have been more successful than those with centrally planned economies in providing their people with rising living standards.